

# Achieving Sustainable Fisheries

## Implementing the New International Legal Regime

**Charlotte de Fontaubert and Indrani Lutchman**  
with David Downes and Carolyn Deere

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The World Conservation Union

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## **IN MEMORIAM**

Robert W. Knecht 1928—2001

Elisabeth Mann Borgese 1918—2002

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## FOREWORD

All indicators point to a worsening state of global fisheries. According to the latest figures of the UN Food and Agriculture Organisation (FAO), fishing pressure is increasing, as is the number of overexploited, depleted or recovering stocks. The FAO also predicts that sustained higher catches will only be possible if remedial action is taken to reduce or revert overfishing conditions. Overfishing has long been explained by the legal uncertainty that prevailed over the rights and obligations of fishing states, but international cooperation around fisheries is now reaching new heights. This year marks the 20th anniversary of the adoption of the UN Convention on the Law of the Sea (UNCLOS). Since then, fisheries have been addressed in both legally and non-legally binding instruments, ranging from a code of conduct, to two agreements and four international plans of action. Most of the legal uncertainty that remained after the adoption of UNCLOS has now been addressed and a solid legal regime has been

negotiated and adopted by the community of nations. This publication aims to examine the mosaic of new international fisheries instruments and measures, and to interpret them in a set of clear rights and obligations, which, if properly implemented will help address this conservation problem. It reviews all the new instruments that have been negotiated, highlights their relevance and scope of application, and suggests means to facilitate their implementation. In that respect, it is a resource for those working on international law and policy, including managers in government. The publication also provides a useful tool by including the text of the international instruments that can be used to enhance sustainable fisheries.

Scott Hajost  
Executive Director  
IUCN - Washington Office

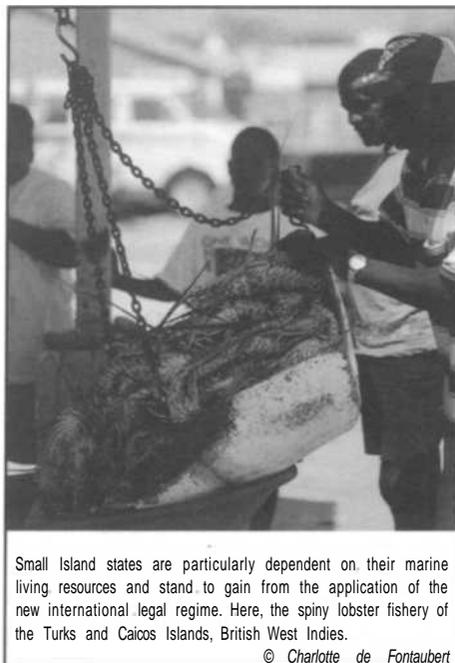
## CHAPTER I.

## Introduction: A Historical Perspective on Where We Are and How We Got There

As the world population increases, fish are becoming scarce, and whole fisheries are being shut down, with dramatic consequences for the fishermen involved. Fishermen are under tremendous pressure to sustain livelihoods and supplies. Fishing vessels are becoming bigger, the equipment on board is becoming more sophisticated, fishermen are burdened with loans that they cannot repay, and governments worldwide are continuing to subsidize and support an industry in crisis to the tune of more than US \$15 billion every year. Now fishermen are searching for new fisheries to maintain profitable operations. This has led to a shift from traditional to foreign fishing grounds. Conflicts occasionally erupt between the navies of some coastal states and foreign fleets, sometimes with dramatic consequences. In many developing countries, local artisanal fishermen find it more and more difficult to harvest enough fish to sustain their families. Worldwide, overfishing, and overcapitalisation is having dramatic impacts on fisheries, marine ecosystems, and the fishing industry.

Overfishing is not a new phenomenon. It occurred as far back as 3,000 years ago, in a case along the Peruvian coast where a combination of climatological catastrophe and excessive pressure by coastal populations led to the collapse of shellfish stocks (McGoodwin 1990). More recently, overfishing has become widespread, and, according to the recent figures of the U.N. Food and Agriculture Organisation (FAO) 44% of the world's scientifically assessed fish stocks are intensively to fully exploited, 16% are overfished, 6% are depleted, and 3% are slowly recovering. More startling still is the historical trend of fishing a species to commercial extinction before moving on to another species. A close examination of FAO statistics shows that world catches are sustained by the shift in fishing pressure from overfished high-value demersal to more abundant but less valuable species such as anchoveta. At the same time, the global fishing fleet has increased in size as well as in its capacity to catch fish. It has been estimated that actual fishing power has increased four-fold since 1965.

Long before overfishing became so prevalent, nation states had started encountering difficulties in their dealings with regard to fisheries and, more broadly, the use of ocean space and resources. Colonization was a major source of conflict, as a handful of European "great powers" set out



Small island states are particularly dependent on their marine living resources and stand to gain from the application of the new international legal regime. Here, the spiny lobster fishery of the Turks and Caicos Islands, British West Indies.

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to explore the New World and to stake claims on the lands they "discovered." They eventually reached a *modus vivendi* whereby Portugal, Spain, France, Great Britain, and the Netherlands shared among themselves the spoils of this discovery. As early as 1493, Pope Alexander VI attempted to set up an artificial "oceans order" by dividing the Atlantic Ocean between Spain and Portugal along a line that ran west of the Azores, granting Spain control over the oceans west of this line and Portugal a right over the resources east of this line. Whereas previous claims had been staked and disputed over terrestrial areas, sometimes belligerently, this Papal Bull represented the first effort to divide and assign jurisdiction over the seas. Not surprisingly, this arrangement was quickly rejected by the remaining European powers, with Great Britain clearly leading the way. The first round of this dispute was solved

when it became apparent that neither Spain nor Portugal had the means to enforce the Papal Bull, particularly after Britain's fleet defeated the Spanish Armada in 1588.

This lack of effective enforcement was a key factor in adoption of the Freedom of the Seas principle in the 17th century according to which the law of capture determined property rights; that is, marine resources belonged to no one until they had been harvested and thus appropriated. This Freedom of the Seas principle prevailed up to three nautical miles from the coast, where the so-called "Cannon-Shot Rule" gave the coastal state exclusive rights over marine resources in the area within which technology allowed it to enforce its rights. Another assumption that justified the Freedom of the Seas, and therefore the absence of need to control resources of the seas, was that the oceans were essentially resilient and could neither be overfished nor polluted in any significant way. The Freedom of the Seas regime prevailed for so long because it was easy for all to enforce and because no single nation could deprive another by taking another's share. The first cracks in this structure started to appear as soon as harvesters developed the capacity to affect significantly the stocks they were targeting.

The depletion of resources that led to a re-examination of the universally accepted regime occurred for a number of important reasons, first of which was a fundamental misunderstanding that prevented the adoption of any effective management of fisheries; that is, the prevailing assumption was that stocks could not be depleted, so fishers and

governments alike had no overwhelming reason to moderate their actions, no reason to think that the resources wouldn't be available to be "mined" indefinitely. Second, the demographic explosion and the migration of populations toward coastal zones added to the pressures being brought to bear on the resources. All along, the stocks had been susceptible to depletion, but the fishing effort had not been quantitatively sufficient to affect them significantly. Now, however, there was not only an increase in quantitative effort (more fishers trying to meet the needs of a growing population) but a third and determinant qualitative factor: the technological revolution. Some trade advertising in the specialized press recently claimed that "Now, fish have nowhere to hide." Not only are modern-day fishers able to find fish through radar and other technologies, their actual harvesting capacity has also improved significantly. The literature sometimes refers to the factory trawlers that can literally "hoover" entire stocks thanks to "improvements" and innovations in available harvesting technology and methods.

Technological improvements are constantly sought and are not, *per se*, inherently inefficient. Rather, as numerous recent cases have shown, the problem stems from the fact that these improvements generate an increase in the economic rent to be gained from harvesting the stocks, which further encourages new entrants to join the fishery where the innovation(s) has emerged. In open access cases, labor and capital will enter a fishery if any profit is expected, which occurs when the adoption of a more efficient method of harvesting lowers the unit costs of production. As the harvesting effort increases, so does the pressure on the stocks, which will then tend to decline. As long as they can capitalize on increased productivity, fishermen will have incentives to over-harvest.

While in hindsight it becomes clear that misconceptions, demographic pressure, and technological improvements combined to contribute to stock declines worldwide, such depletions tend to become apparent only after they are well under way. Fishers in a given industry may well believe that their effort is sustainable even as they prevent a given stock's recruitment for the next year's generation. Only when this next generation fails to materialize the following season does it become apparent (belatedly) that the effort the previous year had been excessive.

Therein probably lies one of the reasons why most coordinated international management efforts so far have been essentially reactive and have occurred only after a given stock had been over-harvested. In other words, nations began to try to negotiate and somehow organize and coordinate their efforts only after past excesses had depleted the stocks involved and only when international cooperation had become strictly necessary. Prior to the enclosure movement that started after World War II, nations had become *de facto* bound to one another because any one state could, by its unilateral actions, impact the welfare of all the other nations that depended on the same stocks of marine living resources. The Fur Seal Convention of 1911, which was one of the first instances of such cooperation, came about as the result of dwindling stocks of seals. Under it, harvesting nations acknowledged their interdependence and formalized this

realization in a joint coordinated management regime. These types of efforts were at first reactive and based on a kind of piece-meal approach; they did not stem from any broad idea that marine living resources were particularly deserving of coordinated attention. In that respect, the resultant arrangements tended to be essentially distributive in nature and sometimes excluded other nations. Their aim was not based on any altruistic idea of inter- or intra-generational equity, but, rather, it was to conserve the stocks to maintain the fishery, avoid conflicts among a handful of participants, and, thus, to optimize the profits of those who were entering the open access fisheries.

One of the first formal attempts to address these issues head-on in a comprehensive way took place within the League of Nations, but the effort failed to set a definitive breadth for the territorial sea. After this failure and the end of World War II, the scene was once more a pitting of the interests of one versus another, with nations trying to capitalize on their respective shares of common stocks. This conflictual situation placed in opposition the interests of the coastal states and those of other nations engaged in distant water fishing. The move by nations into other coastal waters was motivated by two phenomena: first, depleted coastal resources in their own areas and, second the search for high-value species, such as tuna and salmon, throughout their migratory range. By this time, it had become apparent that marine living resources were not inexhaustible and that commercial fisheries could collapse, but the ensuing response by coastal states was to stake claims on shared resources by attempting to "enclose" the areas in which they were found. Up to that point, the jurisdiction of the coastal states had been limited by the cannon-shot rule, which had become part of customary international law. When stock depletion occurred, however, fishers from coastal areas tended to blame the foreign fleets that were coming in to "steal their fish." For their part, distant water fishing nations (DWFNs) clung to the Freedom of the Seas paradigm under which coastal states could not claim jurisdiction over resources that could not be appropriated. In September 1945, President Harry S. Truman issued a proclamation claiming jurisdiction for the United States over mineral resources on the continental shelf and the right to regulate and control fishing in defined zones for the purpose of conservation.<sup>1</sup> Thus the stage was set for 50 years of negotiations over marine living resources between and among these two categories of fishing nations.

The next formal forum for this debate was the First United Nations Conference on the Law of the Sea (UNCLOS I), which concluded with the adoption in 1958 of four separate conventions.<sup>2</sup> The negotiating states failed to achieve consensus on the breadth of the territorial sea, and although all the conventions came into force, they failed to garner broad support. Two years later, UNCLOS II was convened to try and resolve the outstanding questions (breadth of the territorial sea and exclusive fisheries jurisdiction), but once again, it failed on the same issue. In 1972, the Stockholm Conference on the Human Environment was held. Stockholm provided a forum for the adoption of a Declaration of Principles on the Human Environment, which, to this day, highlights the importance of preserving the human environment

and aspects that need to be addressed through international cooperation; however, fisheries issues were not directly addressed.

Following further conflicts between coastal and distant-water fishers in the 1960s and other emerging ocean issues, the Third UN Conference on the Law of the Sea (1973-1982) was convened to address these issues comprehensively. It led to the adoption in 1982 of the United Nations Convention on the Law of the Sea (UNCLOS). UNCLOS spelled the end of the Freedom of the Seas paradigm for most fisheries. It divides up the oceans between zones wherein the coastal States have exclusive jurisdictional rights (in the so-called 200-mile Exclusive Economic Zone, or EEZ) and the remaining high seas. This enclosure movement resulted in appropriation by the coastal states of 90% of the fisheries resources worldwide, most of which are found within 200 nautical miles of coastlines. In that respect, UNCLOS represents the consecration of the idea that in order to be managed, fisheries must come within the purview of an individual nation, which will then have the incentive and the means to set up the appropriate management regimes and see to the distribution of its benefits. It was expected that the "Tragedy of the Commons" would be averted. Ironically, this result of the enclosure movement has failed to materialize, and the call for strictly defined property rights has been pushed further within EEZs, to grant individual transferable quotas (ITQs) to particular fishers. The treaty establishes a definitive regime, where up to 200 nautical miles, the coastal state can, based on the best scientific evidence, assume responsibility for the management and conservation of fish resources. Within this remit, coastal States can determine the level at which most fish stocks can be harvested and allocate rights to harvest to its nationals or, in instances of surplus, to select foreign fishing fleets. Unfortunately, few nations if any have managed these fisheries well, as they have been and still are subject to political pressures from fishing interests.

UNCLOS failed to address fully the special case of fish stocks that migrate long distances, across the EEZs of several coastal states, or that straddle an EEZ and the high seas. It leaves it to the States involved in these fisheries to work out further details in keeping with certain principles spelled out in the Convention. As a result, a series of regional and subregional organizations and arrangements have been established for the management of these stocks, with varying degrees of success. These arrangements have not proven to be entirely satisfactory, however, and many coastal States still feel that the uncertainties that surround the management of these stocks are unacceptable or could undermine fisheries within their national zones.

As regards high seas fisheries resources, the FAO's Committee on Fisheries (COFI) has noted that "inadequate management and overfishing are recognized as major problems. The need to control and reduce fishing fleets operating on the high seas is now being intentionally admitted because excessive fishing is endangering the very sustainability of [these] resources."

The problem of straddling stocks has been epitomized by the situation that prevailed toward the end of the 20th century for the management of Greenland halibut (also known as turbot in Europe) and cod on the Grand Banks off the coast of Canada. Canada and a number of distant water fishing nations had entered into an agreement within the framework of the Northwest Atlantic Fisheries Organization (NAFO) to regulate the catch of the stocks, but the rules of procedure on decision making proved to be inadequate. Following a collapse of cod stocks, Canada imposed a moratorium on its own fishermen within its EEZ and sought strong restrictive measures within the NAFO area of application. While a conservative conservation policy was then implemented with the support of the European Economic Community (EEC), in 1985, the EEC sought the adoption of higher quotas after the accession to the Community of Spain and Portugal. A very restrictive quota was set, but the European Union (EU) used its right to opt out of the measures agreed to and granted Spain a quota share that was greater than the total allowable catch adopted by NAFO's Commission. While the EU on behalf of Spain acted legally when it opted out of the NAFO measures, Canada still felt that the agreed conservation and management measures were being undermined. It actually arraigned a Spanish vessel on the high seas, over which it had no jurisdiction. At that time, this incident was but the last in a long series of complaints on the part of coastal states with regard to the uncertainty of fisheries management on the high seas as it affected their coastal fishing interests.

The issue was also tackled in the course of the preparatory process of the United Nations Conference on Environment and Development (UNCED, or the Earth Summit) in 1992. The coastal states renewed their effort to address the shortcomings of UNCLOS with regard to straddling fish stocks and highly migratory fish stocks through the so-called Santiago initiative. Canada was instrumental in trying to mobilize coastal states that felt that they had been victimized by the distant water fishing nations in areas just beyond EEZs. Two meetings of like-minded states were held in St. John's, Newfoundland and Santiago, Chile, in advance of UNCED, through which the momentum gathered by these States continued to grow. This effort culminated in the course of the preparatory process for UNCED when Canada and 40 co-sponsors submitted a proposal on the conservation and management of marine living resources of the high seas. The proposal urged states fishing on the high seas to give consideration to the "special interests and responsibility of the coastal State" and specified that fishing on the high seas should not have an adverse impact on the resources within the EEZs of coastal states.

The coastal states failed to get these substantive provisions in Agenda 21, the output of the Conference. All they could achieve was a call for a conference to address the issues heads-on, "with a view to promoting effective implementation of the provisions of the Law of the Sea on straddling and highly migratory fish stocks." The U.N. General Assembly endorsed this recommendation in a U.N. Resolution, specifying that the mandate of the conference would be to identify and assess existing problems related to the conservation and management

of highly migratory and straddling fish stocks; consider means of improving fisheries cooperation among States; and formulate appropriate recommendations.<sup>3</sup>

A treaty on straddling fish stocks and highly migratory fish stocks was then negotiated, adopted in 1995, and entered into force in December 2001. This treaty only covers 10% of the fish landed worldwide, however, leaving essentially unanswered the question of how coastal states manage these fisheries in their own EEZs. The U.N. Fish Stocks Agreement was but one piece in the mosaic of international instruments that were negotiated concurrently. Among the most relevant are the FAO's Code of Conduct for Responsible Fisheries, the FAO Compliance Agreement, and various regional efforts where, responding to the mandate of UNCLOS, the states with an interest in specific regional fisheries got together to adopt common conservation and management measures, most notably in the Bering Sea and the South Pacific. One of the most striking aspects of these negotiations is that the states involved used every available weapon in the arsenal of international instruments to attempt to address the issue of overfishing. While the U.N. Fish Stocks Agreement is limited to straddling and highly migratory stocks and its application restricted largely to the high seas, the Code of Conduct is to be applied both within areas of national jurisdiction and on the high seas for all vessels above a certain size flying the flag of a state that has endorsed it.

The Code consists of six thematic articles on Fisheries Management, Fishing Operations, Aquaculture Development, Integration of Fisheries into Coastal Area Management, Post-Harvesting Practices and Trade, and Fisheries Research. It focuses on the practices of national fishing fleets, calling on countries to act at the national level. The Agreement and the Code refer to one another extensively, and the full implementation of one will be affected by the implementation of the other. The Code's scope of application is more all encompassing, but it has the status of "soft-law" because it is not legally binding. The Agreement is binding but of much narrower scope. In actual terms, the Agreement and the Code should be seen as complementary.

The FAO Compliance Agreement was negotiated as a part of the Code of Conduct for Responsible Fisheries but, unlike the Code itself, is legally binding. It aims to address some of the residual issues that were not fully elaborated in UNCLOS. Its two objectives are (1) to impose upon all states whose vessels operate on the high seas obligations designed to make the activities of those vessels consistent with conservation and management rules; and (2) to increase the transparency of all high seas fishing operations through the collection and dissemination of data. In actual terms, the Compliance Agreement sets up very strictly defined obligations with which the flag state is required to comply in order to exercise effective control over vessels flying its flag. "Taken together, [the obligations] stand for the position that no state should allow a fishing vessel to fly its flag on the high seas unless the state can effectively exercise responsibility over that

vessel." The Compliance Agreement is the hard-law arm of the Code of Conduct and the instrument through which the negotiators expect to make flag states responsible for complying with their obligations as well as exercising their rights.

States are therefore obliged to take strong conservation and management measures, both individually in their EEZs and in cooperation with others on the high seas and for straddling and migratory stocks. Yet in view of the situation of stocks worldwide, one can have only doubts about the actual will of nation states to address in earnest the issue of overfishing. Those states that do take strong measures in their EEZs then claim that their efforts are being undermined by the fishing efforts of distant water fleets in areas just outside their zones of jurisdiction, while those active on the high seas point to the problems that occur within the EEZs. There are obviously no quick fixes to these complex problems, and global market demand, international trade, degradation of the marine environment, and the heavy reliance by fishermen in some countries on state subsidies undoubtedly act as aggravating factors. Nevertheless, implementation of all the instruments that were recently negotiated—and that, taken together, now constitute a more complete regime for global fisheries - would go a long way towards solving a number of conflicts, ensuring a precautionary approach to fisheries management, and even starting to address some of the underlying causes of overfishing.

These instruments do not constitute a panacea. Their successful implementation will depend on further good will on the part of the states involved with regard to enforcement, the strengthening of the institutions in place and the creation of new ones where appropriate, and, ultimately, a healthy dose of equity between coastal states and distant water fleets - and even among fishermen within national waters. Also, one cannot address the issue of fisheries worldwide without tackling the broader issue of sustainable development. In that regard, global fisheries represent a tremendous opportunity as well as a challenge.

## Endnotes

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- 1 The Truman Proclamation provided that "the United States regards it as proper to establish explicitly bounded conservation zones in which fishing activities shall be subject to the regulation and control of the United States." For a discussion of the controversy raised by the Proclamation, see Bill Burke, 1994.
- 2 Convention on the Territorial Sea and the Contiguous Zone, Convention on the High Seas, Convention on the Continental Shelf, and Convention on the Fishing and Conservation of the Living Resources of the High Seas, Geneva, 1958.
- 3 U.N. General Assembly Resolution 47/192, 22 December 1992.

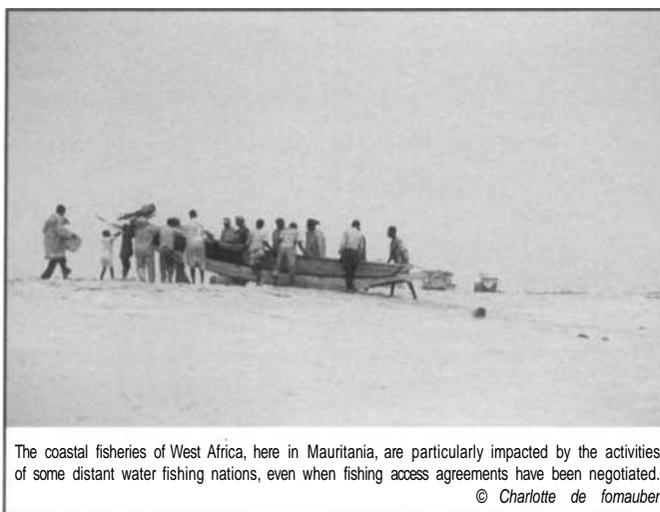
## CHAPTER 2.

## Guidelines for Fisheries Management in the Exclusive Economic Zone (EEZ): Primacy of the Coastal State

### 2.1. The Framework of the United Nations Convention on the Law of the Sea (UNCLOS): Obligations as Well as Rights

According to Food and Agriculture Organisation (FAO) statistics, more than 90% of landings worldwide are caught within coastal waters.<sup>1</sup> Conversely, less than 10% of global catches are harvested on the high seas. As highlighted in Chapter 1, the EEZ concept has

evolved from the need to enclose areas of the high seas where freedom of fishing used to prevail, often leading to the so-called tragedy of the commons. Throughout their negotiations on the law of the sea, states acknowledged that the absence of property rights prevented the adoption and implementation of the necessary conservation and management measures. As a result of the so-called enclosure movement, most harvestable stocks are now under the control, or jurisdiction, of coastal states. In theory at least, clear property rights have been assigned, and the interests of coastal states in these stocks have been recognized in and codified by UNCLOS.



The coastal fisheries of West Africa, here in Mauritania, are particularly impacted by the activities of some distant water fishing nations, even when fishing access agreements have been negotiated.  
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Coastal states have both sovereignty and sovereign rights over marine living resources. Articles 2 and 3 of UNCLOS define the nature and scope of the territorial sea, an area where the coastal state can exercise the same sovereignty as it does on its land territory (i.e., within its terrestrial boundaries). The same applies within the state's internal waters, which under Article 8 of the Convention are all waters on the landward side of the baseline of the territorial sea. The territorial sea may not extend beyond 12 nautical miles from the

baseline, but within that area, all marine living resources are under the exclusive control (sovereignty) of the coastal state.

Beyond 12 nautical miles, the regime of the EEZ applies. The primacy of the coastal state in the EEZ is very clearly defined in UNCLOS. Article 56.1. (a) of the Convention provides that, "In the exclusive economic zone, the coastal State has sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living, of the waters superjacent to the sea-bed

#### Box 2.1. UNCLOS

UNCLOS has been called a constitution for the oceans because it effectively regulates the rights and obligations of all states as related to the oceans. Most importantly, it divides the oceans into different zones of jurisdiction, where states have different rights.

- The territorial sea extends from the baseline up to 12 nautical miles. Within that zone, the coastal state exercises complete jurisdiction, just as it would in its territory (on land).
- The contiguous zone extends from 12 to 24 nautical miles. There the coastal state may take measures to prevent and punish infringement of national laws as they relate to customs and fiscal, immigration, and sanitary matters, as long as these infringements took place within its territory or territorial sea.
- From 12 to 200 nautical miles, the coastal state can declare an EEZ, where it exercises sovereign rights over living and non-living marine resources. Other states enjoy the right to freedom of navigation in that area.
- Beyond 200 nautical miles, the so-called regime of the high seas applies, where all states have the right to engage in fishing, subject to their treaty obligations; the rights and duties, as well as the interests of coastal states; and the duty to cooperate with other states for the conservation and management of the high seas living resources. (In practice, fishing on the high seas is now regulated, to some extent, by regional fisheries management organizations. See Chapter 3.)
- The continental shelf, which may extend beyond 200 nautical miles but not beyond 350 nautical miles, is where the coastal state exercises sovereign rights for the purpose of exploring it and exploiting its natural resources.

and of the sea-bed and its subsoil...." As a result of this provision, which is now also embedded in customary international law, many conflicts as to who owns the resources have been resolved. In that respect, the result of the UNCLOS negotiations was a clear victory for coastal states, whose sovereign rights over the natural resources in the EEZ are now recognized.

The rights of the coastal state in the EEZ are not absolute, however. The title of Part 5 of UNCLOS refers to the "rights, jurisdiction *and duties* of the coastal State in the exclusive economic zone" (emphasis added).

### 2.1.1. Fishing by the Coastal State in the EEZ

First and foremost, Article 61.2 requires that the coastal state should "ensure through proper conservation and management measures that the maintenance of the living resources in the exclusive economic zone is not endangered by over-exploitation." In other words, the coastal state has a right to exploit those resources *sustainably* but has no right to over-exploit or to deplete them.

The whole regime of exploitation in the EEZ is based on the premise that the coastal state will exploit the resources while promoting the objective of optimum utilization (Article 62.1). Interestingly, the Convention does not further define precisely this concept of optimum utilization. Article 61.2 provides that the amount that can be fished depends on the total allowable catch (TAC). The TAC is to be determined by the coastal state, is to be based on the best scientific evidence, and shall ensure "that the maintenance of the living resources is not endangered by over-exploitation." This again is a reflection on the limits of the mandate given the coastal state: it may exploit the resources but only in a sustainable fashion, and it has not been given the right (in theory at least) to deplete them.

The duty of the coastal state to conserve living resources is further emphasized in a call for it to cooperate, as appropriate, with competent international organizations, whether sub regional, regional, or global (Article 61.3.) As a consequence, one cannot imagine that a coastal state could, within its EEZ, undermine the conservation and management measures adopted by a regional fisheries management organization in the adjacent area of the high seas.

While it does not specifically refer to the concept of optimum yield, UNCLOS (Article 61.3) provides that the measures taken by the coastal state

"shall also be designed to maintain or restore populations of harvested species at levels which can produce the maximum sustainable yield, as *qualified by relevant environmental and economic factors*, including the economic needs of coastal fishing communities and the special requirements of developing States..." (emphasis added).

In other words, the Convention affects a shift from a purely biological indicator (the maximum sustainable yield, or MSY) to a biological indicator qualified by economic and environmental considerations. The MSY indicator is no more than a fisheries management benchmark or a management reference point—an indicative tool that can be used to establish a total allowable catch—and it is widely perceived as flawed for a series of reasons.

Traditionally, fishing is understood to have three sorts of effects:

- Effects on the target stock—if the stock is overfished, it will become depleted and may even reach the point of commercial extinction and, in extreme cases, the point of biological extinction;
- Effects on associated stocks or dependent species (the bycatch issue)—target stocks cannot be taken in isolation, and managers need to realize that, because target stocks are part of an ecosystem, their harvesting will impact both species on which they feed and species that feed on them. This can be a very serious issue and, in some cases, the target/bycatch ratio can be as high as 1 to 14 (i.e., for every 1 pound of target species landed, 14 pounds of non-target species have been caught and, more often than not, killed and discarded);
- Broader impact on the marine ecosystem—some particularly destructive fishing methods (cyanide, dynamite fishing, large pelagic drift-net fishing and also, in some cases, trawling) can have tremendous destructive impacts on the sea floor, on coral reefs, and on other fragile habitats.

Assessing the MSY and setting up a TAC address the first of these three impacts but neglects the other two. In addition, MSY is based on stock assessments, some of which can be based on uncertainty or insufficient knowledge of the biological characteristics of the species targeted. UNCLOS gives the coastal state opportunity to address some of the flaws of MSY by introducing other factors, but Article 61.3 allows the coastal state either to diminish the size of the TAC (for instance to account for the uncertainty of the MSY) or to exceed the MSY, e.g., for economic reasons. This is borne out in practice time and time again, when some fisheries managers are unwilling to reduce TACs to the level called for by MSY because they perceive that the price that would be paid by the fishing community would be too high. In the United States, where conservation and management measures are taken by Regional Fisheries Management Councils, Council decisions to adopt low TACs are often appealed in courts of law by fishermen who are angry at the severity of the measures. Council decisions are sometimes overturned on equity grounds.

Fisheries managers walk a fine line as they try to reconcile the conflicting interests of fisheries communities in the short term and in the long term. While it may make more sense to fish sustainably to ensure higher returns in the long run, many fishermen are straddled with

debts, or cannot cover their operating costs and will, therefore, tend to overfish, regardless of consequences to the stocks. Such fishermen often realize that theirs is an untenable situation in the long run, but they are under too much pressure to sustain income in the immediate term. Even with the best intentions, in cases where over-investment has led to overcapacity, any hope for rational, sustainable exploitation is lost. The problem is often compounded by governmental subsidies, which mask the true cost of fishing and thus lead to erroneous cost-benefit assessments on the part of fishermen, fish processors, and fish distributors. Nevertheless, the coastal state is responsible for the state of marine living resources in its KHZ. Given the facts that 70% of the stocks worldwide are overfished, and 90% of said stocks are found within EEZs, coastal states are clearly remiss.

While it allows vessels flying its flag to fish in the KHZ, the coastal state can, and must, subject such fishing to conservation and management measures designed to ensure that the living resources are utilized in a sustainable fashion. Such measures both include and exceed the establishment and enforcement of a TAG.

As provided in Article 62.4, the coastal state may take the following measures regarding activities of fishing vessels in its EEZ with a view to conserving and managing its living resources:

- Licensing of fishermen and vessels (often including payment of fees and other forms of remuneration);
- Determination of TAG, which can be limited to a certain species or limited through time;
- Establishment of closed areas or closed seasons, in which no fishing is permitted;
- Size or age limits for the fish caught;
- Imposition of strict information requirements for the fishing vessels and the fish caught;
- Required participation in the scientific research on which MSY and TAG are based;
- Designation of observers and trainees on board the vessels allowed to fish;
- Requiring that part or all of the catch be landed in the ports of the coastal state;
- Requiring that vessels fishing in the EEZ participate in joint ventures or other cooperative arrangements; and
- Enforcement procedures.

In other words, the coastal state has a whole arsenal of measures at its disposal through which it can control and limit fishing effort in order to ensure sustainability. Again, in theory, the coastal state can, and should, prevent overfishing in an area in which it exercises sovereign rights.

## Box 2.2. Overview of Fisheries Management Tools

The fisheries management measures can be classified as follows:

- D Output Controls
- D Input Controls
- D Technical Management Measures
- D Economic Controls
- D Output controls affect the size of catches that may be taken by the fishery. They include
  - Total allowable catches and unallocated quotas; and
  - Individual** transferable quotas (ITQs).
- D Input controls attempt to limit the actual fishing effort applied in the fishery (with only an indirect impact on the resulting catches). They include
  - Restrictive licensing (such as licensing schemes that limit the number of vessels or fishers allowed to participate in a fishery); and
  - Limits on days at sea.
- D Technical management measures affect where, when, and how fish may be caught. They include
  - Closed areas;
    - Marine protected areas;
    - Closed seasons;
    - Gear and technological restrictions; and
    - Mesh** or fish size limits
- D Economic controls are measures that affect the profitability of fishing, including
  - Development subsidies;
  - Taxes and fees; and
  - Decommissioning.

Taken from *Net Losses, Untying the Gordian Knot of fishing Overcapacity*, by Lutchman and Hoggarth

In practice, achieving sustainability is easier said than done, particularly as the science of fishing evolves, as new impacts of fishing are discovered, and because stock depletion often does not become apparent until it is well under way. A fundamental new principle, the precautionary approach, goes a long way towards avoiding such uncertainty (see Chapter 4), but it should be noted that, under UNCLOS, coastal states are not *required* to take such an approach.<sup>2</sup> They are merely given a series of measures that they *may* take in order to keep exploitation sustainable. Moreover, these measures only work insofar as coastal states can and do exercise effective control over their own vessels and foreign vessels they have permitted to fish in their EEZs, which is often not the case, particularly for developing countries. It should also be

noted that the measures called for in Article 62.4 are merely indicative, are 20 years old, and are far from sufficient to provide coastal states the guidance they need. These shortcomings are addressed in the FAO Code of Conduct and, in some measure, in the U.N. Fish Stocks Agreement.

### 2.1.2. Fishing by Other States in the EEZ

As difficult as it may be for coastal states to exercise effective control over vessels flying their own flag, they are further burdened by the duty to exercise control over vessels from other states fishing in their EEZ. UNCLOS refers specifically to a series of states that have been displaced by the enclosure movement and, thus, are worthy of extra protection. These states are:

- Land-locked states, which by definition are now excluded from 90% of worldwide stocks found in newly designated EEZs (Article 69) and are to have access to any surplus of the living resources of the EEZ of the same sub-region or region.
- Geographically disadvantaged states (Article 70), which are entitled to the same access as land-locked states in the same sub-region or region.

To those states, the coastal state is required to allow access to surplus of the TAC that it does not have the capacity to harvest. To that end, Article 62.2 provides that

"The coastal State shall determine its capacity to harvest the living resources of the EEZ. Where the coastal State does not have the capacity to harvest the total allowable catch, it shall ... give other States access to the surplus of allowable catch

But while UNCLOS recognizes the special circumstances of certain states, the coastal state is still responsible for determining the TAC and is only required to grant access if it does not have the capacity to harvest the said TAC itself. Furthermore, the Convention does not establish any hierarchy among the states identified in Articles 69 and 70, and the coastal state may choose to which of these states it will grant access. In addition, UNCLOS provides an exception to the exception, since Articles 69 and 70 "do not apply in the case of a coastal State whose economy is overwhelmingly dependent on the exploitation of the living resources of its exclusive economic zone" (Article 71). In many cases, therefore, the coastal state can be expected to exploit resources in the EEZ itself, either because it has the fishing capacity to do so or because it has chosen to limit the TAC to the size of its fleet.<sup>3</sup> Even if the decision of the coastal state is abusive, that decision may only be addressed through compulsory "conciliation," the outcome of which can be rejected by the coastal state.<sup>4</sup>

More often than not, the coastal state will grant access to foreign fleets, sometimes with little regard for sustainability or the carrying capacity of the stocks. UNCLOS does specify that in so doing it will give priority to land-locked states, adjacent neighboring states, geographically dis-

advantaged states and, to some extent, developing countries, but the coastal state is ultimately sovereign in deciding to whom it grants access. Of course, the coastal state can expect to receive some form of compensation in exchange for that access, be it in the form of royalties or license fees. For many developing countries that do not have the capacity to harvest the TAC, this provision represents, in theory at least, a tremendous opportunity to generate revenue (through licensing and royalty requirements). But UNCLOS also recognizes that beyond immediate financial benefits, one of the goals should be for the coastal state to develop its own fishing capacity. Article 62.4(j) provides that access may be conditioned upon requirements for the training of personnel and transfer of technology, including enhancement of the coastal state's capacity for undertaking fisheries research.<sup>5</sup>

Merely by granting access to other states' vessels, the coastal state is not now exempt from ensuring that the exploitation of the living resources is sustainable. Article 62.4 clearly indicates that the coastal state may establish enforcement measures, may place observers on board, and may establish all sorts of measures that are traditionally understood to enhance sustainability (size limits, closed areas and seasons, gear restrictions, etc.). But the coastal state is still expected to exercise effective control over both vessels flying its flag and distant water fishing fleets. Again, it is not granted *carte blanche* to allow any kind of fishing that will generate sufficient financial rewards. In practice, however, it is mostly the case that those coastal states that do not have the capacity to harvest the whole TAC tend to be developing countries, while developed states have developed excessive capacity and are looking for new grounds in which to fish. As a result, the negotiations over access between coastal states and DWFNs tend to be lopsided. (See Box 2.3 below.)

At the root of the problem with access agreements is a widespread conception that the interests of coastal states and DWFNs are necessarily at odds. This was certainly the case in the past when a number of DWFNs engaged in a practice known as "pulse fishing," where a fleet is dispatched into a new ground, is given free rein to fish as fast and as much as it can, then moves on to another area once the stocks are depleted. As rewarding as this practice may be in the short term, it makes no sense whatsoever in the longer run. It is in the long-term interest of both coastal states and DWFNs to negotiate access agreements where the DWFN agrees to fish sustainably and, in return, is assured continued access. This is essentially what happened in the course of negotiations over tuna resources between the United States and the island states of the South Pacific. This result was achieved when the island states refused to negotiate one-on-one with the U.S. but, rather, insisted on an access agreement that covered all the EEZs and even the areas of the high seas surrounded by those EEZs. The small island states that previously had given in to the might of a super-power were then able to present a common front and negotiate a better deal, extracting a genuine commitment to sustainability on the part of the distant water fleet. In exchange, the fleet knew that the sustain-

### Box 2.3. The Problem with Fishing Access Agreements

Fisheries agreements can broadly be classified in the following categories:

- Reciprocal agreements, which provide for reciprocity of access (traditionally negotiated between developed countries, e.g., between Norway, the Faroe Islands, Iceland, and the Baltic States);
- Agreements on access to surplus stocks, where fleet owners pay access fees (such as those that have been negotiated between the U.S. and Canada);
- Agreements on access to resources in exchange for compensation by the states involved and market access (negotiated between the EU and Greenland);
- Agreements on access to surplus fish stocks in return for financial compensation by the states involved (typically negotiated between the EU and African and other developing countries); and
- So-called "second generation agreements," where access to coastal waters is based on participation in joint enterprises and joint ventures to help develop the fishing capacity of the coastal states (such as the agreement negotiated between the EU and Argentina).

In theory at least, the form of the agreement is supposed to reflect the mutual benefit of both coastal states and DWFNs. In practice, however, the negotiation is often linked to the receipt of overseas development assistance and some unscrupulous DWFNs can a) insist on a straight access-for-cash agreement and b) strong-arm the coastal state into granting access in exchange for less than equitable payments. As a rule of thumb, reciprocal agreements are more advantageous to the coastal state, as the practices of the distant water fleets then tend to be more sustainable. Different agreements treat coastal states with varying degrees of fairness. Former EU Fisheries Commissioner Emma Bonino herself agreed with "the position of those who say that the first generation accords simply wiped out the fish ... because there is generally no control."

Some of the most common problems that arise with access agreements include

- Reporting of catch and other data crucial for Fisheries management is not carried out in earnest by the distant water fishing fleets. The most serious problem is a lack of serious monitoring, control, and enforcement.
- The gear used by distant water fleets is less selective than that used in the waters of the DWFNs, resulting in increased bycatch and serious environmental damage.
- Conflicts tend to arise between the distant water fishing fleets and small-scale and artisanal fishers.
- The fees paid to the coastal states are not always fair and tend to be linked to bilateral assistance. Overall, developing coastal states are in a weak negotiation position.
- Ecological scientific information is poor, and knowledge of the stock levels can be extremely uncertain. DWFNs will tend to push for higher catch levels, in blatant disregard of the precautionary principle.
- Even from the standpoint of the distant water fleets, access agreements often do not make sense, since the flag states heavily subsidize the ensuing cost (up to 80% in the case of the EU).
- Ultimately, access agreements allow DWFNs to export their overcapacity problem, rather than deal with it in earnest.

able practices to which it adhered would also be imposed on other distant water fleets. The result of these negotiations was a clear win-win situation, though one that has rarely, if ever, been replicated in other areas of the world.<sup>6</sup>

It is impossible to point the finger exclusively at one set of players for conservation failures in the EEZ. On the one hand, coastal states can and should hold out for agreements that are equitable, but, perhaps more important than other financial considerations, they should ensure that sound conservation and management measures are well monitored and enforced. This is not always the case, and, in

some instances, coastal states have been known to "sell" access to the TAC to two different distant water fleets, thus making a mockery of the scientific evidence upon which the MSY had been established. On the other hand, one cannot ignore the economic pressure under which some coastal states find themselves—pressure that may leave them no choice but to agree to terms they know to be both outrageous and unsustainable. The rights granted to DWFNs in the EEZ by coastal states clearly need to be balanced against obligations to respect the sovereign rights of the coastal states. Ultimately, DWFNs and coastal states can only achieve a fair and durable regime by cooperating in earnest.

### 2.1.3. A Special Regime for Special Stocks

The relatively simple regime that allows coastal states either to harvest living resources or to negotiate access agreements with others only applies to stocks that are found solely within the EEZ of that coastal state. Unfortunately, biological resources do not necessarily recognize that politico-legal construction. While some coastal states have extensive EEZs in which individual stocks are confined (particularly the U.S., Canada, Russia, France, and Australia), in many other cases the EEZ is geographically limited, and stocks will necessarily migrate beyond the EEZ of a single coastal state. In addition to the vagaries of political boundaries, the problem is compounded by the behavior of some stocks, which not only migrate over considerable distances but also spend part of their lives in the rivers of coastal states and another part in sea water, either on the high seas or in the EEZ of another state. Such is the case of anadromous stocks, which, like salmon, spawn in rivers and spend most of their lives in the sea, and also catadromous stocks, which, like eels, spawn in the sea (often on the high seas), but spend most of their lives in the rivers of coastal states. As a result of their biological characteristics, these stocks are at times under the control of one coastal state and at other times either under the control of another state or, as they migrate on the high seas, subject to a free-for-all. UNCLOS recognized that this duality of jurisdiction was likely to be problematic and addressed the issue in a number of separate articles.

#### *Anadromous stocks*

In this case, Article 66 of UNCLOS recognizes that because these stocks spawn in rivers, states of origin have "primary interest in and responsibility for such stocks." Along with this interest comes the responsibility to ensure that the stocks are conserved through appropriate measures for fishing, which are to apply "in all waters landward of the outer limits of its [the state's] exclusive economic zone." The Convention thus effectively prohibits fishing of anadromous stocks on the high seas. Article 66, however, also recognizes that other states may

be involved in the harvesting of such stocks, and the state of origin is required to consult with those states before establishing a TAG. In this regard, special consideration is given by the state of origin to states that participate in expenditures on measures to renew the stocks. An exception to the requirement that no fishing take place on the high seas is provided for states for which application of this provision would result in economic dislocation. With these states, coastal states are required to negotiate "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)).

In instances where these stocks migrate from the state of origin to the EEZ of another state, both states are required to cooperate with regard to the conservation and management of such stocks and to make arrangements for the implementation of these measures—through regional organizations, where appropriate.

#### *Catadromous stocks*

Catadromous species are species that spawn in the ocean but spend a good deal of their lives in rivers. The Convention's Article 67 is similar to its Article 66 in that it is based on the biological reality of where the stocks are found for most of their lives. As a result, the "coastal State in whose waters catadromous species spend the greater part of their life cycle shall have responsibility for the management of these species and shall ensure the ingress and egress of migrating fish" (inward and outward migration). As is the case for anadromous species, harvesting is limited to within EEZs and forbidden on the high seas. An interesting additional provision specifies that a state into which the species migrates, even if only as a juvenile or maturing fish, will share in management, including harvesting of the stock (Article 67.3). This recognizes the fact that even though the fish may only be juveniles when they enter the EEZ, the coastal state(s) nevertheless has the capacity and responsibility to ensure sustainable fisheries.

### **Box 2.4. Friendly Neighbors in Stormy Waters: The U.S.-Canada Dispute over Salmon**

Though the U. S. and Canada profess to have a strong interest in conserving fish stocks, for many years they were engaged in a "salmon war" that began in the early 20th century. The problem is that different salmon stocks originate in either Canadian or American waters and then migrate to the waters of the neighboring country. Then the salmon are caught by nationals of the country to whose waters they have migrated. Both the U.S. and Canada went through numerous rounds of negotiations that were rendered more difficult by commando actions by fishermen from both sides. The problem was further complicated by the biological uncertainty that surrounds some stocks, by the traditional rights that have been granted to native Americans in the U. S., and by differences between U.S. fishing interests in the Pacific Northwest and Alaska. The Pacific Salmon Treaty adopted in 1985 allocates the benefits of fishing to each party equivalent to the production of fish from its rivers. Its implementation continued to be problematic, however, and the fishing arrangements under it expired in 1992. A new agreement was finally reached in 1999, whereby a new concept of abundance-based management is applied, meant to be more responsive to changes in salmon runs. Institutions and arrangements under the 1985 treaty have also been revised (Kimball 2001).

### ***Sedentary species***

Sedentary species are treated differently than other species, and Article 68 provides specifically that "this Part (Part V on the Exclusive Economic Zone) does not apply to sedentary species as defined in Article 77, paragraph 4." Article 77.4 defines sedentary species as "organisms which, at the harvestable stage, either are immobile on or under the sea-bed or are unable to move except in constant physical contact with the sea-bed or the subsoil." For this species, the regime of the continental shelf applies, and the coastal state has sovereign and exclusive rights for the purpose of their exploration and exploitation, meaning that, even if the coastal state chooses not to harvest them, no other state may do so without its express consent. If the coastal state does not have the capacity to harvest the entire TAC, it is under no obligation to give other states access to the surplus. The regime for sedentary species is much more restrictive than the regime for other species, in part because its application is limited to a) sedentary species as they are narrowly defined and in part b) because the regime applies to *geologically* limited areas, whose reality cannot be questioned.<sup>7</sup>

Unfortunately, in the case of commercially valuable species, different states have sometimes disagreed on what constitutes a sedentary species. This difference of appreciation of biological characteristics has led to conflicts in the past over lobster (off the Brazilian coast in the so-called "lobster war" between France and Brazil) and scallops (between the U.S. and Canada).

### ***Straddling stocks***

Straddling stocks are not defined as such; rather, Article 63 refers to "stocks occurring within the EEZs of two or more coastal states or both within the EEZ and in an area beyond and adjacent to it." Two different regimes apply to the two scenarios. In the first instance (stocks occurring within the EEZs of two or more coastal states), those states "shall seek, either directly or through appropriate subregional or regional organisations, to agree upon the measures necessary to coordinate and ensure the conservation and development of such stocks" (Article 63.1.). In the case where the stock occurs both in the EEZ and in the adjacent area of the high seas, "the coastal State and the State fishing for such stocks shall seek, either directly or through appropriate sub regional or regional organisations, to agree upon the measures necessary for the conservation of these *stocks in the adjacent area*" (Article 63.2, emphasis added). Thus, in the first case, the two or more coastal states must cooperate to ensure the conservation of the stocks, while in the other case, the coastal state and states fishing on the high seas are merely required to cooperate in conserving the high seas portion of the stocks. The distinction is important, since it protects the sovereign rights of the coastal state within the EEZ.

Ultimately, though, perhaps the most significant lacuna of Article 63 is that it does not take sides and decide which of the states (the coastal

state or the states fishing on the high seas) actually has the greatest interest and responsibility for the conservation of the stocks. Thus, under this article, the coastal state certainly may not impose any measures unilaterally on other states, but at the same time, states fishing on the high seas are subject to Article 116, which subjects the freedom of fishing on the high seas to the interests of coastal states. At best, states have a duty to cooperate, but the article does not resolve the issue of who shall prevail in the event of conflict between them.<sup>8</sup>

### ***Highly migratory species***

Highly migratory species are treated differently, first and foremost because they are not defined but, rather, listed in Annex 1 of the Convention.<sup>9</sup> Article 64 specifies that the coastal state and other states engaged in fishing of the species "shall cooperate directly or indirectly through appropriate international organisations with a view to ensuring conservation and promoting the objective of optimum utilization of such species throughout the region, both within and beyond the exclusive economic zone." Where no international organizations are in place, the same states are cooperatively to establish one and participate in its work.

The main difference with the regime of highly migratory species is that the parties are required to participate in the work of organizations. This participation is not requested only "as appropriate" (as was the case for Article 63), but states' duties also include the responsibility to create such a regime where one does not already exist. This reflects the fact that highly migratory species tend to migrate over tremendous distances (sometimes across the Atlantic or throughout the Pacific), and, more often than not, a large number of states is involved, either because the stocks migrate through their waters or because they fish these stocks. Here, the Convention does not even presume to begin to establish a hierarchy among the rights of the states because there are just too many different species and because their biological characteristics are completely unique. This issue was to be revisited later, during negotiation of the U.N. Fish Stocks Agreement.

## **2.2. A Regime in Constant Evolution**

While negotiation of the 1982 UNCLOS marked a shift in the legal regime from freedom of the seas to enclosure by the coastal states of most living resources, this Convention merely represented a step in an ongoing, evolving process. In many instances, the states negotiating the Law of the Sea Convention were either unable or unwilling to address some of the outstanding issues. To their credit, one can note that they had addressed the situation of 90% of the stocks worldwide (those found in coastal waters, within the 200-mile EEZ); nonetheless, further negotiations were called for. Perhaps foremost among those outstanding issues was that of straddling and highly migratory fish stocks, addressed, albeit inconclusively, in Articles 63 and 64 of the

Convention and described above. Beyond the example of these particular stocks, however, three further conclusions emerged in the Convention's wake:

- First, that the guidance given in UNCLOS to states engaged in fishing was limited and that the modalities of sustainable fishing would need to be further developed;
- Second, that some issues that had barely been touched on were becoming more pressing as the status of the stocks continued to degrade; and
- Third, that as a result of UNCLOS and the enclosure movement, some of the problems that had been largely confined to coastal waters had been displaced to the high seas. In addition, as some coastal states excluded foreign fleets from their EEZs, they developed fleets of their own and substituted a domestic problem for what had previously been a foreign one.

All these remaining issues were addressed in a series of negotiations that led to the adoption of the FAO Code of Conduct for Responsible Fisheries, the FAO Compliance Agreement, the U.N. Fish Stocks Agreement, and the FAO International Plans of Action on seabird bycatch, shark management, and overcapacity.<sup>10</sup> In great measure, all these negotiations were greatly facilitated by the political input provided over the course of the U.N. Conference on Environment and Development (UNCED).

### 2.2.1. Input from UNCED and Agenda 21

Just as new problems were emerging, and older problems were becoming more serious, a sea change occurred in how states approached the issue of overfishing and, more broadly, sustainable development. The first instance in which this shift took place actually predated the UNCLOS negotiations—the 1972 Stockholm Conference on the Human Environment. There, for the first time, states met to address in a systematic fashion the issues that surround human development, including impacts on the environment. The issue was picked up 20 years later at UNCED—the Earth Summit—held in Rio de Janeiro in June 1992. The outcome of this Conference included the Rio Declaration of Principles on Environment and Development (27 principles) and Agenda 21, a document akin to a blueprint for sustainable development.

In the Rio Principles is Principle 15, which provides that

*"In order to protect the environment, the precautionary approach shall be widely applied by states according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."*

UNCLOS conspicuously lacked any reference to the precautionary approach, but it was to be taken up later during the negotiations of var-

## Box 2.5. The Convention on Biological Diversity (CBD) and the Jakarta Mandate

The CBD was open for signature in Rio de Janeiro in June 1992. Its objectives are the conservation of biodiversity, the sustainable use of biodiversity's components, and the equitable sharing of benefits derived from genetic resources. State parties are required, *inter alia*, to take measures to ensure the conservation and sustainable use of biodiversity, monitor biodiversity in their territories, identify and regulate destructive activities, and integrate consideration of biodiversity into national decision making.

With regard to biodiversity conservation, under the CBD, it can be achieved through a combination of both *in situ* and *ex situ* conservation. The former is most important, with the Convention providing that the parties "shall, as far as possible and as appropriate, establish a system of protected areas or areas where special measures need to be taken to conserve biological diversity." The CBD does not refer specifically to marine or terrestrial ecosystems, but it does apply to national areas and areas of national jurisdiction. In 1995, the parties to the Convention adopted the so-called Jakarta Mandate, which outlines a program of action for implementing the Convention with respect to marine and coastal biodiversity. Identified are five areas in which state parties can take practical steps to apply the Convention to marine habitats, including implementing integrated coastal area management, ensuring the sustainable use of coastal and marine living resources, implementing environmentally sustainable mariculture practices, preventing the introduction of alien species, and establishing marine and coastal protected areas.

As regards the sustainable use of marine resources, the Mandate encourages parties to

- Set ecologically sustainable levels of use;
- Manage ecosystems rather than single stocks;
- Reduce bycatch and incidental impacts on non-target species and habitats;
- Eliminate subsidies that encourage overfishing; and
- Where artisanal fisheries are sustainably managed, protect sustainable management systems through measures such as legal recognition and enforcement of community-based resource management systems and recognition and maintenance of traditional sea tenure.

(Articles 6(b), 8(c), 8(j), 10(b), 10(c) and 11.)

Taken in part from *Biodiversity in the Seas: Implementing the Convention on Biological Diversity in Marine and Coastal Areas* (de Fontaubert, Downes, and Agardy 1996).

ious other international legal instruments, particularly the FAO Code of Conduct and the U.N. Fish Stocks Agreement.

Agenda 21 is divided in 40 chapters, ranging in topic from the development of different ecosystems to the participation of major groups

and other social and economic issues. Chapter 17 of Agenda 21 deals with the protection of the oceans, all kinds of seas, including enclosed and semi-enclosed seas, and coastal areas and the protection, rational use, and development of the living resources therein. It is divided in a series of program areas that include, *inter alia*

- Sustainable use and conservation of marine living resources of the high seas; and
- Sustainable use and conservation of marine living resources under national jurisdiction.<sup>11</sup>

Both program areas recall the primacy of UNCLOS, stress worldwide dependency on fisheries as well as the importance of their sustainability, call for stronger international cooperation, and call on both coastal states and states fishing on the high seas to address the issue of straddling and highly migratory stocks, which had largely remained unresolved in UNCLOS.

The Chapter's program area on integrated management also highlights the importance of incorporating fisheries and mariculture management within integrated coastal management. In fact, the entire Chapter is filled with references to ecosystem approaches, thus marking a clear departure from the species-centric approach of UNCLOS. This is also reflected in the new emphasis placed on the importance of marine protected areas, which tend to conserve species in association with their own ecosystems. Furthermore, inasmuch as Chapter 17 addresses issues of marine pollution, both land-based and ship-based, it goes a long way towards addressing some of the other negative impacts on marine living resources.

All in all, Chapter 17 of Agenda 21 provides a renewed mandate to solve the fisheries crisis, albeit a non-binding one. In that, it is different from the Convention on Biological Diversity (CBD), which was open for signature in Rio during UNCED, and which is a hard-law, legally binding instrument.

### **2.2.2. The Food and Agriculture Organisation (FAO) Code of Conduct for Responsible Fisheries**

The FAO Code of Conduct for Responsible Fisheries was adopted in 1995. The Code was formulated to be consistent with UNCLOS, and to take into account Agenda 21 and the Rio Declaration of Principles, as well as the outcome of the U.N. Conference on Straddling and Highly Migratory Fish Stocks (U.N. Fish Stocks Agreement) (see Box 2.6. below on the parallel negotiations). It is directed towards "members and non-members of the FAO, fishing entities, subregional, regional and global organisations, whether governmental or non-governmental, and all persons concerned with the conservation of fishery resources and management and development of fisheries, such as fishers, those engaged in processing and marketing of fish and fishery products and other users of the aquatic environment in relation to

fisheries" (Article 1.2). The scope of the Code is, to say the least, remarkable, and clearly applies to all persons and entities engaged in fishing in the EEZ. The Code provides principles and standards applicable to the conservation, management, and development of all fisheries. In that respect, it is like a toolbox that aims to provide all the interested parties with measures they can take to ensure that fishing activities will remain sustainable.

Another remarkable aspect of the Code is that it goes far beyond mere harvesting activities, as they are traditionally understood. It consists of six thematic articles on Fisheries Management, Fisheries Operations, Aquaculture Development, Integration of Fisheries into Coastal Area Management, Post-Harvesting Practices and Trade, and Fisheries Research. The Code focuses on the practices of national fishing fleets, calling on countries to act at the national level. It covers fishing activities within EEZs, as well as on the high seas. While the Code's scope of application is exceptionally broad, it nevertheless retains the status of soft-law, since it is not legally binding. Perhaps as a result, the Code goes much further than other international instruments in terms of adopting measures likely to enhance sustainability. It lays down a number of general principles that are to guide all fishing activities, some of which are particularly important:

- "... the right to fish carries with it the obligation to do so in a responsible manner so as to ensure effective conservation and management of the living aquatic resources" (Article 6.1);
- "Management measures should not only ensure the conservation of target species, but also of species belonging to the same ecosystem (Article 6.2)";
- "... states should prevent overfishing and excess fishing capacity" (Article 6.3); and
- "... conservation and management measures should ... also be taking into account the traditional knowledge of the resources and their habitat, as well as environmental, economic and social factors" (Article 6.4).<sup>12</sup>

The provisions contained in Article 6 of the Code, though not as such legally binding, can nevertheless take the force of hard law if and when they are incorporated into national policy and legislation and into regional fisheries management instruments.

Articles 7 and 8 contain the essence of the measures to be undertaken for fisheries management and fishing operations.

#### **Article 7: Fisheries Management**

The provisions of this article go clearly beyond the traditional, species-centric approach to fisheries management. For instance, Article 7.1 (2) provides that "within areas under national jurisdiction, States should

seek to identify relevant domestic parties having a legitimate interest in the use and management of fisheries resources." Article 7.18 also refers to the need to prevent or eliminate excess fishing capacity and to ensure that the levels of fishing effort are commensurate with the sustainable use of fisheries resources.

Article 7 is then divided into paragraphs dealing with

- Management objectives, where the objective is still optimum yield (as called for by UNCLOS), but where some additional considerations go beyond the scope of UNCLOS and include avoiding excessive capacity, protecting the interest of small-scale subsistence fishers, and protecting the biodiversity of marine ecosystems;
- Management framework and procedures, with an emphasis on fisheries management that covers the stock throughout its entire area of distribution;
- Data gathering and management advice, with a strong emphasis on the social and economic objectives to be achieved;
- The precautionary approach, with the distinction made between stock-specific target points and stock-specific limit reference points;
- Management measures, including addressing the issue of illegal fishing, the use of more selective gear, respect for traditional practices, and reduction of bycatch and discards; and
- Implementation, including the establishment of an effective

legal and administrative framework and implementation of effective fisheries monitoring, control, and surveillance.

### **Article 8: Fisheries Operations**

Article 8 distinguishes between the obligations of all states, flag states, and port states. It also focuses on other aspect of fishing activities, fishing gear selectivity, and protection of the aquatic environment. As far as the coastal states are concerned, they are required, *inter alia*, to

- Ensure that only fishing operations allowed by them are conducted within waters under their jurisdiction;
- Maintain a record of all authorizations to fish issued by them;
- Maintain standards and practices and statistical data on all fishing operations allowed by them; and
- As port States, try to cooperate with other states to achieve and assist them in achieving the objectives of the Code.

Thus, the Code of Conduct provides recommendations and requirements with a degree of specificity never seen before in international law. The coastal state now has a whole panoply of measures it may take, and very few states can now claim that they do not have expertise or the practical knowledge for engaging in sustainable fisheries management. States are not legally bound by the Code, but they are expected to pursue good faith efforts to implement it. These recommendations are picked up in the Fish Stocks Agreement, and since it is legally binding, it is here that the Code's recommendations pick up the power of hard law.

#### **Box 2.6.**

#### **The Parallel Negotiations of the U.N. Fish Stocks Agreement and the FAO Code of Conduct**

The U.N. Fish Stocks Agreement and the FAO Code of Conduct refer to one another extensively and the full implementation of one will be affected by the implementation of the other. As such, they are both parts of the mosaic of international instruments that constitutes the new international regime for the management and conservation of marine living resources. The diplomats who negotiated the Code were essentially the same diplomats who adopted the Agreement, and much of the progress that was achieved in the former was transferred to the latter. If not fortuitous, this was nonetheless fortunate, because the negotiators were willing to go further in the negotiation of what they knew would ultimately be a non-legally binding text. Once they had agreed to some measures for the Code, it was easier to take the same approach for the Agreement. The same was also true for previous regional fisheries management efforts, where what had been achieved in the Donut Hole Agreement, the South Pacific Tuna Treaty, and within the framework of the International Convention for the Conservation of Atlantic Tunas (ICCAT), was later incorporated at the global scale, both in the Code and in the Agreement (de Fontaubert 1997).

#### **2.2.3. The U.N. Fish Stocks Agreement**

The U.N. Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks was specifically called for in Chapter 17 of Agenda 21 and aimed at addressing some of the issues that had been left open after the adoption of UNCLOS. After more than three years of negotiations, the Agreement was adopted. As adopted, it embodies a compromise reached between the interests of coastal states and distant water fishing nations.<sup>14</sup> One of this instrument's most interesting aspects is that it acknowledges the biological reality that while some stocks straddle EEZs and the high seas, they nevertheless need to be managed throughout their range (according to the so-called biological unity of the stocks). As a result, many of the conservation and management measures that are called for on the high seas, to be adopted by regional fisheries management organizations (RFMOs, see Chapter 3), are also applicable in the EEZ. The Agreement, however, does not overrule Article 56 of UNCLOS, which grants the coastal state exclusive rights in the EEZ. Rather, Article 3 provides that Articles 5 through 7 (which represent the backbone of the Agreement) apply also to the conservation and management of fish stocks within areas under national jurisdiction. In light of the clear conflict of interest between coastal and distant

**Box 2.7. Article 5 of the U.N. Fish Stocks Agreement**

Article 5 of the U.N. Fish Stocks Agreement covers measures that apply both in the EEZ and on the high seas. Measures to be adopted should

- Ensure the long-term sustainability of the stocks and promote the objective of optimum yield;
- Be based on the best scientific evidence available and designed to maintain or restore the stocks;
- Not exceed MSY level, as qualified by a number of relevant factors;
- Apply the precautionary approach;
- Take into account the impact of other human activities on the stocks and on the marine environment;
- Take into account the impacts of other related species, with a view toward maintaining these species above levels where their reproduction may become seriously threatened;
- Minimize the impacts of fishing activities through pollution, waste, discards, and bycatch, through, inter alia, the use of more selective, environmentally safe, and cost-effective gear and technologies;
- Protect marine biodiversity;
- Prevent or eliminate overfishing and excessive fishing capacity;
- Take into account the interests of artisanal and subsistence fishers;
- Be based on complete and accurate data;
- Be supported by scientific research and appropriate technologies; and
- Be implemented and enforced through effective monitoring, control, and surveillance

water fishing states, a compromise was adopted where the parties are called upon to settle their differences by adopting compatible measures. The Agreement does not indicate, however, whose measures shall prevail in case of conflict.

The substance of the measures to be adopted by the coastal State in the EEZ is contained in Article 5 of the Agreement (see Box 2.7. below). Article 5 builds on the measures called for in UNCLOS by inviting states to move from a species-centric approach to one that takes into account the whole ecosystem, to address the underlying issue of overcapacity, and to take into account other impacts on the marine environment and on the stocks.

The precautionary approach is also given considerable emphasis, and the whole of Article 6 is devoted to it. This article is particularly interesting because it aims to articulate what, in concrete terms, can be

undertaken to apply that approach. The adoption of this article represents a major shift in fisheries management, as it reverses the burden of proof between conservation and exploitation objectives. Throughout the history of fishing, remedial measures had been taken following the collapse or severe depletion of stocks. In essence, these measures were reactive. Likewise, conservation measures were only agreed to after managers had shown that a) the stocks were being unduly impacted, and b) the management measures would likely remedy this situation. The precautionary approach, as prescribed under Article 6, requires that conservation and management measures be based on the best scientific evidence available, that states be more cautious when information is uncertain, unreliable, or inadequate and that the absence of adequate scientific information not be used for postponing or failing to take conservation and management measures. In a provision reminiscent of the Code of Conduct for Responsible Fisheries, the article also refers to the measures states may need to take following the occurrence of a natural phenomenon likely to have a significant impact on the status of the stocks.<sup>15</sup>

As a result of Articles 5 and 6, if a coastal state signs and ratifies the Agreement, it undertakes to submit to more elaborated obligations than those contained in UNCLOS (the U.N. Fish Stock Agreement supplements rather than supplants UNCLOS), and the importance and extent of these new obligations should not be underestimated. By committing to these new measures, the coastal state also increases tremendously the odds of achieving sustainable management of the straddling fish stocks and highly migratory fish stocks found in its waters. This also encourages DWFNs to abide by the same measures on the high seas when they fish stocks shared with the coastal state. This idea of reciprocity is laid out in Article 7, which calls for the adoption of compatible measures in the EEZ and on the high seas.<sup>16</sup> Here again, the Agreement strikes a delicate balance between the interests of the coastal states and the DWFNs and distinguishes, just like UNCLOS had before, between straddling fish stocks and highly migratory fish stocks. It calls for the states to agree upon the measures necessary for the management of straddling fish stocks *in the high seas* and to cooperate on conservation of highly migratory fish stocks *both within and beyond the areas under national jurisdiction*.

While many of the provisions contained in Articles 5 and 6 are also found in the Code of Conduct, two important distinctions must be noted:

- The measures of Articles 5 and 6 only apply to straddling fish stocks and highly migratory fish stocks, but they are legally-binding; and
- While the measures of the Code of Conduct apply to all stocks, they do not constitute hard law.

Despite this distinction, coastal states should understand that application of the measures of Articles 5 and 6 can be easily applied to all stocks—and should be—and, also, just because the Code is not legal-

ly binding does not mean its measures should not be implemented. On the contrary, the coexistence of the Agreement and the Code is a perfect example of the desirable flexibility of international law. The measures contained in these two instruments are tools from the same toolbox, and using these tools can only be in the coastal state's interest in the long term. But because some of these measures can be difficult or expensive to implement, coastal states have the option to adopt them at their own pace, first to straddling fish stocks and highly migratory stocks (especially if they want other states to do the same) and then to all stocks as they develop the capacity to do so. In any event, coastal states no longer have the excuse of not knowing what measures to take, since they are so clearly laid out both in the Code and in the Agreement.

#### **2.2.4. The FAO International Plans of Action (IPOAs) on Seabird Bycatch, Shark Management, and Overcapacity**

Three IPOAs were adopted by the FAO Council in June 1999. These three instruments were negotiated to address some of the issues raised by the implementation of the Code of Conduct. Just like the Code of Conduct, these are soft-law, non legally binding instruments that reflect agreement among their negotiators over some of the measures that need to be taken to address three pressing issues:

- Incidental bycatch of seabirds in longline fisheries;
- Conservation and management of sharks; and
- Management of fishing capacity.<sup>17</sup>

These are clearly distinct issues that can be addressed individually and in a very technical fashion, but it was felt that any action by one state was more likely to succeed if it was co-ordinated with that of others. These issues are now global in scope yet require action at the national level. Through the adoption of each IPOA, states can ensure that the measures they take will be reinforced by other states. While there is broad agreement on the goal of the measures to be adopted, implementation of each IPOA is voluntary and left to the specific measures to be adopted by each state. All three IPOAs are relevant for coastal states, as all of the issues addressed occur in EEZs, as well as on the high seas.

#### ***IPOA for Reducing Incidental Catch of Seabirds in longline Fisheries***

According to the IPOA, "seabirds are being caught in various commercial longline fisheries in the world and concerns are rising about the impacts of this incidental catch. Incidental catch may also have an adverse impact on fishing productivity and profitability." In response to growing concerns over such impacts, several measures had already been taken at the regional level in the Southern Ocean

by parties to the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR), under the Commission for the Conservation of Southern Bluefin Tuna (CCSBT) by Japan, Australia, and New Zealand, and on a national level in the Bering Sea and Gulf of Alaska by the U.S. The aim of this particular measure, the IPOA, is to reduce the incidental catch of seabirds in longline fisheries, wherever it may occur. As a result, the IPOA applies to states in the waters where longline fisheries are being conducted by their own or foreign vessels and to states that conduct longline fisheries on the high seas and in the EEZs of other states.

In order to implement this IPOA, states are required to take the following measures:

- States with longline fisheries are to conduct assessments of these fisheries to determine if a problem exists with respect to incidental catch of seabirds. If such a problem exists, states are to adopt a national plan of action to address the issue. To that end, a "Technical note" is appended to the IPOA, containing the practical measures that should be included in national plans; and
- States that determine a national plan is not necessary should review that decision on a regular basis, particularly as new longline fisheries are developed or by taking into account any other changes in their fisheries.

States are given great latitude in how they conduct their assessments and adopt national plans in recognition of the fact that each fishery is unique and that identification of appropriate measures can only be achieved through on-the-spot assessment of the concerned fisheries. Nevertheless, states are encouraged to learn from the experience of others, and the technical note mentioned above details some of the technical options that can be adopted. For each technique described, there is an explanation of the concept in simple terms, an assessment of effectiveness, and, where available, cost estimates. This is particularly helpful because other states can then try to adopt some of these measures based on the criteria that will best apply to their own situations.<sup>18</sup>

#### ***IPOA for the Conservation and Management of Sharks***

As highlighted in the IPOA, sharks have been fished for centuries by artisanal fishermen in an essentially sustainable fashion. More recently, however, unsustainable fisheries have been developed, fueled by technological innovations and driven by demand from distant markets. Whereas sharks were originally fished for sustenance, a whole industry has developed around the harvesting of the sharks for their fins: the shark is caught, the fins are cut off and the carcass is thrown overboard, sometimes with the animal still living and destined to a certain death. In addition, sharks can be caught in significant numbers as bycatch, where the fishing effort is applied to other species. As a result of these developments, the population of some stocks has decreased tremendously, leading to serious doubts as to their future.

The problem is aggravated by the fact that "sharks often have a close stock-recruitment relationship, long recovery times in response to overfishing (low biological productivity because of late sexual maturity; few offspring, albeit with low natural mortality), and complex spatial structures (size/sex segregation and seasonal migration)." Finally, scientific knowledge and understanding of the stocks and their dynamics is sometimes poor, hindering the establishment and implementation of the appropriate conservation and management measures.

The issue has been addressed nationally by some countries and regionally by a number of regional tuna fisheries commissions and other regional fisheries management organizations and arrangements.<sup>19</sup> However, these disparate efforts are not enough to address a problem of this magnitude. Consequently, the IPOA on sharks applies to all states whose fishermen participate in shark fisheries, as well as those whose other fisheries activities have a significant impact on sharks caught as bycatch.<sup>20</sup> Its objective is to ensure the conservation and management of sharks and their long-term sustainable use. As was the case for seabirds, the IPOA applies to states in whose waters sharks are caught by their own or foreign vessels (i.e., in the EEZ) and to states whose vessels catch sharks on the high seas.

Again, states are required to implement national plans, if their vessels conduct directed fisheries for sharks or if their vessels regularly catch sharks in non-directed fisheries. The national plans are to be based on regular assessments of shark stocks and are to be adapted to reflect changes in such stocks. Some of the goals of the shark plans are, *inter alia*, to

- Ensure that shark catches are sustainable;
- Assess threats to shark populations, determine and protect critical habitats, and implement sustainable harvesting strategies;
- Identify and protect particularly threatened or vulnerable shark stocks;
- Minimize incidental catches of sharks;
- Minimize waste and discards from shark catches; and
- Encourage full use of dead sharks.

To that end, two appendices to the shark IPOA include suggested contents of a national shark plan and shark assessment report.<sup>21</sup>

### ***IPOA for the Management of Fishing Capacity***

The overcapacity of the world's fishing fleet has been a major contributor to global overfishing. This is particularly problematic for two reasons: first, because excess capacity makes it difficult to maintain fishing effort at a sustainable level, and, second, because economically, excess capacity is inherently wasteful. The issue was generally discussed at UNCED, in Agenda 21, and, more specifically, in Article

7 of the Code of Conduct for Responsible Fisheries and in the U.N. Fish Stocks Agreement. Although the IPOA is voluntary, its adoption by the FAO Committee on Fisheries (COFI) signaled a commitment by states to take concrete action in overcapacity at a national and an international level.

The IPOA is based on the Code of Conduct and takes into account the relationship between the Code and other international instruments. The main objective of the IPOA is for "States and regional organisations to achieve worldwide, preferably by 2003 but no later than 2005, an efficient, equitable and transparent management of fishing capacity." A series of actions are related to the four main strategies identified as means of achieving this objective.

These strategies are

- a. The conduct of national, regional, and global assessments of capacity and improvement of the monitoring of capacity, which would involve the measurement of capacity, diagnosis and identification of fisheries and fleets requiring urgent measures, and the establishment of records of fishing vessels to support the FAO Compliance Agreement.
- b. The preparation and implementation of national plans to manage efficiently fishing capacity and of immediate actions for those fisheries requiring urgent measures. This would require taking into account the effect of different resource management systems on fishing capacity and socio-economic requirements, recommending specific action for overfished fisheries, addressing the issues of subsidies and incentives that result in overcapacity, and taking into account regional considerations.
- c. The strengthening of regional organizations and related mechanisms for improved management of fishing capacity at regional and global levels, in a way that is mindful of the provisions of the U.N. Fish Stocks Agreement and the FAO Compliance Agreement.
- d. Immediate action for major transboundary, straddling, highly migratory, and high seas fisheries requiring urgent measures.

These strategies may be implemented through complementary mechanisms to promote implementation of the IPOA, such as awareness building and education, technical cooperation at the international level, and coordination. This is most significant because states are unlikely to take difficult measures to reduce their own fishing overcapacity if they do not feel that others are doing the same. Some developed countries have a history of exporting their overcapacity problems by displacing their fleets to those of developing countries that do not have the capacity to harvest the total allowable catch in their EEZs (see above Box 2.3. on fishing access agreements). This is particularly true in the case of fleets flying flags of convenience, where the flag state does not exercise effective control over its fleets.

### **2.3. Where Does that Leave Us with Respect to Fisheries Management in Coastal Waters?**

As has been amply demonstrated, the persistent issue of the Tragedy of the Commons due to Freedom of the Seas has now been resolved for at least 90% of catches worldwide. States can no longer claim that they are unaware of the measures to take or that there is too much legal uncertainty. All the international legal instruments negotiated since the adoption of UNCLOS add up to a solid regime, based on predictability and reciprocity among states. Nonetheless, two outstanding questions remain:

1. Now that they have exclusive jurisdictional rights over marine living resources, why do coastal states still overfish in their own EEZs (and thus ignore their inherent obligation to manage the resources sustainably), and what can be done about it?
2. If coastal states have exclusive rights in their EEZs, why are distant water fleets still allowed to overfish in the EEZ of the same coastal states? This is a very serious problem in practice and one of the most pressing issues that remains to be addressed.

The answer to the first question lies mainly within the political will of the coastal states and their citizens. Because of the dispute settlement provisions of UNCLOS, there is nothing any one state can do if it deems that another coastal state is depleting marine living resources in its EEZ.<sup>22</sup> In addition to this legal obstacle, the sad reality remains that overfishing in the EEZ is a global phenomenon and that there is hardly a coastal state that would morally be able to sue another State for the same thing it is doing (overfishing). The only states that could possibly have a theoretical leg to stand on would be land-locked states or other states that do not engage in any form of fishing, but it is unclear that they would have an interest in the stocks or in their protection.<sup>23</sup> With the adoption of the U.N. Fish Stocks Agreement, the coastal state may agree to become subject to compulsory settlement of disputes, but a) only if it chooses to, and b) only for disputes over straddling fish stocks and highly migratory stocks. In other words, coastal states overfish because they can.

So if a coastal state cannot be legally compelled to stop overfishing, what other approach could be taken? The answer is both global and political in nature. The first reality that needs to be acknowledged is that coastal states are unlikely to undertake unilaterally the difficult measures meant to address overfishing. It is more probable that such a broad issue can be addressed through joint political commitment. Second, as with all other political processes, one of the first steps required is the sharing of more accurate and pertinent information at both the national and international levels. Only with the realization that governments subsidize inefficient, destructive, and overdeveloped fleets can one hope for solutions to emerge. Ultimately, governments cannot justify sinking resources indefinitely into efforts to destroy stocks and related marine ecosystems, and they cannot do so with impunity. Many fishers can no longer survive economically without

government assistance, and the only question is how long governments and the taxpayers that pressure them will put up with this sorry state of affairs. Only when the world at large is more aware of the situation in other countries can "global" pressure be brought to bear.

As to the second question, its answer is closely linked to that of the first, since the problem of access agreements illustrates a problem exported from the waters of one over-developed fleet to the waters of another state with insufficient harvesting capacity. To put it simply, distant water fleets would not need to deplete the resources of other coastal states if the practices in their own waters were sustainable. The other aspect of this problem is that some states have been adopting sustainable practices in their own waters but then have been shameless in overharvesting in the waters of other states. This is immoral and maybe illegal. With more information on these practices, pressure can be brought to bear on these states to desist. The irony about this kind of behavior is that, ultimately, it is self-defeating—for the distant water fleets and for the coastal states. By contrast, with the alternative, sustainability, comes a win-win situation for all in the long run. In short, no one can hope to win when stocks are depleted or overfished.

The fisheries crisis is clearly a global one, and some of the remedies also need to be global in nature. Such is the international regime that has now been built from the sum of all these legal instruments. Now, a global political commitment is needed to transform this legal system of global and regional agreements into reality.

## Endnotes

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- 1 Coastal waters are usually understood as extending up to around 200 nautical miles of the coast. They can then be designated as the Exclusive Economic Zone (or EEZ) of the coastal State.
- 2 This concept was only developed in the 1980s in domestic and regional legal instruments for the protection of terrestrial and, subsequently, marine environments.
- 3 According to Bill Burke, "It is now well recognized that a coastal State may have sound reasons for affirmatively deciding that its interests are best served by determining that the allowable catch is equal to, or less than, its harvesting capacity, and thus deciding not to allow any foreign fishing."
- 4 In Part XV of the Convention, which deals with the settlement of disputes, Article 297 provides that "the coastal State shall not be obliged to accept the submission to [compulsory and binding] settlement of any dispute relating to its sovereign rights with respect to the living resources in the exclusive economic zone or their exercise, including its discretionary powers for determining the allowable catch, its harvesting capacity, the allocation of surpluses to other States and the terms and conditions established in its conservation and management laws and regulations."
- 5 This is a key aspect of the conservation of living resources since the establishment of the MSY and TAC is predicated upon accurate stock assessments.
- 6 Drawing from this experience, IUCN encouraged West African states to engage in a dialogue with the negotiators of the South Pacific Forum Fisheries Agency (FFA). To that end, a workshop was held in Cape Verde in November 2000 where this dialogue was formerly initiated. See IUCN report on Cape Verde workshop.
- 7 As a result of this distinction between political reality and geological reality, "the rights of the coastal State over the continental shelf do not depend on occupation, effective or notional, or on any express proclamation." In other words, the regime of the continental shelf applies even if the coastal state has not proclaimed an EEZ or historically exercised control over resources found therein.
- 8 This lacuna, as well as that of Article 64, was eventually addressed through the negotiation and adoption of the U.N. Fish Stocks Agreement; see below.
- 9 The list mainly includes several species of tuna, swordfish, sauries, sailfish, marlins, ocean sharks, and cetaceans.
- 10 The FAO Compliance Agreement, which deals with compliance on the high seas, is thoroughly reviewed in Chapter 5, "The Challenge of Enforcement."
- 11 The other themes included in Chapter 17 deal with integrated management and sustainable development of coastal and marine areas, marine environmental protection, critical uncertainties for the management of the marine environment and climate change, strengthening international cooperation and coordination, and sustainable development of small island developing states.
- 12 These and other new principles are examined in more detail in Chapter 3.
- 13 This somewhat complex concept is explained at length in Chapter 4 below.
- 14 For more details on the negotiations of the conference see de Fontaubert, 1995 and 1996.
- 15 Both the ecosystem approach and the precautionary approach are explained in more detail in Chapter 4.
- 16 Article 7.2 provides that "Conservation and management measures established for the high seas and those established for areas under national jurisdiction shall be compatible in order to ensure conservation and management of the of the straddling stocks and highly migratory fish stocks *in their entirety*. To this end, *coastal States and States fishing on the high seas have a duty to cooperate* for the purpose of achieving compatible measures in respect of such stocks" (emphasis added).
- 17 A fourth IPOA, on Illegal, Unregulated and Unauthorized fishing was negotiated two years later and adopted by the FAO Committee on Fisheries (COFI) in February 2001. This IPOA is reviewed in detail in Chapter 5 on enforcement.
- 18 Details on the national plans and technical options are included in the text of the Seabirds IPOA, in Annex V.
- 19 Including in West Africa, Latin America, the Indian Ocean, and the Pacific
- 20 The IPOA provides that "States that contribute to fishing mortality on a species or stock should participate in its management."
- 21 See text of the Sharks IPOA in Appendix V.
- 22 This is an interesting quirk of the UNCLOS, since on the substance, the coastal state clearly has an obligation to conserve the stocks and to exploit them sustainably, but in theory, when it comes to enforcement by other states, the sovereignty of the coastal state prevails (except in some respects for straddling and highly migratory stocks).
- 23 This question was briefly debated in the course of the U.N. Fish Stocks Agreement negotiations, where the Nordic countries argued that any state with an interest in a stock could become a member of an RFMO, even if that interest was inherent and did not relate to any interest in actually fishing the stock. That position was soundly defeated.

## CHAPTER 3.

## Beyond National Jurisdiction: The Emergence of Regional Fisheries Management Organizations (RFMOs)

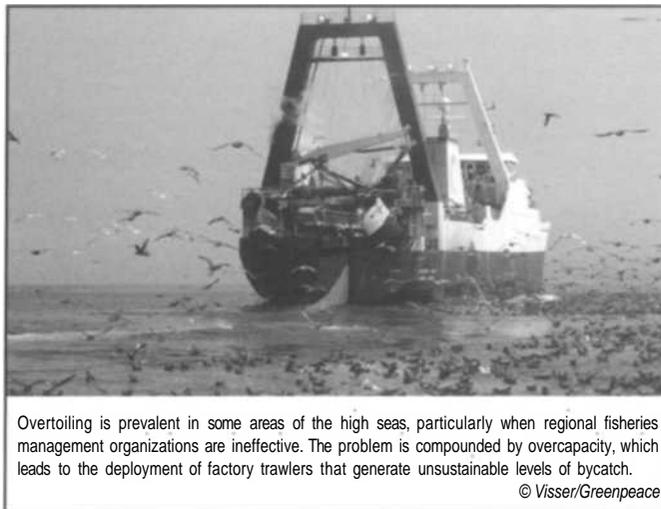
The 1982 United Nations Convention on the Law of the Sea (UNCLOS) went a long way towards allocating rights and responsibilities for management of marine resources within exclusive economic zones (EEZs) to coastal states. The high seas<sup>1</sup> remained a problematic area, however. In this respect, Article 87 (UNCLOS), while encouraging freedom to fish on the high seas, placed the responsibility for controlling the activities of their vessels upon flag states, which are also obligated to

respect the freedom of other states on the high seas. Under the provisions of Articles 116-120, states have an additional obligation to co-operate with other states towards conservation and management of living resources of the high seas. Such states include those whose nationals are engaged in fishing on the high seas and states fishing in the same area or fishing the same stocks. According to UNCLOS, regional fisheries management organizations (RFMOs) are the best vehicles through which this duty to cooperate can be fulfilled.

The outcome of recent global conferences and the deliberations of the FAO Committee on Fisheries (COFI) have implications for new forms of fishery governance, and the perception of the international community of world fisheries and, in particular, their sustainable utilization, will continue to influence the roles of RFMOs. This is particularly true for the elaboration and adoption of three recent international instruments: the FAO Compliance Agreement, the U.N. Fish Stocks Agreement, and the FAO Code of Conduct for Responsible Fisheries. These instruments underscore the crucial role of RFMOs in global fishery governance.

A series of issues constrains the efficient operation of RFMOs. Discussions at the FAO in 1999 focused on means of improving the performance of these organizations to meet the current challenges of fisheries conservation and management.

This chapter draws on recent FAO publications to examine the whys and wherefores of RFMOs, their evolution, and their emerging roles as guardians of the high seas.



Overfishing is prevalent in some areas of the high seas, particularly when regional fisheries management organizations are ineffective. The problem is compounded by overcapacity, which leads to the deployment of factory trawlers that generate unsustainable levels of bycatch.

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### 3.1 RFMOs: What Are They, Where Are They, and What Do They Do?

There are currently over 38 RFMOs (see Appendix 31 for a complete list, including those affiliated and not affiliated with the FAO) responsible for the management of marine fisheries. Some have full regulatory powers while others have more of an advisory role related to management. The function of these bodies varies from dealing with a single species or a group of closely related species, as

do the International Commission for the Conservation of Atlantic Tunas (ICCAT) and the North American Salmon Conservation Organisation (NASCO), to those based more on a region and covering a range of species within their areas of competence, such as the Northwest Atlantic Fisheries Organisation (NAFO) and the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)(FAO 1999).

Still other fishery organizations do not have conservation and management functions but provide scientific advice relating to conservation and management, such as the International Council for the Exploration of the Sea (ICES). In addition, a number of regional economic organizations have intensified their activities in the field of fisheries, such as the Asia Pacific Economic Co-operation Forum (APEC), the Association of South-East Asian Nations (ASEAN), the European Community (EC), the Co-operation Council of Arab States (GCC), the Organization of Eastern Caribbean States (OECS), and the South African Development Community (SAIC) (FAO 1999).

The mandates of RFMOs are either (i) advisory or (ii) regulatory. In addition—or sometimes solely—some RFMOs are directly involved in the management of one or more species as well as related fisheries in a specified region (see Table 3.1)

#### 3.1.1. RFMOs with Mainly Advisory Functions

All RFMOs depend on sound scientific advice as the basis for regulatory measures adopted by member states. The advisory function is facilitated through a series of inter-sessional activities during which

**Table 3.1. Functions of RFMOs**

RFMOs that provide scientific advice	Advisory RFMOs that provide members with scientific and management advice	RFMOs that establish management measures directly
CWP	AAFC	CCAMLR
ICES	COREP	IOTC
PICES	NAMMCO	NEAFC
SPC	SEAFDEC	CCSBT
ACR	CPPS	IPHC
ICSEM	OLOEPESCA	NPAFC
NACA	CARPAS	GFCM
	CTMFM	IWC
	RECOFI	SEAFO
	CECAF	IBSFC
	FFA	NAFO
	SRCF	SWOFC
	WECAFC	ICCAT
	WIOTO	NASCO
		IATTC
		MHLC
		PSC

(Source: FAO Website)

scientific information and data concerning the resource and other aspects of the fishery are collected or collated, analyzed, and discussed and the main conclusions and recommendations are formulated for consideration by decision makers.

The three most common methods used by RFMOs to collect scientific information are

- Through an external scientific body such as ICES, which undertakes the assessments and advice for NASCO and the EC, for example;
- Through an internal scientific body established under the RFMO-constituting agreement, usually consisting of experts from governments parties to the agreement, as in the case of ICCAT and CCAMLR; and
- Through ad-hoc working groups or technical consultations, as with most FAO bodies.

In formulating advice, RFMOs usually rely on scientific research undertaken by their members and data from industry sources. As fishing pressure increases, so does the complexity of regulator, measures and the stress on the scientific advisory system. Efficient fisheries management requires access to a wide range of information. Members of a RFMO have an obligation to provide accurate and complete information on a timely basis. However, a problem common to many RFMOs is

the lack of adequate data. Failure to supply data, under-reporting, or gaps in landings data, inadequate effort and capacity data, the inadequacy of current models, and lack of sufficient socio-economic data are among the reasons why scientific advice often falls short. This can have dire consequences for the decision makers.

Advisory functions also include the formulation of conservation measures and recommendations to decision makers, often against a very complex legal, political, and scientific background. One such measure is the establishment of total allowable catches (TACs), although the *allocation* of TACs is more contentious and often not addressed by RFMOs.

A new approach currently being addressed by a number of RFMOs is the application of the precautionary approach (see Chapter 4). This approach gained prominence in Rio de Janeiro at the U.N. Conference on Environment and Development and is considered important to the extent that it is embedded in the U.N. Fish Stocks Agreement and the FAO Code of Conduct for Responsible Fisheries. Its implementation has a number of implications for RFMOs, including that

- Better data should be obtained; Uncertainty should be systematically investigated;
- Methods used for stock assessments should be revised; and
- Contingency plans should be developed.

Most RFMOs were established before the formulation of the precautionary approach, but several have begun discussions on its implementation. These bodies include ICES, CCAMLR, NASCO, and NAFO (see Chapter 4). There has been some progress in the implementation of the approach at the assessment level, but there is also resistance to incorporating the approach in decision making. There is a tendency in RFMOs to reach decisions by consensus and to exploit fisheries at the higher risk end of the range recommended by scientists.

### 3.1.2. RFMOs with Regulatory and Management Functions

These functions relate to the decision-making process and the implementation of decisions as well as settlement of disputes. Although based on scientific information, decision making is often highly political and influenced by sovereignty issues and economic pressures. Due to the contentious nature of decision making and the fact that it is often done by consensus, decisions are often based on the lowest common denominator. This is a crucial impediment to appropriate decision making and effective fisheries management.

Some RFMOs are empowered to make binding decisions, while others may only produce recommendations. A number of RFMOs have direct responsibility for establishing management measures. These measures include the establishment of quotas or Total Allowable

Catches (TACs) and of closed seasons and closed areas as well as gear types to be used for specific fishing activities. On an annual basis, for example, CCAMLR establishes conservation measures that are adopted by members of the Commission and enacted in their own national law. Compliance and enforcement remains a serious problem for most RFMOs, not least because of inadequate monitoring capabilities. Attempts have been made by some RFMOs—NAFO, for example—to establish regional systems for improving monitoring, control, and surveillance. However, the management of common property resources such as those covered by most RFMOs continues to be the source of many tensions and conflicts within states, between neighboring states, and also between coastal and distant-water fishing nations.

Therefore, the settlement of disputes is one of the important tasks of RFMOs. The agreements establishing RFMOs usually provide for their own institutional arrangements and procedures for resolving conflicts. Some RFMOs, such as ICCAT and CCAMLR, have special working groups where these issues are dealt with, but their effectiveness in resolving a dispute depends on the political will of member states to do so. A more difficult situation to resolve is a dispute between a member of a RFMO and a non-member.

### 3.2. Evolving Role of RFMOs (1990s)

In 1995, FAO reported that high seas fisheries problems stem from increased fishing effort on stocks that have already been over-exploited or heavily exploited and also from a lack of international mechanisms

to rationalize utilization of stocks (FAO1996). In addition, inadequate monitoring systems and poor enforcement have resulted in non-compliance with regulatory measures established by RFMOs.

#### 3.2.1. Fisheries Conflicts in High Seas Areas

In the 1990s, these problems led to resource-use conflicts in various parts of the world. This included, for example, the conflict between the U.S. the former Soviet Union, and other DWFNs over Alaska pollock in the Bering Sea; and tensions between Canada and the European Union in the Northwest Atlantic, off the Grand Banks of Canada (see Chapter 1). The inadequacy of the relevant regional fisheries organization (NAFO) in this later case to deal with this conflict was highlighted as a major problem. In the Southwest Atlantic (see Box 3 D, the crisis over the future of squid stocks (straddling or high seas stocks) led to the establishment of RFMOs in areas where no RFMO had previously existed (see Box 3.1.).

#### 3.2.2. Legal References to the Growing Role of RFMOs for High Seas Conservation

The important role of RFMOs has been particularly highlighted in several international discussions and specifically in new international instruments aimed at addressing the problems of high seas fishing. The following is a summary of these references:

The Cancun Declaration (1992) - The principles embodied in this Declaration include cooperation by states on bilateral, regional, and multilateral levels to establish, reinforce, and implement effective means

### Box 3.1. Fisheries Conflicts in the Southwest Atlantic - Role for a Regional Approach to Management

Illex squid is a major commercial species found in an area of the Southwest Atlantic within the EEZs of the Falkland Islands/Malvinas and Argentina and also found on the high seas. It is a straddling stock in most cases since there are no political boundaries associated with its life cycle and migratory patterns. Due to Illex's biological nature, its long-term conservation is very dependent on a collaborative management approach, possibly through an RFMO.

The South West Atlantic Fisheries Commission (SAFC) was established in a joint agreement between the United Kingdom and Argentina on 28 November 1990. The aims of the Commission are to promote conservation measures and to recommend quotas. The scientific advice for management is based on joint research efforts by the Imperial College in London and the Argentine National Institute of Fishing Research and Development. However, the SAFC only legislates for the EEZs of Argentina and the UK, and there is no legal obligation on non-members to obey the rules. Despite the collaborative approach carried out through SAFC, there have been problems. At SAFC's fourth meeting in November 1992, Argentina struck a deal with Japanese fishers by offering half-price licenses for Illex, for a seven-month season. At the same time the Falkland Islands closed their fishing season for three months (U.N. General Assembly 1993).

At SAFC's fifth meeting, concerns were raised, particularly in relation to the status of squid in the high seas area. By the seventh meeting, the two countries, Argentina and the UK, had agreed to joint measures on TACs and number of vessels, and both countries closed the fishing season early. However, by 1995, there were new conflicts between the two countries, as delegations could not agree to quotas for the 1995/96 fishing season. By this stage, there were grave concerns over the sustainability of the Illex fisheries. At this time, the U.N. Fish Stocks Agreement was adopted, and this development in international law, which encouraged the establishment of regional fisheries bodies for the management of straddling fish stocks/species such as Illex, was welcomed by SAFC (FCO 1995; Lewis Clifton, personal communication).

and measures to ensure responsible fishing. States fishing on the high seas should cooperate with other states to ensure conservation and rational management of living resources (The International Conference on Responsible Fishing held in Cancun, Mexico, 6-8 May, 1992).

Although UNCED (1992) did not go as far as specifying that states should cooperate within regional or sub regional organizations, it called for the negotiation of agreements that would rely on bilateral and multilateral cooperation.

U.N. Fish Stocks Conference (1995) - The objective of the Agreement, which was adopted after three years of negotiations (see Chapter 2), is "to ensure the long-term conservation and management of straddling and highly migratory fish stocks through effective implementation of the relevant provisions of the UNCLOS." Part III of the Agreement is entitled, "...mechanisms for international cooperation concerning straddling fish stocks or highly migratory fish stocks either directly or indirectly or through appropriate subregional or regional fisheries management organisations or arrangements." The purpose of such cooperation is to get states to agree to conservation and management measures with respect to particular fish stocks where there is evidence that such stocks may be under threat of over-exploitation.

The 1995 FAO Code of Conduct for Responsible Fisheries consists of 12 Articles that deal with standards for responsible fishing and effective conservation and management of marine resources. The Code places a great deal of emphasis on regional and sub regional fisheries organization for its implementation, even though implementation of the Code is voluntary. Regional fisheries organizations are well placed to implement provisions of the Code given their long and close associations with their members and their traditional involvement in most aspects of the fisheries of their members, as well as their familiarity with the regions that they cover.

The 1993 Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas forms an integral part of the Code of Conduct. This Agreement provides for flag state responsibility to take measures to ensure that their vessels do not undermine the effectiveness of international conservation and management measures. It further provides for the establishment of a database on fishing vessels authorized to fish on the high seas and the exchange of information on such vessels. Regional organizations have a key role in coordinating and compiling the information for the database.

The International Plans of Actions (IPOAs) on Seabird Bycatch, Shark Management, and Overcapacity were adopted in 1999, signalling growing international commitment to address these types of problems and once again highlighting the role of RFMOs in ensuring effective implementation (see Chapter 2).

### 3.3. Review of FAO RFMOs

At its 22nd Session in 1997, the FAO Committee on Fisheries (COFI) agreed that all FAO RFMOs should be reviewed and evaluated by their members to determine measures to be taken to strengthen each body, as appropriate.<sup>2</sup> This directive was reinforced by Resolution 13/97, entitled "Review of FAO Statutory Bodies."<sup>3</sup> The basis for this Resolution was financial - the Conference encouraged bodies to seek extra-budgetary funding<sup>4</sup> or to provide their own financial resources.<sup>5</sup>

It was recognized that implementation of Resolution 13/97 would require a systematic and specific review of each statutory body, which, in turn, could promote the restructuring of the bodies, revision of the mandate, and the undertaking of more financial responsibilities by member countries. It would also allow FAO to examine whether the reasons that led to the establishment of the bodies were still valid (FAO 1997).

COFI considered a Progress Report on the implementation of Resolution 13/97 and the strengthening of FAO regional fishery bodies at its 23rd Session in 1999.<sup>6</sup> It reported that eight of the nine existing FAO RFMOs had considered actions required to strengthen their functions and responsibilities/

The Progress Report also noted that there has not been a formal working relationship between COFI and non-FAO RFMOs but that there is a need for effective regional fishery organizations and arrangements. There have been significant improvements in performance of RFMOs in the last decade, but many factors hinder these bodies from being more effective.

Two years later (1999), at its Twenty-third Session, COFI expressed its satisfaction with the outcome of the implementation of Resolution 13/97 and urged FAO to continue the systematic analysis of these bodies, especially concerning their institutional and financial arrangements, the strategies used to implement decisions, and the recommendations and measures taken to address current international fishery issues.<sup>8</sup>

### 3.4. The Future Role of RFMOs (2000 and Beyond)

Fisheries governance has gained in prominence on the agendas of a series of international meetings since 1997. They include the FAO COFI (1999), the High Level Panel of External Experts on Fisheries (1998) and the Meeting of FAO and Non-FAO Bodies and Arrangements (1999).

Discussions within these fora have helped to focus the past, present, and future roles and responsibilities of RFMOs. They mark a new phase in the evolution of fisheries governance by RFMOs and a historic turning point in global cooperation among them.

The need for all RFMOs to be strengthened appropriately to deal with these new, additional responsibilities was recognized at the first historic meeting of FAO and non-FAO RFMOs in 1999. It was evident at this time that present fisheries management systems had failed to ensure resource conservation and economic efficiency.

### **3.4.1. RFMOs as Models of Good Governance**

The need for regional cooperation among states for the conservation and management of fish stocks has been formally recognized at least since 1902, when cooperative scientific research commenced with the establishment of ICES.

Chapters 1 and 2 indicate that international efforts to deal with stock management have intensified as fish production has increased dramatically due to harvesting technology and increased fishing effort. Yet, management efforts have failed to ensure resource conservation. As stakeholders assume a greater participation in decision making, the challenge for states now is how to promote and facilitate fisheries governance that is effective in terms of conservation and economic performance. Currently, global fisheries governance centers on decision making by international bodies such as the U.N. General Assembly, the meeting of the States Party to the Law of the Sea Convention (SPLOS), and the governing bodies of FAO, including subsidiary bodies and COFI. These bodies have the task of adopting global policy and legal instruments that provide the framework for fisheries governance at all levels.

In 1998, a High-level Panel of External Experts in Fisheries expressed the view that such bodies were essential in reinforcing regional cooperation and that recent events concerning fisheries management and conservation mandated that these bodies be strengthened to cope with new and additional responsibilities under recent instruments (see above). The Panel expressed the opinion that the last 30 years had been essential for the collection of information and the acquisition of experience concerning the functioning of regional bodies or arrangements, but that the next 10 years would be important for the implementation and enforcement of decisions made by these bodies.

Most RFMOs with fisheries management mandates have been unsuccessful in deterring overfishing and deflecting serious international disputes. However, some have made important contributions to governance by

- Promoting the development of national research and management capacities;
- Improving and strengthening data collection and handling and dissemination;
- Addressing new issues such as fleet capacity, the effect of the payment of subsidies, and bycatch and discards;

- Adopting management measures and resolutions relating to such issues as effort reduction, gear type, minimum sizes and mesh sizes, and so on, and other fishery practices;
- Adopting ecosystem-based approaches (CCAMLR) and precautionary quotas (see Chapter 4); and
- Ensuring port state action to enforce measures.

However, these advances continue to be undermined by

- The failure of some states to accept and implement international agreements;
- A lack of willingness by member states to delegate sufficient decision making powers and responsibilities to the regional bodies;
- Members of RFMOs not providing complete and accurate data and information concerning their fishing operations;
- Outputs from RFMOs not being operational because of the lack of links between the scientists and decision makers and the decision-makers and those implementing the measures;
- Poor flag state control by both members and non-members of RFMOs;
- Lack of enforcement of management measures at both national and regional levels;
- The absence or lack of monitoring, control, and surveillance (MCS) mechanisms to verify that management decisions are being complied with;
- Fishing activities of non-members in the waters covered by RFMOs; and
- Inadequate financial and human resources for RFMOs to carry out their mandates satisfactorily.

Despite these setbacks, RFMOs are the most appropriate vehicles for regional governance, but they require realistic mandates, political will, and financial and human capacity to function as intended. In order to meet commitments to international instruments, governments would need to take the following actions, either individually or collectively:

- Delegate necessary powers to RFMOs to enable them to undertake their tasks;
- Adopt a pro-active stance to management that will prepare RFMOs for any crisis that they may face;
- Periodically review the structures and mandates of organizations or arrangements so that they have the capacity to make effective management decisions;
- Review respective legal and statutory requirements, procedural matters, and institutional capacity;
- Act responsibly in terms of ensuring that vessels of member coun-

### Box 3.2. The South Pacific Forum Fisheries Agency (FFA): A Model of Regional Stewardship for Resource Management

In 1979, 10 countries founded the South Pacific Forum Fisheries Agency (FFA). Membership of the FFA has since expanded to 16 countries in the western and central Pacific and includes all independent Pacific Island states. FFA has a well-informed and strong governing body, the Forum Fisheries Commission (FFC). The FFC has a member from each of the 16 countries, and it provides strong direction to a small Secretariat based in Honaira in the Solomon Islands.

The Agency has developed over the last 20 years. In the formative years, the FFA was primarily concerned with the proclamation of 200-mile EEZs by the emerging Pacific nations. This action gave sovereign rights to the coastal states to conserve and manage the tuna and other marine resources within their EEZs. Thereafter, FFA provided advisory assistance to member countries in their fisheries access negotiations with DWFNs. The major focus of these negotiations was to maximize economic returns for member countries. But FFA has also assisted member countries with the development, coordination, and harmonization of policies, agreements, and regulations.

A more recent development in the work of FFA has been focused on the wider international arena. The Convention that established FFA back in 1979 allowed for "additional international machinery to provide for cooperation between coastal states and distant water fishing nations." This foresight turned into a reality as FFA began negotiations with DWFNs as well as Pacific territories and other coastal states to develop a conservation and management convention for the highly migratory fish stocks of the western and central Pacific. This Convention, the Multilateral High Level Convention (MHLC), was adopted in September of 2000.

The FFA continues to demonstrate sound resource stewardship and leadership in efforts to promote conservation and management of its resources in a sustainable manner. Without effective cooperation between coastal and fishing states and industry and a commitment to the restraint of fishing capacity, it is quite likely that the region's vital tuna resources would have already been depleted.

The FFA is an example of a successful regional organization in terms of developing the type of cooperative and coordinated arrangements that are essential to management of highly migratory fish stocks. The healthy state of the stocks in the western central Pacific is in part a testament to the success of FFA and the efforts of both member countries and the secretariat over the last 20 years.

(Source: FFA Website)

tries abide by rules of the organization. In addition, members must take necessary action to ensure compliance and take sanctions against vessels with infringements. (There are instances where countries are too embarrassed to publicize infringements, but this often hampers RFMO activities):

- Improve cooperation in a transparent manner with the goal of increasing stakeholder participation; and
- Recognize that developing countries face financial, human, and technical constraints.

Non-contracting parties are not normally obliged to implement the conservation measures of RFMOs. If necessary, political pressure should be used to encourage non-members to become members, particularly if their activities hamper the work of RFMOs. In addition, governments should be encouraged to ratify and implement the provisions of international instruments such as the 1993 Compliance Agreement and 1995 UN Fish Stocks Agreement.

In summary, it is recognized that sound regional governance depends on effective input from members of regional bodies. This depends on

- The political willingness of states to participate openly and cooperatively for the good governance of stocks subject to management; and
- The national capacity to meet commitments and obligations, technically and financially (FAO 1999).

#### 3.4.2. Role of RFMOs in Controlling Illegal, Unregulated, and Unreported (IUU) Fishing on the High Seas

IUU fishing is a specific problem for the high seas, where monitoring and enforcement capabilities are limited. RFMOs from most regions of the world are currently facing the challenge of controlling IUU fishing. Recent discussions at the FAO on the adoption of an International Plan of Action (IPOA) for IUU fishing have highlighted the important role of RFMOs in this process (see Chapter 2).

RFMOs serve as a link between international and national management levels and are well placed to contribute to the international effort to deal with IUU fishing. In some cases, there will need to be close collaboration between national agencies and RFMOs; in others, international bodies and communications among RFMOs may well *be the*

### Box 3.3. ICCAT's Action to Ensure Compliance with Conservation Measures

Since 1975, contracting parties to the International Convention for the Conservation of Atlantic Tuna (ICCAT) have adopted regulatory measures aimed at conserving stocks of Atlantic Bluefin Tuna. In recent years, soaring tuna prices have led to an expansion of fishing effort well beyond the level of sustainable yield. Increasingly, this catch has been taken by non-contracting parties, including by some vessels that have switched from contracting party registration to flags of convenience in order to avoid the tightening grip of ICCAT rules.

Although ICCAT parties recognize that non-contracting parties are under no direct legal obligation to comply with ICCAT rules, the threat of illegal fishing to the integrity of the bluefin conservation program has led the Commission to adopt the following approach:

- Moratoria, TAC, and quotas, which, for example, within the western Atlantic, prohibit the taking of bluefin tuna, except for a minor quantity for scientific monitoring purposes. The TAC is subsequently divided into specific shares among Canada, Japan, and the U.S., all of which are contracting parties to the ICCAT convention.
- Resolution on Vessel Sighting, which requests contracting parties to collect, through their enforcement and surveillance operations, information on sightings of vessels fishing illegally and to report these to the Commission;
- Resolution on Co-ordination with the Relevant Non-Contracting Parties, authorizing the Commission to contact non-contracting parties sighted fishing illegally, to invite them to ICCAT meetings, and to request them to comply with ICCAT conservation measures;
- Bluefin Tuna Statistical Document Program, requesting all contracting parties to require all bluefin being imported into their territory to be accompanied by an ICCAT "statistical document" indicating the name of the issuing country, the name of the exporter and importer, the area of harvest, and so on, and for this document to be validated by the port state government official; and
- Import Ban/Action Plan, which sets out steps whereby the Commission may, after gathering relevant catch data and trade information, identify non-contracting parties suspected of fishing "in a manner which diminishes the effectiveness of the relevant conservation measures." It may then (as it has done in the case of Belize and Honduras) make efforts to seek cooperation with those countries and, should these efforts fail, to recommend that contracting parties ban the import of bluefin tuna and its products from these countries.

The ICCAT ban against Honduras and Belize takes a country-by-country approach in banning all imports from a flag state on the basis of the behavior of particular vessels. The breadth of the prohibition may be found to violate the GATT.

The ICCAT conservation measures are, however, backed by extensive due process, requiring the Commission to undertake substantial factual investigation before the ban is then authorized, in this circumstance, by a decision of the Commission.

(Source: ICCAT Website)

crucial link. The IPOA on IUU fishing and the role of RFMOs is examined in more detail in Chapter 5 on Enforcement

### 3.5. Measures Required to Make RFMOs Effective

During a Technical Consultation on High Seas Fishing held in September 1992, measures to improve the effectiveness of RFMOs were discussed. It was decided that the following are integral to achieving the objective of conservation and management.

As discussed earlier, the 1995 Compliance Agreement and the 1995 U.N. Fish Stocks Agreement address most of the issues. The next step is incorporation of these measures by each RFMO.

#### *Membership and Participation*

It is important that the membership of regional or sub regional fish-

eries organizations include all the countries involved in fishing and those that have a legitimate interest in the conservation and management of the resources covered by that body. A number of RFMOs have also taken action to invite and encourage into membership DWFNs who are currently not members of the organization but who are engaged in fisheries in their areas.

#### *Mandate to Adopt Management Measures*

RFMOs must have a clear mandate to carry out their management duties. In addition, they should have mechanisms in place through which they can receive scientific advice related to management issues. This advice can be from internal or external organizations but should be fair, neutral, and apolitical.

#### *Implementation of Management Measures*

The effectiveness of fisheries management organizations depends on

the commitment of their members to implement the regulatory measures that they adopt. Annual reports of many fisheries management organizations bear witness to the number of regulatory measures adopted but not implemented. The inclusion of the opting out procedure in the convention or the arrangement of some RFMOs has been used by members of RFMOs to avoid implementation of measures. This should be avoided, and members of RFMOs should promptly give effect to the management measures they adopt.

### ***Role of non-Contracting States***

A major problem faced by many RFMOs is the undermining of their regulatory and other conservation measures by countries not parties to the Convention or agreements whose flag vessels fish on the high seas. These flag states may not care or they may not be aware of these vessel activities. Some regional organizations such as ICCAT have taken action to address this problem, including the use of trade measures (see Box 3.5.).

### ***Control, Enforcement, and Surveillance***

Monitoring, control, and surveillance (MCS) systems are important to ensure compliance with conservation measures. Although some RFMOs have regulations related to MCS that should be implemented by members, very few have systems that are operated by an independent arm of the RFMO. The Northwest Atlantic Fisheries Organisation (NAFO) has implemented a number of regional measures to improve MCS.

RFMOs are the most appropriate authorities for enforcement of fisheries measures applied to high seas areas. Enforcement measures that can be taken include international inspection and observation schemes that place observers on board the fishing vessels of contracting parties; provision for high seas boarding and inspection; a vessel

register of those vessels in compliance or not in compliance with measures adopted; and provisions that allow contracting parties to prohibit the landing and transshipment of fish, even by non-contracting parties to the RFMO (unless it can be established by port state inspections that the fish were harvested in keeping with the measures by the RFMO or outside the regulatory area).

### ***Accountability***

Accountability of regional and sub regional fisheries organizations concerning their functions is a new concept. According to the U.N. Fish Stocks Agreement, a review conference should be held four years after the entry into force of the Agreement. Effective implementation of regimes established by any RFMO will depend not only on the cooperation of contracting parties but also on the ability of the regime to win the continuing support of non-governmental stakeholders. The general recent trend in current multilateral environmental agreements has been toward progressively broader public participation. Some interests sometimes express the view, however, that a closed decision-making process may be more efficient or easier to manage than an open one. They may fear that an inclusive approach could attract too many NGOs to meetings and that this could be disruptive and even expensive. However, the participation of NGOs increases accountability and public scrutiny, for example. In order to maintain NGO input, it is important that NGOs have access to meetings (accredited for observer status), notice of meetings, access to documents, and the opportunity to address meetings (WWF 2000).

### ***Compulsory Dispute Settlement***

Most RFMOs do not include provisions concerning dispute settlement but are required to under Articles 27 and 32 of the U.N. Fish Stocks Agreement.

#### **Box 3.4. Public Participation in Meetings of RFMOs**

NGO involvement in the development, implementation, and administration of international fisheries law and organizations is well documented. Their participation includes the promotion of public awareness and involvement; the representation of interests, and the provision of assistance in enforcement and compliance. This is particularly true in the following example.

#### ***The Inter-American Tropical Tuna Commission I-ATTC and transparency.***

The IATTC fulfils the essential functions of gathering and interpreting information on tuna in the Eastern Tropical Pacific (ETP), conducting related scientific investigations and recommending proposals for joint action for conservation. In the wake of public pressure related to the tuna/dolphin dispute, which came to a head after a GATT dispute settlement ruling on the legality of U.S. Marine Mammal Protection Act dolphin conservation measures (FAO 1993), the IATTC has made some progress in encouraging effective participation in its activities. Unlike other RFMOs, the IATTC does not charge observer fees. According to IATTC rules of procedures, observers are allowed to attend all regular meeting and special meetings. Requests for invitations are sent to the Director at least 120 days prior to the meeting, and an answer is issued by the Director 60 days before the meeting. If there is an objection by a RFMO member, this is discussed by the members in a meeting prior to the meeting in question. Observers can make interventions at the discretion of the Chair, and documents are made available to the observers prior to the meeting (Makuch 1995).

### Box 3.5. CCSBT and the Bluefin Tuna Issue

The Commission for the Conservation of Southern Bluefin Tuna (CCSBT) came into being in 1994, approximately one year after it was signed by Australia, New Zealand, and Japan. The Convention formalized a previous voluntary agreement that had existed between these states since 1985, following concerns over the status of bluefin tuna. The general objective of the Commission is to ensure the conservation and optimum utilization of southern bluefin tuna. The functions of the Commission include collecting data, analyzing and interpreting scientific data and relevant data on southern bluefin tuna, and adopting conservation and management measures. The Convention does not apply to a specific geographical area. It simply applies to southern bluefin tuna throughout its range.

The Convention is open for accession to any state whose vessels engage in fishing for southern bluefin tuna or to any coastal state through whose exclusive economic or Fishery zone tuna migrates.

In terms of conservation and management, CCSBT has agreed to several measures designed to rebuild stocks to 1980 levels by the year 2020. These include a specified TAC of 11,750 tons; restrictions on fishing in breeding grounds; development of fishing practices to reduce incidental mortality of seabirds; comprehensive monitoring and data collection programmes; and strengthening of research activities.

One important agreement undertaken by CCSBT is that parties are required to settle any disputes concerning the interpretation or implementation of the Convention by negotiation, inquiry, mediation, conciliation, arbitration, judicial settlement or other practical means of their own choice.

### Financing

RFMOs require funding to be able to function properly. To have the mandate for conservation and management without the financial means to execute it will not improve the effectiveness of RFMOs.

### Effective Cooperation between RFMOs and Other International Management Agencies

Cooperation between RFMOs operating in the same area or overlapping areas as well as those dealing with the same highly migratory or straddling fish stocks is essential.

### 3.6. Discussion

RFMOs play a significant role in promoting regional cooperation for improved conservation of marine resources of high seas areas, as well as for shared and straddling stocks. RFMOs are now being viewed as critical to the successful implementation of the international fish-

eries regime that has evolved since UNCED. In order to achieve their tasks and challenges, some RFMOs may need to make substantial changes to their founding agreement or convention, their original terms of reference and mandates, and their institutional structures in order to reflect the objectives and provisions of recently adopted fisheries instruments.

The problems of overfishing, overcapacity, poor monitoring, control and enforcement, and environmental degradation, as these affect fish and fish habitats, are critical issues that continue to challenge RFMOs. To some extent, recent developments in international fisheries provide RFMOs with additional tools to improve their management capabilities to manage and conserve these resources. Recent reviews by the FAO (Lugten 1999; Swan 2000) highlight the commitment of RFMOs to the implementation of international principles such as the precautionary approach and instruments such as the FAO Compliance Agreement.

Despite the shortcomings of some of the existing regional fisheries organizations, some signs are encouraging. In the Mediterranean, the problems of fisheries management have been the subject of two diplomatic conferences, in 1994 and 1996.<sup>9</sup> At the diplomatic conference in 1996, Mediterranean states adopted a declaration<sup>10</sup> on the conservation and management of fishery resources. This declaration recognizes explicitly that all states that benefit from the biological wealth of the Mediterranean marine environment must cooperate within the framework of competent regional organizations to ensure the efficient conservation and management of trans-zonal stocks. As well, there is now a commitment to improving enforcement and data collection.

In the Southeast Atlantic, the establishment of a regional fisheries organization (SEAFO) between the coastal states of the region, including Angola, Namibia, South Africa, and the UK (with respect to its dependent territories of St. Helena and Tristan de Cunha), and distant water fishing nations has also signalled a strong political commitment to regional management.

Another positive area where progress has been made by many of the existing fisheries organizations is in the establishment of cooperative relationships with other organizations. The fact that states have recognized the need to relate the work of regional organizations to the work of existing organizations reflects the development of a comprehensive system of ocean-related institutions at the global level through such bodies as the General Assembly of the U.N., SPLOS, the FAO, and the UN Commission on Sustainable Development.

International law provides the basic framework for improving management of fisheries, in EEZs and on the high seas areas. However, in order to manage fisheries effectively, RFMOs must have the capac-

ity to make and enforce fisheries conservation and management measures and to apply them to all the participants in the regime, as well as to pressure non-participatory states to respect conservation and management measures.

To summarize:

A regional organization can effectively promote proper management if decision-making methods are consistent with the goals of the organization. RFMOs should be able to make binding rules regulating fishing activity within the organization's area of competence. The authority to make such rules should not be obstructed by opting-out or objection procedures and consensus decision making;

- Effective enforcement of regulations is essential. Articles 21 and 22 of the 1995 U.N. Fish Stocks Agreement are a major step forward;
- RFMOs should be open to allowing new members;
- There must be compulsory and binding procedures for the settlement of disputes;
- RFMOs should be accountable for their actions;
- RFMOs should implement good MCS systems; and
- RFMOs must have adequate financing to carry out their functions.

## Endnotes

- 1 The term "high seas" refers to areas located beyond the EEZs of coastal states.
- 2 Report of the 22nd Session of COFI, Rome, 17-20 March 1997, para. 31.
- 3 Adopted by the Conference of FAO at its 29th session in November 1997. In this resolution, the Conference emphasized the need to "move towards increased self-financing for Statutory bodies that have regional focus... in a time of financial challenge." This means that FAO bodies established under Article VI of the FAO Constitution and thus an integral part of FAO are financed by the Regular Programme funded by assessed contributions of FAO Member Nations but that statutory bodies established under Article XIV have an autonomous status and may, if the parties decide, be financed by assessed mandatory contributions from their members. This is the case of the Indian Ocean Tuna Commission (IOTC) and the General Fisheries Commission for the Mediterranean (GFCM).
- 4 For Article VI bodies.
- 5 For Article XIV bodies.
- 6 COFI/99/4.
- 7 *Ibid.*, para. 2, including the inland fishery bodies not covered by this review.
- 8 Report of the Twenty-third session of the Committee on Fisheries, Rome, Italy, 15-19 February 1999, FAO Fisheries Report No. 595, para 81.
- 9 The first EU regulation (1626/94/EEC) on fisheries in the Mediterranean is only binding on EU member states. There was a need to have a common system of management binding all states involved in Mediterranean fisheries.
- 10 Solemn Declaration on the Conservation and Management of the Fishery Resources of the Mediterranean.

### Appendix 3.1. List of Regional Fishery Bodies or Arrangements (marine fisheries)

#### FAO BODIES

Coordinating Working Party on Fisheries Statistics (CWP)  
 Fishery Committee for the Eastern Central Atlantic (**CECAF**)  
 General Fisheries Commission for the Mediterranean (GFCM)  
 Indian Ocean Fishery Commission (IOFC)  
 Indian Ocean Tuna Commission (IOTC)  
 Regional Commission for Fisheries (RECOFI)  
 Southwest Indian Ocean Fisheries Commission (SWIOFO)  
 Western Central Atlantic Fishery Commission (WECAFC)

#### NON-FAO BODIES

Atlantic Africa Fisheries Conference (AAFC)  
 Advisory Commission on Fisheries Research (ACR)  
 Regional Fisheries Advisory Commission for the Southwest Atlantic (CARPAS)  
 Comité Régional des Pêches du Golfe de Guinée (COREP)  
 Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)  
 Commission for the Conservation of Southern Bluefin Tuna (CCSBT)  
 Commission Sous-régionale des Pêches (CSRP)  
 joint Technical Commission for the Argentina/Uruguay Maritime Front (CTMFM)  
 Inter-American Tropical Tuna Commission (IATTC)  
 International Baltic Sea Fishery Commission (IBSFC)  
 International Council for the Exploration of the Sea (ICES)  
 International Commission for the Conservation of Atlantic Tuna (**ICCAT**)  
 International Commission for the Exploration of the Mediterranean Sea (ICSEM)  
 International Pacific Halibut Commission (IPHC)  
 International Whaling Commission (IWC)  
 Latin American Organization for the Development of Fisheries (OLDEPESCA)  
 Network of Aquaculture Centers in Asia-Pacific (NACA)  
 Northwest Atlantic Fisheries Organization (NAFO)  
 North Atlantic Marine Mammal Commission (NAMMCO)  
 North Atlantic Salmon Conservation Organization (NASCO)  
 Northeast Atlantic Fisheries Commission (NEAFC)  
 North Pacific Anadromous Fish Commission (NPAFC)  
 North Pacific Marine Science Organization (PICES)  
 Pacific Salmon Commission (PSC)  
 Southwest Atlantic Fisheries Commission (SAFC)  
 Southeast Atlantic Fisheries Commission (SEAFO)  
 South Pacific Forum Fisheries Agency (FFA)  
 South Pacific Commission (SPC)  
 South Pacific Permanent Commission (CPPS)  
 Sub-Regional Fisheries Commission (SRFC)  
 Western Indian Ocean Tuna Organisation (WIOTO)

## CHAPTER 4.

## New Technical Approaches in Fisheries Management: The Precautionary Approach and the Ecosystem Approach

**F**isheries management has a global history of "boom and bust," with stock collapses leading to social hardship in many areas. Such crises have always prompted the development of new technical approaches to fisheries management, to correct the perceived problems. For many years, fishery management was aimed at delivering the Maximum Sustainable Yield (MSY) as predicted from the biological characteristics of each single target fish species. Most fisheries around the world are still managed in this way. Such management approaches have had limited success in ensuring sustainable catches of even those target fish species and have also led to wasteful bycatch of other species not considered in the management model. As discussed earlier, uncertainties with the biology and nature of marine species, lack of knowledge about the interactions between different components of marine ecosystems, subsidization and over-capitalisation of fishing fleets, inadequate and ineffective management measures, and non-compliance and poor enforcement have all contributed to the poor current state of world fisheries. The use of overly simplistic management approaches has also been a contributing factor.



Though relatively recent, the ecosystem approach is now recognized as one of the major tenets of sustainable fisheries. Its implementation has led to the adoption of more selective gear, like a turtle excluder device (TED) on a vessel operating under US jurisdiction in the Gulf of Mexico.

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The eco-system approach originated in the U.S., through forestry policies; i.e., through the U.S. Interagency Ecosystem Management Task Force and the Ecological Society of America (Lanters 2000). While there is broad recognition of the existence and importance of ecological linkages between fisheries and the environment, science is still searching for effective means of managing such complexities. While this work proceeds—and accepting as well that some level of uncertainty will probably always exist—the precautionary approach must be adopted to limit the negative effects of overfishing.

This chapter describes the recent evolution of these two new technical approaches to fisheries management and their perceived advantages for environmental sustainability and the stability of marine fisheries. It draws on materials prepared by FAO (for the precautionary approach sections) and in World Wildlife Fund (WWF) reports for the European Union (EU) (for the ecosystem approach sections). Case

studies are used to describe recent experiences in the application of these approaches around the world.

The paradigm of MSY died over 20 years ago (Larkin 1977) and was replaced by a flourish of alternative technical models based on less deterministic assumptions. In their quest for more effective management systems, fisheries managers have adopted more holistic approaches, recognizing the interactions between ecosystem components and the inherent variability in natural resource systems. Two new technical fisheries management paradigms have evolved from this work over the course of the 1990s. The "precautionary approach" to management under uncertainty was initially championed by the Food and Agriculture Organisation (FAO) during international fisheries negotiations up to the mid 1990s, drawing on the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) model. Since the precautionary approach's definition in 1995 (FAO 1995a; 1995c), national governments and regional fisheries bodies have been attempting to integrate it into their management systems.

The "ecosystem" approach evolved in parallel to promote the more effective management of both single-species and multi-species fisheries in the broad framework of the marine environmental system.

#### 4.1. The Precautionary Approach

Since the conclusion of the United Nations Conference on Environment and Development (UNCED) in 1992, the concept of the precautionary approach (PA) to fisheries has become about as popular and as frequently quoted as the concept of sustainability. However, while "sustainability" is fairly easy to understand, the concept of "precautionary management" is proving difficult to define and to make operational.

The PA has evolved in response to the need to achieve sustainability and avoid fishery collapses *in an uncertain world*. The overwhelming characteristics of all fisheries are their variability (spatial and temporal), complexity, and resulting unpredictability. Such characteristics are not going to go away; therefore, fisheries managers are developing methods to live with uncertainty. Since uncertainty affects all elements of the fishery system in varying degrees, precaution is required at all levels of the system: in development planning, management, research, technology development and transfer, legal and institutional frameworks, fish capture and processing, fisheries enhancement, and aqua-

culture. Moving on from the paradigm of MSY, precautionary managers now have to accept that they do not know exactly how many fishers can be sustained nor even all of the underlying factors that might affect that number. Since everything has some inherent uncertainty, management must be cautious and use feedback mechanisms that provide learning (reduction of uncertainty).

In technical terms, the PA advises the recognition of Limit Reference Points (LRPs), which should be respected at all costs to reduce the risk of stock collapses. The PA instead aims for more cautious Target Reference Points (TRPs) to reduce the risk that the LRPs will be violated. Such TRPs will always be somewhat less than LRPs, to provide a buffer against overexploitation. The level of precaution required (the difference between the LRP and the TRP) should be commensurate with the danger (undesirability) of collapse and the uncertainty in the estimate of the LRP. While the MSY approach aimed for the *maximum* theoretically available catch, the PA recognizes uncertainty and aims instead to take a catch *that is unlikely to threaten stock collapse*. The PA thus reverses the "burden of proof," and fishing is assumed to be harmful *unless proven otherwise*.

Under a precautionary strategy then, the measures and regulations used to manage fisheries (e.g., size limits, quotas, and so on) will not necessarily change, but they should be applied in a *precautionary way*, based on the uncertainties in the system. Any lack of information is then used as a reason for taking action (e.g. to set a precautionary limit and begin collecting information to improve confidence in that limit), rather than as an excuse for doing nothing.

The CCAMLR model stipulates, for example, that in a new fishery, fishing effort and capacity should only be allowed to develop slowly, in a controlled way, with evidence collected alongside to demonstrate that such effort is likely to be sustainable. Free-for-all expansion of fisheries until the point of collapse is thus avoided.

Under the PA, managers acknowledge that they do not have the perfect solution, and fishery management evolves as more of a risk-balancing exercise. Since choices on risk are subjective (some people are more risk averse than others), precautionary management must be conducted under a comprehensive stakeholder consultation process. For example, decisions on the future levels of fishing effort must be taken in collaboration with the fishing industry, which stands to be most affected both by short-term cuts due to management restrictions and by social disasters due to stock collapses, if and when they occur.

The following sections describe the evolution of the PA over the various U.N. meetings of the 1990s; provide details on the meaning of the PA, as defined in the resulting FAO guidelines; and give case studies describing attempts to apply the PA by three different organizations.

#### 4.1.1. Evolution of the Precautionary Approach

The old MSY approach aimed to maximize the potential yield from fishing without considering the natural variability in ocean systems. MSY was enshrined in the 1982 U.N. Convention on the Law of the Sea (UNCLOS). UNCLOS recognized the need for "preventive action" to avoid negative impacts (Article 194), although this specification applied mainly to pollution and did not refer in any way to uncertainty or risk or the need to take action in the absence of scientific certainty (Garcia 2000). UNCLOS thus promoted MSY as the target reference point, without considering the risks of it being exceeded 50% of the time (on average), even in the best circumstances.

International work to formalize the PA began at the FAO in the early 1990s, in parallel to the preparatory process for UNCED. At this time, Garcia (1992) identified some of the implementation challenges to be faced in the period 1993-2000, including the need to deal explicitly and effectively with uncertainty in new management targets to replace MSY. Though not yet clearly defined at that time, the PA was endorsed by UNCED in 1992, leading to Principle 15 of Agenda 21, which states that:

*"In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."*

Following UNCED, in the period 1992-1995, a number of technical consultations and analyses were conducted by FAO about the PA and the new reference points for fisheries management. These led to incorporation of the approach into two major international fisheries instruments: the U.N. Fish Stocks Agreement; and the FAO Code of Conduct for Responsible Fisheries (FAO 1995a). The actions initiated by the FAO were followed, paralleled, and enhanced by various non-FAO initiatives. IUCN (Cooke 1994), WWF, and Greenpeace, for example, all lobbied for the rigorous development of the PA in this period.

Legally, the most significant process was the U.N. Fish Stocks Conference, as it led to the formal adoption of the PA and its subsequent inclusion in the subsequent Agreement, in 1995 (see Chapter 2). Despite initial disagreements over its definition and relevance, the concept was included in the main text of the Agreement (Article 6), and basic guidelines on the use of the PA were set out in Annex II of the Agreement. Though the Agreement applies specifically to "straddling" and "highly migratory" fish stocks, the work undertaken on elaborating the PA for this agreement was always seen as equally relevant to national fish stocks. The Fish Stocks Agreement thus complements UNCLOS provisions for the management of resources both within the high seas and exclusive economic zones (EEZs). The Agreement has just come into force, and its provisions are being referenced and used extensively by nations and regional fisheries organizations worldwide.

Also in 1995, the FAO Code of Conduct for Responsible Fisheries was adopted (FAO 1995a). The Code provides for a wide application of the PA in various situations (capture fisheries, technology development, species introductions, research, and so on). Specifically, the Code requires that

*"States and sub-regional and regional fisheries management organisations should apply a precautionary approach widely to the conservation, management and exploitation of living aquatic resources in order to protect them and preserve the aquatic environment, taking account of the best scientific advice available" (Article 6.5).*

Unlike the Fish Stocks Agreement, the FAO Code is voluntary. Its content is made compulsory, however, wherever its principles and provisions are introduced into national policy (as has occurred in countries such as Australia) and legislation as well as into regional instruments (e.g., the Northwest Atlantic Fisheries Organisation [NAFO]).

Details of FAO's interpretation of the PA, as adopted in the Code, were developed at the FAO Technical Consultation on the Precautionary Approach to Capture Fisheries held in Lysekil, Sweden, in June 1995 (FAO 1995c). These guidelines have also been published by FAO as Paper 2 in its Technical Guidelines for Responsible Fisheries series (FAO 1996). The following section describes in some detail the meaning and implications of the PA, as defined in these documents.

#### 4.1.2. Understanding the Precautionary Approach

The PA implies that fisheries management should be based on the use of "prudent foresight" to avoid unacceptable or undesirable<sup>1</sup> impacts on the marine environment (FAO 1996).

The PA is based on the following considerations:

- That changes in fisheries systems are only slowly reversible;
- That these changes are difficult to control and not well understood; and
- That these changes are subject to continually changing environmental and human values.

Recognizing these underlying assumptions, the PA requires the following, *inter alia* (FAO 1996):

- a. Consideration of the needs of future generations and avoidance of changes that are not potentially reversible;
- b. Prior identification of undesirable outcomes and of measures that will avoid them or correct them promptly;
- c. That any necessary corrective measures are initiated without delay, and that they should achieve their purpose promptly, on a timescale not exceeding two or three decades;
- d. That where the likely impact of resource use is uncertain, priority

should be given to conserving the productive capacity of the resource;

- e. That harvesting and processing capacity should be commensurate with estimated sustainable levels of resource, and that increases in capacity should be further contained when resource productivity is highly uncertain;
- f. That all fishing activities must have prior management authorization and be subject to periodic review;
- g. That a legal and institutional framework for fishery management is established, within which management plans that implement the above points are instituted for the fishery; and
- h. That there will be appropriate placement of the burden of proof through adherence to the requirements above.

Within these general principles, it is normally accepted that the operational requirements for precautionary management will depend on the scale of the fishery. Clearly, the same intensity of management and research cannot be applied to both highly valuable, data-rich fisheries in industrialized nations and to local, artisanal fisheries in small, developing countries with minimal management capacity. While differences in scale must be expected, the PA should in all cases be applied to all aspects of management. Planning, research, management measures, enforcement, and monitoring should all thus support the revised precautionary objectives for the fishery.

The following two sub-sections describe how the PA should be implemented in the management of fisheries, by the use of precautionary reference points and explicit control mechanisms based on feedback from the fishery. This material is largely derived from a recent review of the PA by Garcia (2000).

#### ***Precautionary Reference Points***

The FAO Code of Conduct advises that fisheries managers should determine the following on the basis of the best scientific evidence available:

- a. Stock specific *target reference points* (TRP) and, at the same time, the action to be taken if they are exceeded; and
- b. Stock specific *limit reference points* (LRP) and, at the same time, the action to be taken if they are exceeded; when a limit reference point is approached, measures should be taken to ensure that it will not be exceeded (Article 7.5.3).

Though different reference points have been adopted by different fisheries organizations (see below), most are based on one of the following two biological indicators:

- A minimum acceptable percentage of the maximum *spawning stock biomass*; and

- A maximum acceptable level of *fishing mortality*.

The first of these indicators is based on the current abundance of the fish stock as a percentage of the maximum (i.e., unexploited) level. Fishing mortality is the rate at which fish are dying due to fishing and is thus proportional to the effective amount of fishing (i.e., "effort" times "catchability"). These two indicators are theoretically directly related over the long-term average. However, variations in recruitment strength (the numbers of fish spawned each year) may mean that a fish stock abundance may sometimes be dangerously low even if fishing effort is below target thresholds. Similarly, following some good spawning years, the stock may be abundant but still in a risky position if fishing effort is unacceptably high. Management action may thus either be triggered by too high fishing mortality levels (indicating overfishing) or by too low biomass levels (indicating an overfished stock).

The International Council for the Exploration of the Sea (ICES)<sup>2</sup> (and most other organizations developing the PA) have identified both target and limit reference points for both of these indicators. In the ICES application, the critical LRP has been identified as the fishing mortality or corresponding biomass at which the stock is in *immediate danger of collapse through recruitment failure*. Precautionary or TRPs are set by ICES on the basis of the LRPs, modified by a safety factor proportional to the variance in the estimate of the LRP.

By setting TRPs on the basis of the variance of the LRP, the implication is that the TRPs in a poorly understood fishery must always be lower than those in a more well understood (better studied) fishery, even if the two resources are otherwise identical in resource characteristics (including stock size, reproductive rate). The burden of proof is thus placed on the fishery manager (or industry if it wants to increase catches) to demonstrate, by good science, that the LRP is precisely known and, hence, that increasing catches would *not* be risky.

In ICES' interpretation, the TRP is *not* necessarily the same as the level of fishing or biomass giving the theoretical MSY. Indeed, there is no deterministic relationship between the two, as the TRP depends on the variance in the LRP and the level of understanding of the fishery.

Taking an even more precautionary stance, NAFO has adopted the MSY as its statutory LRP and sets TRPs a certain buffer zone below this point. This approach avoids the likelihood inherent in the old MSY-based targets that fishing effort would exceed the MSY level in half of the years. NAFO's and ICES' LRPs thus clearly correspond to quite different levels of risk. The U.N. Fish Stocks Agreement provides further guidance on this issue by suggesting that:

*"The fishing mortality rate that generates the maximum sustainable yield (MSY) should be regarded as a minimum standard for limit reference points. For stocks which are not overfished, management strategies shall ensure that fishing mortality does not exceed that which corresponds to MSY, and that biomass does not*

*fall below a predefined threshold. For overfished stocks, the biomass that would produce maximum sustainable yield can serve as a rebuilding target."*

The reference points described above may be estimated on the basis of three main types of common stock-assessment models (stock-recruit, yield-per-recruit, and production models) and have a purely biological focus. It is widely accepted, however, that to be effective, the PA must be based on a nested set of indicators covering not only the state of the stock but also the social and economic outputs of the fishery. Such additional reference points may thereby trigger appropriate actions whenever there are *social* problems in the fishery. Limit and target reference points could also be placed on the effectiveness of different fishery rules—on acceptable levels of illegal fishing, for example.

### ***Precautionary Management Plans and Control Rules***

In addition to identifying limit and target reference points, the PA requires clear specification of the actions that should be taken to avoid possible undesirable outcomes if the reference points are exceeded. Such actions should be defined under a system of pre-agreed "control" or "decision" rules corresponding to the various critical states or trigger points of the fishery. Such mechanisms are designed to ensure effective action with the minimum possible delay, avoiding protracted debates while a crisis develops. As far as possible, all foreseeable contingencies should be considered when developing the set of decision rules.

In the PA, these reference points and decisions rules should be combined into a clear and explicit management plan for each fishery (FAO 1995a, section 7.3.3). A checklist for the preparation of a fisheries management plan is given by FAO (1997). From the precautionary perspective, a model management plan should include (FAO 1995c):

1. The identification of broad **management objectives** aimed at ensuring the long-term sustainability of the fishery and the avoidance of irreversible changes. More specific objectives should also be identified and may include protecting key target species, restricting the environmental impacts of fishing to acceptable levels, limiting bycatch, and promoting the recovery of depleted species.
2. The identification of **reference points**, providing triggers for action at defined critical states in the system. Specific limits may relate to the state of the target fish stock or to undesirable effects on the ecosystem, such as the impacts of incidental mortality (bycatch). Targets will vary with different species and fisheries and on the management objectives selected.
3. The identification of specific **management measures** and a set of **decision rules** that specify in advance what actions should be taken under what circumstances. Such actions may include short-term management of each fishing season, such as the closure of a fishery when an annual catch limit is reached. They may also

include long-term actions, such as reductions in fleet capacity (e.g., the number of licensed vessels), if fishing mortality becomes too high (above the TRP). Specifications of the decision rules should include the minimum data requirements and the types of assessment methods to be used in decision making.

4. Plans for **monitoring and evaluating** the effectiveness of the management plan for achieving the management objectives. Such evaluations should include prospective review of the plan on its first design and annual re-assessments as each new year's data become available. The methods of evaluation will vary depending on the scale of the fishery (artisanal or well developed) but should include recognition of the changes that occur in both environmental conditions and fishing fleet behavior.

Examples of precautionary management actions are listed in Appendix 4.1. Different measures are identified for fisheries in different levels of exploitation: developing, overutilized, fully utilized, and for traditional or artisanal fisheries. To support these actions, supplementary measures on compliance, monitoring, and enforcement should also be identified.

The PA should be integrated into all stages of the management process, from planning to implementation, enforcement, monitoring, and evaluation. The approach should involve the development of management strategies and plans that include explicit actions that will be taken if those plans do not work as intended. Under precautionary management everything should be kept under review, from fishing mortality levels to the effectiveness of institutional arrangements (e.g., as indicated by levels of poaching). All such components of the system should be re-evaluated on a timely basis, at least every few years.

If management plans are found to be inadequate in terms of their ability to ensure precaution, revisions may be required in one or more of the following areas (FAO 1995c):

- Modification of the operational targets and constraints; Re-specification of the procedures used to apply management measures;
- Further research to reduce critical uncertainties; or
- Consideration of more powerful assessment and monitoring methods.

### ***The Precautionary Approach to Fisheries Research***

The PA requires that the consequences of alternative management actions be evaluated in advance and with respect to the stated management objectives for the fishery. Such evaluations should, at the very least, aim to consider the uncertainties in data and alternative possible hypotheses that may explain the biological and social processes of the fishery.

The PA is applicable to both data-poor and data-rich situations. Where limited stock-specific research has been carried out, a precautionary management strategy should be based on strongly conservative actions that carry a high likelihood of maintaining the viability of the fish stock. These may include (FAO, 1995c):

- Keeping the spawning biomass at a prudent level (i.e., above 50% of its unexploited level);
- Keeping the fishing mortality rate relatively low (i.e., below the natural mortality rate);
- Avoiding intensive fishing on immature fish; and
- Protecting critical habitats (e.g., those on which fish depend for spawning or as nurseries).

Where pressure exists to increase fishing levels beyond these "safety zones," precautionary research should be carried out to enable management decisions to be made on the basis of quantified risks. Research thus may improve the estimates of the target and limit reference points, to show that fishing could be safely increased, at least to acceptable levels of risk.

As has been discussed, the PA specifically requires a more comprehensive treatment of uncertainty than has been the norm in many fisheries. Precautionary researchers should develop an understanding of the sources of uncertainty in data sampling processes and collect information to quantify this uncertainty. Sources of uncertainty in fishery assessments include (FAO 1995c).

The accuracy of input data (e.g., where catches may be systematically under-reported);

- Parameter values used in models (e.g., natural mortality, size at maturity);
- Model structures (most importantly, the true form of the stock-recruitment relationship);
- Future environmental conditions (including changes in ecosystems caused by fishing);
- Effectiveness of implementation of management measures;
- Future economic and social conditions (including changes in fish prices reflecting variation in supplies);
- Future management objectives; and
- Fleet capacity and behavior (including introductions of new technology and unforeseen responses to management).

In data-rich situations, the various levels of uncertainty described above can be used in integrated statistical analyses to estimate the probabilities of alternative different "states of nature." Such states rep-

resent the various uncertain hypotheses about the resource; for example, that a fish resource has inherent productivity X, Y, or Z. Decision table approaches can be used to estimate the expected (most likely) outcomes for several different management options and their variances, across these different states. Informed decisions can then be made on the basis of these predictions and their associated certainties. Management option "A" may be selected, for example, if it produces a slightly lower yield than option "B" but with a far higher certainty (lower variance across the different states).

In many fisheries, detailed information will *not* be available on the uncertainties in the above factors, and it will *not* be possible to estimate the probabilities of the different "states of nature." It is still possible, however, to adopt the PA and predict the outcome of management actions using various different models under each of the different states. Where the probabilities of the alternative states are not known, the minimax/maximum approach can be used to select the management decision that achieves a good outcome or one that is "not too bad" across all states. FAO has provided examples of these decision-making approaches (FAO 1995c).

The detailed requirements of "precautionary research" will clearly vary between different fisheries. In most circumstances, accurate and complete data will be required on both retained and discarded catches and on fishing effort. Data quality should be ensured by creating incentives for industry cooperation and by deploying at-sea observers, especially in valuable, industrial-scale fisheries. Such quantitative data may often be complemented by the "traditional ecological knowledge" of resource users, particularly in understanding the historical and spatial aspects of the fishery.

Precautionary analyses should thus examine the likely direction, magnitude, and probabilities of the biological, social, and economic consequences of different management actions, including the scenario of "no action." Precautionary methods of analysis will differ with circumstances, but they should always be transparent and use scientific standards of evidence (i.e., evidence that is objective, verifiable, and potentially replicable). They should also be periodically peer-reviewed by independent and objective advisors to ensure reliability and accuracy.

### ***The Precautionary Approach in Data-Poor Situations***

For valuable fisheries—and where strong statistical fisheries exist—the PA may be applied using statistically powerful simulation techniques, as described above. Such analyses may reveal which sources of uncertainty are most critical to achieving the objectives selected for the fishery and may also direct future research.

For small, artisanal fisheries, computationally intensive management analyses may not be possible or cost effective (Caddy and Mahon 1995). For such fisheries, precautionary management may depend not

on highly quantitative analyses but, rather, on ensuring that at least some sort of precautionary measures are accepted and observed by local fishers, ideally through some form of collaborative management. Closed areas have been proposed for this situation as a precautionary management tool that may be easily understood by non-technical fishery stakeholders (FAO 1995c).

Where the available data are inadequate for establishing stock-specific LRPs, values may be used that have been found to be sustainable in other similar fisheries. ICES, for instance, has adopted a fishing mortality that provides 30% of the virgin spawning stock biomass per recruit as a first proxy LRP (Garcia 2000).

Where limited statistical skills prevent the use of integrated probability-based models, as described above, simpler alternative decision-making tools may be used. For example, Caddy (1998) has proposed the use of a "basket of LRPs" that could be considered "green," "yellow," or "red" depending on their value, with actions being triggered by the number of red indicators.

When no data exist, the PA still dictates that a relationship between parent stock and subsequent recruitment should be assumed to exist (i.e., until proven otherwise) and, hence, that uncontrolled fishing will threaten the stock. As confirmed by Principle 15 of the UNCED Rio Declaration, the lack of data is no longer an excuse for resisting positive conservation action in a precautionary way.

### ***The Precautionary Approach to Fisheries Technology***

Fishery technology consists of the equipment and practices used for finding, harvesting, handling, processing, and distributing aquatic resources and their products. Different technologies can have a wide range of different impacts on target fish species, bycatch species, habitats, the ecosystem as a whole (e.g., due to pollution or by affecting predator-prey relationships), and on socio-economic factors, such as safety and profitability. Technologies on their own do not threaten fish stocks - it is the degree to which different technologies are used that is critical. For example, a 4% increase in fishing efficiency each year would result in a doubling of fishing mortality every 18 years, even if fishing effort remained constant. If such technology increases are accepted under a precautionary management regime, fishing effort might need to be cut by 4% every year to keep within target reference points. Thus, a holistic, impact-based view is required.

In fisheries that are already overexploited and where fishing capacity exceeds that required for sustainable harvests, there is little justification for increases in technology that further increase fishing power (i.e. catchability). A PA to technology changes would instead aim at the following (FAO 1995c):

- Improving the conservation and long-term sustainability of living aquatic resources;
- Preventing irreversible or unacceptable damage to the environment;
- Improving the social and economic benefits derived from fishing; and
- Improving the safety and working conditions of fishery workers.

Recognizing that fishers will always innovate in their desire to improve personal returns, responsible fishery management must recognize the advantages and disadvantages of new technologies and promote those that achieve fishery objectives with the minimum possible side effects. The education of fishers and consumers towards responsible practices is critical here. The successful international effort in the Eastern Central Pacific in training crews effectively to avoid bycatch of dolphins through the use of specifically designed technology is a good example of what can be achieved (FAO 1995c).

A PA would thus encourage careful consideration of the side effects of new fisheries technologies *before they are introduced* and also mitigation measures for addressing the effects of current technologies. As with other aspects of the PA, technologies should be prevented that may lead to difficult-to-reverse changes in resources. Reflecting the shift in the burden of proof, proponents of new fishery technologies should be required to provide proper evaluation of the potential impacts before authorization is given. When new technology is accepted under limited conditions, impacts should be monitored and compliance ensured through effective enforcement provisions. Where research and monitoring facilities are limited, decisions may be based on existing knowledge about technology impacts in similar circumstances elsewhere.

#### 4.1.3. Implementation of the Precautionary

##### Approach: Case Studies

To date, the PA has mostly been applied by the most technically advanced regional fisheries organisations and scientific advisory bodies. Less information is available on its application at the national level, though several countries (notably the U.S., Canada, Australia, and South Africa - Garcia 2000) now actively promote the approach. As described in the following case studies, the PA has been interpreted in different ways by different organizations. Precautionary science is clearly evolving, as is inherent to its nature.

#### ICES

Through its Advisory Committee on Fishery Management (ACFM), the International Council for the Exploration of the Sea (ICES) provides scientific information and advice and makes recommendations for management measures to several international bodies, including the European Commission (EC).

Traditionally, ICES' advice has been based on a comparison of the state of the stocks against their Minimum Biologically Acceptable Levels (MBALs), which are defined as the levels below which there is evidence of recruitment failure. Recently, ICES has begun a process of formal implementation of the FAO guidelines on the precautionary approach. In 1997, the ICES Study Group on the Precautionary Approach identified the following requirements:

1. The need to determine reference points, with a priority for limit reference points that define the constraints on long-term sustainability;
2. The need to improve methods for dealing with uncertainties, notably in relation to evaluating the risk of either approaching or exceeding the limit reference points; and
3. The need to evaluate the effectiveness of management measures either to maintain stocks in, or restore them to, healthy states (ICES 1998).

As an example, of the EC's acceptance of the advice on precautionary approach, the EC accepted the ICES advice, for 2001, and implementing a package of emergency measures for North Sea cod. This included a temporary controlled area that was closed to all fisheries likely to catch cod until 30 April 2001; technical and control measures to protect young cod in the spring; and a proposal to develop a long-term management plan for North Sea cod in June 2001 was made (European Commission 2000)

#### CCAMLR

The Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR) applies the PA rigorously to the management of Antarctic marine resources. Since 1986, CCAMLR has been developing a clear definition of the approach, its implementation in terms of research and management, and its practical implementation. The CCAMLR approach takes uncertainty into account and attempts to achieve member consensus on specific catch limits through the application of decision rules.

CCAMLR's prioritization of the PA may be illustrated using the case of krill, *Euphasia superba*. Krill hold the pivotal position in the Antarctic marine ecosystem, providing the main food source of many fish, whale, and bird species. After two years of debate, the CCAMLR Commission endorsed the advice of its Scientific Committee (SC-CAMLR), as follows:

*"that reactive management, the practice of taking management action when the need for it has become apparent, is not a viable long term strategy for the krill fishery. The adoption of a long-term strategy that entailed adjustments to management measures with increasing information was endorsed. In the interim, a precautionary approach is desirable and in particular, a precautionary limit on annual catches should be considered"* (CCAMLR 1991).

On this basis, the first precautionary catch limit for krill was set (SC-CAMLR/XVIII/BG26, 1996). It is important to note that this catch limit was set specifically because of the key role of krill in the Antarctic ecosystem, not for the sole purpose of maintaining krill catches for their own sake. By 1990, the CCAMLR Commission had thus endorsed the general concepts for setting catch limits for krill:

- To keep krill biomass at a level higher than would be the case for single-species harvesting considerations and, in so doing, ensure sufficient escapement of krill to meet the reasonable requirements of predators;
- Recognizing that krill abundance varies between years, and focusing on the lowest biomass that might occur over a future period, rather than on average biomass over the period, as might be the preference in a single-species context; and
- Ensuring that any reduction of food to predators that may arise out of krill harvesting is not such that land breeding predators with restricted foraging ranges are disproportionately affected compared to predators in pelagic habitats.

With these precautionary and ecosystem-based concepts, CCAMLR continues to develop its research and management measures with each annual meeting. CCAMLR has begun to develop models to explore the possible form of the functional relationships within the Antarctic ecosystem, for example. It will take considerable time to acquire the information needed to provide advice on revised values for recruitment or predator requirements. Nonetheless, CCAMLR is taking steps to express some of its objectives for managing krill fisheries in a precautionary manner.

CCAMLR also adopts a strongly PA to the management of new fisheries. The Scientific Committee of CCAMLR has highlighted that the development of any new fishery should not occur at a rate faster than the Commission is able to evaluate the potential consequences of that fishery (CCAMLR 1990). To this end, the Commission adopted conservation measures in the early 1990s requiring members to notify the Commission of their intention to undertake any new fisheries in the Convention Area (specifically, Conservation Measure 31/X (CCAMLR, 1991)) or their intention to undertake further exploration following the initiation of a fishery (CCAMLR 1993, Conservation Measure 65/XII). Measures so far imposed on new fisheries include conservative catch limitations for different management areas combined with catch limits to avoid over-exploitation of localized stocks. Against increasing commercial pressure to open new fisheries, CCAMLR has not been able to stall the expansion of new fisheries in the CCAMLR Convention Area. CCAMLR has been criticised for the lack of a precautionary approach to approving an increasing number of fisheries as a result.

Finally, CCAMLR has attempted to adopt a PA to the management of fisheries in relation to bycatch levels. CCAMLR has a bycatch limit for various non-target species in new and exploratory toothfish fisheries.

In the application of these bycatch provisions, the Scientific Committee advised that it would be appropriate for vessels to move from a fishing location when the bycatch provision had been exceeded. It also recommended that the minimum distance a vessel should move should be 5 nautical miles from the fishing location. CCAMLR continues to revise these bycatch provisions as new information on relevant species is received (CCAMLR 1999).

#### 4.1.4. Discussion: The Precautionary Approach

The precautionary approach has shifted the paradigm of fisheries management from maximum yield to minimum risk. The PA prioritizes environmental and social sustainability, making the avoidance of recruitment overfishing a major objective. The PA argues that regular preventive medicine will be better than occasional drastic cures that may take decades to work. Since no future is certain, the PA promotes use of the best scientific evidence in decision-making frameworks that clearly accommodate uncertainty.

The FAO's guidelines for the PA (FAO 1995c; 1996) describe its application to specific aspects of fisheries management and at different levels of exploitation (see Appendix 4.2). Even with this advice, the case studies cited above highlight differences in the interpretation and practical implementation of the approach. In many ways, work on the PA is still at an exploratory stage. Initiatives are now underway to harmonize the approaches used by different bodies, such as the North Atlantic Fisheries Organisation (NAFO) and ICES in the North Atlantic (Garcia 2000).

The incorporation of the PA into international legal instruments, particularly the legally binding U.N. Fish Stocks Agreement, provides a strong impetus for its implementation through RFOs. With 50% (FAO 2000) of the world's fish stocks either overexploited or "fully exploited" (i.e., at 'MSY' levels of fishing effort), the PA implies that fishing effort will need to be drastically reduced in the majority of the world's fisheries. The challenge now is to start taking that precautionary medicine, while simultaneously allowing for social demands and development objectives.

While progress has clearly been made, several issues still constrain widespread adoption of the PA (Garcia 2000). These issues include the inherent complexity of the approach and the need to convert uncertainty, ignorance, and indeterminacy into positive and socially and politically acceptable measures. Many fisheries managers are struggling with PA concepts due to a lack of adequate quantitative training. Even where strong science exists, there have been difficulties in integrating the PA into existing institutional frameworks that already have specified and accepted reference points and decision-making frameworks. In Canada, the next step in the implementation of the precautionary approach is the modification of the existing institutional framework to ensure stakeholder participation and support for the precautionary approach (Jake Rice 2000, pers.comm.).

A key factor in the future adoption of the PA will be the way in which precaution is communicated to non-scientist stakeholders, particularly decision-making politicians. Since the science behind PA is hard to explain, it may be difficult to convince politicians to reduce fishing effort to precautionary levels, especially where development and short-term poverty reduction are priorities. With high social pressures and not unreasonable ambitions for betterment in many parts of the world, sustainability for the sake of posterity is simply Utopian. The PA is only likely to be really supported when it addresses the need of *present* generations by reducing immediate risk of fisher) collapse.

Though the PA provides clear guidelines, it is a political decision whether to make sacrifices now to reduce risks of later collapses or to prioritize current fishing until evidence is found that the risk really did exist. The choice is between accepting the PA or accepting the alternative boom-and-bust style of exploitation, with its consequences for biodiversity, ecosystem services, and societies. Such decisions may be particularly hard to make for straddling or shared resources when different nations in the region choose different levels of risk. The focus must now move from the definition of biological and other reference points to how they can be applied in an effective management system clearly linking objectives, risks, and good governance.

The need, then, is for good communication and the transparent application of the PA with the meaningful involvement of stakeholders. While judging what risk is acceptable is society's responsibility, scientists are responsible for forecasting the consequences of the various possible courses of action in terms of their probability and likely cost. While there is a need for more transparency in such shared decision making, there is a real associated need for presenting risk factors and alternative choices in language that is simple and clearly understandable to the public at large. Work is ongoing in this area (Garcia 2000) (such as the work on the "red-yellow-green" indicator light systems referred to above). Only facilitated sharing of these decision-making processes will result in long-term success of the precautionary fisher) management process.

## 4.2. The Ecosystem Approach

It is increasingly well documented that fishing activities have significant impacts not only on the target species but also on the wider environment. There is particular concern about the long-term impacts on the food web of removing large quantities of prey species, resulting in alterations to the structure and function of marine ecosystems with consequent effects on marine biodiversity.

### 4.2.1. Definition of the Ecosystem Approach

There is no official definition of the ecosystem approach but, broadly speaking, it implies a more holistic approach to fisheries management that takes into account all components of the ecosystem. The underlying

aim is to ensure that flora and fauna are maintained at viable levels in their native habitats and that the integrity of ecosystems is maintained as far as possible while supporting a sustainable level of human use.

In the ecosystem approach there also is an underlying assumption that the impacts on the physical environment will be taken into account and that the approach will be based on the best scientific knowledge of population dynamics and species interactions. It implies a substantial widening of the traditional single-species approach.

### 4.2.2. The Ecosystem Approach in an International Context

The failure to manage and conserve fisheries worldwide has been the focus of many technical meetings and fora. In addition, the impacts of fishing on marine ecosystems and marine environments has led to public pressure to change traditional fisheries management techniques. The ecosystem approach is currently promoted as an improvement to traditional fisheries management based on the single-species approach. The concept was adopted by CCAMLR in 1980, was further endorsed at UNCED in 1992, and has been promoted by several international and regional fora since. These fora include

- The U.N. Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks (1995);
- The FAO technical consultations on the Code of Conduct for Responsible Fisheries (1995) and on Overcapacity, Seabirds and Sharks (1998);
- The Convention on Biological Diversity (1993);
- The Commission on Sustainable Development (1997); and
- U.N. General Assembly Sessions during the Oceans Debate (1998).

In most cases, the ecosystem approach has been further defined or expanded in terms of guidelines and recommendations. At a regional level, there has been more extensive discussion about its practical implementation and relevance. Regional fora that have embraced the concept as part of their marine management strategy include:

- The Inter-Ministerial Meeting on the North Sea (1997);
- The North Sea States technical workshop on the ecosystem approach within the framework of the North Sea Conference (1998);
- CCAMLR (annually)
- The International Commission for the Conservation of Atlantic Tunas (annually)
- NAFO (annually)
- The ICES/SCOR meeting on Ecosystem Effects on Fishing held in Montpellier, France (1999).

Finally, some national governments have dedicated time and effort to refining the approach, including the U.S. and Australia. In the following section, three case studies highlight practical experience with implementing the approach.

#### 4.2.3. Implementing the Ecosystem Approach: Case studies

##### *The Antarctic Experience - CCAMLR*

CCAMLR is the only regional fisheries convention specifying that an "ecosystem approach should be adopted as an integral part of the Antarctic marine management plan CCAMLR's Working Groups, Scientific Committee, and the Commission itself collectively work on the development of research plans and management measures as part of the approach. A summary of their efforts to date is given below.

CCAMLR's attempts to implement the ecosystem approach are assisted by the relative "simplicity" of the Antarctic marine ecosystem. In summary, there are three trophic levels - primary producers, krill, and krill predators (fish, seals, whales, and seabirds). Despite the apparent simplicity of the system, however, there has always been concern over the impacts of krill fishing on different krill predators due to the pivotal position of krill in the Antarctic. From the outset, the difficulties associated with the detection of the impacts of krill fishing were recognized. This is due to the spatial and temporal variability in the dynamics of the Antarctic marine ecosystem. Therefore, CCAMLR formulated the CCAMLR Ecosystem Monitoring Programme (CEMP) in 1986, with its top priority being the detection of the impacts of krill fishing.

CCAMLR's Scientific Committee realized from the outset that monitoring the entire ecosystem would be highly impractical. Frequent surveys of the population status of krill would be beyond the financial capacity of the Antarctic research vessels. In order to monitor the state of the marine ecosystem, the Scientific Committee decided to select a range of species most likely to reflect changes in the availability of harvested species, especially krill. A few key prey species were selected for detailed study due to their positions in the Antarctic ecosystem. In addition, a few key predator species, including Antarctic fur seals and some species of penguins, were selected as indicators of food availability. A number of key study sites were also chosen to highlight the differences between fished and non-fished areas. Environmental parameters, such as hydrography and ice cover, were also considered to be important indicators of environmental change and, thus, were also included in the (CEMP)

To date, CCAMLR has found that the combination of monitoring and evaluating various components of the ecosystem (for example, the numerical and functional relationships between the selected species) has contributed greatly towards detecting and recording significant changes in critical components of the ecosystem. This infor-

mation now provides a sound basis for management decisions. For example, CCAMLR has found that monitoring prey species and environmental factors and the identification of the links between these and predators has improved its ability to differentiate between changes due to environmental variability and those due to commercial harvesting.

Now the information base on key indicators of changes to the marine ecosystem and the environment is expanding. Most of the continuing fieldwork and data acquisition is being carried out voluntarily by CCAMLR members. The data is then fed into the annual ecosystem assessments,' as requested for decision making. Since 1997, CCAMLR has collected data from 80 specially chosen sites, species, and parameters. CCAMLR is now addressing the following important question: How much of the system needs monitoring to effectively achieve the objectives set out in the Convention, in particular, Article II?

An important feature of the CEMP is that all data from all the participating country surveys are collected in a consistent manner to assist in appropriate decision making rules. In addition, the Working Group on Ecosystem Monitoring and Management is currently spending most of its time synthesizing data in a way that provides a quantitative basis for decisionmaking. It also is spending a great deal of time trying to decide which variations in these parameters constitute ecologically significant variations and what advice should be given to the Commission for management measures. In that regard, two outstanding challenges for CCAMLR are as follows:

- i. How can one combine the parameters into a single index that can be used as an indicator of ecosystem health?
- ii. How can these indices be further elaborated into management decisions? (SC-CAMLR 1999)

##### *The U.S. Experience*

The U.S. government has also been moving forward with the challenge of managing fisheries using an ecosystem approach. According to a U.S. report released in 1998 (NFMS) as far back as 1871, the U.S. Commission for Fish and Fisheries recognized that the absence or presence of fish was not only related to removal by fishing but also the dynamics of physical and chemical oceanography. In 1998, the U.S. Congress charged the National Marine Fisheries Service (NFMS) with establishing an Ecosystem Principles Advisory Panel. The tasks of the Panel were 1) to assess the extent to which ecosystem principles are currently being applied in fisheries research and management and 2) to recommend how best to integrate ecosystem principles into future fisheries management and research.

The Panel then used a set of principles, goals, and policies to evaluate the current application of the ecosystem approach in U.S. fisheries management (see Appendix 4.2). The Panel concluded that Regional Fishery Management Councils (Councils) already apply some of

these principles, goals, and policies. One of the problems, however, is that application has not been consistent between Council jurisdictions or ecosystems. The Panel also concluded that Councils have not previously had a clear mandate or the resources to apply the ecosystem approach in either research or management policy. In addition, there were considerable gaps in knowledge and practice of the constraints to full implementation of the approach.

The Panel felt that U.S. fisheries scientists and managers are beginning to grasp the full potential of ecosystem-based fisheries management to improve the sustainability of resources but concluded that this awareness needs to be expanded to actions. The success of this approach in the U.S. will be supported by measures already being undertaken as a result of revision of the Magnuson Act (NFMS 1996), especially protection of areas of "essential fish habitat" (EFH).

The Panel outlined a series of interim and long-term measures that should be adopted by NFMS, the Councils, and other appropriate agencies:

- All Councils should develop a Fisheries Ecosystem Plan (FEP) that includes the following actions—
  - (i) the identification of ecosystems and the implementation of zone-based management;
  - (ii) the development of a conceptual model of the food web;
  - (iii) the calculation of all removals (including bycatch, discards and incidental mortality) and their relationship to spawning stock biomass (SSB), production, and trophic structure;
  - (iv) assessment of uncertainty and the identification of buffers for conservation and management;
  - (v) development of indices of ecosystem health;
  - (vi) development of long-term monitoring programs; and
  - (vii) assessment of ecological, human, and institutional elements of the ecosystem that most affect fisheries.
- All national management agencies should put in place measures to assist with the implementation of the FEPs. These measures include
  - (i) the incorporation of the ecosystem principles in current management plans;
  - (ii) the provision of training for Council members on the implementation of FEPs;
  - (iii) the preparation of guidelines for FEPs;
  - (iv) the development of demonstration FEPs; and
  - (v) the enactment of legislation required to implement FEPs.

- The Panel also identified the types of research that would be required to support management based on ecosystem principles. There is a need to
  - (i) determine the ecosystem impacts of fishing;
  - (ii) monitor trends and dynamics in marine ecosystems; and
  - (iii) explore ecosystem-based approaches to governance.

### ***The EU Experience with the Implementation of the Ecosystem Approach***

At the Bergen meeting of North Sea States in 1997, the need for integration of fisheries and environmental issues was acknowledged as part of the "ecosystem approach." In the context of the North Sea, it was agreed that the approach to marine environmental management should be based on the following:

- Identification of processes in and influences on ecosystems that are critical to maintaining their characteristic structure and functioning, productivity and biological diversity;
- The taking into account of the interaction among foodwebs of ecosystems; and
- Protecting the chemical, physical, and biological environment necessary for the well-being of these ecosystems (IMM1997).

The EC concluded that a first step would be to increase the knowledge of marine ecosystems as a whole. In this context, ICES is the agency responsible for collation of data, stock assessments, and advice. Though ICES acknowledges the need to manage fisheries in a manner that ensures ecosystem stability, little work has been done thus far on the definition of reference points in the ecosystem context (ICES 1998). Naturally, these points should not be restricted to fish but should also include other components of the ecosystem, such as the benthos, seabirds, marine mammals, and so on.

A number of studies have been undertaken to identify indicators of ecosystem health in European waters. Downward or upward trends in populations of many non-target species have been shown for the North Sea and other intensively fished areas (Heesen and Daan 1996). However, not all of these species are suitable as potential reference points for an ecosystem approach. Useful reference points are those where a very well-defined and clear relationship exists between stock status and fishing activities. ] Top predators, species that serve as main sources of food, structure building organisms, and representatives of a vulnerable group of species may be particularly useful as reference points (ICES, 1998)

Within ICES, there is still some skepticism about the ability of the ecosystem approach to ensure sustainability and conservation of the ecosystem as a whole. It is known that fishing has changed the size

composition of fish in many systems and in the North Sea in particular (Rice and Gislason 1996). Regardless of the trophic model, it is assumed that changing the size composition of predators in the ecosystem has, in all likelihood, altered the system. The uncertainty is the magnitude of the change and the consequences for the ecosystem.

Although ICES cannot evaluate the likelihood of achieving ecosystem-level objectives using a strategy of achieving all single-species conservation objectives, there are some important considerations to be made with regard to ecosystem-level reference points. For example, it is well established that the dynamics of individual stocks and populations connected trophically contain time lags and buffers that can slow down the rate at which the consequences of perturbations of a foodweb may be manifest. Therefore the full impacts may not actually appear until much later. (ICES, 1998)

In a follow-up to the 1997 Inter-Ministerial Meeting (IMM), a workshop on the ecosystem approach was held in Oslo in 1998 within the framework of the North Sea Conference. That workshop came to the following conclusions:

- It may be difficult to manage the North Sea ecosystem to create a desired ecological state, but the North Sea could be managed to achieve sustainable use, given political will and stakeholder support;
- There is a need for an internationally agreed definition of the ecosystem approach; and
- An "ecosystem approach" should involve clear overall objectives and specific targets and be based on current scientific opinion.

A number of predictive models exist that describe the ecosystem impacts of fishing based on a range of different assumptions about the ecosystem. Too little is known about the flux of nutrients at different trophic levels and among the benthic, pelagic, and demersal parts of the ecosystem. This hampers the ability to assess change within the ecosystems.

At a recent workshop in Germany (1999), the ecosystem approach was discussed in its European context. In summary, some fisheries scientists were skeptical about whether the ecosystem approach is scientifically realistic, given the current state of knowledge and the availability of data. Despite extensive discussions of the approach, there was no definition of the concept. It was concluded that despite the desirability of an ecosystem approach in principle, there are enormous practical difficulties to overcome before it could be applied.

So far, the scientific community has not been able to agree on the basic concept of the ecosystem approach nor has the existing data yet been able to model the complex relationships occurring in the North Sea ecosystem. This requires improved knowledge on mechanisms such as recruitment, migration, and relationships in the food web. In addition, if the ecosystem

approach is to guide management, its further development depends on more specific identification of the objectives associated with the approach.

#### 4.2.4. Discussion: The Ecosystem Approach

As shown in the three case studies, the implementation of the ecosystem approach may involve significant challenges, though some possible solutions exist. The main technical constraints to the implementation of the approach include

- The lack of clear specification of what the approach will entail;
- Inadequate knowledge of different components of the ecosystem (for example, the population dynamics of individual species);
- Inadequate knowledge of the interactions between species;
- Inadequate knowledge of the different impacts of fishing on the marine environment; and
- Inadequate knowledge of the effects of climatic and environmental conditions on the marine environment and on fish and other species.

In addition to these technical constraints, there may also be substantial *institutional* constraints. Although the U. S. is now moving ahead with ecosystem management in its Regional Fishery Councils, some still question the practicality of the approach due to the varied distribution of stocks within and between Council areas. While some species may be distributed wholly within a Council area, others may range more widely across Council boundaries or even throughout whole ocean systems. Simply defining the "ecosystem" for these variable components can itself be a challenge. Managing all of the components simultaneously under the current Council areas would require a complex network of regional management authorities. Creating an effective ecosystem management structure for any system spanning multiple jurisdictions will clearly present strong institutional challenges.

In order to implement an ecosystem approach, many fishery managers feel they need to work on the technical gaps in knowledge and to better understand the complex ecological and physical environment in which fisheries exist. Another viewpoint is that we may never have all the information that we need to implement a "true" ecosystem approach for any fishery. Many ecosystems are so complex and vary so extensively both in time and space that we may never be able to fully predict the exact consequences of any management action. Regardless of which general view is held, it is clear that the adoption of an ecosystem approach may be more difficult for a complex system like the North Sea or the Eastern seaboard of the U.S., than for the relatively "simple" Antarctic.

Recognising this complexity, the goals of the ecosystem approach may be better achieved by adopting a precautionary or adaptive manage-

ment style rather than a predictive one. Such a style would require clear specification of the goals of the ecosystem approach and a range of indicators showing whether these goals are being achieved. A precautionary management approach progresses on the basis of the best current knowledge of the system, while the indicators provide learning and feedback for improving management. The advantage of this approach is its ability to use the indicators to guide management even before the system is fully understood. This is not to say that detailed research will not improve our knowledge of ecosystem components or our ability to manage. It is argued, however, that the implementation of an ecosystem approach cannot wait until the perfect model or understanding is devised.

In conclusion, an integrated and system-wide monitoring program, such as CCAMLR's CEMP, may be the most useful first step towards effective ecosystem-based management. Such a monitoring program clearly needs to track both the *inputs* to the system (environmental factors, levels of fishing effort, management regulations and their effectiveness, and so on), and the *outputs* from the ecosystem. Such outputs may include the abundances or size structures of economically important fish species or other indicators of the health of the environment or the biodiversity of the system. The combination of indicators required for any given ecosystem approach would depend on the *goals* selected for that system by its various stakeholders.

The challenge for 'ecosystem managers' is thus to identify

- (1) the ecosystem units (and their stakeholders);
- (2) appropriate objectives for their management; and
- (3) the indicators of success.

Like the precautionary approach, the ecosystem approach represents a significant shift in complexity from the old single-species, single objective fisheries approach. In recognizing ecosystem processes, biodiversity, and social aspects, there is now no single optimum solution. There can only be trade-offs based on the subjective preferences of the different stakeholders. This seriously complicates the establishment of policy objectives. Considering the level of indeterminacy inherent in fisheries and ocean ecosystems, participatory and transparent decision making processes are essential to manage risk in an ethical way.

## Endnotes

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- 1 Undesirable or unacceptable outcomes include overexploitation of resources, overdevelopment of harvesting capacity, loss of biodiversity, major physical disturbances of sensitive biotypes, and social and economic dislocations.
- 2 The International Council for the Exploration of the Sea (ICES) has been at the forefront of developments of precautionary biological reference points. ICES is the regional scientific body responsible for providing advice to the EU and the North East Atlantic Fisheries Commission (NEAFC) on the management of North Atlantic fisheries (see Chapter 3).
- 3 Since 1997, annual assessments have been based on 1) a visual inspection of the trends of many krill predator parameters and 2) conceptual models that are modified over time.
- 4 Article II of the CCAMLR specifies the principles of conservation for the Convention Area, which include "...the maintenance of ecological relationships between harvested, dependent and related populations of Antarctic marine living resources..."
- 5 These are fisheries that are heavily harvested but not yet overexploited.
- 6 These are low-technology fisheries carried out by large numbers of small vessels, often when there is no central management agency.

## Appendix 4.1. Precautionary Measures Applicable to Different Categories of Fisheries Development ( FAO 1995c)

- Suggested actions to be applied to new and developing fisheries (or existing fisheries that are not yet managed):
  - a. Limit the number of participants to the fishery (control access) as early as possible. An open access fishery is not precautionary.
  - b. Establish limits on both fishing capacity and the resulting fishing mortality. This can be achieved by limiting fishing effort or total allowable catch. Excessive parallel investment in the processing sector should also be avoided.
  - c. Build in flexibility so that it is possible to phase out (decommission) vessels if this becomes necessary. Avoid over-investment by temporarily licensing vessels from another fishery.
  - d. Establish closed areas to provide refuges for exploited stocks and protect habitats.
  - e. Establish precautionary, preliminary biological reference points.
  - f. Encourage responsible fishing practices (i.e., sustainable, non-wasteful) by, for example, establishing fishing rights or co-management arrangements.
  - g. Encourage fisheries that are economically viable and not dependent on subsidies.
  - h. Establish data reporting and collection systems for new fisheries as early as possible.
  - i. Establish a research program on species and fisheries, including detailed data on catches and the like and on rule infringements.
  - j. Establish experimental situations to generate information on the resources (e.g., by comparing areas with different levels of fishing pressure).
- Suggested actions to be applied to over utilized fisheries:
  - a. Immediately limit access to the fishery, and put a cap on further increase in capacity and mortality rate.
  - b. Establish a recovery plan to rebuild the stock by a specific time, using the methods below.
  - c. Reduce fishing mortality rates long enough to allow for rebuilding of the spawning stock. Reductions in fishing mortality may be achieved by limiting overall fishing effort or by closing some areas to fishing.
  - d. When there is a good year class, give priority to using the extra recruits to rebuild the stock rather than increasing the allowable harvest.
  - e. Reduce fishing capacity to avoid the recurrence of over-utilization. Remove excessive capacity from the fishery, e.g. by decommissioning vessels. Withdraw any subsidies or tax incentives that maintain fishing capacity.
  - f. Where feasible, allow vessels to move from the over-utilized fishery into an under-utilized fishery.
  - g. Do not use artificial propagation as a substitute for the precautionary measures above.
  - h. In the management plan, establish reference points to define recovery, using measures of stock status, such as spawning stock biomass and so on.
  - i. For species with clearly understood ecological positions, monitor the productivity and area of required habitats to provide secondary indicators of when management action is needed.
- Suggested actions to be applied to fully utilized fisheries<sup>5</sup>:
  - a. Ensure that fishing mortality rate and fishing capacity are kept at existing levels.
  - b. Monitor early warning signs that a stock is becoming over-utilized, such as reductions in mean fish sizes or changes in the species composition of the catch. These signs should trigger investigative action and interim actions, as noted below.
  - c. When precautionary or limit reference points are imminent, pre-specified measures should be taken immediately to ensure that they are not exceeded.
  - d. If limit reference points are exceeded, implement recovery plans immediately to restore the stock (using the above guidelines for overutilized fisheries). To prevent overexploitation of the spawning stock, avoid harvesting immature fish (e.g., set control limits to trigger action if immature fish exceed a specified percentage of the catch).
- Suggested actions to be applied to traditional or artisanal fisheries<sup>4</sup>:
  - a. Keep some areas closed to fishing, and also ensure that excessive fishing does not develop in compensation, in areas outside.
  - b. Delegate some of the decision making, especially about area closures and entry limitations, to local communities or collaborative management arrangements.
  - c. Ensure that fishing pressure outside the local area (e.g., in industrial fisheries just outside the coastal zone) does not deplete resources beyond target levels.
  - d. Investigate factors that would influence the behaviour of harvesters to control fishing intensity ( e.g., by providing alternative livelihood options or giving exclusive use rights)

**Appendix 4.2. Principles, Goals, and Policies used in U.S. Panel Review of the Current Application of the Ecosystem Approach to U.S. Fisheries ( NMFS 1998)****PRINCIPLES**

- The ability to predict ecosystem behavior is limited.
- Ecosystems have real thresholds and limits that, when exceeded, can affect major system restructuring.
- Once thresholds and limits have been exceeded, changes can be irreversible.
- Diversity is important to ecosystem functioning.
- Multiple scales interact within and among ecosystems.
- Components of ecosystems are linked.
- Ecosystem boundaries are open.
- Ecosystems change with time.

**GOALS**

- Maintain ecosystem health and sustainability.

**POLICIES**

- Change the burden of proof.
- Apply the precautionary approach.
- Purchase "insurance" against unforeseen, adverse ecosystem impacts.
- Learn from management experiences.
- Make local incentives compatible with global goals.
- Promote participation, fairness, and equity in policy and management.

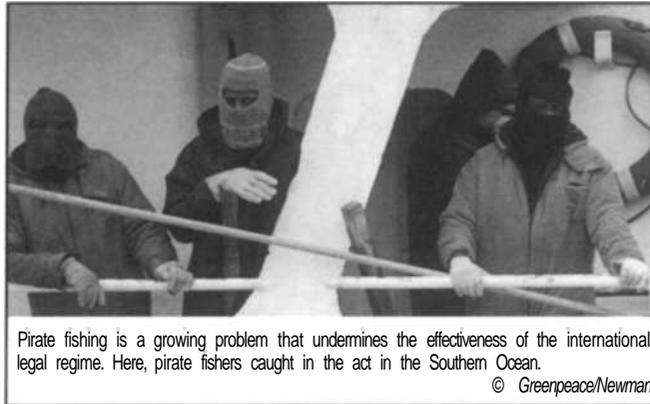
## CHAPTER 5.

## The Challenge of Enforcement: Illegal, Unreported, and Unregulated (IUU) Fishing

The first four chapters have shown how a series of treaties, plans of action, and a code of conduct have contributed to shaping a new fisheries regime. Under this regime, states and fishing owners/operators alike know what is expected of them, what measures they are bound to abide by, and what the penalties can be if they refuse. However, this complex regime, can only be effective if the relevant actors agree to be bound by it, agree to comply with its requirements, and are willing to enforce its measures against any party unwilling to do so. Without enforcement, the regime is but a hollow shell.

As highlighted in Chapter 2, different legal regimes in fact prevail in different areas of the oceans, but in all these areas a prevalent theme is the difficulty of enforcing whatever conservation and management measures have been negotiated and adopted. By definition, conservation and management measures mark restrictions on use of the resources, and they are sometimes imposed where absolute freedom had previously prevailed. As long as all the vessels involved—or all the parties to an agreement—abide by the conservation measures, cooperation is facilitated, and success is more likely. The effectiveness of the regime is undermined, however, where a fleet, a state or a group of states unilaterally decides to ignore the measures or refuses to be bound by them. In the case of a so-called "free rider," the beneficiary of the enforcement measures is likely to be the one delinquent state or set of states that avoids any restrictive measures while the stock is otherwise protected or managed sustainably. More broadly, the costs of compliance are borne by all parties that curtail their freedom to fish in order to comply with the measures adopted.

Moreover, breaking the rules of a fisheries regime is not necessarily to the long-term benefit of the guilty party since the survival of the regime and, ultimately of the stock, can be at stake. Fishing states and vessels are not always free to take a completely rational approach to fishing, however, and may, for instance, be under pressure to maximize their short-term interest because of profit, trade (see Chapter 6), or overcapacity considerations. Unfortunately, by flaunting the rules, the free rider can undermine the commitment of all other compliant states. Consequently, enforcement needs to be carried out by all, and failure by one can affect all others.



Pirate fishing is a growing problem that undermines the effectiveness of the international legal regime. Here, pirate fishers caught in the act in the Southern Ocean.  
© Greenpeace/Newman

As noted previously, the fisheries regime has been marked by an evolution from the Freedom of the Seas to enclosure, where what was at first subject to fishing by all has become mostly the prerogative of the coastal state (see Chapter 1), with 90% of landed catch caught in the exclusive economic zone (EEZ). Along the same lines, the enforcement regime has evolved from reflecting merely what was physically possible (as embodied in the

very limited "Canon-Shot Rule") to a complex regime that distinguishes between the rights of flag states, coastal states, port states, and other states. Furthermore, the nature of these enforcement rights depends on where the actual enforcement takes place. Different measures can be taken in the EEZ and on the high seas because, by definition, different entities have varying degrees of jurisdiction in these areas. The basis of the enforcement regime is provided by the UN Convention on the Law of the Sea (UNCLOS), though this has subsequently been modified and elaborated by the international legal instruments considered below.

### 5.1. The Current Regime

While it is clear that free riders can undermine the effectiveness of fisheries regimes, it is also true that some enforcement measures can be perceived as encroachments on the freedom of navigation and the qualified freedom of fishing on the high seas.<sup>1</sup> Consequently, a balance must be struck between conservation concerns and preserving other reasonable freedoms and the fundamental jurisdiction of flag states over vessels flying their flag. This balance is embodied in the framework of UNCLOS.

#### UNCLOS

UNCLOS establishes a clear distinction between enforcement within the jurisdiction of a coastal state (usually in the EEZ) and areas beyond (on the high seas). This clear distinction helps any fishing entity understand the jurisdiction under which it is placed: either that of the coastal state (in which case the rights of that and other states are clearly laid out) or under a more complex regime where other states may or may not regulate fishing under a regional fisheries management organization (RFMO). The regime of the high seas is laid out in

Articles 116-119, which call on states to cooperate, whether or not an RFMO has been established (see Chapters 1 and 3).

### 5.1.1. Enforcement in the EEZ

*"The coastal State may, in the exercise of its sovereign rights to explore, exploit, conserve and manage the living resources in the exclusive economic zone, take such measures, including boarding, inspection, arrest and judicial proceedings, as may be necessary to ensure compliance with the laws and regulations adopted by it in conformity with this Convention." (UNCLOS, Article 73.)*

Theoretically at least, the rights to enforce by the coastal state in its EEZ are clearly laid out. In fact, the situation is somewhat simpler in the case of activities that take place exclusively within the maritime jurisdiction of a coastal state. There, the state can take selected measures that restrict fishing activities, and foreign fleets can be excluded.<sup>2</sup> But while it may at first sight appear that the situation is clearer in such areas, this is not always borne out in practice. In the waters of many developing coastal states, distant water fishing nations fish with impunity, in violation of the requirements of international and/or domestic law, or under false pretenses. Many case studies have documented how some states of West Africa neither have the means to police their waters to exclude illegal fishing nor the political power to turn down unfair access agreements.

Article 73 refers to the right of the coastal state to board, inspect, and detain vessels found in violation of its legislation (such legislation being in conformity with the Convention). Likewise, Article 58 calls on states fishing in the EEZ of coastal states to "have due regard to the rights and duties of the coastal State and ... comply with the laws and regulations adopted by the coastal State." (Where such laws and regulations are adopted in conformity with the Convention.) Taken together, these two articles clearly indicate that the rights of the coastal state shall be respected and enforceable in the EEZ.

In practice, however, few developing coastal states have sufficient capacity to police their waters. The problem is compounded when the marine resources are very valuable, alternative terrestrial resources are scarce, the EEZ is large, and the means of enforcement (including financial) are limited. As a result, numerous cases of poaching are registered or, more often, go unnoticed or undocumented. Nevertheless, any coastal state is on solid jurisdictional ground when it attempts to enforce appropriate conservation and management measures in its EEZ, as long as the conservation and management measures and the enforcement measures are compatible with the Convention. In addition, this solid jurisdiction is backed by the stringent requirements that bind flag states. In that matter as well, UNCLOS is very clear. Article 91 provides that "ships have the nationality of the State whose flag they are entitled to fly. There must exist a genuine link between the State and the ship." When a coastal state has

### Box 5.1. The International Tribunal on the Law of the Sea

As provided in Annex VI of UNCLOS, an International Tribunal on the Law of the Sea (ITLOS) was established in Hamburg, Germany, shortly after the Convention came into force. The Tribunal is composed of 21 independent members nominated and elected by the state Parties. Its jurisdiction comprises "all disputes and all applications submitted to it in accordance with [the] Convention and all matters specifically provided for in any agreement which confers jurisdiction on the Tribunal" (Article 21, Annex VI, UNCLOS). The Tribunal convened its inaugural session on October 1, 1996, and three procedural documents were adopted: the Rules of the Tribunal, the Guidelines Concerning the Preparation and Presentation of Cases before the Tribunal, and the Resolution on the Internal judicial Procedure of the Tribunal. The first judgement was rendered in the *Saiga* case in December 1997, between St. Vincent and the Grenadines, and Guinea. In its five years of existence, the Tribunal has reviewed six cases involving international fisheries issues. Four of these cases addressed the prompt release of foreign vessels that had been arraigned by other states, and two cases dealt with broader stock management issues: Southern Bluefin Tuna (between New Zealand and Japan and Australia and Japan) and Swordfish (between the European Union (EU) and Chile). The Tribunal is therefore taking its place in the new international legal structure and providing a forum in which fisheries disputes between state members of UNCLOS can be adjudicated. States that have failed to ratify the Convention (including the United States) may not nominate members to the Tribunal or bring a case before it. More information on the Tribunal can be found at [www.itlos.org](http://www.itlos.org).

arrested or detained a vessel suspected of fishing in its EEZ in violation of its conservation and management measures, it is required to "promptly notify the flag State, through appropriate channels, of the action taken and of any penalties subsequently imposed" (Article 73.4). By entering the EEZ and engaging in fishing activities, foreign vessels clearly subject themselves to the jurisdiction of the coastal state. The situation is markedly more complicated for vessels fishing on the high seas.

### 5.1.2. Enforcement on the High Seas

*"Ships shall sail under the flag of one State only and, save in exceptional cases expressly provided for in international treaties or in this Convention, shall be subject to its exclusive jurisdiction on the high seas" Article 92*

As indicated in Article 92, the flag state alone can exercise jurisdiction over vessels flying its flag on the high seas "save in exceptional cases expressly provided for in international treaties or in this Convention." In practice, the jurisdiction of the flag state can only be superseded if the said flag state has agreed to it specifically or in cases where the

coastal state exercises its right of hot pursuit for violations of its law and regulations in the EEZ (Article 111.2). This points to another major gap in the implementation of UNCLOS: if a flag state is unable or unwilling to exercise control over vessels flying its flag, no other state can substitute its own jurisdiction. In practice, such is the case with open registries (also termed "flags of convenience" or FOCs), which allow vessel owners to register under a state that they know will not enforce conservation and management measures. The use of flags of convenience is widespread (see Box 5.2. below), allowing large numbers of vessels to flaunt internationally agreed fisheries conservation efforts. Registration under a flag of convenience may allow the vessel owner to skirt entirely the existing legal regime and, if the flag State is not a Party to the regional or international treaties that regulate fishing, the vessel owner does not *technically* break the law.

Such practices severely undermine the equity of conservation efforts, since those fleets registered under FOCs in principle have a distinct competitive advantage over vessels flying the flag of states that have agreed to the conservation measures and comply with them. As a result, different fleets play by different rules, and those that are less constrained can expect to be more competitive economically. They are free riders that benefit from the conservation measures adopted and implemented by others without having to bear any of the costs of such measures.

In addition, the very fact that vessels are registered under open registries (often for the sole purpose of avoiding legal obligations) is actually in violation of UNCLOS since, under Article 91.1,

*"Every State shall fix the conditions for the grant of its nationality to ships, for the registration of ships in its territory, and for the right to fly its flag. Ships have the nationality of the State whose flag they are entitled to fly there must exist a genuine link between the State and the ship."*

The obligations of the flag state are further defined in Article 94, which provides that "every State shall effectively exercise its jurisdiction and control in administrative, technical and social matters over ships fixing its flag." The jurisdiction called for is termed "effective," which could be interpreted as meaning that a State should not register a vessel over which it knows it has no chance of exercising control.

In great part in response to the abuses occurring through use of some open registries or flags of convenience, the member states of the FAO negotiated and adopted an Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (the FAO Compliance Agreement).

### ***The FAO Compliance Agreement***

The Preamble of the Compliance Agreement provides a very clear indication of the goals its parties were trying to achieve:

*"... the practice of flagging or reflagging fishing vessels as a means of avoiding compliance with international conservation and management measures for living marine resources, and the failure of flag States to fulfill their responsibilities with respect to fishing vessels entitled to fly their flag, are among the factors that seriously undermine the effectiveness of such measures."*

The Compliance Agreement applies to all vessels "that are used or intended for fishing on the high seas, though under some circumstances, a Party may exempt vessels less than 24 meters in size" (Compliance Agreement, Article II). For all those vessels to which the Agreement applies, the flag state is required to

- Take such measures as may be necessary to ensure that fishing vessels entitled to fly its flag do not engage in any activity that undermines the effectiveness of international conservation and management measures;
- Not allow any fishing vessel entitled to fly its flag to be used for fishing on the high seas unless it has been authorized to be so used by the appropriate authority or authorities of that party;
- Not authorize any fishing vessel entitled to fly its flag to be used for fishing on the high seas *unless the party is satisfied that it is able, taking into account the links that exist between it and the fishing vessel concerned, to exercise effectively its responsibilities under this Agreement in respect of that fishing vessel* (emphasis added);
- Refrain from registering vessels that have in the past undermined the effectiveness of conservation and management measures (unless it can be shown that ownership of the vessel has changed

<b>Box 5.2.</b>	<b>Flags of Convenience at the Click of a Mouse</b>
<p>The practice of reflagging vessels in order to avoid the treaty obligations of flag states has become so widespread that a Website is now available that facilitates flag of convenience registration at the click of a mouse. The site, <a href="http://www.flagsofconvenience.com">www.flagsofconvenience.com</a> highlights the benefits of reflagging under a flag of convenience, and one can even get a quote for the costs of registration online. As advertised on the site, "FLAGS OF CONVENIENCE S.A. specializes in advising shipowners, shipbuilders, offshore rig operators, marine bankers, marine insurance underwriters, and shipping attorneys on such matters as Ship Registrations, Payment of annual taxes and Dual Registry...."</p> <p>The flags offered include many where it is predictable that the "genuine link" between the vessel operator and the flag state will be tenuous at best. For instance, one of the West African flag states advertised has been tangled in a devastating civil war for more than a decade, and vessels flying its flag can hardly be expected to comply with the regulations of a non-existent government.</p>	

or the flag state has determined that to grant an authorization to use the vessel for fishing on the high seas would not undermine the object and purpose of the Agreement); and

- Take the enforcement measures that are likely to deter any activity that undermines the conservation and management measures, including making these activities illegal and making sanctions of sufficient gravity as to be effective and depriving perpetrators of the benefits of their illegal activities (Compliance Agreement, Article 111).

By so doing, the Compliance Agreement translates the provisions of UNCLOS on the duty of the flag state into more concrete obligations, which, if they are respected by the flag state, are very likely to curb violations of agreed conservation and management measures. In that respect, the Compliance Agreement adds teeth to the enforcement regime, and flag states are further compelled to take the measures they need to take in order to control the behavior of vessels flying their flags.

In meeting its new obligations, the flag state can expect assistance from port states, which are required to notify the flag state if they have reason to believe that a vessel making a port call has been used for an activity that undermines internationally agreed conservation and management measures (Compliance Agreement, Article V.2). In addition, all contracting parties are called upon to cooperate and provide mutual global and regional assistance so as to promote the objectives of the Agreement (Compliance Agreement, Article V.3). This provision recognizes the reality that fishing activities span huge distances and that a flag state can benefit from the assistance of other states to maintain control over vessels that travel wherever the target stocks are to be found. Article V2 implicitly recognizes that port states may be in a better position to observe violations than the flag state. In such a case, the jurisdiction of the port state is not being substituted for that of the flag state, but, rather, the port state provides sufficient information for the flag state to take the enforcement measures that are required under Article II. Cooperation is further enhanced through requirements that flag states should collect and share extensive data on vessels flying their flags.

While the Compliance Agreement goes a long way towards enhancing cooperation (though it is not yet in force), it should be noted that one of the thorniest issues remains: if the flag state refuses to take the necessary enforcement measures (particularly if the flag state is not a party to the Agreement), no other state's jurisdiction can be substituted. Thus the issue of non-complying states largely remains unsolved.

This issue is partially tackled by the U.N. Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks (the U.N. Fish Stocks Agreement).

### ***The U.N. Fish Stocks Agreement***

The U.N. Fish Stocks Agreement goes a long way towards shifting the

regime of the high seas from one of relative laissez-faire to one where states are required to collaborate through regional fisheries management organizations and arrangements (see Chapter 3). The same can be said about enforcement, with a shift from the exclusive jurisdiction of the flag state to a more complex arrangement where, under specific circumstances, another state's jurisdiction may be added to that of the flag state. This shift constitutes nothing short of a sea change in the way states perceive their rights and responsibilities on the high seas.

The U.N. Fish Stocks Agreement was negotiated and adopted to deal specifically with straddling fish stocks and highly migratory fish stocks. In that respect, it does not apply to all stocks on the high seas since, for instance, species that occur only on the high seas and are not listed in Annex 1 of UNCLOS are not covered. (See Chapter 2 for a more thorough definition of straddling fish stocks and highly migratory fish stocks.) At the same time, all stocks within EEZs are covered by the regime of the EEZ, and most stocks on the high seas are likely to be straddling or highly migratory.

For straddling fish stocks and highly migratory stocks then, the U.N. Fish Stocks Agreement establishes a detailed regime where enforcement is expected to take place in several stages. First of all, enforcement under the Agreement can only take place for those conservation and management measures that have been adopted by RFMOs through cooperation among states with an interest in the fishery (U.N. Fish Stocks Agreement, Article 8).

The duties of the flag state have been further strengthened under Article 18, which provides *inter alia*

- 1 That a state whose vessel fishes on the high seas shall take such measures as may be necessary to ensure that such vessels comply with the measures adopted by RFMOs and that such vessels do not engage in any activity that undermines the effectiveness of such measures;
- That a state shall authorize the use of vessels flying its flag for fishing on the high seas only where it is able to exercise effectively its responsibilities; and
- That the flag state shall establish regulations to regulate the fishing activities of its vessels on the high seas, including vessel monitoring, control, and surveillance.

In addition, the whole of Article 19 is devoted to compliance and enforcement by the flag state. It provides *inter alia* that "[a] State shall ensure compliance by vessels flying its flag with subregional and regional conservation and management measures for straddling fish stocks and highly migratory fish stocks." The compliance and enforcement procedures are straightforward and require immediate investigation of alleged violations; prompt reporting to the state alleging the violation and the relevant RFMO, referring, evidence-per-

mitting, the case to its authorities with a view to prosecution; the application of sufficiently severe sanctions; and, if the violation is serious enough, suspension of the high seas fishing authorization.<sup>3</sup> First off, then, the primary responsibility for ensuring compliance with sub-regional and regional measures by vessels on the high seas rests with the flag state.

As in the case of the Compliance Agreement, the flag state can expect assistance from other countries. Article 20 on international cooperation provides that the flag state

- May request the assistance of any other state whose cooperation would be useful;
- May undertake its investigations directly, in cooperation with other states or through the relevant RFMO;
- May obtain evidence from other states in order to ensure successful prosecution; and
- Shall cooperate with the coastal state if one of its vessels on the high seas is suspected of having fished without authorization in the waters of the coastal state.

In addition, states that are parties to an RFMO may take action to deter vessels that have engaged in activities that undermine the effectiveness of the measures taken by the RFMO from fishing on the high seas in the region until the flag state has taken appropriate action.

An additional level of enforcement authority is provided to RFMOs under Article 21, which states *inter alia* that "[i]n any high seas area covered by a [RFMO] or arrangement, a State Party which is a member of such organization or a participant in such arrangement may, through its duly authorized inspectors, board and inspect, [...] fishing vessels flying the flag of another State Party to this Agreement, whether or not such State Party is also a member of the organization or a participant in the arrangement..." Such a power to intervene is regulated by the same article under set procedures that allow boarding and inspection. Importantly, these procedures may not discriminate against non-members of the RFMO or non-participants in the arrangement. Furthermore, before it takes any enforcement action, the inspecting state is required to notify the flag state of the alleged violation. The flag state then has a chance to respond within three days and may opt either to proceed with an investigation itself as established under Article 19 or to let the inspecting state proceed. Following the inspection, the inspecting state is required to notify the flag state of its findings and leave the flag state the option to fulfill its enforcement obligations. If, however, the flag state fails to take appropriate measures, the inspectors may stay aboard and secure evidence. At any time, the flag state may reassert its authority under Article 19 to take the required enforcement measures. This enforcement power also applies to coastal states whose waters a vessel enters, even if the violation has previously occurred on the high seas, in the course of the same trip.

In the course of negotiating the U.N. Fish Stocks Agreement, the flag states ensured that the boarding and inspection of their vessels on the high seas would be subject to the conditions set up in Article 22. Article 22 is practically a "how to" guide for states inspecting vessels of another flag state on the high seas. It regulates everything from the accreditation of the authorized inspectors to the avoidance of use of force where possible to the cooperation of the vessel masters. It is precisely because of the complexity of these procedures that their modalities are to be negotiated and adopted in advance by the parties of the RFMO. In that way, the flag state parties know what to expect if and when their vessels are boarded and inspected by inspectors of another state.

The last level of enforcement afforded by the Agreement is that granted to port states. Article 23 refers to both the right and the duty of the port state to take measures to promote the effectiveness of measures taken by the RFMO. The port state may board and inspect any vessel voluntarily in its ports or at its offshore terminals. The port state may also adopt legislation prohibiting landings and transshipments where it has been established that the catch was taken in a manner that undermines the effectiveness of regional or global conservation and management measures adopted for high seas fisheries.

Taken together, Articles 20, 21, 22, and 23 cover all the levels at which enforcement measures may be taken by a flag state, a state member of an RFMO on the high seas, a coastal state, and a port state. The most important aspect of these articles is that failure of one state to take appropriate measures (most often the flag state) allows others to step in and take remedial measures. By not acting, a single state can no longer block enforcement of the conservation and management measures. Perhaps one of the reasons the negotiators of the U.N. Fish Stocks Agreement went so far in that respect was specifically because its scope of application is limited to straddling fish stocks and highly migratory fish stocks. Nevertheless, they created new law and recognized new rights on the high seas for non-flag states. This evolution continued within the context of the negotiations of the FAO International Plan of Action on Illegal, Unreported, and Unregulated (IUU) Fishing.

## **5.2. The FAO International Plan of Action (IPOA) to Prevent, Deter, and Eliminate Illegal, Unreported and Unregulated (IUU) Fishing**

The FAO International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported, and Unregulated Fishing (the IUU IPOA) marks the latest effort by states to enhance compliance and enforcement of conservation and management measures. The IPOA aims solely to address the issue of compliance and enforcement, and it became possible to negotiate it only recently, after UNCLOS, the FAO Compliance Agreement, and the U.N. Fish Stocks Agreement were adopted. In effect, the IPOA aims to close any remaining loopholes and goes to the heart of enforcement: the best conservation and management measures are useless if they are not respected and if states do not

carry out their duty to ensure that the vessels flying their flags respect these measures. The IPOA clearly acknowledges that past efforts to address IUU fishing have failed due to a lack of political will, priority, capacity, and resources to ratify or accede to and implement existing international instruments.

In its introduction, the IPOA clearly sets out some of the worst consequences of IUU fishing:

- It undermines conservation and management efforts in all capture fisheries, sometimes leading to failure of RFMO management goals;
- It leads to loss of both short- and long-term social and economic opportunities and to negative effects on food security and environmental protection; and
- It can lead to the collapse of a fishery or seriously impair efforts to rebuild stocks that have already been depleted.

As such, the IPOA does not aim to create new law but, rather, incorporates existing law and is a voluntary instrument as part of the FAO Code of Conduct for Responsible Fisheries. What it does is provide all states with comprehensive, effective, and transparent measures by which to act, including through appropriate RFMOs established in accordance with international law.

Illegal, unreported, and unregulated fishing is defined by the IPOA, as follows:

- Illegal fishing refers to *inter alia* activities by a foreign vessel in the waters of a coastal state without its permission, fishing activities by vessels flying the flag of a state party to an RFMO in contravention of that RFMO's measures, and fishing activities in violation of national laws and international obligations;
- Unreported fishing refers to fishing activities that have not been reported or that have been misreported (to the relevant national authority or in contravention of the procedures of the relevant RFMO); and
- Unregulated fishing includes fishing activities in the area of application of a RFMO by a vessel without nationality or flying the flag of a state that is not party to that RFMO in a manner inconsistent with or contravening the RFMO's measures, and fishing activities in areas in which there are no applicable measures in a manner inconsistent with state responsibilities for the conservation of living marine resources under international law.

These definitions cover most instances where conservation and management measures are undermined and all manners of "free rider" behavior, including the practice of reflagging under flags of convenience.

Following some of the distinctions set up by UNCLOS, the FAO Compliance Agreement, and the U.N. Fish Stocks Agreement, the IPOA establishes different measures that apply either to all states, flag states, coastal states, port states, or RFMOs. In addition, the IPOA contains internationally agreed market-related measures.

### ***Responsibilities of All States***

This is the longest section of the IPOA and a further indication that addressing IUU fishing is a responsibility that must be shared by all. The obligations under this section range from the duty to cooperate to full implementation of the relevant international fisheries instruments to adoption of national plans to prevent and deter IUU fishing. By adopting similar measures along the lines set out in the IPOA, states can and are required to exchange information and share lessons learned. International cooperation is particularly important as regards monitoring, control, and surveillance (MCS) because it is understood that such activity is likely to be particularly costly and only makes more sense if it is co-ordinated among all states. Also, emphasis is given to timely exchange of information about vessels that are suspected of IUU fishing.

An interesting additional provision on national responsibility is that of states need to ensure that "to the greatest extent possible ... nationals subject to their jurisdiction do not support or engage in IUU fishing" (IUU IPOA, paragraph 18). Furthermore, all states should cooperate to identify those nationals who are the operators or beneficial owners of vessels involved in IUU fishing. This is a broader responsibility than the traditional flag state responsibility and an acknowledgement that other persons or entities may be driving forces behind IUU fishing. Merely controlling the activities of vessels flying one's flag is no longer enough, and states are called upon, albeit in a qualified way, to control their nationals as well.

### ***Responsibilities of Flag States***

The measures to be taken by flag states are divided between those that concern the registration of vessels, the record of fishing vessels, and the authorization to fish. As a result, all the steps at which IUU fishing can be controlled are addressed.

As far as registration of vessels is concerned, the IPOA clearly provides that registration should not take place if the flag state cannot exercise its responsibility to ensure that the vessel does not engage in IUU fishing, and that, with certain caveats, the flag state should avoid flagging vessels with a history of non-compliance. In fact, the flag state is encouraged to make its decision to register the vessel conditional upon its being prepared to provide to the vessel an authorization to fish in waters under its jurisdiction or on the high seas or conditional upon an authorization to fish being issued by a coastal state to the vessel when

it is under the control of that flag state. In other words, the decisions to flag the vessel and grant the authorization to fish are intimately linked, a far cry from the loose requirements of some open registries and flags of convenience. In addition, flag states are required to take all practical steps to prevent "flag hopping."

With regard to records of fishing vessels, here again the duties of the flag state are quite stringent. For vessels authorized to fish on the high seas, the flag state is required to maintain in the record *inter alia* the names of the present legal and beneficial owners, the history of the vessel's non-compliance with conservation and management measures (where known), and the vessel's dimensions (including a photograph where appropriate).

With regard to the authorization to fish, states are to adopt measures to ensure that no vessel is allowed to fish unless so authorized, albeit in a manner consistent with specified international or national law. The flag state is to ensure that each of its vessels fishing in waters outside its sovereignty or jurisdiction holds a valid authorization to fish issued by that flag state. Where a coastal state issues an authorization to fish to a foreign vessel, that coastal state is to ensure that no fishing in its waters occurs without an authorization to fish issued by the vessel's flag state. The authorization to fish should include the name of the vessel, the name of the person authorized to fish (where appropriate), and the fishing activities permitted. The flag state may also require the presence of vessel monitoring systems on board vessels flying its flag.

Special provisions cover transshipment at sea to ensure that IUU fishing by other vessels is neither encouraged nor supported. For example, flag states are also to ensure that, to the greatest extent possible, all of their fishing, transport, and support vessels involved in transshipment at sea have a prior authorization to tranship issued by the flag state.

Taken together, these provisions constitute a very detailed set of obligations on the part of the flag state that cover many of the activities that are constitutive or supportive of IUU fishing. They represent a guide for the flag state to ensure that vessels flying their flag will not engage in or support IUU fishing.

### ***Measures of Coastal States***

Each coastal state is to implement measures to prevent, deter, and eliminate IUU fishing in its EEZ. The IPOA then lists some specific measures. They include

- Effective monitoring, control, and surveillance of fishing activities in the EEZ;
- Cooperation and exchange of information with other states (including neighboring states, where appropriate) and with RFMOs;

- Regulating access to its EEZ in a manner that will help to prevent, deter, and eliminate IUU fishing; and
- Control of transshipment and processing activities that may support IUU fishing.

However, the specific measures mentioned are couched merely as measures that the coastal State "should consider... to the extent practicable and appropriate."

### ***Measures of Port States***

States are to use measures in accordance with international law for port state control of fishing vessels in order to prevent, deter, and eliminate IUU fishing. For fishing vessels or vessels involved in fishing-related activities seeking permission for port access, port states are to require reasonable advance notice of their entry, a copy of their authorization to fish, details of their fishing trip, and quantities of fish on board. Once a vessel has been granted port access, the port state, if it has clear evidence that the vessel has engaged in IUU fishing, should not allow the vessel to land or tranship fish in its ports. In addition, the port state should report suspected violations to the flag state and where appropriate the relevant coastal states and RFMOs. States are to cooperate to develop compatible measures for port state control of fishing vessels. Significantly, states are to consider developing within RFMOs port state measures that build on the presumption that fishing vessels flying the flag of non-party, non-cooperating states, which are identified as being engaged in fishing activities in the area of that RFMO, may be engaging in IUU fishing.

### ***Measures Taken by RFMOs***

The measures taken by RFMOs apply to all members, but other, non-member states are not discharged from their obligation to cooperate with RFMOs, including by applying the conservation and management measures adopted by RFMOs (or consistent measures) and by ensuring that vessels flying their flag do not undermine those measures.

Members of RFMOs are required to cooperate to take measures that will prevent, deter, and eliminate IUU fishing. Consideration is to be given to *inter alia* mandatory reporting, exchange of information, development of monitoring, control and surveillance systems, and, where appropriate, development of boarding and inspection regimes, as well as market-related measures.

Member states should also encourage non-member states with a real interest in the fisher) to join the relevant RFMOs or, where this is not possible, facilitate and encourage the participation and cooperation of non-members.

In the case of a state that fails to curtail the IUU activities of its vessels, the relevant RFMO may bring this problem to the attention of the flag state. If the flag state fails to take action, members of the organization may agree to adopt appropriate measures, through agreed procedures and in accordance with international law.

While the sum of these measures constitutes a very wide range of powers for RFMOs, their adoption is subject to the procedures of the RFMOs and requires cooperation amongst all the members of the RFMO.

### ***Internationally Agreed Market-Related Measures***

This section of the IPOA was the subject of protracted negotiations, as a small number of States were particularly reluctant to allow the use of trade measures to prevent and deter IUU fishing. As a result, this section is carefully drafted and strikes a balance between the need to use latitude in combating IUU fishing and concerns for the protection of free trade. Specifically, this section aims to prevent trade in fish caught by vessels engaged in IUU fishing.

Paragraph 66 of the IPOA provides that "the identification of the vessels by the regional fisheries management organization should be made through agreed procedures in a fair, transparent and non-discriminatory manner." Furthermore, all trade-related measures are to be adopted in compliance with international law, "including principles, rights, and obligations established in World Trade Organization (WTO) Agreements and implemented in a fair, transparent, and non-discriminatory manner." Trade measures are provided for as last resort measures, only to be adopted if all other measures have failed to prevent and deter IUU fishing.

States may take measures to the extent possible under national law, including legislation that makes it a violation to trade in fish or fish products derived from IUU fishing. Trade-related measures could also include the adoption of multilateral catch documentation and certification requirements, as well as other appropriate multilaterally agreed measures, such as import and export controls or prohibitions. In any event—and whether or not the trade-related measures are adopted nationally or internationally the application of trade measures needs to be fair, transparent, and non-discriminatory. The IPOA also calls for extensive cooperation among states, both to identify vessels engaged in IUU fishing and to deter trade in fish caught through IUU fishing.

### **5.3. Discussion**

The issue of compliance and enforcement is one that has long plagued international fisheries management. Several international instruments have attempted to solve it, with relative success, and the IPOA on IUU is the culmination of these efforts. In some aspects, the approach taken in the IPOA is innovative, including the way in which trade and

market-related measures are addressed head-on. It is important to note, however, that the IPOA does not constitute new law, and, in some respects, it does not go as far as the U.N. Fish Stocks Agreement, particularly as regards the end of the exclusive jurisdiction of the flag state on the high seas. This is somewhat odd since, by definition, the IPOA is not legally binding, whereas the U.N. Fish Stocks Agreement became binding when it entered into force. This may be due to the fact that the scope of application of the Agreement was more limited (i.e., straddling fish stocks and highly migratory fish stocks only and mainly on the high seas), whereas the IPOA applies to all stocks, wherever they may be fished. Nevertheless, the IPOA has the merit of bringing together all aspects of enforcement in a single document. Any state, be it a coastal, flag, port, or market state, may find within the IPOA a wide array of measures that it can take to prevent, deter, and eliminate IUU fishing. In that respect, it could go a long way towards putting an end to some aspects of the lawlessness of international fisheries.

In and of itself, the adoption of the IPOA is a significant development, one that was made possible only once all the previous treaties and instruments had been negotiated and adopted. As the situation deteriorated, as the problems were displaced from coastal waters to the high seas, and as overcapacity and trade became major factors fuelling over-fishing, the solution to the problem became more and more complex. As a result, compliance and enforcement are now required at every single level, by all states involved in, or with an interest in, international fisheries, as well as relevant other entities (see Box 5.3. below). The IPOA recognizes and addresses this complex new reality, and it can only be applied in combination with all the other relevant international instruments previously adopted.

So why should states comply with the new international legal regime, and why should vessels abide by the measures that have been agreed by the states whose flags they fly? At the root of all compliance is a self-interest in seeing the conservation measures succeed because, as rational economic actors, neither the states nor the vessels have any interest in seeing the renewable resources that are being managed completely wiped out. As long as this interest in the implementation of the regime applies, enforcement can be expected to be self-enforcement. This is particularly the case with fishing access agreements, where distant water fishing nations need to see the win-win benefit of compliance with the conservation and management measures required by the coastal state. In such a case, the coastal state knows that its resources will not be wiped out, and the distant water fleet knows that its fishing activities will be sustained through time.

In addition, the behavior of the various actors is based on both predictability and reciprocity, and many state actors have attempted to lead by example. States behaving as rational actors know that contravention of measures by one may well lead to the collapse of the whole regime. Like-minded states have also cooperated in the past to attempt to encourage, and sometimes coerce, non-abiding states into respect-

ing conservation and management measures. Within the context of RFMOs, this pressure can take the form of both stick and carrot, where violators can be subject to trade measures, and cooperating states can expect to be granted a share of the stock quota.

In evaluating the likelihood of compliance with internationally adopted measures, one needs also to take into account some of the underlying pressures that drive overfishing (particularly overcapacity and some aspects of international trade). If those factors are not addressed, political will may not be sufficient to actually end illegal, unreported, and unregulated fishing. These factors are felt across the board, on the high seas as well as within coastal waters.

In this respect, one of the outstanding, and sometimes overlooked issues is that of compliance of coastal states within their own EEZs. If 90% of stocks are found within 200 nautical miles, and more than 70% of the stocks are overfished, can one really assume that coastal states are abiding by their duty to manage the resources of the EEZ sustainably as required by UNCLOS? Under UNCLOS, a coastal state is not obliged to accept submission to compulsory dispute settlement procedures regarding disputes relating to its sovereign rights with respect to the living resources in its EEZ or their exercise. By this route, there is nothing one state can do to force a coastal state to manage its resources sustainably. This may well be an area of international law that will need to be revisited. But given the fact that no coastal state has a perfect track record in its own EEZ, it will take a while before any state is willing to have other states review its own practices within its own jurisdiction.

Finally, the one issue that remains is that of flags of convenience or other free rider states intent on benefiting from conservation measures but unwilling to bear their cost. With any new international instrument adopted, a state has the option not to adopt or ratify it. thus exempting vessels flying its flag from its application. Even UNCLOS, the bedrock of the existing regime, has not been adopted by all states. The FAO Compliance Agreement and the U.N. Fish Stocks Agreement will only become relevant if most major fishing nations become parties. Likewise, the effectiveness of current and future RFMOs will depend on the degree to which nations fishing in their areas of jurisdiction opt to participate in them and to abide by their conservation and management measures.

Ultimately, the foundation of effective enforcement is meaningful international cooperation, including with non-state actors (e.g. non-governmental organizations [NGOs], see Box 5.3. below), through which non-cooperative states can be shamed or even pressured through trade and other measures to come into compliance with the new international fisheries regime.<sup>5</sup> At least now, all states have at their disposal a whole series of measures that they can take, and legal uncertainty is no longer an excuse for inaction.

### Box 5.3. Pirate Fishing: The Role of States (CCAMLR) and NGOs (Greenpeace Campaign in the Southern Ocean)

Pirate fishing, defined as fishing by vessels that fly flags of convenience to engage in illegal or unregulated fishing, is seriously undermining the regime of the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR). States party to CCAMLR are well aware of the problem and are continuously trying to address the issue. For instance, increased surveillance by coastal states, the use of satellite monitoring systems, and the introduction of a Catch Documentation Scheme are but some of the measures that have recently been adopted to tackle the issue of pirate fishing. Many feel however, that the state parties to CCAMLR need to do more, particularly in view of the fact that trade figures show that IUU fishing could be four times as high as that estimated by CCAMLR (Traffic 2001).

Greenpeace, an international NGO with extensive fisheries experience, has engaged in a campaign to actually document pirate fishing of Patagonian Toothfish in the Southern Ocean. The NGO sent one of its ships to the Southern Ocean and observed illegal fishing activities of repeat offender vessels, some of which had already been arrested by various coastal states. The results of this work were presented to the negotiators of the FAO IPOA on IUU, and some of the delegates were actually surprised to be given evidence showing that their vessels had reflagged under flags of convenience and been caught red-handed engaging in pirate fishing. While Greenpeace's actions documented a mere fraction of the pirate fishing currently taking place in the Southern Ocean, this work did highlight the impunity with which these ships operate, sometimes without knowledge of their States of origin (Greenpeace, 2001).

### Endnotes

- 1 It should be noted, however, that other forms of enforcement, such as port state control or trade measures, do not encroach on the freedom of navigation, though they raise issues of their own. See the discussion of trade measures in Chapter 6.
- 2 See Chapter 1 on the regime of the EEZ.
- 3 If the violation in question is serious and all outstanding sanctions imposed by the flag state in respect of that violation have not yet been complied with.
- 4 The measures that can be taken by RFMOs are reviewed in Chapters 3 and 6.
- 5 Two recent reports by international NGOs document the extent of pirate fishing. See *Traffic, 2001, Patagonian Toothfish: Are Conservation and Trade Measures Working?* at [www.traffic.org/toothfish](http://www.traffic.org/toothfish) and *Greenpeace, 2001, Pirate Fishing Plundering the Oceans*, at [www.greenpeace.org/fish](http://www.greenpeace.org/fish).

## CHAPTER 6.

Fisheries and Trade: The New Frontier?<sup>1</sup>

**W**ith the growth in international trade of fisheries products and vessels and the elaboration of the fields of international law concerning trade and fisheries, the relationships between trade and fisheries management have been the subject of considerable international debate. While these relationships are complex and evolving, several trade-related mechanisms can serve as valuable tools for fisheries management and conservation.

Trade and fisheries are related in many ways. Trade plays a major role in the fishing sector. World exports of fish products (including both wild and farmed fish) rose from US\$17 billion in 1985 to \$35.8 billion in 1990 to \$47 billion in 1994<sup>2</sup> and \$51.3 billion in 1998<sup>3</sup>. In 1993, exports comprised nearly 41% of the total world catch by weight;<sup>4</sup> in 1998, following the Asian financial crisis, the figure was 33%.<sup>5</sup>

Developing countries accounted for 80% of total fishery product exports by value and earned net foreign exchange of \$15 billion in 1998, up from \$5.1 billion in 1985.<sup>6</sup> Fish products are now one of the most valuable commodity exports for developing countries, surpassing coffee, bananas, tea, and rice.<sup>7</sup> Meanwhile, developed countries dominate the import market, with the European Union (EU), Japan, and the United States (U.S.) accounting for 78% of world imports by value in 1994.<sup>8</sup>

Foreign direct investment (FDI)—trade in capital—also has an impact on the intensity and capacity of fishing operations. In the aquaculture sector, for example, FDI forms a significant part of investment in shrimp farms in Southeast Asia. The impact of FDI may be significant for shore-based fishing operations or processing facilities in wild caught fisheries in some coastal states, but there has been little systematic collection of information on such investment.

Fishing vessels themselves may be traded. For instance, a vessel decommissioned in a developed country may be exported to a developing country. Finally, some analysts have characterized distant water fishing nation (DWFN) access to exclusive economic zone (EEZ) fisheries as trade in fisheries services.<sup>9</sup> In this view, the coastal state arranges to obtain a service, the extraction of fish from its fishery, along with an access fee, in exchange for which it provides DWFN vessels with access



World export of fish products has grown from US \$17 billion in 1985 to \$51.3 billion in 1998 to feed a growing demand in developed countries—here. Southern Bluefin tuna on sale at a market in Japan. Fish products are now one of the most valuable commodity exports for developing countries, surpassing coffee, bananas, tea and rice.  
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to its fishery.<sup>10</sup> Under international trade law, such as the World Trade Organization (WTO) General Agreement on Trade in Services (GATS), it is doubtful that fish harvesting would fall within the definition of a service, however. Rather, since fish products are goods rather than services, fishing would be considered a form of manufacturing, and the products would be covered under the General Agreement on Tariffs and Trade (GATT) if they moved in trade.<sup>11</sup>

International trade and investment relating to fisheries take place in the context of two sets of rules and institu-

tions, one for fisheries management and the other for trade. The fisheries institutions and rules have been addressed in the previous chapters. Alongside them are equally complex trade institutions, such as the WTO at the global level, as well as regional trade agreements and arrangements such as the EU, the North American Free Trade Agreement (NAFTA, which includes the Canada, Mexico and the U.S.), and Mercosur (Mercado Comun del Sur or Southern Common Market, which includes Argentina, Brazil, Paraguay and Uruguay).

The following section outlines the potential effects on fisheries of trade and trade law and policy; both positive and negative.

### 6.1. Potential Effects on Fisheries of Trade and Trade Rules

Trade and trade law and policy may have a variety of effects on fisheries management. On the positive side, foreign demand for a coastal state's fish exports may drive up the prices that producers can obtain. This in turn may enhance foreign exchange, create revenues that can support improved fishery management, and stimulate productive investment, higher wages, and expanded employment. Preferences of foreign consumers for sustainably produced fish products may create incentives for sustainable production, especially where globalization of media, travel, and communications increases consumers' ability to learn about conditions of production. Foreign direct investment can provide capital needed for expanded, more efficient fishing operations. For their part, importing countries can also benefit as consumers enjoy a wider variety of products, lower prices, and higher quality offered by more efficient foreign producers.

At the same time, trade may have a negative side. Foreign demand for exports may contribute to expansion of capacity, increases in operations, and intensification or modification of gear, which in turn increase the impacts or scale of fishing and contribute to overfishing and destructive harvesting. International trade frequently takes place across long distances as well as cultural and linguistic barriers, so that consumers know less about and feel fewer direct effects from the environmental or social costs of fishing. Imports of fish or fish products also may carry invasive species, which threaten native species and domestic fisheries. In addition, foreign direct investment may facilitate the use of more intensive and larger-scale technologies that stimulate or intensify overexploitation.

One other form of fishery-related trade involves fishing vessels. When some countries decommission old vessels they sell them to developing countries. Sometimes they do this as part of a program that is supposed to reduce overcapacity in the fishery. Such transactions may, however, merely move the problem around the globe, rather than solving it. Consequently, there have been calls for "measures to mitigate the negative environmental impacts of trade in fishing vessels."<sup>12</sup>

Trade laws and policies, as well as trade itself, can affect fisheries management. Trade measures are being used to enforce conservation measures such as those defined by regional fisheries management organizations (RFMOs). Export and import bans and regulations such as those defined under the Convention on International Trade in Endangered Species (CITES) are available to protect marine species where foreign demand contributes to economic pressures to over-harvest, though they have not yet been applied to species that are harvested commercially on a large scale. Furthermore, trade rules that limit governments' ability to subsidize domestic industries might serve as vehicles for reducing subsidies to the fishing sector, which are widely recognized as an underlying cause of overcapacity and consequent overharvesting.

On the other hand, trade rules are sometimes in tension or conflict with trade measures intended to promote conservation, as in the tuna/dolphin and shrimp/turtle cases arising under the GATT and WTO. Some commentators have raised concerns that WTO rules, in particular those of the Agreement on Technical Barriers to Trade (TBT Agreement), may hinder the implementation of ecolabelling schemes, even those that are voluntary and non-governmental. The WTO

### Box 6.1. The World Trading System

The world trading system is founded on the principle of comparative advantage. The principle states that each nation should specialize in production of the goods it can produce most efficiently. That nation exports those goods to its trading partners and imports goods other nations produce more efficiently than it does. In a trading system in which all nations remove protectionist measures and other barriers to market access, the net benefits to all should increase. Efficient producers of each good gain expanded markets and thus increased profits. Every nation has access to global markets in which the cheapest and highest quality products are available.

Since the GATT was agreed upon in 1947, world trade has grown substantially both in absolute terms and as a percentage of total world output. Arguably, the liberalization of trade during that period has stimulated the expansion of both trade and the world economy.

The centerpiece of this system is the WTO, established in 1995 as the outcome of the Uruguay Round of negotiations under the GATT. The WTO provides a forum for the negotiation of new trade agreements and a mechanism for the implementation of the existing agreements that bind its 140-plus members. Its system for settling disputes is highly developed, with outcomes enforceable through trade sanctions against violators.

In a sense, the WTO's overarching purpose is to maximize the implementation of the principle of comparative advantage. WTO rules seek to do this by preventing discrimination. Governmental regulations and policies are to treat "like" products equally, regardless of where they are produced. WTO rules are also intended to limit, reduce, and remove tariffs (import fees or taxes) and "unnecessary" barriers to trade.

The GATT—the general agreement underpinning the WTO rules—establishes limits on tariffs as well as three basic legal principles for opening markets to imports. One is the "most-favored-nation" principle, that a nation shall not discriminate between like products imported from two different trading partners (GATT, Article I). A second is the principle of "national treatment," that a nation shall not discriminate between an imported product and a like product produced domestically (GATT, Article III). The third is the prohibition on quantitative restrictions, such as bans or quotas on imports or exports (GATT, Article XI).

The WTO agreements concluded in the Uruguay Round represent a broad understanding of the implications of these principles. They include the Agreement on Technical Barriers to Trade (TBT Agreement), which limits what governments can enact in the way of mandatory regulations of product characteristics, packaging, and labeling and also seeks to impose trade principles on voluntary standards developed by non-governmental standards-setting bodies. The Agreement on Subsidies and Countervailing Duties (Subsidies Agreement), as well as the agreement on agriculture, requires governments to roll back subsidies to domestic industry that protect them against imports and distort global markets.

Agreement on the Application of Sanitary and Phytosanitary Measures (SPS) places limits on the power of governments to regulate imports in order to prevent introduction of pests, diseases, or invasive species.

Finally, rules being negotiated to liberalize investment and trade in services could potentially conflict with fisheries conservation by undercutting restrictions on access to fisheries, especially those that disadvantage new entrants or those from outside a given region.

At a more general level, trade and trade rules may trigger or worsen harmful fishery exploitation in situations where producers "externalize" environmental costs of production onto the environment or others who share it, rather than internalizing them pursuant to incentives or regulatory requirements. Such "external" costs include environmental damage through bycatch, damage to habitat, or impairment of the stock's long-term productivity. In the absence of regulations or incentives, fish producers can avoid the added cost of harvesting fish in a way that reduces impact on habitat and non-target species. This puts responsible producers at a price disadvantage in the market. Expanded foreign demand can intensify the effects of such price differentials, amplifying competitive pressure on producers to use cheaper techniques even if they are more environmentally destructive and potentially putting pressure on countries to lower their standards for fishing in order to put their producers in a more competitive position.

Similarly, the failure to protect communal or private property rights, or to take other measures to limit use in a public resource or "common" encourages unsustainable harvesting. Each user gains the full benefit of his or her harvest while sustaining only a fraction of its cost, which is shared with all other users. Property rights in fisheries have frequently been poorly defined and even less well enforced, especially in developing countries. Combined with liberalization of trade, the result can be "an apparent comparative advantage ... even where there is none" and "apparent gains from trade, which in reality could be losses." Resources in developing countries are overexploited, and "the world economy as a whole consumes an inefficient quantity of resources, because it takes no account of the costs to the world economy of the resource overuse."<sup>13</sup>

In addition, the trading system, like all market systems that are uncoupled from regulations or environmental incentives, also fails to account for ecological limits of scale. Market demand is insensitive to ecological limits at all levels of production all the way until extinction of the resource. That is, the limit of exploitation is not a function of biology but a function of the price that the product commands on the market, as compared to the cost of harvesting the resource. Biological limits have at best an indirect effect on the extent that producers must expend greater effort per unit of catch as stocks dwindle.

Alongside these environmental considerations, there are social impacts for which the trading system accounts poorly. Giving free rein to the prin-

ciple of comparative advantage may stimulate more efficient and abundant production, but it does not by itself promote equitable distribution of the resulting benefits either within or among countries. For example, the trading system fails to account for the difference in the value of fish as a source of needed protein in poor communities compared to the same fish as input for pet food in a rich foreign country. Reckoning of national accounts may show a shift from harvesting for domestic consumption to harvesting for export as a net increase in national income, without taking account of impacts on nutrition in coastal communities.<sup>14</sup>

Finally, it is worth considering how the current terms of economic globalization may affect the preservation or development of the institutions and values needed to achieve sustainable fisheries. In the global economy, fish are more or less fungible goods, substitutable with other fish species, with other animal protein, and so on, according to supply and demand. Increasingly, fisherfolk are treated as fungible labor inputs, to be shifted from one sector to another, according to comparative advantage.

An ethic that supports sustainable fishing, in contrast, may involve a different definition of the human relationship to wild fish. Rather than being fungible economic goods, fish will be fellow organisms that form a living resource for us within the living system we share with them. Fisherfolk are not merely fungible units of labor but are stewards of a living resource that must be tended and harvested in an ecological as well as economic context. Stewardship implies a long-term commitment, with future generations of both fish and humans kept in mind—not a transient connection between labor and material input defined by the ebbs and flows of global capital markets.

The next section reviews trade-related tools for enhancing fisheries management, including trade measures to monitor and enforce compliance with RFMO measures, trade regulation under CITES, port state control of landing and transshipment to back up conservation measures, ecolabelling as an incentive for sustainable management, controls on imports to prevent introductions of invasive species, and other trade-related measures.

## 6.2. Trade Tools for Addressing Trade and Fisheries Issues

A variety of trade measures are available to achieve a variety of goals:

- D Trade measures are increasingly used to monitor and enforce compliance with RFMO conservation and management measures (see this chapter, section 6.2.1);
- D Measures applied to landings and transshipments can serve similar objectives (see this chapter, section 6.2.2);
- D Trade measures are also available to regulate trade in order to ensure the survival of traded species (see this chapter, section 6.2.3);

- D Ecolabels may be applied to traded products so as to inform consumers of the environmental impacts of the fish and fish products they buy and create rewards for producers that adhere to responsible practices for harvesting and processing (see this chapter, section 6.2.4);
- D Trade rules may be fashioned or applied to require governments to reduce subsidies to the fishing sector that simultaneously distort trade, impede development, and harm the long-term health of fisheries and related ecosystems (see this chapter, section 6.2.5);
- D Measures applied to trade are needed to protect against invasive species that can harm target species and related species and ecosystems (see this chapter, section 6.2.6); and
- D Finally, countries may wish to take measures to manage the environmental impacts of their own consumption of fish and fish products (see this chapter, section 6.2.7).

### 6.2.1. Trade Measures to Enforce RFMO and Other Regional Measures

An important area concerns the use of trade measures by regional fisheries management organizations or arrangements (RFMOs). Enforcement has always been a problem for these organizations (see Chapter 5). Trade measures are among the most effective enforcement mechanisms available in international law. Increasingly, RFMOs are resorting to such measures to help monitor and encourage compliance with agreed conservation measures.

RFMOs are the core mechanism for implementing the 1995 U.N. Agreement on Straddling and Highly Migratory Fish Stocks (the U.N. Fish Stocks Agreement). That agreement has just entered into force and represents its negotiators' best effort to design a conservation regime for the relevant stocks in light of the framework of the UN Convention on the Law of the Sea (UNCLOS) and the best available science. Under the U.N. Fish Stocks Agreement, both relevant coastal states and states whose vessels fish for the relevant stocks have a duty to cooperate with and through an RFMO and to comply with conservation measures established by the RFMO. Under Article 17, paragraph 4 of the Agreement, states participating in an RFMO "shall take measures consistent with [the Agreement] and international law to deter activities of [vessels of non-participating States] which undermine the effectiveness of [RFMO] conservation and management measures." Furthermore, under Article 23, paragraph 3, "States may adopt regulations empowering the relevant national authorities to prohibit landings and transshipments where it has been established that the catch has been taken in a manner which undermines the effectiveness of subregional, regional or global conservation and management measures on the high seas."

In recent years, two RFMOs have employed trade tools to promote implementation of their conservation measures. At its annual meeting in November 1996, the International Commission for the Conservation of Atlantic Tuna (ICCAT) authorized member countries to impose bans on the import of Atlantic Bluefin Tuna from Belize, Honduras, and Panama.<sup>15</sup> These non-member countries had failed to comply with ICCAT catch restrictions after their non-compliance had been highlighted at the ICCAT's 1995 meeting. At the same time, ICCAT established penalties to be imposed on members if they over-harvest tuna beyond specified quotas. Successively severe penalties include fines equivalent to the value of over-harvests, reductions in future quotas, and import bans as a last resort.

At their 1998 meeting, the parties to the 1980 Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR) agreed on trade-related measures for regulating the growing harvest of the Patagonian toothfish. Harvesting of stocks of the Patagonian Toothfish, or Chilean sea bass, has grown over the past decade. There is unreported, illegal, and unregulated (IUU) fishing by both parties and non-parties to CCAMLR. CCAMLR parties agreed that they would impose regulations on imports of the toothfish. In particular, they will require presentation at the border of a certificate of origin on imports from other parties and non-parties as well. The goal of this measure is to enable better tracking of harvests, thus enabling better management. In practice, however, the requirement will not only gather information but should serve as an enforcement measure, since exports that do not have certificates—violating what is in essence a reporting requirement—will presumably not be allowed to enter.

In addition, the Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean, 16 which establishes an RFMO for those stocks overseen by a Commission, provides for trade measures as "necessary" to achieve its objectives. Specifically, Article 25 on compliance and enforcement provides that

*"The Commission, when necessary, shall develop procedures which allow for non-discriminatory trade measures to be taken, consistent with the international obligations of the members of the Commission, on any species regulated by the Commission, against any State or entity whose fishing vessels fish in a manner which undermines the effectiveness of the conservation and management measures adopted by the Commission."*

Furthermore, members of the Commission "may adopt regulations empowering the relevant national authorities to prohibit landings and transshipments where it has been established that the catch has been taken in a manner which undermines the effectiveness of conservation and management measures adopted by the Commission."<sup>17</sup> The Convention also provides for rigorous monitoring and reporting on transshipment of covered fish species harvested within the area covered by the Convention.<sup>18</sup>

### 6.2.2. Port State Measures

As discussed above, under Article 17, paragraph 4 of the U.N. Fish Stocks Agreement, States participating in an RFMO "shall take measures consistent with [the Agreement] and international law to deter activities of [vessels of non-participating States] which undermine the effectiveness of [RFMO] conservation and management measures." Furthermore, under Article 23, paragraph 3. "States may adopt regulations empowering the relevant national authorities to prohibit landings and transshipments where it has been established that the catch has been taken in a manner which undermines the effectiveness of subregional, regional or global conservation and management measures on the high seas."

A recent example of a case in which a country restricted transshipment and landing for conservation purposes is Chile, which prohibited EU vessels fishing swordfish in the high seas adjacent to its EEZ from landing their catch in Chilean ports, whence the catch would be transshipped to North American markets.<sup>19</sup> Chile argued that the EU vessels were exceeding the catch levels required to conserve the stocks, which migrated through Chilean waters and were also being fished by Chilean vessels within its EEZ. The Chilean catch limit was not a sub-regional, regional, or global measure in the terms of the U.N. Fish

Stocks Agreement, for Chile had not yet signed the Agreement, the EU had not yet ratified it, and it had not entered into force. Furthermore there was not a recognized RFMO for the stocks. Chile presented its case to the International Tribunal on the Law of the Sea.

The EU responded by filing a complaint with the WTO alleging that Chile was violating the GATT, Article Y in particular, which provides that each WTO member shall allow other members freedom of transit within its territory to transship products to and from other members. The EU eventually withdrew its complaint before being heard by a panel and settled with Chile on a higher quota for high seas swordfish fishing.

### 6.2.3. CITES and Fish Species

CITES seeks to prevent the overuse of species due to international trade so as to ensure sustainable trade in these species and prevent their extinction. CITES was adopted in 1973 and has 152 parties. The Conference of the parties meets periodically to determine which species need to be listed on one of CITES' Appendices, pursuant to which parties are obligated to regulate trade in that species. Appendix I bans commercial trade of species that are or may be threatened by trade.

#### Box 6.2. The 1998 WTO Shrimp/Turtle Decision

Guidance on the limits that trade rules place on the use of trade measures to achieve fisheries conservation goals—when those measures are taken independently from a regional or multilateral agreement—can be found in the so called Shrimp/Turtle decision issued in 1998 by the Appellate Body (AB) of the WTO. The decision concerned a complaint filed by India, Malaysia, Pakistan, and Thailand against a U.S. ban on shrimp caught without turtle excluder devices (TEDs). A dispute panel found the U.S. ban in violation of GATT Article XI, which prohibits quantitative restrictions. On appeal, the WTO appellate body (AB) held that the import ban fit within the definition of the exception from GATT rules for measures to protect natural resources under Article XX. Because the U.S. measure had been applied in an arbitrarily and unjustifiably discriminatory manner (see below), however, it could not be protected under this exception.

In contrast to the pre-WTO GATT panel decision in the "Tuna/Dolphin" case, the AB did not say that distinctions between imported products according to production or process methods (PPMs) are violations of GATT principles. It did not mention PPMs at all. Indeed, by ruling that the U. S. law fit within the definition of one of the GATT's environmental exceptions, the AB implicitly accepted the potential legitimacy of at least some PPM-based environmental measures.

The AB struck down the U.S. law as applied, emphasizing specific problems with the U.S. application of the shrimp ban. One was the coercion of other countries to use certain production methods and equipment without carrying out prior discussions or allowing flexibility as to how to achieve the stated goal. Another concerned the U.S.'s uneven efforts to disseminate TED technology. The AB also highlighted the lack of a wholehearted effort to negotiate with the complaining countries about sea turtles before imposing the trade measure. By implication, measures agreed through a multilateral process in which the affected countries have a chance to participate (e.g., an RFMO) would be more likely to pass muster under Article XX. (Indeed, many commentators believe that measures taken under multilateral agreements would generally be found to qualify for an exception from GATT rules under Article XX.)

Interestingly, the AB held that the interpretation of terms in the WTO agreements is an evolutionary process, and it must take into account other international law—including international environmental law and the law of the sea. Also notable is the AB's ruling that WTO dispute panels have discretion to accept "amicus curiae" (friend of the court) briefs and other information from NGOs.

The U.S. subsequently modified its procedures for applying the import prohibition. In response to a challenge to the new procedures brought by Malaysia, the Appellate Body ruled in 2001 that they were consistent with the requirements of Article XX.

Appendix II requires strict regulation of species that may become threatened unless trade is regulated. These determinations are to be made on the basis of the biological status of the species.

A number of marine species are listed on CITES Appendices, including most cetaceans and sea turtles and many corals. Many CITES parties resist, however, the listing of species of fish subject to large-scale commercial harvesting. This resistance comes in part out of tradition: there is already an elaborate system of international institutions for managing fisheries with considerable expertise, and CITES has functioned separately from them. There are also practical concerns. The typical wildlife trade for which CITES was conceived and has been implemented involves a specialty trade in which each individual specimen is separately identified and counted. International shipments of fish, in contrast, are typically measured by the ton. Yet in the end, CITES can have a valuable role to play in this area as a "backstop" mechanism that is triggered when all other measures have failed and trade has threatened or may threaten the species with extinction. "In this sense, CITES is perfectly complementary with fisheries management regimes,"<sup>20</sup> stepping in when needed to support them with additional trade controls.

While the WTO and trade officials have demonstrated resistance to the use of trade measures for conservation purposes in past cases, such as the Shrimp/Turtle dispute, CITES measures are generally thought not to conflict with WTO and other trade rules. The CITES Secretariat has been well received in its presentations to the WTO Committee on Trade and Environment. Most WTO Members are also CITES parties. The CITES listing process allows the full range of interested countries to participate, as well as NGOs, and is designed to maximize the role of science in the political/legal decision about whether to list a species.

#### 6.2.4. Ecolabelling

Practitioners should be aware that there has been debate as to whether ecolabelling schemes are consistent with WTO rules, in particular the Technical Barriers to Trade (TBT) Agreement. The TBT Agreement seeks to prevent the use of technical regulations and standards as disguised measures to protect domestic industry. It also seeks to encourage harmonization in order to lower barriers to market access. It is unusual in trade law in that it applies not only to mandatory requirements—termed "regulations"—but also to voluntary requirements, termed "standards." Indirectly, it applies to such standards even when they are developed and applied by private organizations. Standards and regulations covered by the TBT include not only those for products themselves but also those relating to packaging and labeling.

Although the TBT Agreement language is not entirely clear, it appears that it covers standards and regulations that pertain to a product's PPM. Thus, they would cover ecolabelling schemes as they are usually proposed for fish products. Given the prevailing hostility in trade circles to PPM distinctions,

this poses a risk that the TBT agreement could be used to interfere with ecolabelling schemes. The risk is heightened by the fact that the TBT does not include an explicit exception to its requirements along the lines of Article XX of the GATT. However, it can be argued that language in the agreement's Preamble indicates that TBT requirements should be interpreted so as to allow an exception for ecolabelling that involves PPMs.<sup>21</sup>

One possible response would be to establish a credible international standard-setting body that would be recognized by the TBT Committee of the WTO as authoritative. Standards set by such organizations receive deference under the TBT. The body must be impartial in both setting and applying standards. This requires both balanced stakeholder participation and strong technical and scientific input. The body must develop rigorous criteria for ensuring chain of custody and fair, efficient, yet rigorous procedures for certifying applicants. It must be international and must consider the special situations of developing countries as well as of small firms and artisanal producers. Finally, its members should be committed to the goal of sustainable fishing.

#### 6.2.5. Subsidies

Subsidies are a significant underlying cause of overcapacity and excess fishing operations, which in turn drive overfishing with all its attendant impacts. Estimates of total subsidies vary. However, a recent review concludes that by any measure, subsidies underwrite a major proportion of the costs of fishing, perhaps 20 to 25 %. They clearly promote excess fishing effort and capacity. OECD countries and China account for as much as 75 % of all subsidies. Their subsidies have significant effects on fisheries of developing countries, through distant water fishing operations that deprive local people of resources (possibly reducing essential food supplies) and through trade distortions that reduce developing country opportunities for access to developed country markets.<sup>22</sup>

Subsidies are also recognized under the WTO as trade distorting measures that interfere with the operation of the principle of comparative advantage. Thus, the Agreement on Subsidies and Countervailing Measures (Subsidies Agreement) prohibits certain kinds of subsidies to industries and provides that WTO members can challenge other members' subsidies that distort trade.

In the WTO Committee on Trade and Environment, a number of countries (the so-called "Friends of Fish") have been promoting a new agreement or initiative that would specifically discipline fishing subsidies that distort trade, harm the environment, and impede development. In advance of the 1999 Seattle Ministerial Conference of the WTO, Friends of Fish proposed to launch negotiations on such new disciplines, but the Conference did not produce agreement on any issue. The 2001 Ministerial Conference in Doha (Qatar), however, did result in agreement to clarify and improve WTO disciplines on fisheries subsidies as part of the negotiations launched under the Doha Declaration.

### 6.2.6 Invasive Species

Introduced varieties or species of fish and introduced pests and diseases pose risks to native species and ecosystems. In the marine area, as in others, the damage inflicted by these "invasive" species is one of the major hidden costs of trade. Governments must take measures to protect the marine environment within their jurisdiction against "invasive" non-native species.<sup>23</sup> These measures are taken at the national level by each government as part of its sovereign power to protect areas within its own jurisdiction. However, similar problems occur around the world, and regional and international cooperation is needed. This cooperation may extend to setting standards. In light of the impacts on fisheries, fisheries officials have a role to play in establishing national regulations and international standards for trade and transport controls to protect against invasive species.

The WTO Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) limits the power of governments to regulate imports in order to protect against such introductions. For the most part, the Agreement's limitations are consistent in general terms with the exigencies of such environmental regulation. For example, it requires that such measures have a scientific basis. Nevertheless, it will be important for fisheries practitioners to monitor the implementation and interpretation of this Agreement to ensure consistency with the realities of invasives management and to avoid misguided interpretations that might hinder needed protective measures. Notably, measures consistent with international standards are presumed to be consistent with the SPS Agreement in dispute settlement at the WTO, though this presumption may be rebutted.

### 6.2.7. National Trade Measures for Fisheries Conservation

As discussed in preceding sections, there is ample basis in international law for the application of trade measures in the interest of fisheries management and conservation. Still, situations may arise where a country may find it appropriate to take a measure that affects trade in the absence of a clear multilateral basis for the measure. Although the general international understanding is that such measures are to be avoided whenever possible, they are not specifically ruled out.<sup>24</sup> In particular, Agenda 21, adopted at the 1992 U.N. Conference on Environment and Development (UNCED or Earth Summit), calls on countries to manage the impacts on the environment of their own consumption. In a global economy, this mandates taking measures with respect to trade because a country will typically consume a significant number of products that were produced outside that country's jurisdiction and whose production had environmental impacts.

Where a country applies a regulation or market-based mechanism to imported fish products as a means for achieving more ecologically responsible fisheries practices without a clear multilateral basis, a con-

flict could arise with trade rules. Such a regulation will typically involve a distinction based upon production and process methods (PPMs).<sup>25</sup> The problem is that non-product-related criteria—such as PPM-based regulatory distinctions—are disfavored under WTO rules. In fact, restrictions on imports of fisheries products based on how they were harvested have already sparked three of the leading trade and environment disputes to date: the Mexican GATT challenge to the U.S. ban on tuna (Tuna/Dolphin I), the EU GATT challenge to the same U.S. law (Tuna/Dolphin II), and the recent WTO case in which India, Malaysia, Pakistan, and Thailand challenged a U.S. ban on shrimp caught without turtle excluder devices (Shrimp/Turtle). In the tuna/dolphin cases, the PPM-based import restriction was found in violation of general GATT principles.

From the trade policy perspective, a blanket PPM prohibition is a simple, if overinclusive, rule for guarding against three evils: protectionism, parochialism, and eco-imperialism. It forbids protectionist regulations that could be based on arbitrary or otherwise problematic rationales that undercut the principle of comparative advantage (for instance, regulations prohibiting products produced by workers earning less than a certain minimum wage). It blocks countries from designing PPM-based regulations based on a well-intentioned but parochial understanding of what is environmentally sound that is derived from domestic ecological conditions but does not apply to conditions in distant countries. And it guards against what has been called "eco-imperialism," in which a country conditions access to its markets upon compliance with its environmental standards, putting economic pressure on other countries (frequently less developed than the importer) to match those standards or lose market access. However, a blanket prohibition of such PPM measures is overinclusive and would hinder the use of needed and appropriate measures. The Shrimp/Turtle decision suggests a set of criteria for PPM-based measures that would be permissible.

### 6.2.8. Ensuring Consistency Between Trade Rules and Fisheries Policy

Trade rules have growing implications for domestic regulations as well as regionally or internationally agreed measures for conservation and management of fisheries. It is increasingly important that trade and fisheries officials work together to ensure that trade rules and interpretations of trade rules are consistent with fisheries management and conservation measures, and vice versa. This requires systematic and regular cooperation and consultation, not only at the regional or international level but also at the national level. Thus, fisheries officials need to be involved in the development of trade policies and negotiating positions. Relevant areas include services negotiations under the GATS of the WTO and negotiations on services and investment in various bilateral and regional agreements around the world, such as the Free Trade Area of the Americas (FTAA) or the Southern Common Market (Mercosur).

## Endnotes

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- 1 By David R. Downes and Carolyn Deere. David R. Downes is Senior Trade Advisor in the Office of Policy Analysis of the U.S. Department of the Interior, Washington, D.C. Carolyn Deere is a Program Officer with the Rockefeller Foundation, New York, NY. The views expressed in this chapter are the authors' own and do not represent those of their respective institutions. Several passages in this chapter are based on David R. Downes and Brennan Van Dyke, *Fisheries Conservation and Trade Rules*, Washington, DC: Greenpeace/CIEL, 1998 (available on CIEL web site, [www.ciel.org](http://www.ciel.org)).
- 2 FAO 1997b, pp. 6-7.
- 3 FAO 2000a, p. 89.
- 4 FAO 1995a.
- 5 FAO 2000b, Part 1.
- 6 FAO 1997b, p. 7.
- 7 Stone 1997, pp. 519-520.
- 8 FAO 1997b, p. 6.
- 9 FAO, Committee on Fisheries (COFI), Subcommittee on Fish Trade. 1998.
- 10 See discussion in Chapter 2.
- 11 The definition of services under the GATS and the definition of goods under the GATT are widely viewed as two inconsistent categories. The classification of service sectors upon which most WTO members base their definition of their GATS commitments includes the category of "services incidental to fishing," but not fishing itself.
- 12 United States National Oceanic and Atmospheric Administration (NOAA) 1998.
- 13 Chichilinsky 1994, p. 9.
- 14 Cf. Kurien 1998.
- 15 At least one member country, the United States, prohibited all imports of Atlantic bluefin tuna from those countries pursuant to this decision. See US National Oceanographic and Aeronautic Administration, U.S. Bans Bluefin Tuna Imports From Three Nations Fishing in Violation of ICCAT, NOAA 97-R158, Aug. 21, 1997.
- 16 Adopted in August 2000. Available at <http://www.spc.org.nc/coastfish/Asides/conventions/>.
- 17 Article 27, para. 3.
- 18 Article 29 and Article 4 of Annex III.
- 19 Under Chile's Ley General de Pesca y Acuicultura (1991), the Chilean government regulates transshipment by foreign fishing vessels. Those vessels may transship through two designated ports if they follow Chilean fishery regulations.
- 20 Downes & Van Dyke 1998, p. 21.
- 21 The Preamble states that countries should not be prevented from taking measures necessary to protect human, animal, or plant life or health, or the environment, at the levels they feel appropriate.
- 22 Source for this paragraph: Milazzo 1998, p. 77, 78.
- 23 Invasive marine species are typically a problem for coastal fisheries, not those that extend beyond national jurisdiction. A major pathway for invasives is the discharge in coastal areas by long-distance shipping vessels of ballast water taken on in a distant coastal area, which does not implicate the deep-water ecosystems of the high seas.
- 24 Principle 12 of the 1992 Rio Declaration on Environment and Development provides that "[u]nilateral actions to deal with environmental challenges outside the jurisdiction of the importing country should be avoided. Environmental measures addressing transboundary or global environmental problems should, as far as possible, be based on an international consensus."
- 25 In a market economy, market measures that distinguish between otherwise identical products based on such PPM distinctions will be critical tools for encouraging the use of more sustainable practices. In today's global economy, where some 33-40% of the world fish catch is exported, such market measures will inevitably be applied to traded fish products.

## REFERENCES

- Borini-Feyerabend, G. 1996. *Collaborative management of protected areas: tailoring the approach to the context* Gland, Switzerland: IUCN.
- Burke W. 1994. *The New International Law of the Sea for Fisheries: 1982 and Beyond*. New York: NY, Oxford University Press.
- Caddy, J. 1998. *A short review of precautionary reference points and some proposals for their use in data poor situations*. FAO Fisheries Technical Paper, 379:30p.
- Caddy, J. and Mahon, R. 1995. *References points for fisheries management*. FAO Fisheries Technical Paper, 347:83p.
- Chichilinsky, G. 1994. "Sustainable Development and North-South Trade." Paper prepared for University of Arizona Conference, "Biological Diversity: Exploring the Complexities," Tucson, Arizona, 25-27 March 1994.
- Clifton, L. Personal Communication, September 2000.
- Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR). 1999. Report of the Eighteenth Meeting of the Scientific Committee. Hobart, Australia.
- CCAMLR Scientific Committee. 1996. Report of the Fifteenth Meeting of the Scientific Committee. Hobart. Tasmania.
- CCAMLR 1991. Report of the Tenth Meeting of the Commission. Hobart. Tasmania.
- CCAMLR 1990. Report of the Ninth Meeting of the Commission. Hobart. Tasmania.
- Cooke, J. 1994. "The precautionary approach to fisheries and reference points for fisheries management." Paper submitted by the World Conservation Union (IUCN) to the U.N. Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks, New York, 14-31 March 1994. :12p
- Deere, C. 2000. *Net Gains: Linking Fisheries Management, International Trade and Sustainable Development*. Washington, D.C: IUCN.
- de Fontaubert, A.C. 2001. *The Convention for the Prevention of Fishing with Long Driftnets in the South Pacific* New York, NY: Oxford University Press Encyclopedia of Global Change.
- de Fontaubert, A.C. 2001. *The UN Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks*. New York, NY: Oxford University Press Encyclopedia of Global Change.
- de Fontaubert A.C. 2001. "Legal and Political Considerations." In *The Status of Natural Resources on the High Seas*, edited by World Wildlife Fund (WWF)/IUCN. Gland, Switzerland: WWF/IUCN.
- de Fontaubert, A.C. 1998. *European Union Fisheries and Policy: Changing the Way the EU Negotiates Third-Party Agreements*. Paper presented to the Pew Foundation.
- de Fontaubert, A.C. 1997. *Negotiating a New International Fisheries Regime: The United Nations Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks*. Doctoral Dissertation, University of Delaware, Newark, Delaware.
- de Fontaubert, A.C. 1995. *The United Nations Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks, Another Step in the Implementation of the Law of the Sea Convention*. Ocean Yearbook 12. Chicago: University of Chicago Press.
- de Fontaubert, A.C., Downes, D.R., and Agardy, T.S., 1996, *Biodiversity in the Seas: Implementing the Convention on Biological Diversity in Marine and Coastal Habitats*. Gland, Switzerland: IUCN.
- Doulman, D. 2000. "Illegal, Unreported and Unregulated Fishing: Mandate for an International Plan of Action." (AUS: IUU/2000/4) A paper prepared for the Expert Consultation on IUU fishing organized by the government of Australia in cooperation with FAO. Sydney, Australia.
- Downes, D. R., and Van Dyke, B. 1998. *Fisheries Conservation and Trade Rules: Ensuring That Trade Law Promotes Sustainable Fisheries*. Washington, D.C.: CIEL and Greenpeace.
- Edeson, W. 2000. "Tools to address IUU fishing: The current legal situation." (Aus:IUU/2000/8.) A paper prepared for the Expert Consultation on IUU fishing organized by the government of Australia in cooperation with FAO. Sydney, Australia.
- European Commission. 2000. Press Release. "The Commission adopts emergency measures to help the recovery of North Sea cod stocks." [www.europa.eu.int/comm/fisheries](http://www.europa.eu.int/comm/fisheries).
- FAO. 2001a. "Illegal, unreported and unregulated (IUU) fishing proposal for a Draft International Plan of Action." RFB/11/2001/5. Document prepared for the Second Meeting of FAO and non-FAO regional fisheries bodies and arrangements. Rome: FAO.
- FAO. 2001b. "Some external factors influencing the work of regional fishery bodies and fisheries management." (RFB/11/2001/2.) Document prepared for the Second Meeting of FAO and non-FAO regional fisheries bodies and arrangements. Rome: FAO. [note: running text should be checked to ensure it reflects a and b designations accurately.]
- FAO. 2000a. *Commodity Market Review 1999-2000*. Rome: FAO. <http://www.fao.org/waicent/faoinfo/economic/esc/>

- FAO. 2000b. *The State of World Fisheries and Aquaculture 2000*. Rome: FAO. <http://www.fao.org/fi/default.asp>.
- FAO. 1999a. "Major issues affecting the performance of regional fishery bodies. A document prepared by FAO for the (first) meeting of FAO and non-FAO Regional Fisheries Bodies or Arrangements." Rome, Italy, 11-12 February 1999.
- FAO. 1999b. "Progress report on the implementation of Conference Resolution 13/97." Review of FAO statutory bodies and the strengthening of FAO regional fisheries bodies. (COFI/99/4.) Rome: FAO.
- FAO. 1999c. "Regional fishery organisations or arrangements as vehicles for good fishery governance." (FI:RFB/99/4.) A paper prepared for the first meeting between FAO and non-FAO Regional Fisheries Bodies or arrangements. Rome, Italy, 11-12 February 1999.
- FAO. 1999d. "Report of the (First) Meeting of FAO and non-FAO regional fisheries bodies or arrangements." Rome, Italy, 11-12 February 1999.
- FAO. 1997a. "Fisheries Management." FAO Technical Guide-lines for Responsible Fisheries, n o. 4. Rome: FAO, 82p. [Pls note, 1997a and 1997b need to be correctly id'ed as such in running text. Please check for accuracy.]
- FAO. 1997b. *The State of World Fisheries and Aquaculture 1996*. Rome: FAO.
- FAO. 1996. "Precautionary approach to capture fisheries and species introductions." FAO Technical Guidelines for Responsible Fisheries, no. 2. Rome: FAO, 54p.
- FAO. 1995a. *Code of Conduct for Responsible Fisheries*. Rome: FAO.
- FAO. 1995b. *Fisheries Statistic: Commodities, vol. 77*, 1993. Rome: FAO.
- FAO. 1995c. "Guidelines to the precautionary approach to capture fisheries and species introduction." FAO Fisheries Technical Paper. Rome: FAO,
- FAO, Committee on Fisheries (COFI), Subcommittee on Fish Trade. 1998. *Issues of International Trade, Environment and Sustainable Fisheries Development: Trade in Fisheries Services*. (Doc. No. COFI:FT/VI/98/7.) <http://www.fao.org/>.
- Foreign and Commonwealth Office (FCO) Spokesman. Tuesday 23 August, 1984. London. UK
- Garcia, S. 2000. Paper prepared for the Center for Oceans Law and Policy Conference on Current Fisheries Issues and the Food and Agriculture Organization (FAO) of the U.N. Rome, Italy, March 2000.
- Garcia, S. 1992. "Ocean fisheries management. The FAO Programme." In *Ocean Management and Global Change*, edited by P. Fabbri. Elsevier Applied Science, pp. 381-418.
- Greenpeace. 2001. *Pirate Fishing Plundering the Oceans*. [www.greenpeace.org/fish](http://www.greenpeace.org/fish).
- Heesen, H.S.L., and Daan, N. 1996 "Long-term trends in 10 non-target North Sea fish species." *ICES Journal of Marine Science*, 53: 1063-1078.
- Hey, E. 1999. *Developments in International Fisheries Law*. The Hague, Netherlands: Kluwer Law International.
- International Council for Exploration of the Sea (ICES) CM 1998/ACFW/ACME: I Ref.E. "Report of the Working Group on Ecosystems Effects of Fishing Activities." Copenhagen
- IMM, 1997. *Intermediate Ministerial Meeting of the Integration of Fisheries and Environmental Issues*. 13-14 March 1997. Bergen, Norway: Basis Report, 165 pp.
- Jeanrenaud, S. 1999. "People-oriented conservation: progress to date." In *Partnerships for protection—New strategies for planning and management for protected areas*, by S. Stolton and N. Dudley. London: Earthscan Publications Ltd.
- Kimball, L. 2001. *International Ocean Governance: Using International Law and Organisations to Manage Marine Resources Sustainably*. Washington, DC: IUCN.
- King, M., and Fa'silii, U. 1999. "A network of small community-owned village fish reserves in Samoa." In *Partnerships for protection—New strategies for planning and management of protected areas*, by S. Stolton and N. Dudley. London: IUCN / Earthscan Publications Ltd.
- Kurien, John. 1998. "Does International Trade in Fishery Products Contribute to Food Security: Some analysis—Some thoughts." Discussion note prepared for the FAO e-mail conference on fisheries trade and food security.
- Lanters, R. 2000. "The Ecosystem approach: Development of a framework for ICES." Paper presented at WWF Workshop on the Ecosystem Approach, Villanova, Spain, 18 May 2000.
- Larkin, PA., 1977. An epitaph for the concept of MSY. *Trans. Am. Fish. Soc.* 107: 1-11.
- Lodge, M. 1997. Recent developments in international fisheries law. A paper prepared for WWF UK. Godalming, UK.
- Lugten, G. 1999. "A review of measures taken by Regional Marine Fishery Bodies to address contemporary fishery issues." FAO Fisheries Circular No. 940. Rome: FAO.
- Lutchman, I. and Hogarth, D. 1999. *Net Losses, Untying the Gordian Knot of Fishing Overcapacity*. Washington: IUCN.
- McGoodwin, J.R. 1990. *Crisis in World's Fisheries, People, Problems and Policies*. Stanford University Press.
- Makuch, Z. 1995. "Non-governmental organisation participation in fisheries management organisations." An internal paper prepared for WWF UK. Godalming, UK.
- Milazzo, M. 1998. *Subsidies in World Fisheries: A Reexamination*. World Bank Technical Paper No. 406 (Fisheries Series). Washington, D.C.: The World Bank.

- National Marine Fisheries Service (NMFS). 1998. "Ecosystem-based fishery management." A report to Congress by the Ecosystems Principles Advisory Panel.
- NMFS. 1996. "Magnuson-Stevens Fishery Conservation and Management Act: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, MFS, Technical Memorandum." (NMFS-F/SPO-23.)
- Ostrom, E. 1990. *Governing the Commons. The Evolution of Institutions for Collective Action*. Cambridge University Press, Cambridge, 280 pp.
- Pinkerton, E. (ed.) 1989. *Cooperative Management of Local Fisheries. New Directions for Improved Management and Community Development*. Vancouver: University of British Columbia Press, 299pp
- Pomeroy, R, and Williams, M. 1994. "Fisheries co-management and small-scale fisheries: a policy brief." Manila: International Centre for Living Aquatic Resources Management, 15pp.
- Rice, J., and Gislason, H. 1996. "Patterns of change in the size spectra of numbers and diversity of North Sea fish assemblages, as reflected in surveys and models." *ICES Journal of Marine Science*, 53:1214-1225.
- SCCCAMLR. 1999. "Managing fisheries to conserve the Antarctic Marine Ecosystem: Practical implementation of the Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR)." (XVIII/BG/26.) Paper presented at the ICESCOR Symposium, Montpellier, France.
- Stone, Christopher D. 1997. "Too Many Fishing Boats, Too Few Fish: Can Trade Laws Trim Subsidies and Restore the Balance in Global Fisheries?" *Ecology Law Quarterly*, 24(3) 505-544.
- Swan, J. 2000. "The role of national fisheries administrations and regional fisheries bodies in adopting and implementing measures to combat IUU fishing." (Aus: IUU/2000/10.) A paper prepared for the Expert Consultation on IUU fishing organized by the government of Australia in co operation with the FAO. Australia.
- Swan, J. 2000 "Regional fishery bodies and governance: issues, actions and future directions. FAO Fisheries Circular No. 959. Rome: FAO, 46 pp.
- TRAFFIC, 2001. "*Patagonian Toothfish: Are Conservation and Trade Measures Working?*" Paper presented to CCAMLR 2001 meeting in Hobart, Australia. See also [www.traffic.org/toothfish](http://www.traffic.org/toothfish).
- United Nations General Assembly. 1993 Document: A/AC. 109/1168 1138. 13 July 1993.
- United States National Oceanic and Atmospheric Administration (NOAA). 1998. "Management of Fishing Capacity." Draft U.S. Position. FAO Consultations, 1998 October 26-30.
- Vicuna, F.O. 1999. *The Changing International Law of High Seas Fisheries*. Cambridge, UK: Cambridge University Press.
- Weber, Michael L. 1998. *A Global Assessment of Major Fisheries at Risk, Relevant Management Regimes and Non-Governmental Organizations: A Report of the Pew Charitable Trusts*. Unpublished draft.
- Wiser, G.A. 2000. "Transparency in 21st Century Fisheries Management. Options for public participation to enhance conservation and management of international fish stocks." Washington, D.C.: WWF-US.
- World Wildlife Fund. 2000. "Effective decision-making. A review of options for making decisions to conserve and manage Pacific fish stocks." Prepared for the third session of the Multilateral High Level Conference on the Conservation and Management of Highly Migratory Fish Stock in the Western and Central Pacific.



## **ANNEXES: Relevant International Instruments**

<b>ANNEX I</b>	Relevant Provisions of UNCLOS
<b>ANNEX II</b>	The FAO Compliance Agreement
<b>ANNEX III</b>	The U.N. Fish Stocks Agreement
<b>ANNEX IV</b>	The FAO Code of Conduct for Responsible Fisheries
<b>ANNEX V</b>	The FAO IPOAs on Shark Management, Sealed Bycatch, Overcapacity and IUU Fishing
<b>ANNEX VI</b>	Chapter 17 of Agenda 21

**ANNEX I**

**Relevant Provisions the United Nations  
Convention on the Law of the Sea<sup>1</sup>**

**PART II TERRITORIAL SEA AND CONTIGUOUS ZONE**

**SECTION 1. GENERAL PROVISIONS**

**Article 2**

Legal status of the territorial sea, of the air space over the territorial sea and of its bed and subsoil

1. The sovereignty of a coastal State extends, beyond its land territory and internal waters and, in the case of an archipelagic State, its archipelagic waters, to an adjacent belt of sea, described as the territorial sea.
2. This sovereignty extends to the air space over the territorial sea as well as to its bed and subsoil.
3. The sovereignty over the territorial sea is exercised subject to this Convention and to other rules of international law.

**SECTION 2. LIMITS OF THE TERRITORIAL SEA**

**Article 3**

**Breadth of the territorial sea**

Every State has the right to establish the breadth of its territorial sea up to a limit not exceeding 12 nautical miles, measured from baselines determined in accordance with this Convention.

**SECTION 3. INNOCENT PASSAGE IN THE TERRITORIAL SEA**

**SUBSECTION A. RULES APPLICABLE TO ALL SHIPS**

**Article 17**

**Right of innocent passage**

Subject to this Convention, ships of all States, whether coastal or land-locked, enjoy the right of innocent passage through the territorial sea.

**Article 18**

**Meaning of passage**

1. Passage means navigation through the territorial sea for the purpose of:
  - (a) traversing that sea without entering internal waters or calling at a roadstead or port facility outside internal waters; or
  - (b) proceeding to or from internal waters or a call at such roadstead or port facility.
2. Passage shall be continuous and expeditious. However, passage includes stopping and anchoring, but only in so far as the same are incidental to ordinary navigation or are rendered necessary by force majeure or distress or for the purpose of rendering assistance to persons, ships or aircraft in danger or distress.

**Article 19**

**Meaning of innocent passage**

1. Passage is innocent so long as it is not prejudicial to the peace, good order or security of the coastal State. Such passage shall take place in conformity with this Convention and with other rules of international law.
2. Passage of a foreign ship shall be considered to be prejudicial to the peace, good order or security of the coastal State if in the territorial sea it engages in any of the following activities:

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1. The UN Convention on the Law of the Sea is comprised of more than 300 articles and nine annexes, all of which cannot be reproduced here. The articles included here are particularly relevant to fisheries and/or have been quoted in various chapters. The whole text of the Convention can be found at the following web address: <http://www.un.org/Depts/los/conventionagreements/texts/unclos/closindx.htm>

**ANNEX I****Relevant Provisions the United Nations  
Convention on the Law of the Sea (cont'd)**

- (a) any threat or use of force against the sovereignty, territorial integrity or political independence of the coastal State, or in any other manner in violation of the principles of international law embodied in the Charter of the United Nations;
- (b) any exercise or practice with weapons of any kind;
- (c) any act aimed at collecting information to the prejudice of the defence or security of the coastal State;
- (d) any act of propaganda aimed at affecting the defence or security of the coastal State;
- (e) the launching, landing or taking on board of any aircraft;
- (f) the launching, landing or taking on board of any military device;
- (g) the loading or unloading of any commodity, currency or person contrary to the customs, fiscal, immigration or sanitary laws and regulations of the coastal State;
- (h) any act of wilful and serious pollution contrary to this Convention;
- (i) any fishing activities;
- (j) the carrying out of research or survey activities;
- (k) any act aimed at interfering with any systems of communication or any other facilities or installations of the coastal State;
- (l) any other activity not having a direct bearing on passage.

**SECTION 4. CONTIGUOUS ZONE****Article 33****Contiguous zone**

1. In a zone contiguous to its territorial sea, described as the contiguous zone, the coastal State may exercise the control necessary to:
  - (a) prevent infringement of its customs, fiscal, immigration or sanitary laws and regulations within its territory or territorial sea;
  - (b) punish infringement of the above laws and regulations committed within its territory or territorial sea.
2. The contiguous zone may not extend beyond 24 nautical miles from the baselines from which the breadth of the territorial sea is measured.

**PARTV EXCLUSIVE ECONOMIC ZONE****Article 55****Specific legal regime of the exclusive economic zone**

The exclusive economic zone is an area beyond and adjacent to the territorial sea, subject to the specific legal regime established in this Part, under which the rights and jurisdiction of the coastal State and the rights and freedoms of other States are governed by the relevant provisions of this Convention.

**Article 56****Rights, jurisdiction and duties of the coastal State in the exclusive economic zone**

1. In the exclusive economic zone, the coastal State has:
  - (a) sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living, of the waters superjacent to the sea-bed and of the sea-bed and its subsoil, and with regard to other activities for the economic exploitation and exploration of the zone, such as the production of energy from the water, currents and winds;
  - (b) jurisdiction as provided for in the relevant provisions of this Convention with regard to:
    - (i) the establishment and use of artificial islands, installations and structures;
    - (ii) marine scientific research;

## ANNEX I

# Relevant Provisions the United Nations Convention on the Law of the Sea (cont'd)

- (iii) the protection and preservation of the marine environment;
  - (c) other rights and duties provided for in this Convention.
2. In exercising its rights and performing its duties under this Convention in the exclusive economic zone, the coastal State shall have due regard to the rights and duties of other States and shall act in a manner compatible with the provisions of this Convention.
  3. The rights set out in this article with respect to the sea-bed and subsoil shall be exercised in accordance with Part VI.

### **Article 57**

#### **Breadth of the exclusive economic zone**

The exclusive economic zone shall not extend beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured.

### **Article 58**

#### **Rights and duties of other States in the exclusive economic zone**

1. In the exclusive economic zone all States, whether coastal or land-locked, enjoy, subject to the relevant provisions of this Convention, the freedoms referred to in article 87 of navigation and overflight and of the laying of submarine cables and pipelines, and other internationally lawful uses of the sea related to these freedoms, such as those associated with the operation of ships, aircraft and submarine cables and pipelines, and compatible with the other provisions of this Convention.
2. Articles 88 to 115 and other pertinent rules of international law apply to the exclusive economic zone in so far as they are not incompatible with this Part.
3. In exercising their rights and performing their duties under this Convention in the exclusive economic zone, States shall have due regard to the rights and duties of the coastal State and shall comply with the laws and regulations adopted by the coastal State in accordance with the provisions of this Convention and other rules of international law in so far as they are not incompatible with this Part.

### **Article 59**

#### **Basis for the resolution of conflicts regarding the attribution of rights and jurisdiction in the exclusive economic zone**

In cases where this Convention does not attribute rights or jurisdiction to the coastal State or to other States within the exclusive economic zone, and a conflict arises between the interests of the coastal State and any other State or States, the conflict should be resolved on the basis of equity and in the light of all the relevant circumstances, taking into account the respective importance of the interests involved to the parties as well as to the international community as a whole.

### **Article 61**

#### **Conservation of the living resources**

1. The coastal State shall determine the allowable catch of the living resources in its exclusive economic zone.
2. The coastal State, taking into account the best scientific evidence available to it, shall ensure through proper conservation and management measures that the maintenance of the living resources in the exclusive economic zone is not endangered by over-exploitation. As appropriate, the coastal State and competent international organizations, whether subregional, regional or global, shall co-operate to this end.
3. Such measures shall also be designed to maintain or restore populations of harvested species at levels which can produce the maximum sustainable yield, as qualified by relevant environmental and economic factors, including the economic needs of coastal fishing communities and the special requirements of developing States, and taking into account fishing patterns, the interdependence of stocks and any generally recommended international minimum standards, whether subregional, regional or global.
4. In taking such measures the coastal State shall take into consideration the effects on species associated with or dependent upon harvested species with a view to maintaining or restoring populations of such associated or dependent species above levels at which their reproduction may become seriously threatened.

**ANNEX I****Relevant Provisions the United Nations  
Convention on the Law of the Sea (cont'd)**

5. Available scientific information, catch and fishing effort statistics, and other data relevant to the conservation of fish stocks shall be contributed and exchanged on a regular basis through competent international organizations, whether subregional, regional or global, where appropriate and with participation by all States concerned, including States whose nationals are allowed to fish in the exclusive economic zone.

**Article 62****Utilization of the living resources**

1. The coastal State shall promote the objective of optimum utilization of the living resources in the exclusive economic zone without prejudice to article 61.
2. The coastal State shall determine its capacity to harvest the living resources of the exclusive economic zone. Where the coastal State does not have the capacity to harvest the entire allowable catch, it shall, through agreements or other arrangements and pursuant to the terms, conditions, laws and regulations referred to in paragraph 4, give other States access to the surplus of the allowable catch, having particular regard to the provisions of articles 69 and 70, especially in relation to the developing States mentioned therein.
3. In giving access to other States to its exclusive economic zone under this article the coastal State shall take into account all relevant factors, including, inter alia, the significance of the living resources of the area to the economy of the coastal State concerned and its other national interests, the provisions of articles 69 and 70, the requirements of developing States in the subregion or region in harvesting part of the surplus and the need to minimize economic dislocation in States whose nationals have habitually fished in the zone or which have made substantial efforts in research and identification of stocks.
4. Nationals of other States fishing in the exclusive economic zone shall comply with the conservation measures and with the other terms and conditions established in the laws and regulations of the coastal State. These laws and regulations shall be consistent with this Convention and may relate, inter alia, to the following:
  - (a) licensing of fishermen, fishing vessels and equipment, including payment of fees and other forms of remuneration, which, in the case of developing coastal States, may consist of adequate compensation in the field of financing, equipment and technology relating to the fishing industry;
  - (b) determining the species which may be caught, and fixing quotas of catch, whether in relation to particular stocks or groups of stocks or catch per vessel over a period of time or to the catch by nationals of any State during a specified period;
  - (c) regulating seasons and areas of fishing, the types, sizes and amount of gear, and the types, sizes and number of fishing vessels that may be used;
  - (d) fixing the age and size of fish and other species that may be caught;
  - (e) specifying information required of fishing vessels, including catch and effort statistics and vessel position reports;
  - (f) requiring, under the authorization and control of the coastal State, the conduct of specified fisheries research programmes and regulating the conduct of such research, including the sampling of catches, disposition of samples and reporting of associated scientific data;
  - (g) the placing of observers or trainees on board such vessels by the coastal State;
  - (h) the landing of all or any part of the catch by such vessels in the ports of the coastal State;
  - (i) terms and conditions relating to joint ventures or other co-operative arrangements;
  - (j) requirements for the training of personnel and the transfer of fisheries technology, including enhancement of the coastal State's capability of undertaking fisheries research;
  - (k) enforcement procedures.
5. Coastal States shall give due notice of conservation and management laws and regulations.

**Article 63****Stocks occurring within the exclusive economic zones of two or more coastal States or both within the exclusive economic zone and in an area beyond and adjacent to it**

## ANNEX I

### Relevant Provisions the United Nations Convention on the Law of the Sea (cont'd)

1. Where the same stock or stocks of associated species occur within the exclusive economic zones of two or more coastal States, these States shall seek, either directly or through appropriate subregional or regional organizations, to agree upon the measures necessary to co-ordinate and ensure the conservation and development of such stocks without prejudice to the other provisions of this Part.
2. Where the same stock or stocks of associated species occur both within the exclusive economic zone and in an area beyond and adjacent to the zone, the coastal State and the States fishing for such stocks in the adjacent area shall seek, either directly or through appropriate subregional or regional organizations, to agree upon the measures necessary for the conservation of these stocks in the adjacent area.

#### Article 64

##### Highly migratory species

1. The coastal State and other States whose nationals fish in the region for the highly migratory species listed in Annex I shall co-operate directly or through appropriate international organizations with a view to ensuring conservation and promoting the objective of optimum utilization of such species throughout the region, both within and beyond the exclusive economic zone. In regions for which no appropriate international organization exists, the coastal State and other States whose nationals harvest these species in the region shall co-operate to establish such an organization and participate in its work.
2. The provisions of paragraph 1 apply in addition to the other provisions of this Part.

#### Article 65

##### Marine mammals

Nothing in this Part restricts the right of a coastal State or the competence of an international organization, as appropriate, to prohibit, limit or regulate the exploitation of marine mammals more strictly than provided for in this Part. States shall co-operate with a view to the conservation of marine mammals and in the case of cetaceans shall in particular work through the appropriate international organizations for their conservation, management and study.

#### Article 66

##### Anadromous stocks

1. States in whose rivers anadromous stocks originate shall have the primary interest in and responsibility for such stocks.
2. The State of origin of anadromous stocks shall ensure their conservation by the establishment of appropriate regulatory measures for fishing in all waters landward of the outer limits of its exclusive economic zone and for fishing provided for in paragraph 3(b). The State of origin may, after consultations with the other States referred to in paragraphs 3 and 4 fishing these stocks, establish total allowable catches for stocks originating in its rivers.
3. (a) Fisheries for anadromous stocks shall be conducted only in waters landward of the outer limits of exclusive economic zones, except in cases where this provision would result in economic dislocation for a State other than the State of origin. With respect to such fishing beyond the outer limits of the exclusive economic zone, States concerned shall 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.  
(b) The State of origin shall co-operate in minimizing economic dislocation in such other States fishing these stocks, taking into account the normal catch and the mode of operations of such States, and all the areas in which such fishing has occurred.  
(c) States referred to in subparagraph (b), participating by agreement with the State of origin in measures to renew anadromous stocks, particularly by expenditures for that purpose, shall be given special consideration by the State of origin in the harvesting of stocks originating in its rivers.  
(d) Enforcement of regulations regarding anadromous stocks beyond the exclusive economic zone shall be by agreement between the State of origin and the other States concerned.
4. In cases where anadromous stocks migrate into or through the waters landward of the outer limits of the exclusive economic zone of a State other than the State of origin, such State shall co-operate with the State of origin with regard to the conservation and management of such stocks.

**ANNEX I****Relevant Provisions the United Nations  
Convention on the Law of the Sea (cont'd)**

5. The State of origin of anadromous stocks and other States fishing these stocks shall make arrangements for the implementation of the provisions of this article, where appropriate, through regional organizations.

**Article 67****Catadromous species**

1. A coastal State in whose waters catadromous species spend the greater part of their life cycle shall have responsibility for the management of these species and shall ensure the ingress and egress of migrating fish.
2. Harvesting of catadromous species shall be conducted only in waters landward of the outer limits of exclusive economic zones. When conducted in exclusive economic zones, harvesting shall be subject to this article and the other provisions of this Convention concerning fishing in these zones.
3. In cases where catadromous fish migrate through the exclusive economic zone of another State, whether as juvenile or maturing fish, the management, including harvesting, of such fish shall be regulated by agreement between the State mentioned in paragraph 1 and the other State concerned. Such agreement shall ensure the rational management of the species and take into account the responsibilities of the State mentioned in paragraph 1 for the maintenance of these species.

**Article 68****Sedentary species**

This Part does not apply to sedentary species as defined in article 77, paragraph 4.

**Article 69****Right of land-locked States**

1. Land-locked States shall have the right to participate, on an equitable basis, in the exploitation of an appropriate part of the surplus of the living resources of the exclusive economic zones of coastal States of the same subregion or region, taking into account the relevant economic and geographical circumstances of all the States concerned and in conformity with the provisions of this article and of articles 61 and 62.
2. The terms and modalities of such participation shall be established by the States concerned through bilateral, subregional or regional agreements taking into account, inter alia:
  - (a) the need to avoid effects detrimental to fishing communities or fishing industries of the coastal State;
  - (b) the extent to which the land-locked State, in accordance with the provisions of this article, is participating or is entitled to participate under existing bilateral, subregional or regional agreements in the exploitation of living resources of the exclusive economic zones of other coastal States;
  - (c) the extent to which other land-locked States and geographically disadvantaged States are participating in the exploitation of the living resources of the exclusive economic zone of the coastal State and the consequent need to avoid a particular burden for any single coastal State or a part of it;
  - (d) the nutritional needs of the populations of the respective States.
3. When the harvesting capacity of a coastal State approaches a point which would enable it to harvest the entire allowable catch of the living resources in its exclusive economic zone, the coastal State and other States concerned shall co-operate in the establishment of equitable arrangements on a bilateral, subregional or regional basis to allow for participation of developing land-locked States of the same subregion or region in the exploitation of the living resources of the exclusive economic zones of coastal States of the subregion or region, as may be appropriate in the circumstances and on terms satisfactory to all parties. In the implementation of this provision the factors mentioned in paragraph 2 shall also be taken into account.
4. Developed land-locked States shall, under the provisions of this article, be entitled to participate in the exploitation of living resources only in the exclusive economic zones of developed coastal States of the same subregion or region having regard to the extent to which the coastal State, in giving access to other States to the living resources of its exclusive economic zone, has taken into account the need to minimize detrimental effects on fishing communities and economic dislocation in States whose nationals have habitually fished in the zone.

**ANNEX I****Relevant Provisions the United Nations  
Convention on the Law of the Sea (cont'd)**

5. The above provisions are without prejudice to arrangements agreed upon in subregions or regions where the coastal States may grant to landlocked States of the same subregion or region equal or preferential rights for the exploitation of the living resources in the exclusive economic zones.

**Article 70****Right of geographically disadvantaged States**

1. Geographically disadvantaged States shall have the right to participate, on an equitable basis, in the exploitation of an appropriate part of the surplus of the living resources of the exclusive economic zones of coastal States of the same subregion or region, taking into account the relevant economic and geographical circumstances of all the States concerned and in conformity with the provisions of this article and of articles 61 and 62.
2. For the purposes of this Part, "geographically disadvantaged States" means coastal States, including States bordering enclosed or semi-enclosed seas, whose geographical situation makes them dependent upon the exploitation of the living resources of the exclusive economic zones of other States in the subregion or region for adequate supplies of fish for the nutritional purposes of their populations or parts thereof, and coastal States which can claim no exclusive economic zones of their own.
3. The terms and modalities of such participation shall be established by the States concerned through bilateral, subregional or regional agreements taking into account, inter alia:
  - (a) the need to avoid effects detrimental to fishing communities or fishing industries of the coastal State;
  - (b) the extent to which the geographically disadvantaged State, in accordance with the provisions of this article, is participating or is entitled to participate under existing bilateral, subregional or regional agreements in the exploitation of living resources of the exclusive economic zones of other coastal States;
  - (c) the extent to which other geographically disadvantaged States and landlocked States are participating in the exploitation of the living resources of the exclusive economic zone of the coastal State and the consequent need to avoid a particular burden for any single coastal State or a part of it;
  - (d) the nutritional needs of the populations of the respective States.
4. When the harvesting capacity of a coastal State approaches a point which would enable it to harvest the entire allowable catch of the living resources in its exclusive economic zone, the coastal State and other States concerned shall co-operate in the establishment of equitable arrangements on a bilateral, subregional or regional basis to allow for participation of developing geographically disadvantaged States of the same subregion or region in the exploitation of the living resources of the exclusive economic zones of coastal States of the subregion or region, as may be appropriate in the circumstances and on terms satisfactory to all parties. In the implementation of this provision the factors mentioned in paragraph 3 shall also be taken into account.
5. Developed geographically disadvantaged States shall, under the provisions of this article, be entitled to participate in the exploitation of living resources only in the exclusive economic zones of developed coastal States of the same subregion or region having regard to the extent to which the coastal State, in giving access to other States to the living resources of its exclusive economic zone, has taken into account the need to minimize detrimental effects on fishing communities and economic dislocation in States whose nationals have habitually fished in the zone.
6. The above provisions are without prejudice to arrangements agreed upon in subregions or regions where the coastal States may grant to geographically disadvantaged States of the same subregion or region equal or preferential rights for the exploitation of the living resources in the exclusive economic zones.

**Article 71****Non-applicability of articles 69 and 70**

The provisions of articles 69 and 70 do not apply in the case of a coastal State whose economy is overwhelmingly dependent on the exploitation of the living resources of its exclusive economic zone.

**ANNEX I****Relevant Provisions the United Nations  
Convention on the Law of the Sea (cont'd)****Article 73****Enforcement of laws and regulations of the coastal State**

1. The coastal State may, in the exercise of its sovereign rights to explore, exploit, conserve and manage the living resources in the exclusive economic zone, take such measures, including boarding, inspection, arrest and judicial proceedings, as may be necessary to ensure compliance with the laws and regulations adopted by it in conformity with this Convention.
2. Arrested vessels and their crews shall be promptly released upon the posting of reasonable bond or other security.
3. Coastal State penalties for violations of fisheries laws and regulations in the exclusive economic zone may not include imprisonment, in the absence of agreements to the contrary by the States concerned, or any other form of corporal punishment.
4. In cases of arrest or detention of foreign vessels the coastal State shall promptly notify the flag State, through appropriate channels, of the action taken and of any penalties subsequently imposed.

**PART VI CONTINENTAL SHELF****Article 76****Definition of the continental shelf**

1. The continental shelf of a coastal State comprises the sea-bed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend up to that distance.
2. The continental shelf of a coastal State shall not extend beyond the limits provided for in paragraphs 4 to 6.
3. The continental margin comprises the submerged prolongation of the land mass of the coastal State, and consists of the sea-bed and subsoil of the shelf the slope and the rise. It does not include the deep ocean floor with its oceanic ridges or the subsoil thereof.
4. (a) For the purposes of this Convention, the coastal State shall establish the outer edge of the continental margin wherever the margin extends beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured, by either:
  - (i) a line delineated in accordance with paragraph 7 by reference to the outermost fixed points at each of which the thickness of sedimentary rocks is at least 1 per cent of the shortest distance from such point to the foot of the continental slope; or
  - (ii) a line delineated in accordance with paragraph 7 by reference to fixed points not more than 60 nautical miles from the foot of the continental slope.
- (b) In the absence of evidence to the contrary, the foot of the continental slope shall be determined as the point of maximum change in the gradient at its base.
5. The fixed points comprising the line of the outer limits of the continental shelf on the sea-bed, drawn in accordance with paragraph 4 (a) (i) and (ii), either shall not exceed 350 nautical miles from the baselines from which the breadth of the territorial sea is measured or shall not exceed 100 nautical miles from the 2,500 metre isobath, which is a line connecting the depth of 2,500 metres.
6. Notwithstanding the provisions of paragraph 5, on submarine ridges, the outer limit of the continental shelf shall not exceed 350 nautical miles from the baselines from which the breadth of the territorial sea is measured. This paragraph does not apply to submarine elevations that are natural components of the continental margin, such as its plateaux, rises, caps, banks and spurs.
7. The coastal State shall delineate the outer limits of its continental shelf, where that shelf extends beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured, by straight lines not exceeding 60 nautical miles in length, connecting fixed points, defined by coordinates of latitude and longitude.
8. Information on the limits of the continental shelf beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured shall be submitted by the coastal State to the Commission on the Limits of the Continental Shelf set up under Annex II on the basis of equitable geographical representation. The Commission shall make recommendations to coastal States on matters related to the establishment of the outer limits of their continental shelf. The limits of the shelf established by a coastal State on the basis of these recommendations shall be final and binding.

## ANNEX I

# Relevant Provisions the United Nations Convention on the Law of the Sea (cont'd)

9. The coastal State shall deposit with the Secretary-General of the United Nations charts and relevant information, including geodetic data, permanently describing the outer limits of its continental shelf. The Secretary-General shall give due publicity thereto.
10. The provisions of this article are without prejudice to the question of delimitation of the continental shelf between States with opposite or adjacent coasts.

### Article 77

#### Rights of the coastal State over the continental shelf

1. The coastal State exercises over the continental shelf sovereign rights for the purpose of exploring it and exploiting its natural resources.
2. The rights referred to in paragraph 1 are exclusive in the sense that if the coastal State does not explore the continental shelf or exploit its natural resources, no one may undertake these activities without the express consent of the coastal State.
3. The rights of the coastal State over the continental shelf do not depend on occupation, effective or notional, or on any express proclamation.
4. The natural resources referred to in this Part consist of the mineral and other non-living resources of the sea-bed and subsoil together with living organisms belonging to sedentary species, that is to say, organisms which, at the harvestable stage, either are immobile on or under the sea-bed or are unable to move except in constant physical contact with the sea-bed or the subsoil.

## PART VII HIGH SEAS

### SECTION 1. GENERAL PROVISIONS

#### Article 86

#### Application of the provisions of this Part

The provisions of this Part apply to all parts of the sea that are not included in the exclusive economic zone, in the territorial sea or in the internal waters of a State, or in the archipelagic waters of an archipelagic State. This article does not entail any abridgement of the freedoms enjoyed by all States in the exclusive economic zone in accordance with article 58.

#### Article 87

#### Freedom of the high seas

1. The high seas are open to all States, whether coastal or land-locked. Freedom of the high seas is exercised under the conditions laid down by this Convention and by other rules of international law. It comprises, inter alia, both for coastal and land-locked States:
  - (a) freedom of navigation;
  - (b) freedom of overflight;
  - (c) freedom to lay submarine cables and pipelines, subject to Part VI;
  - (d) freedom to construct artificial islands and other installations permitted under international law, subject to Part VI;
  - (e) freedom of fishing, subject to the conditions laid down in section 2;
  - (f) freedom of scientific research, subject to Parts VI and XIII.
2. These freedoms shall be exercised by all States with due regard for the interests of other States in their exercise of the freedom of the high seas, and also with due regard for the rights under this Convention with respect to activities in the Area.

### SECTION 2. CONSERVATION AND MANAGEMENT OF THE LIVING RESOURCES OF THE HIGH SEAS

#### Article 116

#### Right to fish on the high seas

All States have the right for their nationals to engage in fishing on the high seas subject to:

**ANNEX I****Relevant Provisions the United Nations  
Convention on the Law of the Sea (cont'd)**

- (a) their treaty obligations;
- (b) the rights and duties as well as the interests of coastal States provided for, inter alia, in article 63, paragraph 2, and articles 64 to 67; and
- (c) the provisions of this section.

**Article 117****Duty of States to adopt with respect to their nationals measures for  
the conservation of the living resources of the high seas**

All States have the duty to take, or to co-operate with other States in taking, such measures for their respective nationals as may be necessary for the conservation of the living resources of the high seas.

**Article 118****Co-operation of States in the conservation and management of living resources**

States shall co-operate with each other in the conservation and management of living resources in the areas of the high seas. States whose nationals exploit identical living resources, or different living resources in the same area, shall enter into negotiations with a view to taking the measures necessary for the conservation of the living resources concerned. They shall, as appropriate, cooperate to establish subregional or regional fisheries organizations to this end.

**Article 119****Conservation of the living resources of the high seas**

1. In determining the allowable catch and establishing other conservation measures for the living resources in the high seas, States shall:
  - (a) take measures which are designed, on the best scientific evidence available to the States concerned, to maintain or restore populations of harvested species at levels which can produce the maximum sustainable yield, as qualified by relevant environmental and economic factors, including the special requirements of developing States, and taking into account fishing patterns, the interdependence of stocks and any generally recommended international minimum standards, whether subregional, regional or global;
  - (b) take into consideration the effects on species associated with or dependent upon harvested species with a view to maintaining or restoring populations of such associated or dependent species above levels at which their reproduction may become seriously threatened.
2. Available scientific information, catch and fishing effort statistics, and other data relevant to the conservation of fish stocks shall be contributed and exchanged on a regular basis through competent international organizations, whether subregional, regional or global, where appropriate and with participation by all States concerned.
3. States concerned shall ensure that conservation measures and their implementation do not discriminate in form or in fact against the fishermen of any State.

**Article 120****Marine mammals**

Article 65 also applies to the conservation and management of marine mammals in the high seas.

**ANNEX II**

**Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas**

**PREAMBLE**

**Article I: Definitions**

**Article II: Application**

**Article III: Flag State Responsibility**

**Article IV: Records of Fishing Vessels**

**Article V: International Cooperation**

**Article VI: Exchange of Information**

**Article VII: Cooperation with Developing Countries**

**Article VIII: Non-Parties**

**Article IX: Settlement of Disputes**

**Article X: Acceptance**

**Article XI: Entry into Force**

**Article XII: Reservations**

**Article XIII: Amendments**

**Article XIV: Withdrawal**

**Article XV: Duties of the Depositary**

**Article XVI: Authentic Texts**

**PREAMBLE**

**The Parties to this Agreement.**

Recognizing that all States have the right for their nationals to engage in fishing on the high seas, subject to the relevant rules of international law, as reflected in the United Nations Convention on the Law of the Sea,

Further recognizing that, under international law as reflected in the United Nations Convention on the Law of the Sea, all States have the duty to take, or to cooperate with other States in taking, such measures for their respective nationals as may be necessary for the conservation of the living resources of the high seas,

Acknowledging the right and interest of all States to develop their fishing sectors in accordance with their national policies, and the need to promote cooperation with developing countries to enhance their capabilities to fulfil their obligations under this Agreement, Recalling that Agenda 21, adopted by the United Nations Conference on Environment and Development, calls upon States to take effective action, consistent with international law, to deter reflagging of vessels by their nationals as a means of avoiding compliance with applicable conservation and management rules for fishing activities on the high seas,

Further recalling that the Declaration of Cancun, adopted by the International Conference on Responsible Fishing, also calls on States to take action in this respect,

Bearing in mind that under Agenda 21, States commit themselves to the conservation and sustainable use of marine living resources on the high seas,

Calling upon States which do not participate in global, regional or subregional fisheries organizations or arrangements to join or, as appropriate, to enter into understandings with such organizations or with parties to such organizations or arrangements with a view to achieving compliance with international conservation and management measures,

Conscious of the duties of every State to exercise effectively its jurisdiction and control over vessels flying its flag, including fishing vessels and vessels engaged in the transshipment of fish,

Mindful that the practice of flagging or reflagging fishing vessels as a means of avoiding compliance with international conservation and management measures for living marine resources, and the failure of flag States to fulfil their responsibilities with respect to fishing vessels entitled to fly their flag, are among the factors that seriously undermine the effectiveness of such measures,

Realizing that the objective of this Agreement can be achieved through specifying flag States' responsibility in respect of fishing vessels entitled to fly their flags and operating on the high seas, including the authorization by the flag State of such operations, as well as through strengthened international cooperation and increased transparency through the exchange of information on high seas fishing,

Noting that this Agreement will form an integral part of the International Code of Conduct for Responsible Fishing called for in the Declaration of Cancun,

Desiring to conclude an international agreement within the framework of the Food and Agriculture Organization of the United Nations, hereinafter referred to as FAO, under Article XIV of the FAO Constitution,

**Have agreed as follows:**

**ANNEX II****Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (cont'd)****Article I  
DEFINITIONS**

For the purposes of this Agreement:

- (a) "fishing vessel" means any vessel used or intended for use for the purposes of the commercial exploitation of living marine resources, including mother ships and any other vessels directly engaged in such fishing operations;
- (b) "international conservation and management measures" means measures to conserve or manage one or more species of living marine resources that are adopted and applied in accordance with the relevant rules of international law as reflected in the 1982 United Nations Convention on the Law of the Sea. Such measures may be adopted either by global, regional or subregional fisheries organizations, subject to the rights and obligations of their members, or by treaties or other international agreements;
- (c) "length" means
  - (i) for any fishing vessel built after 18 July 1982, 96 percent of the total length on a waterline at 85 percent of the least moulded depth measured from the top of the keel, or the length from the foreside of the stem to the axis of the rudder stock on that waterline, if that be greater. In ships designed with a rake of keel the waterline on which this length is measured shall be parallel to the designed waterline;
  - (ii) for any fishing vessel built before 18 July 1982, registered length as entered on the national register or other record of vessels;
- (d) "record of fishing vessels" means a record of fishing vessels in which are recorded pertinent details of the fishing vessel. It may constitute a separate record for fishing vessels or form part of a general record of vessels;
- (e) "regional economic integration organization" means a regional economic integration organization to which its member States have transferred competence over matters covered by this Agreement, including the authority to make decisions binding on its member States in respect of those matters;
- (f) "vessels entitled to fly its flag" and "vessels entitled to fly the flag of a State", includes vessels entitled to fly the flag of a member State of a regional economic integration organization.

**Article II  
APPLICATION**

1. Subject to the following paragraphs of this Article, this Agreement shall apply to all fishing vessels that are used or intended for fishing on the high seas.
2. A Party may exempt fishing vessels of less than 24 metres in length entitled to fly its flag from the application of this Agreement unless the Party determines that such an exemption would undermine the object and purpose of this Agreement, provided that such exemptions:
  - (a) shall not be granted in respect of fishing vessels operating in fishing regions referred to in paragraph 3 below, other than fishing vessels that are entitled to fly the flag of a coastal State of that fishing region; and
  - (b) shall not apply to the obligations undertaken by a Party under paragraph 1 of Article III, or paragraph 7 of Article VI of this Agreement.
3. Without prejudice to the provisions of paragraph 2 above, in any fishing region where bordering coastal States have not yet declared exclusive economic zones, or equivalent zones of national jurisdiction over fisheries, such coastal States as are Parties to this Agreement may agree, either directly or through appropriate regional fisheries organizations, to establish a minimum length of fishing vessels below which this Agreement shall not apply in respect of fishing vessels flying the flag of any such coastal State and operating exclusively in such fishing region.

**Article III  
FLAG STATE RESPONSIBILITY**

1. (a) Each Party shall take such measures as may be necessary to ensure that fishing vessels entitled to fly its flag do not engage in any activity that undermines the effectiveness of international conservation and management measures.
- (b) In the event that a Party has, pursuant to paragraph 2 of Article II, granted an exemption for fishing vessels of less than 24 metres in length entitled to fly its flag from the application of other provisions of this Agreement, such Party shall nevertheless take effective measures in

**ANNEX II****Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (cont'd)**

respect of any such fishing vessel that undermines the effectiveness of international conservation and management measures. These measures shall be such as to ensure that the fishing vessel ceases to engage in activities that undermine the effectiveness of the international conservation and management measures.

2. In particular, no Party shall allow any fishing vessel entitled to fly its flag to be used for fishing on the high seas unless it has been authorized to be so used by the appropriate authority or authorities of that Party. A fishing vessel so authorized shall fish in accordance with the conditions of the authorization.
3. No Party shall authorize any fishing vessel entitled to fly its flag to be used for fishing on the high seas unless the Party is satisfied that it is able, taking into account the links that exist between it and the fishing vessel concerned, to exercise effectively its responsibilities under this Agreement in respect of that fishing vessel.
4. Where a fishing vessel that has been authorized to be used for fishing on the high seas by a Party ceases to, be entitled to fly the flag of that Party, the authorization to fish on the high seas shall be deemed to have been cancelled.
5. (a) No Party shall authorize any fishing vessel previously registered in the territory of another Party that has undermined the effectiveness of international conservation and management measures to be used for fishing on the high seas, unless it is satisfied that
  - (i) any period of suspension by another Party of an authorization for such fishing vessel to be used for fishing on the high seas has expired; and
  - (ii) no authorization for such fishing vessel to be used for fishing on the high seas has been withdrawn by another Party within the last three years.
- (b) The provisions of subparagraph (a) above shall also apply in respect of fishing vessels previously registered in the territory of a State which is not a Party to this Agreement, provided that sufficient information is available to the Party concerned on the circumstances in which the authorization to fish was suspended or withdrawn.
- (c) The provisions of subparagraphs (a) and (b) shall not apply where the ownership of the fishing vessel has subsequently changed, and the new owner has provided sufficient evidence demonstrating that the previous owner or operator has no further legal, beneficial or financial interest in, or control of fishing vessel.
- (d) Notwithstanding the provisions of subparagraphs (a) and (b) above, a Party may authorize a fishing vessel, to which those subparagraphs would otherwise apply, to be used for fishing on the high seas, where the Party concerned, after having taken into account all relevant facts, including the circumstances in which the fishing authorization has been withdrawn by the other Party or State, has determined that to grant an authorization to use the vessel for fishing on the high seas would not undermine the object and purpose of this Agreement.
6. Each party shall ensure that all fishing entitled to fly its flag that it has entered in the record maintained under Article IV are marked in such a way that they can be readily identified in accordance with generally accepted standards, such as the FAO Standard Specifications for the Marking and Identification of Fishing Vessels.
7. Each Party shall ensure that each fishing vessel entitled to fly its flag shall provide it with such information on its operations as may be necessary to enable the Party to fulfil its obligations under this Agreement, including in particular information pertaining to the area of its fishing operations and to its catches and landings.
8. Each Party shall take enforcement measures in respect of fishing vessels entitled to fly its flag which act in contravention of the provisions of this Agreement, including, where appropriate, making the contravention of such provisions an offence under national legislation. Sanctions applicable in respect of such contraventions shall be of sufficient gravity as to be effective in securing compliance with the requirements of this Agreement and to deprive offenders of the benefits accruing from their illegal activities. Such sanctions shall, for serious offences, include refusal, suspension or withdrawal of the authorization to fish on the high seas.

**Article IV****RECORDS OF FISHING VESSELS**

Each Party shall, for the purposes of this Agreement, maintain a record of fishing vessels entitled to fly its flag and authorized to be used for fishing on the high seas, and shall take such measures as may be necessary to ensure that all such fishing vessels are entered in that record.

**ANNEX II****Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (cont'd)****Article V****INTERNATIONAL COOPERATION**

1. The Parties shall cooperate as appropriate in the implementation of this Agreement, and shall, in particular, exchange information, including evidentiary material, relating to activities of fishing vessels in order to assist the flag State in identifying those fishing vessels flying its flag reported to have engaged in activities undermining international conservation and management measures, so as to fulfil its obligations under Article III.
2. When a fishing vessel is voluntarily in the port of a Party other than its flag State, that Party, where it has reasonable grounds for believing that the fishing vessel has been used for an activity that undermines the effectiveness of international conservation and management measures, shall promptly notify the flag State accordingly. Parties may make arrangements regarding the undertaking by port States of such investigatory measures as may be considered necessary to establish whether the fishing vessel has indeed been used contrary to the provisions of this Agreement.
3. The Parties shall, when and as appropriate, enter into cooperative agreements or arrangements of mutual assistance on a global, regional, sub-regional or bilateral basis so as to promote the achievement of the objectives of this Agreement.

**Article VI****EXCHANGE OF INFORMATION**

1. Each Party shall make readily available to FAO the following information with respect to each fishing vessel entered in the record required to be maintained under Article IV:
  - (a) name of fishing vessel, registration number, previous names (if known), and port of registry;
  - (b) previous flag (if any);
  - (c) International Radio Call Sign (if any);
  - (d) name and address of owner or owners;
  - (e) where and when built;
  - (f) type of vessel;
  - (g) length.
2. Each Party shall, to the extent practicable, make available to FAO the following additional information with respect to each fishing vessel entered in the record required to be maintained under Article IV:
  - (a) name and address of operator (manager) or operators (managers) (if any);
  - (b) type of fishing method or methods;
  - (c) moulded depth;
  - (d) beam;
  - (e) gross register tonnage;
  - (f) power of main engine or engines.
3. Each Party shall promptly notify to FAO any modifications to the information listed in paragraphs 1 and 2 of this Article.
4. FAO shall circulate periodically the information provided under paragraphs 1, 2, and 3 of this Article to all Parties, and, on request, individually to any Party. FAO shall also, subject to any restrictions imposed by the Party concerned regarding the distribution of information, provide such information on request individually to any global, regional or subregional fisheries organization.
5. Each Party shall also promptly inform FAO of-
  - (a) any additions to the record;
  - (b) any deletions from the record by reason of-
    - (i) the voluntary relinquishment or non-renewal of the fishing authorization by the fishing vessel owner or operator;

**ANNEX II****Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (cont'd)**

- (ii) the withdrawal of the fishing authorization issued in respect of the fishing vessel under paragraph 8 of Article III;
  - (iii) the fact that the fishing vessel concerned is no longer entitled to fly its flag;
  - (iv) the scrapping, decommissioning or loss of the fishing vessel concerned; or
  - (v) any other reason.
6. Where information is given to FAO under paragraph 5 (b) above, the Party concerned shall specify which of the reasons listed in that paragraph is applicable.
  7. Each Party shall inform FAO of
    - (a) any exemption it has granted under paragraph 2 of Article II, the number and type of fishing vessel involved and the geographical areas in which such fishing vessels operate; and
    - (b) any agreement reached under paragraph 3 of Article II.
  8. (a) Each Party shall report promptly to FAO all relevant information regarding any activities of fishing vessels flying its flag that undermine the effectiveness of international conservation and management measures, including the identity of the fishing vessel or vessels involved and measures imposed by the Party in respect of such activities. Reports on measures imposed by a Party may be subject to such limitations as may be required by national legislation with respect to confidentiality, including, in particular, confidentiality regarding measures that are not yet final.
    - (b) Each Party, where it has reasonable grounds to believe that a fishing vessel not entitled to fly its flag has engaged in any activity that undermines the effectiveness of international conservation and management measures, shall draw this to the attention of the flag State concerned and may, as appropriate, draw it to the attention of FAO. It shall provide the flag State with full supporting evidence and may provide FAO with a summary of such evidence, FAO shall not circulate such information until such time as the flag State has had an opportunity to comment on the allegation and evidence submitted, or to object as the case may be.
  9. Each Party shall inform FAO of any cases where the Party, pursuant to paragraph 5 (d) of Article III, has granted an authorization notwithstanding the provisions of paragraph 5 (a) or 5 (b) of Article III. The information shall include pertinent data permitting the identification of the fishing vessel and the owner or operator and, as appropriate, any other information relevant to the Party's decision.
  10. FAO shall circulate promptly the information provided under paragraphs 5, 6, 7, 8 and 9 of this Article to all Parties, and, on request, individually to any Party. FAO shall also, subject to any restrictions imposed by the Party concerned regarding the distribution of information, provide such information promptly on request individually to any global, regional or subregional fisheries organization.
  11. The Parties shall exchange information relating to the implementation of this Agreement, including through FAO and other appropriate global, regional and subregional fisheries organizations.

**Article VII****COOPERATION WITH DEVELOPING COUNTRIES**

The Parties shall cooperate, at a global, regional, subregional or bilateral level, and, as appropriate, with the support of FAO and other international or regional organizations, to provide assistance, including technical assistance, to Parties that are developing countries in order to assist them in fulfilling their obligations under this Agreement.

**Article VIII****NON-PARTIES**

1. The Parties shall encourage any State not party to this Agreement to accept this Agreement and shall encourage any non-Party to adopt laws and regulations consistent with the provisions of this Agreement.
2. The Parties shall cooperate in a manner consistent with this Agreement and with international law to the end that fishing vessels entitled to fly the flags of non-Parties do not engage in activities that undermine the effectiveness of international conservation and management measures.
3. The Parties shall exchange information amongst themselves, either directly or through FAO, with respect to activities of fishing vessels flying the flags of non-Parties that undermine the effectiveness of international conservation and management measures.

**ANNEX II****Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (cont'd)****Article IX****SETTLEMENT OF DISPUTES**

1. Any Party may seek consultations with any other Party or Parties on any dispute with regard to the interpretation or application of the provisions of this Agreement with a view to reaching a mutually satisfactory solution as soon as possible.
2. In the event that the dispute is not resolved through these consultations within a reasonable period of time, the Parties in question shall consult among themselves as soon as possible with a view to having the dispute settled by negotiation, inquiry, mediation, conciliation, arbitration, judicial settlement or other peaceful means of their own choice.
3. Any dispute of this character not so resolved shall, with the consent of all Parties to the dispute, be referred for settlement to the International Court of Justice, to the International Tribunal for the Law of the Sea upon entry into force of the 1982 United Nations Convention on the Law of the Sea or to arbitration. In the case of failure to reach agreement on referral to the International Court of Justice, to the International Tribunal for the Law of the Sea or to arbitration, the Parties shall continue to consult and cooperate with a view to reaching settlement of the dispute in accordance with the rules of international law relating to the conservation of living marine resources.

**Article X****ACCEPTANCE**

1. This Agreement shall be open to acceptance by any Member or Associate Member of FAO, and to any non-member State that is a member of the United Nations, or of any of the specialized agencies of the United Nations or of the International Atomic Energy Agency.
2. Acceptance of this Agreement shall be effected by the deposit of an instrument of acceptance with the Director-General of FAO, hereinafter referred to as the DirectorGeneral.
3. The Director-General shall inform all Parties, all Members and Associate Members of FAO and the Secretary-General of the United Nations of all instruments of acceptance received.
4. When a regional economic integration organization becomes a Party to this Agreement, such regional economic integration organization shall, in accordance with the provisions of Article II.7 of the FAO Constitution, as appropriate, notify such modifications or clarifications to its declaration of competence submitted under Article II.5 of the FAO Constitution as may be necessary in light of its acceptance of this Agreement. Any Party to this Agreement may, at any time, request a regional economic integration organization that is a Party to this Agreement to provide information as to which, as between the regional economic integration organization and its Member States, is responsible for the implementation of any particular matter covered by this Agreement. The regional economic integration organization shall provide this information within a reasonable time.

**Article XI****ENTRY INTO FORCE**

1. This Agreement shall enter into force as from the date of receipt by the Director-General of the twenty-fifth instrument of acceptance.
2. For the purpose of this Article, an instrument deposited by a regional economic integration organization shall not be counted as additional to those deposited by member States of such an organization.

**Article XII****RESERVATIONS**

Acceptance of this Agreement may be made subject to reservations which shall become effective only upon unanimous acceptance by all Parties to this Agreement. The Director-General shall notify forthwith all Parties of any reservation. Parties not having replied within three months from the date of the notification shall be deemed to have accepted the reservation. Failing such acceptance, the State or regional economic integration organization making the reservation shall not become a Party to this Agreement.

**ANNEX II**

**Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (cont'd)**

**Article XIII  
AMENDMENTS**

1. Any proposal by a Party for the amendment of this Agreement shall be communicated to the Director-General.
2. Any proposed amendment of this Agreement received by the Director-General from a Party shall be presented to a regular or special session of the Conference for approval and, if the amendment involves important technical changes or imposes additional obligations on the Parties, it shall be considered by an advisory committee of specialists convened by FAO prior to the Conference.
3. Notice of any proposed amendment of this Agreement shall be transmitted to the Parties by the Director-General not later than the time when the agenda of the session of the Conference at which the matter is to be considered is dispatched.
4. Any such proposed amendment of this Agreement shall require the approval of the Conference and shall come into force as from the thirtieth day after acceptance by two-thirds of the Parties. Amendments involving new obligations for Parties, however, shall come into force in respect of each Party only on acceptance by it and as from the thirtieth day after such acceptance. Any amendment shall be deemed to involve new obligations for Parties unless the Conference, in approving the amendment, decides otherwise by consensus.
5. The instruments of acceptance of amendments involving new obligations shall be deposited with the Director-General, who shall inform all Parties of the receipt of acceptance and the entry into force of amendments.
6. For the purpose of this Article, an instrument deposited by a regional economic integration organization shall not be counted as additional to those deposited by member States of such an organization.

**Article XIV  
WITHDRAWAL**

Any Party may withdraw from this Agreement at any time after the expiry of two years from the date upon which the Agreement entered into force with respect to that Party, by giving written notice of such withdrawal to the Director-General who shall immediately inform all the Parties and the Members and Associate Members of FAO of such withdrawal. Withdrawal shall become effective at the end of the calendar year following that in which the notice of withdrawal has been received by the Director-General.

**Article XV  
DUTIES OF THE DEPOSITARY**

The Director-General shall be the Depositary of this Agreement. The Depositary shall:

- (a) send certified copies of this Agreement to each Member and Associate Member of FAO and to such non-member States as may become party to this Agreement;
- (b) arrange for the registration of this Agreement, upon its entry into force, with the Secretariat of the United Nations in accordance with Article 102 of the Charter of the United Nations;
- (c) inform each Member and Associate Member of FAO and any non-member States as may become Party to this Agreement of:
  - (i) instruments of acceptance deposited in accordance with Article X;
  - (ii) the date of entry into force of this Agreement in accordance with Article XI;
  - (iii) proposals for and the entry into force of amendments to this Agreement in accordance with Article XIII;
  - (iv) withdrawals from this Agreement pursuant to Article XIV.

**Article XVI  
AUTHENTIC TEXTS**

The Arabic, Chinese, English, French, and Spanish texts of this Agreement are equally authentic.

**ANNEX III****The UN Fish Stocks Agreement**

**AGREEMENT FOR THE IMPLEMENTATION OF THE PROVISIONS OF THE UNITED NATIONS CONVENTION  
ON THE LAW OF THE SEA OF 10 DECEMBER 1982 RELATING TO THE CONSERVATION AND  
MANAGEMENT OF STRADDLING FISH STOCKS AND HIGHLY MIGRATORY FISH STOCKS**

The States Parties to this Agreement,

Recalling the relevant provisions of the United Nations Convention on the Law of the Sea of 10 December 1982,

Determined to ensure the long-term conservation and sustainable use of straddling fish stocks and highly migratory fish stocks,

Resolved to improve cooperation between States to that end,

Calling for more effective enforcement by flag States, port States and coastal States of the conservation and management measures adopted for such stocks,

Seeking to address in particular the problems identified in chapter 17, programme area C, of Agenda 21 adopted by the United Nations Conference on Environment and Development, namely, that the management of high seas fisheries is inadequate in many areas and that some resources are overutilized; noting that there are problems of unregulated fishing, over-capitalization, excessive fleet size, vessel reflagging to escape controls, insufficiently selective gear, unreliable databases and lack of sufficient cooperation between States,

Committing themselves to responsible fisheries,

Conscious of the need to avoid adverse impacts on the marine environment, preserve biodiversity, maintain the integrity of marine ecosystems and minimize the risk of long-term or irreversible effects of fishing operations,

Recognizing the need for specific assistance, including financial, scientific and technological assistance, in order that developing States can participate effectively in the conservation, management and sustainable use of straddling fish stocks and highly migratory fish stocks,

Convinced that an agreement for the implementation of the relevant provisions of the Convention would best serve these purposes and contribute to the maintenance of international peace and security,

Affirming that matters not regulated by the Convention or by this Agreement continue to be governed by the rules and principles of general international law,

Have agreed as follows:

**PART I GENERAL PROVISIONS**

**Article 1 Use of terms and scope**

1. For the purposes of this Agreement:
  - (a) "Convention" means the United Nations Convention on the Law of the Sea of 10 December 1982;
  - (b) "conservation and management measures" means measures to conserve and manage one or more species of living marine resources that are adopted and applied consistent with the relevant rules of international law as reflected in the Convention and this Agreement;
  - (c) "fish" includes molluscs and crustaceans except those belonging to sedentary species as defined in article 77 of the Convention; and (d) "arrangement" means a cooperative mechanism established in accordance with the Convention and this Agreement by two or more States for the purpose, inter alia, of establishing conservation and management measures in a subregion or region for one or more straddling fish stocks or highly migratory fish stocks.
2. (a) "States Parties" means States which have consented to be bound by this Agreement and for which the Agreement is in force.
  - (b) This Agreement applies mutatis mutandis:
    - (i) to any entity referred to in article 305, paragraph 1 (c), (d) and (e), of the Convention and
    - (ii) subject to article 47, to any entity referred to as an "international organization" in Annex IX, article 1, of the Convention which becomes a Party to this Agreement, and to that extent "States Parties" refers to those entities.
- 3 This Agreement applies mutatis mutandis to other fishing entities whose vessels fish on the high seas.

**ANNEX III****The UN Fish Stocks Agreement (cont'd)****Article 2 Objective**

The objective of this Agreement is to ensure the long-term conservation and sustainable use of straddling fish stocks and highly migratory fish stocks through effective implementation of the relevant provisions of the Convention.

**Article 3 Application**

1. Unless otherwise provided, this Agreement applies to the conservation and management of straddling fish stocks and highly migratory fish stocks beyond areas under national jurisdiction, except that articles 6 and 7 apply also to the conservation and management of such stocks within areas under national jurisdiction, subject to the different legal regimes that apply within areas under national jurisdiction and in areas beyond national jurisdiction as provided for in the Convention.
2. In the exercise of its sovereign rights for the purpose of exploring and exploiting, conserving and managing straddling fish stocks and highly migratory fish stocks within areas under national jurisdiction, the coastal State shall apply *mutatis mutandis* the general principles enumerated in article 5.
3. States shall give due consideration to the respective capacities of developing States to apply articles 5, 6 and 7 within areas under national jurisdiction and their need for assistance as provided for in this Agreement. To this end, Part VII applies *mutatis mutandis* in respect of areas under national jurisdiction.

**Article 4 Relationship between this Agreement and the Convention.**

Nothing in this Agreement shall prejudice the rights, jurisdiction and duties of States under the Convention. This Agreement shall be interpreted and applied in the context of and in a manner consistent with the Convention.

**PART II CONSERVATION AND MANAGEMENT OF  
STRADDLING FISH STOCKS AND HIGHLY MIGRATORY FISH STOCKS**

**Article 5 General principles**

In order to conserve and manage straddling fish stocks and highly migratory fish stocks, coastal States and States fishing on the high seas shall, in giving effect to their duty to cooperate in accordance with the Convention:

- (a) adopt measures to ensure long-term sustainability of straddling fish stocks and highly migratory fish stocks and promote the objective of their optimum utilization;
- (b) ensure that such measures are based on the best scientific evidence available and are designed to maintain or restore stocks at levels capable of producing maximum sustainable yield, as qualified by relevant environmental and economic factors, including the special requirements of developing States, and taking into account fishing patterns, the interdependence of stocks and any generally recommended international minimum standards, whether subregional, regional or global;
- (c) apply the precautionary approach in accordance with article 6;
- (d) assess the impacts of fishing, other human activities and environmental factors on target stocks and species belonging to the same ecosystem or associated with or dependent upon the target stocks;
- (e) adopt, where necessary, conservation and management measures for species belonging to the same ecosystem or associated with or dependent upon the target stocks, with a view to maintaining or restoring populations of such species above levels at which their reproduction may become seriously threatened;
- (f) minimize pollution, waste, discards, catch by lost or abandoned gear, catch of non-target species, both fish and non-fish species, (hereinafter referred to as non-target species) and impacts on associated or dependent species, in particular endangered species, through measures including, to the extent practicable, the development and use of selective, environmentally safe and cost-effective fishing gear and techniques;
- (g) protect biodiversity in the marine environment;
- (h) take measures to prevent or eliminate overfishing and excess fishing capacity and to ensure that levels of fishing effort do not exceed those commensurate with the sustainable use of fishery resources;

**ANNEX III****The UN Fish Stocks Agreement (cont'd)**

- (i) take into account the interests of artisanal and subsistence fishers;
- (j) collect and share, in a timely manner, complete and accurate data concerning fishing activities on, inter alia, vessel position, catch of target and non-target species and fishing effort, as set out in Annex I, as well as information from national and international research programmes;
- (k) promote and conduct scientific research and develop appropriate technologies in support of fishery conservation and management; and
- (l) implement and enforce conservation and management measures through effective monitoring, control and surveillance.

**Article 6 Application of the precautionary approach**

1. States shall apply the precautionary approach widely to conservation, management and exploitation of straddling fish stocks and highly migratory fish stocks in order to protect the living marine resources and preserve the marine environment.
2. States shall be more cautious when information is uncertain, unreliable or inadequate. The absence of adequate scientific information shall not be used as a reason for postponing or failing to take conservation and management measures.
3. In implementing the precautionary approach, States shall:
  - (a) improve decision-making for fishery resource conservation and management by obtaining and sharing the best scientific information available and implementing improved techniques for dealing with risk and uncertainty;
  - (b) apply the guidelines set out in Annex II and determine, on the basis of the best scientific information available, stock-specific reference points and the action to be taken if they are exceeded;
  - (c) take into account, inter alia, uncertainties relating to the size and productivity of the stocks, reference points, stock condition in relation to such reference points, levels and distribution of fishing mortality and the impact of fishing activities on non-target and associated or dependent species, as well as existing and predicted oceanic, environmental and socio-economic conditions; and
  - (d) develop data collection and research programmes to assess the impact of fishing on non-target and associated or dependent species and their environment, and adopt plans which are necessary to ensure the conservation of such species and to protect habitats of special concern.
4. States shall take measures to ensure that, when reference points are approached, they will not be exceeded. In the event that they are exceeded, States shall, without delay, take the action determined under paragraph 3 (b) to restore the stocks.
5. Where the status of target stocks or non-target or associated or dependent species is of concern, States shall subject such stocks and species to enhanced monitoring in order to review their status and the efficacy of conservation and management measures. They shall revise those measures regularly in the light of new information.
6. For new or exploratory fisheries, States shall adopt as soon as possible cautious conservation and management measures, including, inter alia, catch limits and effort limits. Such measures shall remain in force until there are sufficient data to allow assessment of the impact of the fisheries on the long-term sustainability of the stocks, whereupon conservation and management measures based on that assessment shall be implemented. The latter measures shall, if appropriate, allow for the gradual development of the fisheries.
7. If a natural phenomenon has a significant adverse impact on the status of straddling fish stocks or highly migratory fish stocks, States shall adopt conservation and management measures on an emergency basis to ensure that fishing activity does not exacerbate such adverse impact. States shall also adopt such measures on an emergency basis where fishing activity presents a serious threat to the sustainability of such stocks. Measures taken on an emergency basis shall be temporary and shall be based on the best scientific evidence available.

**Article 7 Compatibility of conservation and management measures**

1. Without prejudice to the sovereign rights of coastal States for the purpose of exploring and exploiting, conserving and managing the living marine resources within areas under national jurisdiction as provided for in the Convention, and the right of all States for their nationals to engage in fishing on the high seas in accordance with the Convention:
  - (a) with respect to straddling fish stocks, the relevant coastal States and the States whose nationals fish for such stocks in the adjacent high seas area shall seek, either directly or through the appropriate mechanisms for cooperation provided for in Part III, to agree upon the measures necessary for the conservation of these stocks in the adjacent high seas area;

**ANNEX III****The UN Fish Stocks Agreement (cont'd)**

- (b) with respect to highly migratory fish stocks, the relevant coastal States and other States whose nationals fish for such stocks in the region shall cooperate, either directly or through the appropriate mechanisms for cooperation provided for in Part III, with a view to ensuring conservation and promoting the objective of optimum utilization of such stocks throughout the region, both within and beyond the areas under national jurisdiction.
2. Conservation and management measures established for the high seas and those adopted for areas under national jurisdiction shall be compatible in order to ensure conservation and management of the straddling fish stocks and highly migratory fish stocks in their entirety. To this end, coastal States and States fishing on the high seas have a duty to cooperate for the purpose of achieving compatible measures in respect of such stocks.
- In determining compatible conservation and management measures, States shall:
- (a) take into account the conservation and management measures adopted and applied in accordance with article 61 of the Convention in respect of the same stocks by coastal States within areas under national jurisdiction and ensure that measures established in respect of such stocks for the high seas do not undermine the effectiveness of such measures;
  - (b) take into account previously agreed measures established and applied for the high seas in accordance with the Convention in respect of the same stocks by relevant coastal States and States fishing on the high seas;
  - (c) take into account previously agreed measures established and applied in accordance with the Convention in respect of the same stocks by a subregional or regional fisheries management organization or arrangement;
  - (d) take into account the biological unity and other biological characteristics of the stocks and the relationships between the distribution of the stocks, the fisheries and the geographical particularities of the region concerned, including the extent to which the stocks occur and are fished in areas under national jurisdiction;
  - (e) take into account the respective dependence of the coastal States and the States fishing on the high seas on the stocks concerned; and
  - (f) ensure that such measures do not result in harmful impact on the living marine resources as a whole.
3. In giving effect to their duty to cooperate, States shall make every effort to agree on compatible conservation and management measures within a reasonable period of time.
4. If no agreement can be reached within a reasonable period of time, any of the States concerned may invoke the procedures for the settlement of disputes provided for in Part VIII.
5. Pending agreement on compatible conservation and management measures, the States concerned, in a spirit of understanding and cooperation, shall make every effort to enter into provisional arrangements of a practical nature. In the event that they are unable to agree on such arrangements, any of the States concerned may, for the purpose of obtaining provisional measures, submit the dispute to a court or tribunal in accordance with the procedures for the settlement of disputes provided for in Part VIII.
6. Provisional arrangements or measures entered into or prescribed pursuant to paragraph 5 shall take into account the provisions of this Part, shall have due regard to the rights and obligations of all States concerned, shall not jeopardize or hamper the reaching of final agreement on compatible conservation and management measures and shall be without prejudice to the final outcome of any dispute settlement procedure.
7. Coastal States shall regularly inform States fishing on the high seas in the subregion or region, either directly or through appropriate subregional or regional fisheries management organizations or arrangements, or through other appropriate means, of the measures they have adopted for straddling fish stocks and highly migratory fish stocks within areas under their national jurisdiction.
8. States fishing on the high seas shall regularly inform other interested States, either directly or through appropriate subregional or regional fisheries management organizations or arrangements, or through other appropriate means, of the measures they have adopted for regulating the activities of vessels flying their flag which fish for such stocks on the high seas.

**PART III MECHANISMS FOR INTERNATIONAL COOPERATION CONCERNING  
STRADDLING FISH STOCKS AND HIGHLY MIGRATORY FISH STOCKS**

**Article 8 Cooperation for conservation and management**

1. Coastal States and States fishing on the high seas shall, in accordance with the Convention, pursue cooperation in relation to straddling fish stocks and highly migratory fish stocks either directly or through appropriate subregional or regional fisheries management organizations or arrangements, taking into account the specific characteristics of the subregion or region, to ensure effective conservation and management of such stocks.
2. States shall enter into consultations in good faith and without delay, particularly where there is evidence that the straddling fish stocks and highly migratory fish stocks concerned may be under threat of over-exploitation or where a new fishery is being developed for such stocks. To this end, consultations may be initiated at the request of any interested State with a view to establishing appropriate arrangements to ensure conservation and management of the stocks. Pending agreement on such arrangements, States shall observe the provisions of this Agreement and shall act in good faith and with due regard to the rights, interests and duties of other States.
3. Where a subregional or regional fisheries management organization or arrangement has the competence to establish conservation and management measures for particular straddling fish stocks or highly migratory fish stocks, States fishing for the stocks on the high seas and relevant coastal States shall give effect to their duty to cooperate by becoming members of such organization or participants in such arrangement, or by agreeing to apply the conservation and management measures established by such organization or arrangement. States having a real interest in the fisheries concerned may become members of such organization or participants in such arrangement. The terms of participation in such organization or arrangement shall not preclude such States from membership or participation; nor shall they be applied in a manner which discriminates against any State or group of States having a real interest in the fisheries concerned.
4. Only those States which are members of such an organization or participants in such an arrangement, or which agree to apply the conservation and management measures established by such organization or arrangement, shall have access to the fishery resources to which those measures apply.
5. Where there is no subregional or regional fisheries management organization or arrangement to establish conservation and management measures for a particular straddling fish stock or highly migratory fish stock, relevant coastal States and States fishing on the high seas for such stock in the subregion or region shall cooperate to establish such an organization or enter into other appropriate arrangements to ensure conservation and management of such stock and shall participate in the work of the organization or arrangement.
6. Any State intending to propose that action be taken by an intergovernmental organization having competence with respect to living resources should, where such action would have a significant effect on conservation and management measures already established by a competent subregional or regional fisheries management organization or arrangement, consult through that organization or arrangement with its members or participants. To the extent practicable, such consultation should take place prior to the submission of the proposal to the intergovernmental organization.

**Article 9 Subregional and regional fisheries management organizations and arrangements**

1. In establishing subregional or regional fisheries management organizations or in entering into subregional or regional fisheries management arrangements for straddling fish stocks and highly migratory fish stocks, States shall agree, *inter alia*, on:
  - (a) the stocks to which conservation and management measures apply, taking into account the biological characteristics of the stocks concerned and the nature of the fisheries involved;
  - (b) the area of application, taking into account article 7, paragraph 1, and the characteristics of the subregion or region, including socio-economic, geographical and environmental factors;
  - (c) the relationship between the work of the new organization or arrangement and the role, objectives and operations of any relevant existing fisheries management organizations or arrangements; and
  - (d) the mechanisms by which the organization or arrangement will obtain scientific advice and review the status of the stocks, including, where appropriate, the establishment of a scientific advisory body.
2. States cooperating in the formation of a subregional or regional fisheries management organization or arrangement shall inform other States which they are aware have a real interest in the work of the proposed organization or arrangement of such cooperation.

**ANNEX III****The UN Fish Stocks Agreement (cont'd)****Article 10 Functions of subregional and regional fisheries management organizations and arrangements**

In fulfilling their obligation to cooperate through subregional or regional fisheries management organizations or arrangements, States shall:

- (a) agree on and comply with conservation and management measures to ensure the long-term sustainability of straddling fish stocks and highly migratory fish stocks;
- (b) agree, as appropriate, on participatory rights such as allocations of allowable catch or levels of fishing effort;
- (c) adopt and apply any generally recommended international minimum standards for the responsible conduct of fishing operations;
- (d) obtain and evaluate scientific advice, review the status of the stocks and assess the impact of fishing on non-target and associated or dependent species;
- (e) agree on standards for collection, reporting, verification and exchange of data on fisheries for the stocks;
- (f) compile and disseminate accurate and complete statistical data, as described in Annex I, to ensure that the best scientific evidence is available, while maintaining confidentiality where appropriate;
- (g) promote and conduct scientific assessments of the stocks and relevant research and disseminate the results thereof;
- (h) establish appropriate cooperative mechanisms for effective monitoring, control, surveillance and enforcement;
- (i) agree on means by which the fishing interests of new members of the organization or new participants in the arrangement will be accommodated;
- (j) agree on decision-making procedures which facilitate the adoption of conservation and management measures in a timely and effective manner;
- (k) promote the peaceful settlement of disputes in accordance with Part VIII;
- (l) ensure the full cooperation of their relevant national agencies and industries in implementing the recommendations and decisions of the organization or arrangement; and
- (m) give due publicity to the conservation and management measures established by the organization or arrangement.

**Article 11 New members or participants**

In determining the nature and extent of participatory rights for new members of a subregional or regional fisheries management organization, or for new participants in a subregional or regional fisheries management arrangement, States shall take into account, inter alia:

- (a) the status of the straddling fish stocks and highly migratory fish stocks and the existing level of fishing effort in the fishery;
- (b) the respective interests, fishing patterns and fishing practices of new and existing members or participants;
- (c) the respective contributions of new and existing members or participants to conservation and management of the stocks, to the collection and provision of accurate data and to the conduct of scientific research on the stocks;
- (d) the needs of coastal fishing communities which are dependent mainly on fishing for the stocks;
- (e) the needs of coastal States whose economies are overwhelmingly dependent on the exploitation of living marine resources; and
- (f) the interests of developing States from the subregion or region in whose areas of national jurisdiction the stocks also occur.

**Article 12 Transparency in activities of subregional and regional fisheries management organizations and arrangements**

1. States shall provide for transparency in the decision-making process and other activities of subregional and regional fisheries management organizations and arrangements.
2. Representatives from other intergovernmental organizations and representatives from non-governmental organizations concerned with straddling fish stocks and highly migratory fish stocks shall be afforded the opportunity to take part in meetings of subregional and regional fisheries management organizations and arrangements as observers or otherwise, as appropriate, in accordance with the procedures of the

**ANNEX III****The UN Fish Stocks Agreement (cont'd)**

organization or arrangement concerned. Such procedures shall not be unduly restrictive in this respect. Such intergovernmental organizations and non-governmental organizations shall have timely access to the records and reports of such organizations and arrangements, subject to the procedural rules on access to them.

**Article 13 Strengthening of existing organizations and arrangements**

States shall cooperate to strengthen existing subregional and regional fisheries management organizations and arrangements in order to improve their effectiveness in establishing and implementing conservation and management measures for straddling fish stocks and highly migratory fish stocks.

**Article 14 Collection and provision of information and cooperation in scientific research**

1. States shall ensure that fishing vessels flying their flag provide such information as may be necessary in order to fulfil their obligations under this Agreement. To this end, States shall in accordance with Annex I:
  - (a) collect and exchange scientific, technical and statistical data with respect to fisheries for straddling fish stocks and highly migratory fish stocks;
  - (b) ensure that data are collected in sufficient detail to facilitate effective stock assessment and are provided in a timely manner to fulfil the requirements of subregional or regional fisheries management organizations or arrangements; and
  - (c) take appropriate measures to verify the accuracy of such data.
2. States shall cooperate, either directly or through subregional or regional fisheries management organizations or arrangements:
  - (a) to agree on the specification of data and the format in which they are to be provided to such organizations or arrangements, taking into account the nature of the stocks and the fisheries for those stocks; and
  - (b) to develop and share analytical techniques and stock assessment methodologies to improve measures for the conservation and management of straddling fish stocks and highly migratory fish stocks.
3. Consistent with Part XIII of the Convention, States shall cooperate, either directly or through competent international organizations, to strengthen scientific research capacity in the field of fisheries and promote scientific research related to the conservation and management of straddling fish stocks and highly migratory fish stocks for the benefit of all. To this end, a State or the competent international organization conducting such research beyond areas under national jurisdiction shall actively promote the publication and dissemination to any interested States of the results of that research and information relating to its objectives and methods and, to the extent practicable, shall facilitate the participation of scientists from those States in such research.

**Article 15 Enclosed and semi-enclosed seas**

In implementing this Agreement in an enclosed or semi-enclosed sea, States shall take into account the natural characteristics of that sea and shall also act in a manner consistent with Part IX of the Convention and other relevant provisions thereof.

**Article 16 Areas of high seas surrounded entirely by an area under the national jurisdiction of a single State**

1. States fishing for straddling fish stocks and highly migratory fish stocks in an area of the high seas surrounded entirely by an area under the national jurisdiction of a single State and the latter State shall cooperate to establish conservation and management measures in respect of those stocks in the high seas area. Having regard to the natural characteristics of the area, States shall pay special attention to the establishment of compatible conservation and management measures for such stocks pursuant to article 7. Measures taken in respect of the high seas shall take into account the rights, duties and interests of the coastal State under the Convention, shall be based on the best scientific evidence available and shall also take into account any conservation and management measures adopted and applied in respect of the same stocks in accordance with article 61 of the Convention by the coastal State in the area under national jurisdiction. States shall also agree on measures for monitoring, control, surveillance and enforcement to ensure compliance with the conservation and management measures in respect of the high seas.
2. Pursuant to article 8, States shall act in good faith and make every effort to agree without delay on conservation and management measures to be applied in the carrying out of fishing operations in the area referred to in paragraph 1. If, within a reasonable period of time, the fishing States con-

**ANNEX III****The UN Fish Stocks Agreement (cont'd)**

cerned and the coastal State are unable to agree on such measures, they shall, having regard to paragraph 1, apply article 7, paragraphs 4, 5 and 6, relating to provisional arrangements or measures. Pending the establishment of such provisional arrangements or measures, the States concerned shall take measures in respect of vessels flying their flag in order that they not engage in fisheries which could undermine the stocks concerned.

**PART IV NON-MEMBERS AND NON-PARTICIPANTS****Article 17 Non-members of organizations and non-participants in arrangements**

1. A State which is not a member of a subregional or regional fisheries management organization or is not a participant in a subregional or regional fisheries management arrangement, and which does not otherwise agree to apply the conservation and management measures established by such organization or arrangement, is not discharged from the obligation to cooperate, in accordance with the Convention and this Agreement, in the conservation and management of the relevant straddling fish stocks and highly migratory fish stocks.
2. Such State shall not authorize vessels flying its flag to engage in fishing operations for the straddling fish stocks or highly migratory fish stocks which are subject to the conservation and management measures established by such organization or arrangement.
3. States which are members of a subregional or regional fisheries management organization or participants in a subregional or regional fisheries management arrangement shall, individually or jointly, request the fishing entities referred to in article 1, paragraph 3, which have fishing vessels in the relevant area to cooperate fully with such organization or arrangement in implementing the conservation and management measures it has established, with a view to having such measures applied de facto as extensively as possible to fishing activities in the relevant area. Such fishing entities shall enjoy benefits from participation in the fishery commensurate with their commitment to comply with conservation and management measures in respect of the stocks.
4. States which are members of such organization or participants in such arrangement shall exchange information with respect to the activities of fishing vessels flying the flags of States which are neither members of the organization nor participants in the arrangement and which are engaged in fishing operations for the relevant stocks. They shall take measures consistent with this Agreement and international law to deter activities of such vessels which undermine the effectiveness of subregional or regional conservation and management measures.

**PART V DUTIES OF THE FLAG STATE****Article 18 Duties of the flag State**

1. A State whose vessels fish on the high seas shall take such measures as may be necessary to ensure that vessels flying its flag comply with subregional and regional conservation and management measures and that such vessels do not engage in any activity which undermines the effectiveness of such measures.
2. A State shall authorize the use of vessels flying its flag for fishing on the high seas only where it is able to exercise effectively its responsibilities in respect of such vessels under the Convention and this Agreement.
3. Measures to be taken by a State in respect of vessels flying its flag shall include:
  - (a) control of such vessels on the high seas by means of fishing licences, authorizations or permits, in accordance with any applicable procedures agreed at the subregional, regional or global level;
  - (b) establishment of regulations:
    - (i) to apply terms and conditions to the licence, authorization or permit sufficient to fulfil any subregional, regional or global obligations of the flag State;
    - (ii) to prohibit fishing on the high seas by vessels which are not duly licensed or authorized to fish, or fishing on the high seas by vessels otherwise than in accordance with the terms and conditions of a licence, authorization or permit;
    - (iii) to require vessels fishing on the high seas to carry the licence, authorization or permit on board at all times and to produce it on demand for inspection by a duly authorized person; and
    - (iv) to ensure that vessels flying its flag do not conduct unauthorized fishing within areas under the national jurisdiction of other States;

**ANNEX III****The UN Fish Stocks Agreement (cont'd)**

- (c) establishment of a national record of fishing vessels authorized to fish on the high seas and provision of access to the information contained in that record on request by directly interested States, taking into account any national laws of the flag State regarding the release of such information;
  - (d) requirements for marking of fishing vessels and fishing gear for identification in accordance with uniform and internationally recognizable vessel and gear marking systems, such as the Food and Agriculture Organization of the United Nations Standard Specifications for the Marking and Identification of Fishing Vessels;
  - (e) requirements for recording and timely reporting of vessel position, catch of target and non-target species, fishing effort and other relevant fisheries data in accordance with subregional, regional and global standards for collection of such data;
  - (f) requirements for verifying the catch of target and non-target species through such means as observer programmes, inspection schemes, unloading reports, supervision of transshipment and monitoring of landed catches and market statistics;
  - (g) monitoring, control and surveillance of such vessels, their fishing operations and related activities by, inter alia:
    - (i) the implementation of national inspection schemes and subregional and regional schemes for cooperation in enforcement pursuant to articles 21 and 22, including requirements for such vessels to permit access by duly authorized inspectors from other States;
    - (ii) the implementation of national observer programmes and subregional and regional observer programmes in which the flag State is a participant, including requirements for such vessels to permit access by observers from other States to carry out the functions agreed under the programmes; and
    - (iii) the development and implementation of vessel monitoring systems, including, as appropriate, satellite transmitter systems, in accordance with any national programmes and those which have been subregionally, regionally or globally agreed among the States concerned;
  - (h) regulation of transshipment on the high seas to ensure that the effectiveness of conservation and management measures is not undermined; and
  - (i) regulation of fishing activities to ensure compliance with subregional, regional or global measures, including those aimed at minimizing catches of non-target species.
4. Where there is a subregionally, regionally or globally agreed system of monitoring, control and surveillance in effect, States shall ensure that the measures they impose on vessels flying their flag are compatible with that system.

**PART VI COMPLIANCE AND ENFORCEMENT****Article 19 Compliance and enforcement by the flag State**

1. A State shall ensure compliance by vessels flying its flag with subregional and regional conservation and management measures for straddling fish stocks and highly migratory fish stocks. To this end, that State shall:
  - (a) enforce such measures irrespective of where violations occur;
  - (b) investigate immediately and fully any alleged violation of subregional or regional conservation and management measures, which may include the physical inspection of the vessels concerned, and report promptly to the State alleging the violation and the relevant subregional or regional organization or arrangement on the progress and outcome of the investigation;
  - (c) require any vessel flying its flag to give information to the investigating authority regarding vessel position, catches, fishing gear, fishing operations and related activities in the area of an alleged violation;
  - (d) if satisfied that sufficient evidence is available in respect of an alleged violation, refer the case to its authorities with a view to instituting proceedings without delay in accordance with its laws and, where appropriate, detain the vessel concerned; and
  - (e) ensure that, where it has been established, in accordance with its laws, a vessel has been involved in the commission of a serious violation of such measures, the vessel does not engage in fishing operations on the high seas until such time as all outstanding sanctions imposed by the flag State in respect of the violation have been complied with.
2. All investigations and judicial proceedings shall be carried out expeditiously. Sanctions applicable in respect of violations shall be adequate in sever-

**ANNEX III****The UN Fish Stocks Agreement (cont'd)**

ity to be effective in securing compliance and to discourage violations wherever they occur and shall deprive offenders of the benefits accruing from their illegal activities. Measures applicable in respect of masters and other officers of fishing vessels shall include provisions which may permit, *inter alia*, refusal, withdrawal or suspension of authorizations to serve as masters or officers on such vessels.

**Article 20 International cooperation in enforcement**

1. States shall cooperate, either directly or through subregional or regional fisheries management organizations or arrangements, to ensure compliance with and enforcement of subregional and regional conservation and management measures for straddling fish stocks and highly migratory fish stocks.
2. A flag State conducting an investigation of an alleged violation of conservation and management measures for straddling fish stocks or highly migratory fish stocks may request the assistance of any other State whose cooperation may be useful in the conduct of that investigation. All States shall endeavour to meet reasonable requests made by a flag State in connection with such investigations.
3. A flag State may undertake such investigations directly, in cooperation with other interested States or through the relevant subregional or regional fisheries management organization or arrangement. Information on the progress and outcome of the investigations shall be provided to all States having an interest in, or affected by, the alleged violation.
4. States shall assist each other in identifying vessels reported to have engaged in activities undermining the effectiveness of subregional, regional or global conservation and management measures.
5. States shall, to the extent permitted by national laws and regulations, establish arrangements for making available to prosecuting authorities in other States evidence relating to alleged violations of such measures.
6. Where there are reasonable grounds for believing that a vessel on the high seas has been engaged in unauthorized fishing within an area under the jurisdiction of a coastal State, the flag State of that vessel, at the request of the coastal State concerned, shall immediately and fully investigate the matter. The flag State shall cooperate with the coastal State in taking appropriate enforcement action in such cases and may authorize the relevant authorities of the coastal State to board and inspect the vessel on the high seas. This paragraph is without prejudice to article 111 of the Convention.
7. States Parties which are members of a subregional or regional fisheries management organization or participants in a subregional or regional fisheries management arrangement may take action in accordance with international law, including through recourse to subregional or regional procedures established for this purpose, to deter vessels which have engaged in activities which undermine the effectiveness of or otherwise violate the conservation and management measures established by that organization or arrangement from fishing on the high seas in the subregion or region until such time as appropriate action is taken by the flag State.

**Article 21 Subregional and regional cooperation in enforcement**

1. In any high seas area covered by a subregional or regional fisheries management organization or arrangement, a State Party which is a member of such organization or a participant in such arrangement may, through its duly authorized inspectors, board and inspect, in accordance with paragraph 2, fishing vessels flying the flag of another State Party to this Agreement, whether or not such State Party is also a member of the organization or a participant in the arrangement, for the purpose of ensuring compliance with conservation and management measures for straddling fish stocks and highly migratory fish stocks established by that organization or arrangement.
2. States shall establish, through subregional or regional fisheries management organizations or arrangements, procedures for boarding and inspection pursuant to paragraph 1, as well as procedures to implement other provisions of this article. Such procedures shall be consistent with this article and the basic procedures set out in article 22 and shall not discriminate against non-members of the organization or non-participants in the arrangement. Boarding and inspection as well as any subsequent enforcement action shall be conducted in accordance with such procedures. States shall give due publicity to procedures established pursuant to this paragraph.
3. If, within two years of the adoption of this Agreement, any organization or arrangement has not established such procedures, boarding and inspection pursuant to paragraph 1, as well as any subsequent enforcement action, shall, pending the establishment of such procedures, be conducted in accordance with this article and the basic procedures set out in article 22.
4. Prior to taking action under this article, inspecting States shall, either directly or through the relevant subregional or regional fisheries management organization or arrangement, inform all States whose vessels fish on the high seas in the subregion or region of the form of identification issued to

**ANNEX III****The UN Fish Stocks Agreement (cont'd)**

their duly authorized inspectors. The vessels used for boarding and inspection shall be clearly marked and identifiable as being on government service. At the time of becoming a Party to this Agreement, a State shall designate an appropriate authority to receive notifications pursuant to this article and shall give due publicity of such designation through the relevant subregional or regional fisheries management organization or arrangement.

5. Where, following a boarding and inspection, there are clear grounds for believing that a vessel has engaged in any activity contrary to the conservation and management measures referred to in paragraph 1, the inspecting State shall, where appropriate, secure evidence and shall promptly notify the flag State of the alleged violation.
6. The flag State shall respond to the notification referred to in paragraph 5 within three working days of its receipt, or such other period as may be prescribed in procedures established in accordance with paragraph 2, and shall either:
  - (a) fulfil, without delay, its obligations under article 19 to investigate and, if evidence so warrants, take enforcement action with respect to the vessel, in which case it shall promptly inform the inspecting State of the results of the investigation and of any enforcement action taken; or
  - (b) authorize the inspecting State to investigate.
7. Where the flag State authorizes the inspecting State to investigate an alleged violation, the inspecting State shall, without delay, communicate the results of that investigation to the flag State. The flag State shall, if evidence so warrants, fulfil its obligations to take enforcement action with respect to the vessel. Alternatively, the flag State may authorize the inspecting State to take such enforcement action as the flag State may specify with respect to the vessel, consistent with the rights and obligations of the flag State under this Agreement.
8. Where, following boarding and inspection, there are clear grounds for believing that a vessel has committed a serious violation, and the flag State has either failed to respond or failed to take action as required under paragraphs 6 or 7, the inspectors may remain on board and secure evidence and may require the master to assist in further investigation including, where appropriate, by bringing the vessel without delay to the nearest appropriate port, or to such other port as may be specified in procedures established in accordance with paragraph 2. The inspecting State shall immediately inform the flag State of the name of the port to which the vessel is to proceed. The inspecting State and the flag State and, as appropriate, the port State shall take all necessary steps to ensure the well-being of the crew regardless of their nationality.
9. The inspecting State shall inform the flag State and the relevant organization or the participants in the relevant arrangement of the results of any further investigation.
10. The inspecting State shall require its inspectors to observe generally accepted international regulations, procedures and practices relating to the safety of the vessel and the crew, minimize interference with fishing operations and, to the extent practicable, avoid action which would adversely affect the quality of the catch on board. The inspecting State shall ensure that boarding and inspection is not conducted in a manner that would constitute harassment of any fishing vessel.
11. For the purposes of this article, a serious violation means:
  - (a) fishing without a valid licence, authorization or permit issued by the flag State in accordance with article 18, paragraph 3 (a);
  - (b) failing to maintain accurate records of catch and catch-related data, as required by the relevant subregional or regional fisheries management organization or arrangement, or serious misreporting of catch, contrary to the catch reporting requirements of such organization or arrangement;
  - (c) fishing in a closed area, fishing during a closed season or fishing without, or after attainment of, a quota established by the relevant subregional or regional fisheries management organization or arrangement;
  - (d) directed fishing for a stock which is subject to a moratorium or for which fishing is prohibited;
  - (e) using prohibited fishing gear;
  - (f) falsifying or concealing the markings, identity or registration of a fishing vessel;
  - (g) concealing, tampering with or disposing of evidence relating to an investigation;
  - (h) multiple violations which together constitute a serious disregard of conservation and management measures; or
  - (i) such other violations as may be specified in procedures established by the relevant subregional or regional fisheries management organization or arrangement.

**ANNEX III****The UN Fish Stocks Agreement (cont'd)**

12. Notwithstanding the other provisions of this article, the flag State may, at any time, take action to fulfil its obligations under article 19 with respect to an alleged violation. Where the vessel is under the direction of the inspecting State, the inspecting State shall, at the request of the flag State, release the vessel to the flag State along with full information on the progress and outcome of its investigation.
13. This article is without prejudice to the right of the flag State to take any measures, including proceedings to impose penalties, according to its laws.
14. This article applies *mutatis mutandis* to boarding and inspection by a State Party which is a member of a subregional or regional fisheries management organization or a participant in a subregional or regional fisheries management arrangement and which has clear grounds for believing that a fishing vessel flying the flag of another State Party has engaged in any activity contrary to relevant conservation and management measures referred to in paragraph 1 in the high seas area covered by such organization or arrangement, and such vessel has subsequently, during the same fishing trip, entered into an area under the national jurisdiction of the inspecting State.
15. Where a subregional or regional fisheries management organization or arrangement has established an alternative mechanism which effectively discharges the obligation under this Agreement of its members or participants to ensure compliance with the conservation and management measures established by the organization or arrangement, members of such organization or participants in such arrangement may agree to limit the application of paragraph 1 as between themselves in respect of the conservation and management measures which have been established in the relevant high seas area.
16. Action taken by States other than the flag State in respect of vessels having engaged in activities contrary to subregional or regional conservation and management measures shall be proportionate to the seriousness of the violation.
17. Where there are reasonable grounds for suspecting that a fishing vessel on the high seas is without nationality, a State may board and inspect the vessel. Where evidence so warrants, the State may take such action as may be appropriate in accordance with international law.
18. States shall be liable for damage or loss attributable to them arising from action taken pursuant to this article when such action is unlawful or exceeds that reasonably required in the light of available information to implement the provisions of this article.

**Article 22 Basic procedures for boarding and inspection pursuant to article 21**

1. The inspecting State shall ensure that its duly authorized inspectors:
  - (a) present credentials to the master of the vessel and produce a copy of the text of the relevant conservation and management measures or rules and regulations in force in the high seas area in question pursuant to those measures;
  - (b) initiate notice to the flag State at the time of the boarding and inspection;
  - (c) do not interfere with the master's ability to communicate with the authorities of the flag State during the boarding and inspection;
  - (d) provide a copy of a report on the boarding and inspection to the master and to the authorities of the flag State, noting therein any objection or statement which the master wishes to have included in the report;
  - (e) promptly leave the vessel following completion of the inspection if they find no evidence of a serious violation; and
  - (f) avoid the use of force except when and to the degree necessary to ensure the safety of the inspectors and where the inspectors are obstructed in the execution of their duties. The degree of force used shall not exceed that reasonably required in the circumstances.
2. The duly authorized inspectors of an inspecting State shall have the authority to inspect the vessel, its licence, gear, equipment, records, facilities, fish and fish products and any relevant documents necessary to verify compliance with the relevant conservation and management measures.
3. The flag State shall ensure that vessel masters:
  - (a) accept and facilitate prompt and safe boarding by the inspectors;
  - (b) cooperate with and assist in the inspection of the vessel conducted pursuant to these procedures;
  - (c) do not obstruct, intimidate or interfere with the inspectors in the performance of their duties;
  - (d) allow the inspectors to communicate with the authorities of the flag State and the inspecting State during the boarding and inspection;
  - (e) provide reasonable facilities, including, where appropriate, food and accommodation, to the inspectors; and
  - (f) facilitate safe disembarkation by the inspectors.

**ANNEX III****The UN Fish Stocks Agreement (cont'd)**

4. In the event that the master of a vessel refuses to accept boarding and inspection in accordance with this article and article 21, the flag State shall, except in circumstances where, in accordance with generally accepted international regulations, procedures and practices relating to safety at sea, it is necessary to delay the boarding and inspection, direct the master of the vessel to submit immediately to boarding and inspection and, if the master does not comply with such direction, shall suspend the vessel's authorization to fish and order the vessel to return immediately to port. The flag State shall advise the inspecting State of the action it has taken when the circumstances referred to in this paragraph arise.

**Article 23 Measures taken by a port State**

1. A port State has the right and the duty to take measures, in accordance with international law, to promote the effectiveness of subregional, regional and global conservation and management measures. When taking such measures a port State shall not discriminate in form or in fact against the vessels of any State.
2. A port State may, inter alia, inspect documents, fishing gear and catch on board fishing vessels, when such vessels are voluntarily in its ports or at its offshore terminals.
3. States may adopt regulations empowering the relevant national authorities to prohibit landings and transshipments where it has been established that the catch has been taken in a manner which undermines the effectiveness of subregional, regional or global conservation and management measures on the high seas.
4. Nothing in this article affects the exercise by States of their sovereignty over ports in their territory in accordance with international law.

**PART VII REQUIREMENTS OF DEVELOPING STATES****Article 24 Recognition of the special requirements of developing States**

1. States shall give full recognition to the special requirements of developing States in relation to conservation and management of straddling fish stocks and highly migratory fish stocks and development of fisheries for such stocks. To this end, States shall, either directly or through the United Nations Development Programme, the Food and Agriculture Organization of the United Nations and other specialized agencies, the Global Environment Facility, the Commission on Sustainable Development and other appropriate international and regional organizations and bodies, provide assistance to developing States.
2. In giving effect to the duty to cooperate in the establishment of conservation and management measures for straddling fish stocks and highly migratory fish stocks, States shall take into account the special requirements of developing States, in particular:
  - (a) the vulnerability of developing States which are dependent on the exploitation of living marine resources, including for meeting the nutritional requirements of their populations or parts thereof;
  - (b) the need to avoid adverse impacts on, and ensure access to fisheries by, subsistence, small-scale and artisanal fishers and women fishworkers, as well as indigenous people in developing States, particularly small island developing States; and
  - (c) the need to ensure that such measures do not result in transferring, directly or indirectly, a disproportionate burden of conservation action onto developing States.

**Article 25 Forms of cooperation with developing States**

1. States shall cooperate, either directly or through subregional, regional or global organizations:
  - (a) to enhance the ability of developing States, in particular the least-developed among them and small island developing States, to conserve and manage straddling fish stocks and highly migratory fish stocks and to develop their own fisheries for such stocks;
  - (b) to assist developing States, in particular the least-developed among them and small island developing States, to enable them to participate in high seas fisheries for such stocks, including facilitating access to such fisheries subject to articles 5 and 11; and
  - (c) to facilitate the participation of developing States in subregional and regional fisheries management organizations and arrangements.
2. Cooperation with developing States for the purposes set out in this article shall include the provision of financial assistance, assistance relating to human resources development, technical assistance, transfer of technology, including through joint venture arrangements, and advisory and consultative services.

**ANNEX III****The UN Fish Stocks Agreement (cont'd)**

3. Such assistance shall, *inter alia*, be directed specifically towards:
  - (a) improved conservation and management of straddling fish stocks and highly migratory fish stocks through collection, reporting, verification, exchange and analysis of fisheries data and related information;
  - (b) stock assessment and scientific research; and
  - (c) monitoring, control, surveillance, compliance and enforcement, including training and capacity-building at the local level, development and funding of national and regional observer programmes and access to technology and equipment.

**Article 26 Special assistance in the implementation of this Agreement**

1. States shall cooperate to establish special funds to assist developing States in the implementation of this Agreement, including assisting developing States to meet the costs involved in any proceedings for the settlement of disputes to which they may be parties.
2. States and international organizations should assist developing States in establishing new subregional or regional fisheries management organizations or arrangements, or in strengthening existing organizations or arrangements, for the conservation and management of straddling fish stocks and highly migratory fish stocks.

**PART VIII PEACEFUL SETTLEMENT OF DISPUTES****Article 27 Obligation to settle disputes by peaceful means**

States have the obligation to settle their disputes by negotiation, inquiry, mediation, conciliation, arbitration, judicial settlement, resort to regional agencies or arrangements, or other peaceful means of their own choice.

**Article 28 Prevention of disputes**

States shall cooperate in order to prevent disputes. To this end, States shall agree on efficient and expeditious decision-making procedures within subregional and regional fisheries management organizations and arrangements and shall strengthen existing decision-making procedures as necessary.

**Article 29 Disputes of a technical nature**

Where a dispute concerns a matter of a technical nature, the States concerned may refer the dispute to an ad hoc expert panel established by them. The panel shall confer with the States concerned and shall endeavour to resolve the dispute expeditiously without recourse to binding procedures for the settlement of disputes.

**Article 30 Procedures for the settlement of disputes**

1. The provisions relating to the settlement of disputes set out in Part XV of the Convention apply *mutatis mutandis* to any dispute between States Parties to this Agreement concerning the interpretation or application of this Agreement, whether or not they are also Parties to the Convention.
2. The provisions relating to the settlement of disputes set out in Part XV of the Convention apply *mutatis mutandis* to any dispute between States Parties to this Agreement concerning the interpretation or application of a subregional, regional or global fisheries agreement relating to straddling fish stocks or highly migratory fish stocks to which they are parties, including any dispute concerning the conservation and management of such stocks, whether or not they are also Parties to the Convention.
3. Any procedure accepted by a State Party to this Agreement and the Convention pursuant to article 287 of the Convention shall apply to the settlement of disputes under this Part, unless that State Party, when signing, ratifying or acceding to this Agreement, or at any time thereafter, has accepted another procedure pursuant to article 287 for the settlement of disputes under this Part. 4. A State Party to this Agreement which is not a Party to the Convention, when signing, ratifying or acceding to this Agreement, or at any time thereafter, shall be free to choose, by means of a written declaration, one or more of the means set out in article 287, paragraph 1, of the Convention for the settlement of disputes under this Part. Article 287 shall apply to such a declaration, as well as to any dispute to which such State is a party which is not covered by a declaration in force. For the purposes of conciliation and arbitration in accordance with Annexes V, VII and VIII to the Convention, such State shall be entitled to nominate conciliators, arbitrators and experts to be included in the lists referred to in Annex V, article 2, Annex VII, article 2, and Annex VIII, article 2, for the settlement of disputes under this Part. 5. Any court or tribunal to which a dispute has been submitted under this Part shall apply the relevant provisions of the Convention, of this Agreement and of any relevant subregional, regional or global fisheries agreement, as well as generally accepted standards for

**ANNEX III****The UN Fish Stocks Agreement (cont'd)**

the conservation and management of living marine resources and other rules of international law not incompatible with the Convention, with a view to ensuring the conservation of the straddling fish stocks and highly migratory fish stocks concerned.

**Article 31 Provisional measures**

1. Pending the settlement of a dispute in accordance with this Part, the parties to the dispute shall make every effort to enter into provisional arrangements of a practical nature.
2. Without prejudice to article 290 of the Convention, the court or tribunal to which the dispute has been submitted under this Part may prescribe any provisional measures which it considers appropriate under the circumstances to preserve the respective rights of the parties to the dispute or to prevent damage to the stocks in question, as well as in the circumstances referred to in article 7, paragraph 5, and article 16, paragraph 2.3. A State Party to this Agreement which is not a Party to the Convention may declare that, notwithstanding article 290, paragraph 5, of the Convention, the International Tribunal for the Law of the Sea shall not be entitled to prescribe, modify or revoke provisional measures without the agreement of such State.

**Article 32 Limitations on applicability of procedures for the settlement of disputes**

Article 297, paragraph 3, of the Convention applies also to this Agreement.

**PART IX NON-PARTIES TO THIS AGREEMENT****Article 33 Non-parties to this Agreement**

1. States Parties shall encourage non-parties to this Agreement to become parties thereto and to adopt laws and regulations consistent with its provisions.
2. States Parties shall take measures consistent with this Agreement and international law to deter the activities of vessels flying the flag of non-parties which undermine the effective implementation of this Agreement.

**PART X GOOD FAITH AND ABUSE OF RIGHTS****Article 34 Good faith and abuse of rights**

States Parties shall fulfil in good faith the obligations assumed under this Agreement and shall exercise the rights recognized in this Agreement in a manner which would not constitute an abuse of right.

**Part XI RESPONSIBILITY AND LIABILITY****Article 35 Responsibility and liability**

States Parties are liable in accordance with international law for damage or loss attributable to them in regard to this Agreement.

**PART XII REVIEW CONFERENCE****Article 36 Review conference**

1. Four years after the date of entry into force of this Agreement, the Secretary-General of the United Nations shall convene a conference with a view to assessing the effectiveness of this Agreement in securing the conservation and management of straddling fish stocks and highly migratory fish stocks. The Secretary-General shall invite to the conference all States Parties and those States and entities which are entitled to become parties to this Agreement as well as those intergovernmental and non-governmental organizations entitled to participate as observers.
2. The conference shall review and assess the adequacy of the provisions of this Agreement and, if necessary, propose means of strengthening the substance and methods of implementation of those provisions in order better to address any continuing problems in the conservation and management of straddling fish stocks and highly migratory fish stocks.

**PART XIII FINAL PROVISIONS****Article 37 Signature**

This Agreement shall be open for signature by all States and the other entities referred to in article 1, paragraph 2(b), and shall remain open for signature at United Nations Headquarters for twelve months from the fourth of December 1995.

**ANNEX III****The UN Fish Stocks Agreement (cont'd)****Article 38 Ratification**

This Agreement is subject to ratification by States and the other entities referred to in article 1, paragraph 2(b). The instruments of ratification shall be deposited with the Secretary-General of the United Nations.

**Article 39 Accession**

This Agreement shall remain open for accession by States and the other entities referred to in article 1, paragraph 2(b). The instruments of accession shall be deposited with the Secretary-General of the United Nations.

**Article 40 Entry into force**

1. This Agreement shall enter into force 30 days after the date of deposit of the thirtieth instrument of ratification or accession.
2. For each State or entity which ratifies the Agreement or accedes thereto after the deposit of the thirtieth instrument of ratification or accession, this Agreement shall enter into force on the thirtieth day following the deposit of its instrument of ratification or accession.

**Article 41 Provisional application**

1. This Agreement shall be applied provisionally by a State or entity which consents to its provisional application by so notifying the depositary in writing. Such provisional application shall become effective from the date of receipt of the notification.
2. Provisional application by a State or entity shall terminate upon the entry into force of this Agreement for that State or entity or upon notification by that State or entity to the depositary in writing of its intention to terminate provisional application.

**Article 42 Reservations and exceptions**

No reservations or exceptions may be made to this Agreement.

**Article 43 Declarations and statements**

Article 42 does not preclude a State or entity, when signing, ratifying or acceding to this Agreement, from making declarations or statements, however phrased or named, with a view, *inter alia*, to the harmonization of its laws and regulations with the provisions of this Agreement, provided that such declarations or statements do not purport to exclude or to modify the legal effect of the provisions of this Agreement in their application to that State or entity.

**Article 44 Relation to other agreements**

1. This Agreement shall not alter the rights and obligations of States Parties which arise from other agreements compatible with this Agreement and which do not affect the enjoyment by other States Parties of their rights or the performance of their obligations under this Agreement.
2. Two or more States Parties may conclude agreements modifying or suspending the operation of provisions of this Agreement, applicable solely to the relations between them, provided that such agreements do not relate to a provision derogation from which is incompatible with the effective execution of the object and purpose of this Agreement, and provided further that such agreements shall not affect the application of the basic principles embodied herein, and that the provisions of such agreements do not affect the enjoyment by other States Parties of their rights or the performance of their obligations under this Agreement.
3. States Parties intending to conclude an agreement referred to in paragraph 2 shall notify the other States Parties through the depositary of this Agreement of their intention to conclude the agreement and of the modification or suspension for which it provides.

**Article 45 Amendment**

1. A State Party may, by written communication addressed to the Secretary-General of the United Nations, propose amendments to this Agreement and request the convening of a conference to consider such proposed amendments. The Secretary-General shall circulate such communication to all States Parties. If, within six months from the date of the circulation of the communication, not less than one half of the States Parties reply favourably to the request, the Secretary-General shall convene the conference.
2. The decision-making procedure applicable at the amendment conference convened pursuant to paragraph 1 shall be the same as that applicable at the United Nations Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks, unless otherwise decided by the conference.

**ANNEX III****The UN Fish Stocks Agreement (cont'd)**

The conference should make every effort to reach agreement on any amendments by way of consensus and there should be no voting on them until all efforts at consensus have been exhausted.

3. Once adopted, amendments to this Agreement shall be open for signature at United Nations Headquarters by States Parties for twelve months from the date of adoption, unless otherwise provided in the amendment itself.
4. Articles 38, 39, 47 and 50 apply to all amendments to this Agreement.
5. Amendments to this Agreement shall enter into force for the States Parties ratifying or acceding to them on the thirtieth day following the deposit of instruments of ratification or accession by two thirds of the States Parties. Thereafter, for each State Party ratifying or acceding to an amendment after the deposit of the required number of such instruments, the amendment shall enter into force on the thirtieth day following the deposit of its instrument of ratification or accession.
6. An amendment may provide that a smaller or a larger number of ratifications or accessions shall be required for its entry into force than are required by this article.
7. A State which becomes a Party to this Agreement after the entry into force of amendments in accordance with paragraph 5 shall, failing an expression of a different intention by that State:
  - (a) be considered as a Party to this Agreement as so amended; and
  - (b) be considered as a Party to the unamended Agreement in relation to any State Party not bound by the amendment.

**Article 46 Denunciation**

1. A State Party may, by written notification addressed to the Secretary-General of the United Nations, denounce this Agreement and may indicate its reasons. Failure to indicate reasons shall not affect the validity of the denunciation. The denunciation shall take effect one year after the date of receipt of the notification, unless the notification specifies a later date.
2. The denunciation shall not in any way affect the duty of any State Party to fulfil any obligation embodied in this Agreement to which it would be subject under international law independently of this Agreement.

**Article 47 Participation by international organizations**

1. In cases where an international organization referred to in Annex IX, article 1, of the Convention does not have competence over all the matters governed by this Agreement, Annex IX to the Convention shall apply mutatis mutandis to participation by such international organization in this Agreement, except that the following provisions of that Annex shall not apply:
  - (a) article 2, first sentence; and
  - (b) article 3, paragraph 1. 2. In cases where an international organization referred to in Annex IX, article 1, of the Convention has competence over all the matters governed by this Agreement, the following provisions shall apply to participation by such international organization in this Agreement:
    - (a) at the time of signature or accession, such international organization shall make a declaration stating:
      - (i) that it has competence over all the matters governed by this Agreement;
      - (ii) that, for this reason, its member States shall not become States Parties, except in respect of their territories for which the international organization has no responsibility; and
      - (iii) that it accepts the rights and obligations of States under this Agreement;
    - (b) participation of such an international organization shall in no case confer any rights under this Agreement on member States of the international organization;
    - (c) in the event of a conflict between the obligations of an international organization under this Agreement and its obligations under the agreement establishing the international organization or any acts relating to it, the obligations under this Agreement shall prevail.

## ANNEX III

## The UN Fish Stocks Agreement (cont'd)

### Article 48 Annexes

1. The Annexes form an integral part of this Agreement and, unless expressly provided otherwise, a reference to this Agreement or to one of its Parts includes a reference to the Annexes relating thereto.
2. The Annexes may be revised from time to time by States Parties. Such revisions shall be based on scientific and technical considerations. Notwithstanding the provisions of article 45, if a revision to an Annex is adopted by consensus at a meeting of States Parties, it shall be incorporated in this Agreement and shall take effect from the date of its adoption or from such other date as may be specified in the revision. If a revision to an Annex is not adopted by consensus at such a meeting, the amendment procedures set out in article 45 shall apply.

### Article 49 Depositary

The Secretary-General of the United Nations shall be the depositary of this Agreement and any amendments or revisions thereto.

### Article 50 Authentic texts

The Arabic, Chinese, English, French, Russian and Spanish texts of this Agreement are equally authentic.

IN WITNESS WHEREOF, the undersigned Plenipotentiaries, being duly authorized thereto, have signed this Agreement.

OPENED FOR SIGNATURE at New York, this fourth day of December, one thousand nine hundred and ninety-five, in a single original, in the Arabic, Chinese, English, French, Russian and Spanish languages.

## ANNEX I STANDARD REQUIREMENTS FOR THE COLLECTION AND SHARING OF DATA

### Article 1 General principles

1. The timely collection, compilation and analysis of data are fundamental to the effective conservation and management of straddling fish stocks and highly migratory fish stocks. To this end, data from fisheries for these stocks on the high seas and those in areas under national jurisdiction are required and should be collected and compiled in such a way as to enable statistically meaningful analysis for the purposes of fishery resource conservation and management. These data include catch and fishing effort statistics and other fishery-related information, such as vessel-related and other data for standardizing fishing effort. Data collected should also include information on non-target and associated or dependent species. All data should be verified to ensure accuracy. Confidentiality of non-aggregated data shall be maintained. The dissemination of such data shall be subject to the terms on which they have been provided.
2. Assistance, including training as well as financial and technical assistance, shall be provided to developing States in order to build capacity in the field of conservation and management of living marine resources. Assistance should focus on enhancing capacity to implement data collection and verification, observer programmes, data analysis and research projects supporting stock assessments. The fullest possible involvement of developing State scientists and managers in conservation and management of straddling fish stocks and highly migratory fish stocks should be promoted.

### Article 2 Principles of data collection, compilation and exchange

The following general principles should be considered in defining the parameters for collection, compilation and exchange of data from fishing operations for straddling fish stocks and highly migratory fish stocks:

- (a) States should ensure that data are collected from vessels flying their flag on fishing activities according to the operational characteristics of each fishing method (e.g., each individual tow for trawl, each set for long-line and purse-seine, each school fished for pole-and-line and each day fished for troll) and in sufficient detail to facilitate effective stock assessment;
- (b) States should ensure that fishery data are verified through an appropriate system;
- (c) States should compile fishery-related and other supporting scientific data and provide them in an agreed format and in a timely manner to the relevant subregional or regional fisheries management organization or arrangement where one exists. Otherwise, States should cooperate to exchange data either directly or through such other cooperative mechanisms as may be agreed among them;
- (d) States should agree, within the framework of subregional or regional fisheries management organizations or arrangements, or otherwise, on

**ANNEX III****The UN Fish Stocks Agreement (cont'd)**

the specification of data and the format in which they are to be provided, in accordance with this Annex and taking into account the nature of the stocks and the fisheries for those stocks in the region. Such organizations or arrangements should request non-members or non-participants to provide data concerning relevant fishing activities by vessels flying their flag;

- (e) such organizations or arrangements shall compile data and make them available in a timely manner and in an agreed format to all interested States under the terms and conditions established by the organization or arrangement; and
- (f) scientists of the flag State and from the relevant subregional or regional fisheries management organization or arrangement should analyse the data separately or jointly, as appropriate.

**Article 3 Basic fishery data**

1. States shall collect and make available to the relevant subregional or regional fisheries management organization or arrangement the following types of data in sufficient detail to facilitate effective stock assessment in accordance with agreed procedures:
  - (a) time series of catch and effort statistics by fishery and fleet;
  - (b) total catch in number, nominal weight, or both, by species (both target and non-target) as is appropriate to each fishery. [Nominal weight is defined by the Food and Agriculture Organization of the United Nations as the live-weight equivalent of the landings];
  - (c) discard statistics, including estimates where necessary, reported as number or nominal weight by species, as is appropriate to each fishery;
  - (d) effort statistics appropriate to each fishing method; and
  - (e) fishing location, date and time fished and other statistics on fishing operations as appropriate.
2. States shall also collect where appropriate and provide to the relevant subregional or regional fisheries management organization or arrangement information to support stock assessment, including:
  - (a) composition of the catch according to length, weight and sex;
  - (b) other biological information supporting stock assessments, such as information on age, growth, recruitment, distribution and stock identity; and
  - (c) other relevant research, including surveys of abundance, biomass surveys, hydro-acoustic surveys, research on environmental factors affecting stock abundance, and oceanographic and ecological studies.

**Article 4 Vessel data and information**

1. States should collect the following types of vessel-related data for standardizing fleet composition and vessel fishing power and for converting between different measures of effort in the analysis of catch and effort data:
  - (a) vessel identification, flag and port of registry;
  - (b) vessel type;
  - (c) vessel specifications (e.g., material of construction, date built, registered length, gross registered tonnage, power of main engines, hold capacity and catch storage methods); and
  - (d) fishing gear description (e.g., types, gear specifications and quantity).
2. The flag State will collect the following information:
  - (a) navigation and position fixing aids;
  - (b) communication equipment and international radio call sign; and
  - (c) crew size.

**Article 5 Reporting**

A State shall ensure that vessels flying its flag send to its national fisheries administration and, where agreed, to the relevant subregional or regional fisheries management organization or arrangement, logbook data on catch and effort, including data on fishing operations on the high seas,

**ANNEX III****The UN Fish Stocks Agreement (cont'd)**

at sufficiently frequent intervals to meet national requirements and regional and international obligations. Such data shall be transmitted, where necessary, by radio, telex, facsimile or satellite transmission or by other means.

**Article 6 Data verification**

States or, as appropriate, subregional or regional fisheries management organizations or arrangements should establish mechanisms for verifying fishery data, such as:

- (a) position verification through vessel monitoring systems;
- (b) scientific observer programmes to monitor catch, effort, catch composition (target and non-target) and other details of fishing operations;
- (c) vessel trip, landing and transshipment reports; and
- (d) port sampling.

**Article 7 Data exchange**

- 1 Data collected by flag States must be shared with other flag States and relevant coastal States through appropriate subregional or regional fisheries management organizations or arrangements. Such organizations or arrangements shall compile data and make them available in a timely manner and in an agreed format to all interested States under the terms and conditions established by the organization or arrangement, while maintaining confidentiality of non-aggregated data, and should, to the extent feasible, develop database systems which provide efficient access to data.
2. At the global level, collection and dissemination of data should be effected through the Food and Agriculture Organization of the United Nations. Where a subregional or regional fisheries management organization or arrangement does not exist, that organization may also do the same at the subregional or regional level by arrangement with the States concerned.

**ANNEX II GUIDELINES FOR THE APPLICATION OF  
PRECAUTIONARY REFERENCE POINTS IN CONSERVATION AND MANAGEMENT OF  
STRADDLING FISH STOCKS AND HIGHLY MIGRATORY FISH STOCKS**

1. A precautionary reference point is an estimated value derived through an agreed scientific procedure, which corresponds to the state of the resource and of the fishery, and which can be used as a guide for fisheries management.
2. Two types of precautionary reference points should be used: conservation, or limit, reference points and management, or target, reference points. Limit reference points set boundaries which are intended to constrain harvesting within safe biological limits within which the stocks can produce maximum sustainable yield. Target reference points are intended to meet management objectives.
3. Precautionary reference points should be stock-specific to account, inter alia, for the reproductive capacity, the resilience of each stock and the characteristics of fisheries exploiting the stock, as well as other sources of mortality and major sources of uncertainty.
4. Management strategies shall seek to maintain or restore populations of harvested stocks, and where necessary associated or dependent species, at levels consistent with previously agreed precautionary reference points. Such reference points shall be used to trigger pre-agreed conservation and management action. Management strategies shall include measures which can be implemented when precautionary reference points are approached.
5. Fishery management strategies shall ensure that the risk of exceeding limit reference points is very low. If a stock falls below a limit reference point or is at risk of falling below such a reference point, conservation and management action should be initiated to facilitate stock recovery. Fishery management strategies shall ensure that target reference points are not exceeded on average.
6. When information for determining reference points for a fishery is poor or absent, provisional reference points shall be set. Provisional reference points may be established by analogy to similar and better-known stocks. In such situations, the fishery shall be subject to enhanced monitoring so as to enable revision of provisional reference points as improved information becomes available.
7. The fishing mortality rate which generates maximum sustainable yield should be regarded as a minimum standard for limit reference points. For stocks which are not overfished, fishery management strategies shall ensure that fishing mortality does not exceed that which corresponds to maximum sustainable yield, and that the biomass does not fall below a predefined threshold. For overfished stocks, the biomass which would produce maximum sustainable yield can serve as a rebuilding target.

**ANNEX IV****Code of Conduct for Responsible Fisheries****PREFACE****INTRODUCTION****Article 1: Nature and scope of the Code****Article 2: Objectives of the Code****Article 3: Relationship with other international instruments****Article 4: Implementation monitoring and updating****Article 5: Special requirements of developing countries****Article 6: General principles****Article 7: Fisheries management****Article 8: Fishing operations****Article 9: Aquaculture development****Article 10: Integration of fisheries into coastal area management****Article 11: Post-harvest practices and trade****Article 12: Fisheries research****Annex 1: BACKGROUND TO THE ORIGIN AND ELABORATION OF THE CODE****Annex 2: RESOLUTION****PREFACE**

From ancient times, fishing has been a major source of food for humanity and a provider of employment and economic benefits to those engaged in this activity. The wealth of aquatic resources was assumed to be an unlimited gift of nature. However, with increased knowledge and the dynamic development of fisheries after the second world war, this myth has faded in face of the realization that aquatic resources, although renewable, are not infinite and need to be properly managed, if their contribution to the nutritional, economic and social well-being of the growing world's population is to be sustained.

The widespread introduction in the mid-seventies of exclusive economic zones (EEZs) and the adoption in 1982, after long deliberations, of the United Nations Convention on the Law of the Sea provided a new framework for the better management of marine resources. The new legal regime of the ocean gave coastal States rights and responsibilities for the management and use of fishery resources within their EEZs which embrace some 90 percent of the world's marine fisheries. Such extended national jurisdiction was a necessary but insufficient step toward the efficient management and sustainable development of fisheries. Many coastal States continued to face serious challenges as, lacking experience and financial and physical resources, they sought to extract greater benefits from the fisheries within their EEZs.

In recent years, world fisheries have become a market-driven, dynamically developing sector of the food industry and coastal States have striven to take advantage of their new opportunities by investing in modern fishing fleets and processing factories in response to growing international demand for fish and fishery products. By the late 1980s it became clear, however, that fisheries resources could no longer sustain such rapid and often uncontrolled exploitation and development, and that new approaches to fisheries management embracing conservation and environmental considerations were urgently needed. The situation was aggravated by the realization that unregulated fisheries on the high seas, in some cases involving straddling and highly migratory fish species, which occur within and outside EEZs, were becoming a matter of increasing concern.

The Committee on Fisheries (COFI) at its Nineteenth Session in March 1991 called for the development of new concepts which would lead to responsible, sustained fisheries. Subsequently, the International Conference on Responsible Fishing, held in 1992 in Cancun (Mexico) further requested FAO to prepare an international Code of Conduct to address these concerns. The outcome of this Conference, particularly the Declaration of Cancun, was an important contribution to the 1992 United Nations Conference on Environment and Development (UNCED), in particular its Agenda 21. Subsequently, the United Nations Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks was convened, to which FAO provided important technical back-up. In November 1993, the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas was adopted at the Twenty-seventh Session of the FAO Conference (Annex 1).

Noting these and other important developments in world fisheries, the FAO Governing Bodies recommended the formulation of a global Code of Conduct for Responsible Fisheries which would be consistent with these instruments and, in a non-mandatory manner, establish principles and standards applicable to the conservation, management and development of all fisheries. The Code, which was unanimously adopted on 31 October 1995 by the FAO Conference, provides a necessary framework for national and international efforts to ensure sustainable exploitation of aquatic living resources in harmony with the environment (Annex 2).

FAO, in accordance with its mandate, is fully committed to assisting Member States, particularly developing countries, in the efficient implementation of the Code of Conduct for Responsible Fisheries and will report to the United Nations community on the progress achieved and further action required.

**ANNEX IV****Code of Conduct for Responsible Fisheries (cont'd)****INTRODUCTION**

Fisheries, including aquaculture, provide a vital source of food, employment, recreation, trade and economic well being for people throughout the world, both for present and future generations and should therefore be conducted in a responsible manner. This Code sets out principles and international standards of behaviour for responsible practices with a view to ensuring the effective conservation, management and development of living aquatic resources, with due respect for the ecosystem and biodiversity. The Code recognises the nutritional, economic, social, environmental and cultural importance of fisheries, and the interests of all those concerned with the fishery sector. The Code takes into account the biological characteristics of the resources and their environment and the interests of consumers and other users. States and all those involved in fisheries are encouraged to apply the Code and give effect to it.

**ARTICLE 1 - NATURE AND SCOPE OF THE CODE**

- 1.1 This Code is voluntary. However, certain parts of it are based on relevant rules of international law, including those reflected in the United Nations Convention on the Law of the Sea of 10 December 1982. The Code also contains provisions that may be or have already been given binding effect by means of other obligatory legal instruments amongst the Parties, such as the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas, 1993, which, according to FAO Conference resolution 15/93, paragraph 3, forms an integral part of the Code.
- 1.2 The Code is global in scope, and is directed toward members and non-members of FAO, fishing entities, subregional, regional and global organizations, whether governmental or non-governmental, and all persons concerned with the conservation of fishery resources and management and development of fisheries, such as fishers, those engaged in processing and marketing of fish and fishery products and other users of the aquatic environment in relation to fisheries.
- 1.3 The Code provides principles and standards applicable to the conservation, management and development of all fisheries. It also covers the capture, processing and trade of fish and fishery products, fishing operations, aquaculture, fisheries research and the integration of fisheries into coastal area management.
- 1.4 In this Code, the reference to States includes the European Community in matters within its competence, and the term fisheries applies equally to capture fisheries and aquaculture.

**ARTICLE 2 - OBJECTIVES OF THE CODE**

The objectives of the Code are to:

- a. establish principles, in accordance with the relevant rules of international law, for responsible fishing and fisheries activities, taking into account all their relevant biological, technological, economic, social, environmental and commercial aspects;
- b. establish principles and criteria for the elaboration and implementation of national policies for responsible conservation of fisheries resources and fisheries management and development;
- c. serve as an instrument of reference to help States to establish or to improve the legal and institutional framework required for the exercise of responsible fisheries and in the formulation and implementation of appropriate measures;
- d. provide guidance which may be used where appropriate in the formulation and implementation of international agreements and other legal instruments, both binding and voluntary;
- e. facilitate and promote technical, financial and other cooperation in conservation of fisheries resources and fisheries management and development;
- f. promote the contribution of fisheries to food security and food quality, giving priority to the nutritional needs of local communities;
- g. promote protection of living aquatic resources and their environments and coastal areas;
- h. promote the trade of fish and fishery products in conformity with relevant international rules and avoid the use of measures that constitute hidden barriers to such trade;
- i. promote research on fisheries as well as on associated ecosystems and relevant environmental factors; and
- j. provide standards of conduct for all persons involved in the fisheries sector.

**ANNEX IV****Code of Conduct for Responsible Fisheries (cont'd)****ARTICLE 3 - RELATIONSHIP WITH OTHER INTERNATIONAL INSTRUMENTS**

- 3.1 The Code is to be interpreted and applied in conformity with the relevant rules of international law, as reflected in the United Nations Convention on the Law of the Sea, 1982. Nothing in this Code prejudices the rights, jurisdiction and duties of States under international law as reflected in the Convention.
- 3.2 The Code is also to be interpreted and applied:
- a. in a manner consistent with the relevant provisions of the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks;
  - b. in accordance with other applicable rules of international law, including the respective obligations of States pursuant to international agreements to which they are party; and
  - c. in the light of the 1992 Declaration of Cancun, the 1992 Rio Declaration on Environment and Development, and Agenda 21 adopted by the United Nations Conference on Environment and Development (UNCED), in particular Chapter 17 of Agenda 21, and other relevant declarations and international instruments.

**ARTICLE 4 - IMPLEMENTATION, MONITORING AND UPDATING**

- 4.1 All members and non-members of FAO, fishing entities and relevant subregional, regional and global organizations, whether governmental or non-governmental, and all persons concerned with the conservation, management and utilization of fisheries resources and trade in fish and fishery products should collaborate in the fulfilment and implementation of the objectives and principles contained in this Code.
- 4.2 FAO, in accordance with its role within the United Nations system, will monitor the application and implementation of the Code and its effects on fisheries and the Secretariat will report accordingly to the Committee on Fisheries (COFI). All States, whether members or non-members of FAO, as well as relevant international organizations, whether governmental or non-governmental should actively cooperate with FAO in this work.
- 4.3 FAO, through its competent bodies, may revise the Code, taking into account developments in fisheries as well as reports to COFI on the implementation of the Code.
- 4.4 States and international organizations, whether governmental or non-governmental, should promote the understanding of the Code among those involved in fisheries, including, where practicable, by the introduction of schemes which would promote voluntary acceptance of the Code and its effective application.

**ARTICLE 5 - SPECIAL REQUIREMENTS OF DEVELOPING COUNTRIES**

- 5.1 The capacity of developing countries to implement the recommendations of this Code should be duly taken into account.
- 5.2 In order to achieve the objectives of this Code and to support its effective implementation, countries, relevant international organizations, whether governmental or non-governmental, and financial institutions should give full recognition to the special circumstances and requirements of developing countries, including in particular the least-developed among them, and small island developing countries. States, relevant intergovernmental and non-governmental organizations and financial institutions should work for the adoption of measures to address the needs of developing countries, especially in the areas of financial and technical assistance, technology transfer, training and scientific cooperation and in enhancing their ability to develop their own fisheries as well as to participate in high seas fisheries, including access to such fisheries.

**ARTICLE 6 - GENERAL PRINCIPLES**

- 6.1 States and users of living aquatic resources should conserve aquatic ecosystems. The right to fish carries with it the obligation to do so in a responsible manner so as to ensure effective conservation and management of the living aquatic resources.
- 6.2 Fisheries management should promote the maintenance of the quality, diversity and availability of fishery resources in sufficient quantities for present and future generations in the context of food security, poverty alleviation and sustainable development. Management measures should not only ensure the conservation of target species but also of species belonging to the same ecosystem or associated with or dependent upon the target species.

**ANNEX IV****Code of Conduct for Responsible Fisheries (cont'd)**

- 6.3 States should prevent overfishing and excess fishing capacity and should implement management measures to ensure that fishing effort is commensurate with the productive capacity of the fishery resources and their sustainable utilization. States should take measures to rehabilitate populations as far as possible and when appropriate.
- 6.4 Conservation and management decisions for fisheries should be based on the best scientific evidence available, also taking into account traditional knowledge of the resources and their habitat, as well as relevant environmental, economic and social factors. States should assign priority to undertake research and data collection in order to improve scientific and technical knowledge of fisheries including their interaction with the ecosystem. In recognizing the transboundary nature of many aquatic ecosystems, States should encourage bilateral and multilateral cooperation in research, as appropriate.
- 6.5 States and subregional and regional fisheries management organizations should apply a precautionary approach widely to conservation, management and exploitation of living aquatic resources in order to protect them and preserve the aquatic environment, taking account of the best scientific evidence available. The absence of adequate scientific information should not be used as a reason for postponing or failing to take measures to conserve target species, associated or dependent species and non-target species and their environment.
- 6.6 Selective and environmentally safe fishing gear and practices should be further developed and applied, to the extent practicable, in order to maintain biodiversity and to conserve the population structure and aquatic ecosystems and protect fish quality. Where proper selective and environmentally safe fishing gear and practices exist, they should be recognized and accorded a priority in establishing conservation and management measures for fisheries. States and users of aquatic ecosystems should minimize waste, catch of non-target species, both fish and non-fish species, and impacts on associated or dependent species.
- 6.7 The harvesting, handling, processing and distribution of fish and fishery products should be carried out in a manner which will maintain the nutritional value, quality and safety of the products, reduce waste and minimize negative impacts on the environment.
- 6.8 All critical fisheries habitats in marine and fresh water ecosystems, such as wetlands, mangroves, reefs, lagoons, nursery and spawning areas, should be protected and rehabilitated as far as possible and where necessary. Particular effort should be made to protect such habitats from destruction, degradation, pollution and other significant impacts resulting from human activities that threaten the health and viability of the fishery resources.
- 6.9 States should ensure that their fisheries interests, including the need for conservation of the resources, are taken into account in the multiple uses of the coastal zone and are integrated into coastal area management, planning and development.
- 6.10 Within their respective competences and in accordance with international law, including within the framework of subregional or regional fisheries conservation and management organizations or arrangements, States should ensure compliance with and enforcement of conservation and management measures and establish effective mechanisms, as appropriate, to monitor and control the activities of fishing vessels and fishing support vessels.
- 6.11 States authorizing fishing and fishing support vessels to fly their flags should exercise effective control over those vessels so as to ensure the proper application of this Code. They should ensure that the activities of such vessels do not undermine the effectiveness of conservation and management measures taken in accordance with international law and adopted at the national, subregional, regional or global levels. States should also ensure that vessels flying their flags fulfil their obligations concerning the collection and provision of data relating to their fishing activities.
- 6.12 States should, within their respective competences and in accordance with international law, cooperate at subregional, regional and global levels through fisheries management organizations, other international agreements or other arrangements to promote conservation and management, ensure responsible fishing and ensure effective conservation and protection of living aquatic resources throughout their range of distribution, taking into account the need for compatible measures in areas within and beyond national jurisdiction.
- 6.13 States should, to the extent permitted by national laws and regulations, ensure that decision making processes are transparent and achieve timely solutions to urgent matters. States, in accordance with appropriate procedures, should facilitate consultation and the effective participation of industry, fishworkers, environmental and other interested organizations in decision making with respect to the development of laws and policies related to fisheries management, development, international lending and aid.
- 6.14 International trade in fish and fishery products should be conducted in accordance with the principles, rights and obligations established in the World Trade Organization (WTO) Agreement and other relevant international agreements. States should ensure that their policies, pro-

**ANNEX IV****Code of Conduct for Responsible Fisheries (cont'd)**

grammes and practices related to trade in fish and fishery products do not result in obstacles to this trade, environmental degradation or negative social, including nutritional, impacts.

- 6.15 States should cooperate in order to prevent disputes. All disputes relating to fishing activities and practices should be resolved in a timely, peaceful and cooperative manner, in accordance with applicable international agreements or as may otherwise be agreed between the parties. Pending settlement of a dispute, the States concerned should make every effort to enter into provisional arrangements of a practical nature which should be without prejudice to the final outcome of any dispute settlement procedure.
- 6.16 States, recognising the paramount importance to fishers and fishfarmers of understanding the conservation and management of the fishery resources on which they depend, should promote awareness of responsible fisheries through education and training. They should ensure that fishers and fishfarmers are involved in the policy formulation and implementation process, also with a view to facilitating the implementation of the Code.
- 6.17 States should ensure that fishing facilities and equipment as well as all fisheries activities allow for safe, healthy and fair working and living conditions and meet internationally agreed standards adopted by relevant international organizations.
- 6.18 Recognizing the important contributions of artisanal and small- scale fisheries to employment, income and food security, States should appropriately protect the rights of fishers and fishworkers, particularly those engaged in subsistence, small-scale and artisanal fisheries, to a secure and just livelihood, as well as preferential access, where appropriate, to traditional fishing grounds and resources in the waters under their national jurisdiction.
- 6.19 States should consider aquaculture, including culture-based fisheries, as a means to promote diversification of income and diet. In so doing, States should ensure that resources are used responsibly and adverse impacts on the environment and on local communities are minimized.

**ARTICLE 7 - FISHERIES MANAGEMENT****Article 7.1: General****Article 7.2: Management objectives****Article 7.3: Management framework and procedures****Article 7.4: Data gathering and management advice****Article 7.5: Precautionary approach****Article 7.6: Management measures****Article 7.7: Implementation****Article 7.8: Financial institutions****7.1 General**

- 7.1.1 States and all those engaged in fisheries management should, through an appropriate policy, legal and institutional framework, adopt measures for the long-term conservation and sustainable use of fisheries resources. Conservation and management measures, whether at local, national, subregional or regional levels, should be based on the best scientific evidence available and be designed to ensure the long-term sustainability of fishery resources at levels which promote the objective of their optimum utilization and maintain their availability for present and future generations; short term considerations should not compromise these objectives.
- 7.1.2 Within areas under national jurisdiction, States should seek to identify relevant domestic parties having a legitimate interest in the use and management of fisheries resources and establish arrangements for consulting them to gain their collaboration in achieving responsible fisheries.
- 7.1.3 For transboundary fish stocks, straddling fish stocks, highly migratory fish stocks and high seas fish stocks, where these are exploited by two or more States, the States concerned, including the relevant coastal States in the case of straddling and highly migratory stocks, should cooperate to ensure effective conservation and management of the resources. This should be achieved, where appropriate, through the establishment of a bilateral, subregional or regional fisheries organization or arrangement.
- 7.1.4 A subregional or regional fisheries management organization or arrangement should include representatives of States in whose jurisdictions the resources occur, as well as representatives from States which have a real interest in the fisheries on the resources outside national juris-

**ANNEX IV****Code of Conduct for Responsible Fisheries (cont'd)**

dictions. Where a subregional or regional fisheries management organization or arrangement exists and has the competence to establish conservation and management measures, those States should cooperate by becoming a member of such organization or a participant in such arrangement, and actively participate in its work.

- 7.1.5 A State which is not a member of a subregional or regional fisheries management organization or is not a participant in a subregional or regional fisheries management arrangement should nevertheless cooperate, in accordance with relevant international agreements and international law, in the conservation and management of the relevant fisheries resources by giving effect to any conservation and management measures adopted by such organization or arrangement.
- 7.1.6 Representatives from relevant organizations, both governmental and non-governmental, concerned with fisheries should be afforded the opportunity to take part in meetings of subregional and regional fisheries management organizations and arrangements as observers or otherwise, as appropriate, in accordance with the procedures of the organization or arrangement concerned. Such representatives should be given timely access to the records and reports of such meetings, subject to the procedural rules on access to them.
- 7.1.7 States should establish, within their respective competences and capacities, effective mechanisms for fisheries monitoring, surveillance, control and enforcement to ensure compliance with their conservation and management measures, as well as those adopted by subregional or regional organizations or arrangements.
- 7.1.8 States should take measures to prevent or eliminate excess fishing capacity and should ensure that levels of fishing effort are commensurate with the sustainable use of fishery resources as a means of ensuring the effectiveness of conservation and management measures.
- 7.1.9 States and subregional or regional fisheries management organizations and arrangements should ensure transparency in the mechanisms for fisheries management and in the related decision-making process.
- 7.1.10 States and subregional or regional fisheries management organizations and arrangements should give due publicity to conservation and management measures and ensure that laws, regulations and other legal rules governing their implementation are effectively disseminated. The bases and purposes of such measures should be explained to users of the resource in order to facilitate their application and thus gain increased support in the implementation of such measures.

### **7.2 Management objectives**

- 7.2.1 Recognizing that long-term sustainable use of fisheries resources is the overriding objective of conservation and management, States and subregional or regional fisheries management organizations and arrangements should, *inter alia*, adopt appropriate measures, based on the best scientific evidence available, which are designed to maintain or restore stocks at levels capable of producing maximum sustainable yield, as qualified by relevant environmental and economic factors, including the special requirements of developing countries.
- 7.2.2 Such measures should provide *inter alia* that:
- a. excess fishing capacity is avoided and exploitation of the stocks remains economically viable;
  - b. the economic conditions under which fishing industries operate promote responsible fisheries;
  - c. the interests of fishers, including those engaged in subsistence, small-scale and artisanal fisheries, are taken into account;
  - d. biodiversity of aquatic habitats and ecosystems is conserved and endangered species are protected;
  - e. depleted stocks are allowed to recover or, where appropriate, are actively restored;
  - f. adverse environmental impacts on the resources from human activities are assessed and, where appropriate, corrected; and
  - g. pollution, waste, discards, catch by lost or abandoned gear, catch of non-target species, both fish and non-fish species, and impacts on associated or dependent species are minimized, through measures including, to the extent practicable, the development and use of selective, environmentally safe and cost-effective fishing gear and techniques.
- 7.2.3 States should assess the impacts of environmental factors on target stocks and species belonging to the same ecosystem or associated with or dependent upon the target stocks, and assess the relationship among the populations in the ecosystem.

**ANNEX IV****Code of Conduct for Responsible Fisheries (cont'd)****7.3 Management framework and procedures**

- 7.3.1 To be effective, fisheries management should be concerned with the whole stock unit over its entire area of distribution and take into account previously agreed management measures established and applied in the same region, all removals and the biological unity and other biological characteristics of the stock. The best scientific evidence available should be used to determine, inter alia, the area of distribution of the resource and the area through which it migrates during its life cycle.
- 7.3.2 In order to conserve and manage transboundary fish stocks, straddling fish stocks, highly migratory fish stocks and high seas fish stocks throughout their range, conservation and management measures established for such stocks in accordance with the respective competences of relevant States or, where appropriate, through subregional and regional fisheries management organizations and arrangements, should be compatible. Compatibility should be achieved in a manner consistent with the rights, competences and interests of the States concerned.
- 7.3.3 Long-term management objectives should be translated into management actions, formulated as a fishery management plan or other management framework.
- 7.3.4 States and, where appropriate, subregional or regional fisheries management organizations and arrangements should foster and promote international cooperation and coordination in all matters related to fisheries, including information gathering and exchange, fisheries research, management and development.
- 7.3.5 States seeking to take any action through a non-fishery organization which may affect the conservation and management measures taken by a competent subregional or regional fisheries management organization or arrangement should consult with the latter, in advance to the extent practicable, and take its views into account.

**7.4 Data gathering and management advice**

- 7.4.1 When considering the adoption of conservation and management measures, the best scientific evidence available should be taken into account in order to evaluate the current state of the fishery resources and the possible impact of the proposed measures on the resources.
- 7.4.2 Research in support of fishery conservation and management should be promoted, including research on the resources and on the effects of climatic, environmental and socio-economic factors. The results of such research should be disseminated to interested parties.
- 7.4.3 Studies should be promoted which provide an understanding of the costs, benefits and effects of alternative management options designed to rationalize fishing, in particular, options relating to excess fishing capacity and excessive levels of fishing effort.
- 7.4.4 States should ensure that timely, complete and reliable statistics on catch and fishing effort are collected and maintained in accordance with applicable international standards and practices and in sufficient detail to allow sound statistical analysis. Such data should be updated regularly and verified through an appropriate system. States should compile and disseminate such data in a manner consistent with any applicable confidentiality requirements.
- 7.4.5 In order to ensure sustainable management of fisheries and to enable social and economic objectives to be achieved, sufficient knowledge of social, economic and institutional factors should be developed through data gathering, analysis and research.
- 7.4.6 States should compile fishery-related and other supporting scientific data relating to fish stocks covered by subregional or regional fisheries management organizations or arrangements in an internationally agreed format and provide them in a timely manner to the organization or arrangement. In cases of stocks which occur in the jurisdiction of more than one State and for which there is no such organization or arrangement, the States concerned should agree on a mechanism for cooperation to compile and exchange such data.
- 7.4.7 Subregional or regional fisheries management organizations or arrangements should compile data and make them available, in a manner consistent with any applicable confidentiality requirements, in a timely manner and in an agreed format to all members of these organizations and other interested parties in accordance with agreed procedures.

**7.5 Precautionary approach**

- 7.5.1 States should apply the precautionary approach widely to conservation, management and exploitation of living aquatic resources in order to protect them and preserve the aquatic environment. The absence of adequate scientific information should not be used as a reason for postponing or failing to take conservation and management measures.

**ANNEX IV****Code of Conduct for Responsible Fisheries (cont'd)**

- 7.5.2 In implementing the precautionary approach, States should take into account, *inter alia*, uncertainties relating to the size and productivity of the stocks, reference points, stock condition in relation to such reference points, levels and distribution of fishing mortality and the impact of fishing activities, including discards, on non-target and associated or dependent species, as well as environmental and socio-economic conditions.
- 7.5.3 States and subregional or regional fisheries management organizations and arrangements should, on the basis of the best scientific evidence available, *inter alia*, determine:
- a. stock specific target reference points, and, at the same time, the action to be taken if they are exceeded; and
  - b. stock-specific limit reference points, and, at the same time, the action to be taken if they are exceeded; when a limit reference point is approached, measures should be taken to ensure that it will not be exceeded.
- 7.5.4 In the case of new or exploratory fisheries, States should adopt as soon as possible cautious conservation and management measures, including, *inter alia*, catch limits and effort limits. Such measures should remain in force until there are sufficient data to allow assessment of the impact of the fisheries on the long-term sustainability of the stocks, whereupon conservation and management measures based on that assessment should be implemented. The latter measures should, if appropriate, allow for the gradual development of the fisheries.
- 7.5.5 If a natural phenomenon has a significant adverse impact on the status of living aquatic resources, States should adopt conservation and management measures on an emergency basis to ensure that fishing activity does not exacerbate such adverse impact. States should also adopt such measures on an emergency basis where fishing activity presents a serious threat to the sustainability of such resources. Measures taken on an emergency basis should be temporary and should be based on the best scientific evidence available.

**7.6 Management measures**

- 7.6.1 States should ensure that the level of fishing permitted is commensurate with the state of fisheries resources.
- 7.6.2 States should adopt measures to ensure that no vessel be allowed to fish unless so authorized, in a manner consistent with international law for the high seas or in conformity with national legislation within areas of national jurisdiction.
- 7.6.3 Where excess fishing capacity exists, mechanisms should be established to reduce capacity to levels commensurate with the sustainable use of fisheries resources so as to ensure that fishers operate under economic conditions that promote responsible fisheries. Such mechanisms should include monitoring the capacity of fishing fleets.
- 7.6.4 The performance of all existing fishing gear, methods and practices should be examined and measures taken to ensure that fishing gear, methods and practices which are not consistent with responsible fishing are phased out and replaced with more acceptable alternatives. In this process, particular attention should be given to the impact of such measures on fishing communities, including their ability to exploit the resource.
- 7.6.5 States and fisheries management organizations and arrangements should regulate fishing in such a way as to avoid the risk of conflict among fishers using different vessels, gear and fishing methods.
- 7.6.6 When deciding on the use, conservation and management of fisheries resources, due recognition should be given, as appropriate, in accordance with national laws and regulations, to the traditional practices, needs and interests of indigenous people and local fishing communities which are highly dependent on fishery resources for their livelihood.
- 7.6.7 In the evaluation of alternative conservation and management measures, their cost-effectiveness and social impact should be considered.
- 7.6.8 The efficacy of conservation and management measures and their possible interactions should be kept under continuous review. Such measures should, as appropriate, be revised or abolished in the light of new information.
- 7.6.9 States should take appropriate measures to minimize waste, discards, catch by lost or abandoned gear, catch of non-target species, both fish and non-fish species, and negative impacts on associated or dependent species, in particular endangered species. Where appropriate, such measures may include technical measures related to fish size, mesh size or gear, discards, closed seasons and areas and zones reserved for selected fisheries, particularly artisanal fisheries. Such measures should be applied, where appropriate, to protect juveniles and spawners. States and subregional or regional fisheries management organizations and arrangements should promote, to the extent practicable, the development and use of selective, environmentally safe and cost effective gear and techniques.

**ANNEX IV****Code of Conduct for Responsible Fisheries (cont'd)**

7.6.10 States and subregional and regional fisheries management organizations and arrangements, in the framework of their respective competences, should introduce measures for depleted resources and those resources threatened with depletion that facilitate the sustained recovery of such stocks. They should make every effort to ensure that resources and habitats critical to the well-being of such resources which have been adversely affected by fishing or other human activities are restored.

**7.7 Implementation**

7.7.1 States should ensure that an effective legal and administrative framework at the local and national level, as appropriate, is established for fisheries resource conservation and fisheries management.

7.7.2 States should ensure that laws and regulations provide for sanctions applicable in respect of violations which are adequate in severity to be effective, including sanctions which allow for the refusal, withdrawal or suspension of authorizations to fish in the event of non-compliance with conservation and management measures in force.

7.7.3 States, in conformity with their national laws, should implement effective fisheries monitoring, control, surveillance and law enforcement measures including, where appropriate, observer programmes, inspection schemes and vessel monitoring systems. Such measures should be promoted and, where appropriate, implemented by subregional or regional fisheries management organizations and arrangements in accordance with procedures agreed by such organizations or arrangements.

7.7.4 States and subregional or regional fisheries management organizations and arrangements, as appropriate, should agree on the means by which the activities of such organizations and arrangements will be financed, bearing in mind, inter alia, the relative benefits derived from the fishery and the differing capacities of countries to provide financial and other contributions. Where appropriate, and when possible, such organizations and arrangements should aim to recover the costs of fisheries conservation, management and research.

7.7.5 States which are members of or participants in subregional or regional fisheries management organizations or arrangements should implement internationally agreed measures adopted in the framework of such organizations or arrangements and consistent with international law to deter the activities of vessels flying the flag of non-members or non-participants which engage in activities which undermine the effectiveness of conservation and management measures established by such organizations or arrangements.

**7.8 Financial institutions**

7.8.1 Without prejudice to relevant international agreements, States should encourage banks and financial institutions not to require, as a condition of a loan or mortgage, fishing vessels or fishing support vessels to be flagged in a jurisdiction other than that of the State of beneficial ownership where such a requirement would have the effect of increasing the likelihood of non-compliance with international conservation and management measures.

**ARTICLE 8 - FISHING OPERATIONS**

**Article 8.1: Duties of all States**

**Article 8.2: Flag State duties**

**Article 8.3: Port State duties**

**Article 8.4: Fishing activities**

**Article 8.5: Fishing gear selectivity**

**Article 8.6: Energy optimization**

**Article 8.7: Protection of the aquatic environment**

**Article 8.8: Protection of the atmosphere**

**Article 8.9: Harbours and landing places for fishing vessels**

**Article 8.10: Abandonment of structures and other materials**

**Article 8.11: Artificial reefs and fish aggregation devices**

**8.1 Duties of all States**

8.1.1 States should ensure that only fishing operations allowed by them are conducted within waters under their jurisdiction and that these operations are carried out in a responsible manner.

8.1.2 States should maintain a record, updated at regular intervals, on all authorizations to fish issued by them.

8.1.3 States should maintain, in accordance with recognized international standards and practices, statistical data, updated at regular intervals, on all fishing operations allowed by them.

**ANNEX IV****Code of Conduct for Responsible Fisheries (cont'd)**

- 8.1.4 States should, in accordance with international law, within the framework of subregional or regional fisheries management organizations or arrangements, cooperate to establish systems for monitoring, control, surveillance and enforcement of applicable measures with respect to fishing operations and related activities in waters outside their national jurisdiction.
- 8.1.5 States should ensure that health and safety standards are adopted for everyone employed in fishing operations. Such standards should be not less than the minimum requirements of relevant international agreements on conditions of work and service.
- 8.1.6 States should make arrangements individually, together with other States or with the appropriate international organization to integrate fishing operations into maritime search and rescue systems.
- 8.1.7 States should enhance through education and training programmes the education and skills of fishers and, where appropriate, their professional qualifications. Such programmes should take into account agreed international standards and guidelines.
- 8.1.8 States should, as appropriate, maintain records of fishers which should, whenever possible, contain information on their service and qualifications, including certificates of competency, in accordance with their national laws.
- 8.1.9 States should ensure that measures applicable in respect of masters and other officers charged with an offence relating to the operation of fishing vessels should include provisions which may permit, inter alia, refusal, withdrawal or suspension of authorizations to serve as masters or officers of a fishing vessel.
- 8.1.10 States, with the assistance of relevant international organizations, should endeavour to ensure through education and training that all those engaged in fishing operations be given information on the most important provisions of this Code, as well as provisions of relevant international conventions and applicable environmental and other standards that are essential to ensure responsible fishing operations.

**8.2 Flag State duties**

- 8.2.1 Flag States should maintain records of fishing vessels entitled to fly their flag and authorized to be used for fishing and should indicate in such records details of the vessels, their ownership and authorization to fish.
- 8.2.2 Flag States should ensure that no fishing vessels entitled to fly their flag fish on the high seas or in waters under the jurisdiction of other States unless such vessels have been issued with a Certificate of Registry and have been authorized to fish by the competent authorities. Such vessels should carry on board the Certificate of Registry and their authorization to fish.
- 8.2.3 Fishing vessels authorized to fish on the high seas or in waters under the jurisdiction of a State other than the flag State, should be marked in accordance with uniform and internationally recognizable vessel marking systems such as the FAO Standard Specifications and Guidelines for Marking and Identification of Fishing Vessels.
- 8.2.4 Fishing gear should be marked in accordance with national legislation in order that the owner of the gear can be identified. Gear marking requirements should take into account uniform and internationally recognizable gear marking systems.
- 8.2.5 Flag States should ensure compliance with appropriate safety requirements for fishing vessels and fishers in accordance with international conventions, internationally agreed codes of practice and voluntary guidelines. States should adopt appropriate safety requirements for all small vessels not covered by such international conventions, codes of practice or voluntary guidelines.
- 8.2.6 States not party to the Agreement to Promote Compliance with International Conservation and Management Measures by Vessels Fishing in the High Seas should be encouraged to accept the Agreement and to adopt laws and regulations consistent with the provisions of the Agreement.
- 8.2.7 Flag States should take enforcement measures in respect of fishing vessels entitled to fly their flag which have been found by them to have contravened applicable conservation and management measures, including, where appropriate, making the contravention of such measures an offence under national legislation. Sanctions applicable in respect of violations should be adequate in severity to be effective in securing compliance and to discourage violations wherever they occur and should deprive offenders of the benefits accruing from their illegal activities. Such sanctions may, for serious violations, include provisions for the refusal, withdrawal or suspension of the authorization to fish.
- 8.2.8 Flag States should promote access to insurance coverage by owners and charterers of fishing vessels. Owners or charterers of fishing vessels should carry sufficient insurance cover to protect the crew of such vessels and their interests, to indemnify third parties against loss or damage and to protect their own interests.

**ANNEX IV****Code of Conduct for Responsible Fisheries (cont'd)**

- 8.2.9 Flag States should ensure that crew members are entitled to repatriation, taking account of the principles laid down in the "Repatriation of Seafarers Convention (Revised), 1987, (No.166)".
- 8.2.10 In the event of an accident to a fishing vessel or persons on board a fishing vessel, the flag State of the fishing vessel concerned should provide details of the accident to the State of any foreign national on board the vessel involved in the accident. Such information should also, where practicable, be communicated to the International Maritime Organization.

**8.3 Port State duties**

- 8.3.1 Port States should take, through procedures established in their national legislation, in accordance with international law, including applicable international agreements or arrangements, such measures as are necessary to achieve and to assist other States in achieving the objectives of this Code, and should make known to other States details of regulations and measures they have established for this purpose. When taking such measures a port State should not discriminate in form or in fact against the vessels of any other State.
- 8.3.2 Port States should provide such assistance to flag States as is appropriate, in accordance with the national laws of the port State and international law, when a fishing vessel is voluntarily in a port or at an offshore terminal of the port State and the flag State of the vessel requests the port State for assistance in respect of non-compliance with subregional, regional or global conservation and management measures or with internationally agreed minimum standards for the prevention of pollution and for safety, health and conditions of work on board fishing vessels.

**8.4 Fishing activities**

- 8.4.1 States should ensure that fishing is conducted with due regard to the safety of human life and the International Maritime Organization International Regulations for Preventing Collisions at Sea, as well as International Maritime Organization requirements relating to the organization of marine traffic, protection of the marine environment and the prevention of damage to or loss of fishing gear.
- 8.4.2 States should prohibit dynamiting, poisoning and other comparable destructive fishing practices.
- 8.4.3 States should make every effort to ensure that documentation with regard to fishing operations, retained catch of fish and non-fish species and, as regards discards, the information required for stock assessment as decided by relevant management bodies, is collected and forwarded systematically to those bodies. States should, as far as possible, establish programmes, such as observer and inspection schemes, in order to promote compliance with applicable measures.
- 8.4.4 States should promote the adoption of appropriate technology, taking into account economic conditions, for the best use and care of the retained catch.
- 8.4.5 States, with relevant groups from industry, should encourage the development and implementation of technologies and operational methods that reduce discards. The use of fishing gear and practices that lead to the discarding of catch should be discouraged and the use of fishing gear and practices that increase survival rates of escaping fish should be promoted.
- 8.4.6 States should cooperate to develop and apply technologies, materials and operational methods that minimize the loss of fishing gear and the ghost fishing effects of lost or abandoned fishing gear.
- 8.4.7 States should ensure that assessments of the implications of habitat disturbance are carried out prior to the introduction on a commercial scale of new fishing gear, methods and operations to an area.
- 8.4.8 Research on the environmental and social impacts of fishing gear and, in particular, on the impact of such gear on biodiversity and coastal fishing communities should be promoted.

**8.5 Fishing gear selectivity**

- 8.5.1 States should require that fishing gear, methods and practices, to the extent practicable, are sufficiently selective so as to minimize waste, discards, catch of non-target species, both fish and non-fish species, and impacts on associated or dependent species and that the intent of related regulations is not circumvented by technical devices. In this regard, fishers should cooperate in the development of selective fishing gear and methods. States should ensure that information on new developments and requirements is made available to all fishers.
- 8.5.2 In order to improve selectivity, States should, when drawing up their laws and regulations, take into account the range of selective fishing gear, methods and strategies available to the industry.

## ANNEX IV

## Code of Conduct for Responsible Fisheries (cont'd)

- 8.5.3 States and relevant institutions should collaborate in developing standard methodologies for research into fishing gear selectivity, fishing methods and strategies.
- 8.5.4 International cooperation should be encouraged with respect to research programmes for fishing gear selectivity, and fishing methods and strategies, dissemination of the results of such research programmes and the transfer of technology.

### 8.6 Energy optimization

- 8.6.1 States should promote the development of appropriate standards and guidelines which would lead to the more efficient use of energy in harvesting and post-harvest activities within the fisheries sector.
- 8.6.2 States should promote the development and transfer of technology in relation to energy optimization within the fisheries sector and, in particular, encourage owners, charterers and managers of fishing vessels to fit energy optimization devices to their vessels.

### 8.7 Protection of the aquatic environment

- 8.7.1 States should introduce and enforce laws and regulations based on the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78).
- 8.7.2 Owners, charterers and managers of fishing vessels should ensure that their vessels are fitted with appropriate equipment as required by MARPOL 73/78 and should consider fitting a shipboard compactor or incinerator to relevant classes of vessels in order to treat garbage and other shipboard wastes generated during the vessel's normal service.
- 8.7.3 Owners, charterers and managers of fishing vessels should minimize the taking aboard of potential garbage through proper provisioning practices.
- 8.7.4 The crew of fishing vessels should be conversant with proper shipboard procedures in order to ensure discharges do not exceed the levels set by MARPOL 73/78. Such procedures should, as a minimum, include the disposal of oily waste and the handling and storage of shipboard garbage.

### 8.8 Protection of the atmosphere

- 8.8.1 States should adopt relevant standards and guidelines which would include provisions for the reduction of dangerous substances in exhaust gas emissions.
- 8.8.2 Owners, charterers and managers of fishing vessels should ensure that their vessels are fitted with equipment to reduce emissions of ozone depleting substances. The responsible crew members of fishing vessels should be conversant with the proper running and maintenance of machinery on board.
- 8.8.3 Competent authorities should make provision for the phasing out of the use of chlorofluorocarbons (CFCs) and transitional substances such as hydrochlorofluorocarbons (HCFCs) in the refrigeration systems of fishing vessels and should ensure that the shipbuilding industry and those engaged in the fishing industry are informed of and comply with such provisions.
- 8.8.4 Owners or managers of fishing vessels should take appropriate action to refit existing vessels with alternative refrigerants to CFCs and HCFCs and alternatives to Halons in fire fighting installations. Such alternatives should be used in specifications for all new fishing vessels.
- 8.8.5 States and owners, charterers and managers of fishing vessels as well as fishers should follow international guidelines for the disposal of CFCs, HCFCs and Halons.

### 8.9 Harbours and landing places for fishing vessels

- 8.9.1 States should take into account, inter alia, the following in the design and construction of harbours and landing places:
- safe havens for fishing vessels and adequate servicing facilities for vessels, vendors and buyers are provided;
  - adequate freshwater supplies and sanitation arrangements should be provided;
  - waste disposal systems should be introduced, including for the disposal of oil, oily water and fishing gear;
  - pollution from fisheries activities and external sources should be minimized; and
  - arrangements should be made to combat the effects of erosion and siltation.

**ANNEX IV****Code of Conduct for Responsible Fisheries (cont'd)**

8.9.2 States should establish an institutional framework for the selection or improvement of sites for harbours for fishing vessels which allows for consultation among the authorities responsible for coastal area management.

**8.10 Abandonment of structures and other materials**

8.10.1 States should ensure that the standards and guidelines for the removal of redundant offshore structures issued by the International Maritime Organization are followed. States should also ensure that the competent fisheries authorities are consulted prior to decisions being made on the abandonment of structures and other materials by the relevant authorities.

**8.11 Artificial reefs and fish aggregation devices**

8.11.1 States, where appropriate, should develop policies for increasing stock populations and enhancing fishing opportunities through the use of artificial structures, placed with due regard to the safety of navigation, on or above the seabed or at the surface. Research into the use of such structures, including the impacts on living marine resources and the environment, should be promoted.

8.11.2 States should ensure that, when selecting the materials to be used in the creation of artificial reefs as well as when selecting the geographical location of such artificial reefs, the provisions of relevant international conventions concerning the environment and safety of navigation are observed.

8.11.3 States should, within the framework of coastal area management plans, establish management systems for artificial reefs and fish aggregation devices. Such management systems should require approval for the construction and deployment of such reefs and devices and should take into account the interests of fishers, including artisanal and subsistence fishers.

8.11.4 States should ensure that the authorities responsible for maintaining cartographic records and charts for the purpose of navigation, as well as relevant environmental authorities, are informed prior to the placement or removal of artificial reefs or fish aggregation devices.

**ARTICLE 9 - AQUACULTURE DEVELOPMENT****Article 9.1: Resp. dev. of aquaculture under national jurisdiction****Article 9.2: Resp. dev. within transboundary aquatic ecosystems****Article 9.3: Use of aquatic genetic resources****Article 9.4: Responsible aquaculture at the production level****9.1 Responsible development of aquaculture, including culture-based fisheries, in areas under national jurisdiction**

9.1.1 States should establish, maintain and develop an appropriate legal and administrative framework which facilitates the development of responsible aquaculture.

9.1.2 States should promote responsible development and management of aquaculture, including an advance evaluation of the effects of aquaculture development on genetic diversity and ecosystem integrity, based on the best available scientific information.

9.1.3 States should produce and regularly update aquaculture development strategies and plans, as required, to ensure that aquaculture development is ecologically sustainable and to allow the rational use of resources shared by aquaculture and other activities.

9.1.4 States should ensure that the livelihoods of local communities, and their access to fishing grounds, are not negatively affected by aquaculture developments.

9.1.5 States should establish effective procedures specific to aquaculture to undertake appropriate environmental assessment and monitoring with the aim of minimizing adverse ecological changes and related economic and social consequences resulting from water extraction, land use, discharge of effluents, use of drugs and chemicals, and other aquaculture activities.

**9.2 Responsible development of aquaculture including culture-based fisheries within transboundary aquatic ecosystems**

9.2.1 States should protect transboundary aquatic ecosystems by supporting responsible aquaculture practices within their national jurisdiction and by cooperation in the promotion of sustainable aquaculture practices.

**ANNEX IV****Code of Conduct for Responsible Fisheries (cont'd)**

- 9.2.2 States should, with due respect to their neighbouring States, and in accordance with international law, ensure responsible choice of species, siting and management of aquaculture activities which could affect transboundary aquatic ecosystems.
- 9.2.3 States should consult with their neighbouring States, as appropriate, before introducing non-indigenous species into transboundary aquatic ecosystems.
- 9.2.4 States should establish appropriate mechanisms, such as databases and information networks to collect, share and disseminate data related to their aquaculture activities to facilitate cooperation on planning for aquaculture development at the national, subregional, regional and global level.
- 9.2.5 States should cooperate in the development of appropriate mechanisms, when required, to monitor the impacts of inputs used in aquaculture.

**9.3 Use of aquatic genetic resources for the purposes of aquaculture including culture-based fisheries**

- 93.1 States should conserve genetic diversity and maintain integrity of aquatic communities and ecosystems by appropriate management. In particular, efforts should be undertaken to minimize the harmful effects of introducing non-native species or genetically altered stocks used for aquaculture including culture-based fisheries into waters, especially where there is a significant potential for the spread of such non-native species or genetically altered stocks into waters under the jurisdiction of other States as well as waters under the jurisdiction of the State of origin. States should, whenever possible, promote steps to minimize adverse genetic, disease and other effects of escaped farmed fish on wild stocks.
- 93.2 States should cooperate in the elaboration, adoption and implementation of international codes of practice and procedures for introductions and transfers of aquatic organisms.
- 93.3 States should, in order to minimize risks of disease transfer and other adverse effects on wild and cultured stocks, encourage adoption of appropriate practices in the genetic improvement of broodstocks, the introduction of non-native species, and in the production, sale and transport of eggs, larvae or fry, broodstock or other live materials. States should facilitate the preparation and implementation of appropriate national codes of practice and procedures to this effect.
- 93.4 States should promote the use of appropriate procedures for the selection of broodstock and the production of eggs, larvae and fry.
- 93.5 States should, where appropriate, promote research and, when feasible, the development of culture techniques for endangered species to protect, rehabilitate and enhance their stocks, taking into account the critical need to conserve genetic diversity of endangered species.

**9.4 Responsible aquaculture at the production level**

- 9.4.1 States should promote responsible aquaculture practices in support of rural communities, producer organizations and fish farmers.
- 9.4.2 States should promote active participation of fishfarmers and their communities in the development of responsible aquaculture management practices.
- 9.4.3 States should promote efforts which improve selection and use of appropriate feeds, feed additives and fertilizers, including manures.
- 9.4.4 States should promote effective farm and fish health management practices favouring hygienic measures and vaccines. Safe, effective and minimal use of therapeutants, hormones and drugs, antibiotics and other disease control chemicals should be ensured.
- 9.4.5 States should regulate the use of chemical inputs in aquaculture which are hazardous to human health and the environment.
- 9.4.6 States should require that the disposal of wastes such as offal, sludge, dead or diseased fish, excess veterinary drugs and other hazardous chemical inputs does not constitute a hazard to human health and the environment.
- 9.4.7 States should ensure the food safety of aquaculture products and promote efforts which maintain product quality and improve their value through particular care before and during harvesting and on-site processing and in storage and transport of the products.

**ARTICLE 10 - INTEGRATION OF FISHERIES INTO COASTAL AREA MANAGEMENT**

**Article 10.1: Institutional framework**

**Article 10.2: Policy measures**

**Article 10.3: Regional cooperation**

**Article 10.4: Implementation of Coastal Area Management**

**ANNEX IV****Code of Conduct for Responsible Fisheries (cont'd)****10.1 Institutional framework**

- 10.1.1 States should ensure that an appropriate policy, legal and institutional framework is adopted to achieve the sustainable and integrated use of the resources, taking into account the fragility of coastal ecosystems and the finite nature of their natural resources and the needs of coastal communities.
- 10.1.2 In view of the multiple uses of the coastal area, States should ensure that representatives of the fisheries sector and fishing communities are consulted in the decision-making processes and involved in other activities related to coastal area management planning and development.
- 10.1.3 States should develop, as appropriate, institutional and legal frameworks in order to determine the possible uses of coastal resources and to govern access to them taking into account the rights of coastal fishing communities and their customary practices to the extent compatible with sustainable development.
- 10.1.4 States should facilitate the adoption of fisheries practices that avoid conflict among fisheries resources users and between them and other users of the coastal area.
- 10.1.5 States should promote the establishment of procedures and mechanisms at the appropriate administrative level to settle conflicts which arise within the fisheries sector and between fisheries resource users and other users of the coastal area.

**10.2 Policy measures**

- 10.2.1 States should promote the creation of public awareness of the need for the protection and management of coastal resources and the participation in the management process by those affected.
- 10.2.2 In order to assist decision-making on the allocation and use of coastal resources, States should promote the assessment of their respective value taking into account economic, social and cultural factors.
- 10.2.3 In setting policies for the management of coastal areas, States should take due account of the risks and uncertainties involved.
- 10.2.4 States, in accordance with their capacities, should establish or promote the establishment of systems to monitor the coastal environment as part of the coastal management process using physical, chemical, biological, economic and social parameters.
- 10.2.5 States should promote multi-disciplinary research in support of coastal area management, in particular on its environmental, biological, economic, social, legal and institutional aspects.

**10.3 Regional cooperation**

- 10.3.1 States with neighbouring coastal areas should cooperate with one another to facilitate the sustainable use of coastal resources and the conservation of the environment.
- 10.3.2 In the case of activities that may have an adverse transboundary environmental effect on coastal areas, States should:
- a. provide timely information and, if possible, prior notification to potentially affected States; and
  - b. consult with those States as early as possible.
- 10.3.3 States should cooperate at the subregional and regional level in order to improve coastal area management.

**10.4 Implementation**

- 10.4.1 States should establish mechanisms for cooperation and coordination among national authorities involved in planning, development, conservation and management of coastal areas.
- 10.4.2 States should ensure that the authority or authorities representing the fisheries sector in the coastal management process have the appropriate technical capacities and financial resources.

**ARTICLE 11 - POST-HARVEST PRACTICES AND TRADE****Article 11.1: Responsible fish utilization****Article 11.2: Responsible international trade****Article 11.3: Laws and regulations relating to fish trade**

**ANNEX IV****Code of Conduct for Responsible Fisheries (cont'd)****11.1 Responsible fish utilization**

- 11.1.1 States should adopt appropriate measures to ensure the right of consumers to safe, wholesome and unadulterated fish and fishery products.
- 11.1.2 States should establish and maintain effective national safety and quality assurance systems to protect consumer health and prevent commercial fraud.
- 11.1.3 States should set minimum standards for safety and quality assurance and make sure that these standards are effectively applied throughout the industry. They should promote the implementation of quality standards agreed within the context of the FAO/WHO Codex Alimentarius Commission and other relevant organizations or arrangements.
- 11.1.4 States should cooperate to achieve harmonization, or mutual recognition, or both, of national sanitary measures and certification programmes as appropriate and explore possibilities for the establishment of mutually recognized control and certification agencies.
- 11.1.5 States should give due consideration to the economic and social role of the post-harvest fisheries sector when formulating national policies for the sustainable development and utilization of fishery resources.
- 11.1.6 States and relevant organizations should sponsor research in fish technology and quality assurance and support projects to improve post-harvest handling of fish, taking into account the economic, social, environmental and nutritional impact of such projects.
- 11.1.7 States, noting the existence of different production methods, should through cooperation and by facilitating the development and transfer of appropriate technologies, ensure that processing, transporting and storage methods are environmentally sound.
- 11.1.8 States should encourage those involved in fish processing, distribution and marketing to:
- a. reduce post-harvest losses and waste;
  - b. improve the use of by-catch to the extent that this is consistent with responsible fisheries management practices; and
  - c. use the resources, especially water and energy, in particular wood, in an environmentally sound manner.
- 11.1.9 States should encourage the use of fish for human consumption and promote consumption of fish whenever appropriate.
- 11.1.10 States should cooperate in order to facilitate the production of value-added products by developing countries.
- 11.1.11 States should ensure that international and domestic trade in fish and fishery products accords with sound conservation and management practices through improving the identification of the origin of fish and fishery products traded.
- 11.1.12 States should ensure that environmental effects of post-harvest activities are considered in the development of related laws, regulations and policies without creating any market distortions.

**11.2 Responsible international trade**

- 11.2.1 The provisions of this Code should be interpreted and applied in accordance with the principles, rights and obligations established in the World Trade Organization (WTO) Agreement.
- 11.2.2 International trade in fish and fishery products should not compromise the sustainable development of fisheries and responsible utilization of living aquatic resources.
- 11.2.3 States should ensure that measures affecting international trade in fish and fishery products are transparent, based, when applicable, on scientific evidence, and are in accordance with internationally agreed rules.
- 11.2.4 Fish trade measures adopted by States to protect human or animal life or health, the interests of consumers or the environment, should not be discriminatory and should be in accordance with internationally agreed trade rules, in particular the principles, rights and obligations established in the Agreement on the Application of Sanitary and Phytosanitary Measures and the Agreement on Technical Barriers to Trade of the WTO.
- 11.2.5 States should further liberalize trade in fish and fishery products and eliminate barriers and distortions to trade such as duties, quotas and non-tariff barriers in accordance with the principles, rights and obligations of the WTO Agreement.
- 11.2.6 States should not directly or indirectly create unnecessary or hidden barriers to trade which limit the consumer's freedom of choice of supplier or that restrict market access.

**ANNEX IV****Code of Conduct for Responsible Fisheries (cont'd)**

- 11.2.7 States should not condition access to markets to access to resources. This principle does not preclude the possibility of fishing agreements between States which include provisions referring to access to resources, trade and access to markets, transfer of technology, scientific research, training and other relevant elements.
- 11.2.8 States should not link access to markets to the purchase of specific technology or sale of other products.
- 11.2.9 States should cooperate in complying with relevant international agreements regulating trade in endangered species.
- 11.2.10 States should develop international agreements for trade in live specimens where there is a risk of environmental damage in importing or exporting States.
- 11.2.11 States should cooperate to promote adherence to, and effective implementation of relevant international standards for trade in fish and fishery products and living aquatic resource conservation.
- 11.2.12 States should not undermine conservation measures for living aquatic resources in order to gain trade or investment benefits.
- 11.2.13 States should cooperate to develop internationally acceptable rules or standards for trade in fish and fishery products in accordance with the principles, rights, and obligations established in the WTO Agreement.
- 11.2.14 States should cooperate with each other and actively participate in relevant regional and multilateral fora, such as the WTO, in order to ensure equitable, non-discriminatory trade in fish and fishery products as well as wide adherence to multilaterally agreed fishery conservation measures.
- 11.2.15 States, aid agencies, multilateral development banks and other relevant international organizations should ensure that their policies and practices related to the promotion of international fish trade and export production do not result in environmental degradation or adversely impact the nutritional rights and needs of people for whom fish is critical to their health and well being and for whom other comparable sources of food are not readily available or affordable.

**11.3 Laws and regulations relating to fish trade**

- 11.3.1 Laws, regulations and administrative procedures applicable to international trade in fish and fishery products should be transparent, as simple as possible, comprehensible and, when appropriate, based on scientific evidence.
- 11.3.2 States, in accordance with their national laws, should facilitate appropriate consultation with and participation of industry as well as environmental and consumer groups in the development and implementation of laws and regulations related to trade in fish and fishery products.
- H.3.3 States should simplify their laws, regulations and administrative procedures applicable to trade in fish and fishery products without jeopardizing their effectiveness.
- 11.3.4 When a State introduces changes to its legal requirements affecting trade in fish and fishery products with other States, sufficient information and time should be given to allow the States and producers affected to introduce, as appropriate, the changes needed in their processes and procedures. In this connection, consultation with affected States on the time frame for implementation of the changes would be desirable. Due consideration should be given to requests from developing countries for temporary derogations from obligations.
- 11.3.5 States should periodically review laws and regulations applicable to international trade in fish and fishery products in order to determine whether the conditions which gave rise to their introduction continue to exist.
- 11.3.6 States should harmonize as far as possible the standards applicable to international trade in fish and fishery products in accordance with relevant internationally recognized provisions.
- H.3.7 States should collect, disseminate and exchange timely, accurate and pertinent statistical information on international trade in fish and fishery products through relevant national institutions and international organizations.
- 11.3.8 States should promptly notify interested States, WTO and other appropriate international organizations on the development of and changes to laws, regulations and administrative procedures applicable to international trade in fish and fishery products.

**ARTICLE 12 - FISHERIES RESEARCH**

- 12.1 States should recognize that responsible fisheries requires the availability of a sound scientific basis to assist fisheries managers and other interested parties in making decisions. Therefore, States should ensure that appropriate research is conducted into all aspects of fisheries

**ANNEX IV****Code of Conduct for Responsible Fisheries (cont'd)**

including biology, ecology, technology, environmental science, economics, social science, aquaculture and nutritional science. States should ensure the availability of research facilities and provide appropriate training, staffing and institution building to conduct the research, taking into account the special needs of developing countries.

- 12.2 States should establish an appropriate institutional framework to determine the applied research which is required and its proper use.
- 12.3 States should ensure that data generated by research are analyzed, that the results of such analyses are published, respecting confidentiality where appropriate, and distributed in a timely and readily understood fashion, in order that the best scientific evidence is made available as a contribution to fisheries conservation, management and development. In the absence of adequate scientific information, appropriate research should be initiated as soon as possible.
- 12.4 States should collect reliable and accurate data which are required to assess the status of fisheries and ecosystems, including data on bycatch, discards and waste. Where appropriate, this data should be provided, at an appropriate time and level of aggregation, to relevant States and subregional, regional and global fisheries organizations.
- 12.5 States should be able to monitor and assess the state of the stocks under their jurisdiction, including the impacts of ecosystem changes resulting from fishing pressure, pollution or habitat alteration. They should also establish the research capacity necessary to assess the effects of climate or environment change on fish stocks and aquatic ecosystems.
- 12.6 States should support and strengthen national research capabilities to meet acknowledged scientific standards.
- 12.7 States, as appropriate in cooperation with relevant international organizations, should encourage research to ensure optimum utilization of fishery resources and stimulate the research required to support national policies related to fish as food.
- 12.8 States should conduct research into, and monitor, human food supplies from aquatic sources and the environment from which they are taken and ensure that there is no adverse health impact on consumers. The results of such research should be made publicly available.
- 12.9 States should ensure that the economic, social, marketing and institutional aspects of fisheries are adequately researched and that comparable data are generated for ongoing monitoring, analysis and policy formulation.
- 12.10 States should carry out studies on the selectivity of fishing gear, the environmental impact of fishing gear on target species and on the behaviour of target and non-target species in relation to such fishing gear as an aid for management decisions and with a view to minimizing non-utilized catches as well as safeguarding the biodiversity of ecosystems and the aquatic habitat.
- 12.11 States should ensure that before the commercial introduction of new types of gear, a scientific evaluation of their impact on the fisheries and ecosystems where they will be used should be undertaken. The effects of such gear introductions should be monitored.
- 12.12 States should investigate and document traditional fisheries knowledge and technologies, in particular those applied to small-scale fisheries, in order to assess their application to sustainable fisheries conservation, management and development.
- 12.13 States should promote the use of research results as a basis for the setting of management objectives, reference points and performance criteria, as well as for ensuring adequate linkages between applied research and fisheries management.
- 12.14 States conducting scientific research activities in waters under the jurisdiction of another State should ensure that their vessels comply with the laws and regulations of that State and international law.
- 12.15 States should promote the adoption of uniform guidelines governing fisheries research conducted on the high seas.
- 12.16 States should, where appropriate, support the establishment of mechanisms, including, *inter alia*, the adoption of uniform guidelines, to facilitate research at the subregional or regional level and should encourage the sharing of the results of such research with other regions.
- 12.17 States, either directly or with the support of relevant international organizations, should develop collaborative technical and research programmes to improve understanding of the biology, environment and status of transboundary aquatic stocks.
- 12.18 States and relevant international organizations should promote and enhance the research capacities of developing countries, *inter alia*, in the areas of data collection and analysis, information, science and technology, human resource development and provision of research facilities, in order for them to participate effectively in the conservation, management and sustainable use of living aquatic resources.

**ANNEX IV****Code of Conduct for Responsible Fisheries (cont'd)**

- 12.19 Competent international organizations should, where appropriate, render technical and financial support to States upon request and when engaged in research investigations aimed at evaluating stocks which have been previously unfished or very lightly fished.
- 12.20 Relevant technical and financial international organizations should, upon request, support States in their research efforts, devoting special attention to developing countries, in particular the least-developed among them and small island developing countries.

**Annex 1****BACKGROUND TO THE ORIGIN AND ELABORATION OF THE CODE**

1. This annex describes the process of elaboration and negotiation of the Code, which led to its submission for adoption to the Twenty-eighth Session of the FAO Conference. It has been felt useful to annex this section as a reference to the origin and the development of the Code and thus reflect the interest generated and the spirit of compromise of all the parties involved in its elaboration. It is hoped that this will contribute to the promotion of the commitment necessary for its implementation.
2. At various international fora, concern had long been expressed regarding the clear signs of over-exploitation of important fish stocks, damage to ecosystems, economic losses, and issues affecting fish trade—all of which threatened the long-term sustainability of fisheries and, in turn, harmed the contribution of fisheries to food supply. In discussing the current state and prospects of world fisheries, the Nineteenth Session of the FAO Committee on Fisheries (COFI), held in March 1991, recommended that FAO should develop the concept of responsible fisheries and elaborate a Code of Conduct to this end.
3. Subsequently, the Government of Mexico, in collaboration with FAO, organized an International Conference on Responsible Fishing in Cancun, in May 1992. The Declaration of Cancun endorsed at that Conference further developed the concept of responsible fisheries, stating that "this concept encompasses the sustainable utilization of fisheries resources in harmony with the environment; the use of capture and aquaculture practices which are not harmful to ecosystems, resources or their quality; the incorporation of added value to such products through transformation processes meeting the required sanitary standards; the conduct of commercial practices so as to provide consumers access to good quality products".
4. The Cancun Declaration was brought to the attention of the UNCED Rio Summit in June 1992, which supported the preparation of a Code of Conduct for Responsible Fisheries. The FAO Technical Consultation on High Seas Fishing, held in September 1992, further recommended the elaboration of a Code to address the issues regarding high seas fisheries.
5. The One Hundred and Second Session of the FAO Council, held in November 1992, discussed the elaboration of the Code, recommending that priority be given to high seas issues and requested that proposals for the Code be presented to the 1993 session of the Committee on Fisheries.
6. The Twentieth Session of COFI, held in March 1993, examined general principles for such a Code, including the elaboration of guidelines and endorsed a timeframe for the further elaboration of the Code. It also requested FAO to prepare, on a "fast track" basis, as part of the Code, proposals to prevent reflagging of fishing vessels which affect conservation and management measures on the high seas.
7. The further development of the Code of Conduct for Responsible Fisheries was accordingly carried out in consultation and collaboration with relevant United Nations Agencies and other international organizations including non-governmental organizations.
8. In pursuance of the instructions of the FAO Governing Bodies, the draft Code was formulated in such a way as to be consistent with the 1982 United Nations Convention on the Law of the Sea, taking into account the 1992 Declaration of Cancun, the 1992 Rio Declaration and the provisions of Agenda 21 of UNCED, the conclusions and recommendations of the 1992 FAO Technical Consultation on High Seas Fishing, the Strategy endorsed by the 1984 FAO World Conference on Fisheries Management and Development, and other relevant instruments including the outcome of the then ongoing United Nations Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks which, in August 1995, adopted an Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Concerning Straddling Fish Stocks and Highly Migratory Fish Stocks.
9. The FAO Conference, at its Twenty-seventh Session in November 1993, adopted the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas and recommended that the General Principles of the Code of Conduct for Responsible Fisheries be prepared on a "fast track" in order to orientate formulation of thematic articles. Accordingly, a draft text of the General Principles was reviewed by an informal Working Group of Government-nominated experts, which met in Rome in February 1994.

**ANNEX IV****Code of Conduct for Responsible Fisheries (cont'd)**

A revised draft was widely circulated to all FAO Members and Associate Members as well as intergovernmental and non-governmental organizations. Comments received on the second version of the General Principles were incorporated in the draft Code together with proposals for an alternative text. This document was also the subject of informal consultation with non-governmental organizations on the occasion of the Fourth Session of the United Nations Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks, held in August 1994 in New York.

10. In order to facilitate consideration of the full text of the draft Code, the Director-General proposed to the Council at its Hundred and Sixth Session in June 1994, that a Technical Consultation on the Code of Conduct for Responsible Fishing be organized, open to all FAO Members, interested non-members, intergovernmental and non-governmental organizations, in order to provide an opportunity for the widest involvement of all concerned parties at an early stage of its elaboration.
11. This Technical Consultation took place in Rome from 26 September to 5 October 1994 and a draft for the entire Code and a first draft of technical guidelines to support most of the Thematic Articles of the Code were presented. Following a thorough review of all the Articles of the complete draft Code of Conduct, an Alternative Secretariat Draft was then prepared on the basis of comments made during the discussions in plenary and specific drafting changes submitted in writing during the Consultation.
12. The Consultation was able to review also in detail an alternative draft for three of the six Thematic Articles of the Code, i.e., Article 9 "Integration of Fisheries into Coastal Area Management", Article 6 "Fisheries Management", Article 7 "Fishing Operations", except for those principles which were likely to be affected by the outcome of the ongoing UN Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks. A short Administrative Report was prepared and presented to the FAO Council and to COFI.
13. The Technical Consultation proposed to the Council at its Hundred and Seventh Session, 15-24 November 1994, that the final wording of those principles dealing mainly with high seas issues be left in abeyance pending the outcome of the UN Conference. The Council generally endorsed the proposed procedure, noting that following discussions at the next session of COFI, a final draft of the Code would be submitted to the FAO Council in June 1995 which would then decide upon the necessity for a Technical Committee to meet in parallel to that Session of the Council in order to elaborate further the detailed provisions of the Code if required.
14. Based upon the substantial comments and detailed suggestions received at the Technical Consultation, the Secretariat elaborated a revised draft of the Code of Conduct for Responsible Fisheries, which was submitted to the Twenty-first Session of the Committee on Fisheries, held from 10 to 15 March 1995.
15. The Committee on Fisheries was also informed that the UN Conference was expected to conclude its work in August 1995. It was proposed that principles left in abeyance in the draft text of the Code could then be reconciled with the language agreed upon at the UN Conference in accordance with a mechanism to be decided upon by the Committee and the Council, before submission of the complete Code for its adoption at the Twenty-eighth Session of the FAO Conference in October 1995.
16. The Committee was informed of the various steps the Secretariat had undertaken in preparing the draft Code of Conduct. The Committee established an open-ended Working Group in order to review the draft text of the Code. The Working Group, which met from 10 to 14 March 1995, undertook a detailed revision of the draft Code in continuation of the work carried out by the Technical Consultation. It completed and approved the text of Articles 8 to 11. In view of the time constraints, the Working Group provided directives to the Secretariat to redraft Articles 1 to 5. It was also recommended that the elements of research and cooperation as well as aquaculture be included in Article 5, General Principles, to reflect issues developed in the Thematic Articles of the Code.
17. The Committee supported the proposal endorsed by the Hundred and Seventh Session of the Council on mechanisms to finalize the Code. The final wording of those principles dealing mainly with issues concerning straddling fish stocks and highly migratory fish stocks, which formed only a small part of the Code, should be re-examined in the light of the outcome of the UN Conference. The Group also recommended that once agreement was reached on the substance, it would be necessary to harmonize legal, technical and idiomatic aspects of the Code, in order to facilitate its final approval.
18. The Report of the open-ended Working Group was presented to a Ministerial Meeting on Fisheries, held on 14 and 15 March 1995, in conjunction with the COFI Session. The Rome Consensus on World Fisheries emanating from this meeting urged that "Governments and international organizations take prompt action to complete the International Code of Conduct for Responsible Fisheries with a view to submitting the final text to the FAO Conference in October 1995".

**ANNEX IV****Code of Conduct for Responsible Fisheries (cont'd)**

19. The Hundred and Eighth Session of the Council was presented with a revised version of the Code of Conduct. The Council established an open-ended Technical Committee, which held its First Session from 5 to 9 June 1995, with a broad regional representation of members and observers. A number of intergovernmental and non-governmental organizations also participated.
20. The Council was informed by the Technical Committee that it had undertaken a thorough review of Articles 1 to 5 including the Introduction. It had also examined, amended and approved Articles 8 to 11. The Council was also informed that the Committee had started the revision of Article 6.
21. The Council approved the work carried out by the Technical Committee and endorsed its recommendation for a Second Session to be held from 25 to 29 September 1995 to complete the revision of the Code once the Secretariat had harmonized the text linguistically and juridically, taking into account the outcome of the UN Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks.
22. A revised version of the Code as approved by the Open-ended Technical Committee at its First Session (5-9 June 1995) and endorsed by the One Hundred and Eighth Session of the Council was issued, both as a Conference document (C 95/20) and as a working paper for the Second Session of the Technical Committee. Elements pending agreement were clearly identified.
23. In order to facilitate the finalization of the entire Code, the Secretariat prepared the document "Secretariat Proposals for Article 6, Fisheries Management, and Article 7, Fishing Operations, of the Code of Conduct for Responsible Fisheries", taking into account the Agreement relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, adopted by the UN Conference in August 1995. The Secretariat also completed proposals for the harmonization of the text on legal and linguistic aspects and made this available to the Committee in three languages for the session (English, French and Spanish).
24. A Second Session of the Open-ended Technical Committee of the Council met from 25 to 29 September 1995, with a wide representation of regions and interested organizations. The Committee, working in a full spirit of collaboration, successfully concluded its mandate, finalizing and endorsing all Articles and the Code as a whole. The Technical Committee agreed that the negotiations of the text of the Code were finalized. An Open-ended Informal Group on Language Harmonization held an additional session and, together with the Secretariat, completed the harmonization on the basis of the text as adopted at the closing session. The Technical Committee instructed the Secretariat to already submit the finalized version as a revised Conference document to the Hundred and Ninth Session of the Council and to the Twenty-eighth Session of the Conference for its adoption. The Council endorsed the Code of Conduct as finalized by the Technical Committee. The Secretariat was requested to prepare the required draft resolution for the Conference, including also a call on countries to ratify, as a matter of urgency, the Compliance Agreement adopted at the last session of the Conference. The Twenty-eighth Session of the Conference adopted on 31 October 1995, by consensus, the Code of Conduct for Responsible Fisheries and the respective Resolution.

**Annex 2****RESOLUTION****THE CONFERENCE**

Recognizing the vital role of fisheries in world food security, and economic and social development, as well as the need to ensure the sustainability of the living aquatic resources and their environment for present and future generations.

Recalling that the Committee on Fisheries on 19 March 1991 recommended the development of the concept of responsible fishing and the possible formulation of an instrument on the matter.

Considering that the Declaration of Cancun, which emanated from the International Conference on Responsible Fisheries of May 1992, organized by the Government of Mexico in collaboration with FAO, had called for the preparation of a Code of Conduct on Responsible Fisheries.

Bearing in mind that with the entry into force of the United Nations Convention on the Law of the Sea, 1982, and the adoption of the Agreement for the implementation of the provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, as was anticipated in the 1992 Rio Declaration and the provisions of Agenda 21 of UNCED, there is an increased need for subregional and regional cooperation, and that significant responsibilities are placed upon FAO in accordance with its mandate,

## ANNEX IV

### Code of Conduct for Responsible Fisheries (cont'd)

Recalling further that the Conference in 1993 adopted the FAO Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas, and that this Agreement would constitute an integral part of the Code of Conduct.

Noting with satisfaction that FAO, in accordance with the decisions of its Governing Bodies, had organized a series of technical meetings to formulate the Code of Conduct, and that these meetings have resulted in agreement being reached on the text of the Code of Conduct for Responsible Fisheries.

Acknowledging that the Rome Consensus on World Fisheries, which emanated from the Ministerial Meeting on Fisheries of 14-15 March 1995, urged governments and international organizations to respond effectively to the current fisheries situation, inter alia, by completing the Code of Conduct for Responsible Fisheries and to consider adopting the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas:

1. Decides to adopt the Code of Conduct for Responsible Fisheries;
2. Calls on States, International Organizations, whether Governmental or Non-Governmental, and all those involved in fisheries to collaborate in the fulfilment and implementation of the objectives and principles contained in this Code;
3. Urges that special requirements of developing countries be taken into account in implementing the provisions of this Code;
4. Requests FAO to make provision in the Programme of Work and Budget for providing advice to developing countries in implementing this Code and for the elaboration of an Interregional Assistance Programme for external assistance aimed at supporting implementation of the Code;
5. Further requests FAO, in collaboration with members and interested relevant organizations, to elaborate, as appropriate, technical guidelines in support of the implementation of the Code;
6. Calls upon FAO to monitor and report on the implementation of the Code and its effects on fisheries, including action taken under other instruments and resolutions by UN organizations and, in particular, the resolutions adopted by the General Assembly to give effect to the Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks leading to the Agreement for the implementation of the provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks;
7. Urges FAO to strengthen Regional Fisheries Bodies in order to deal more effectively with fisheries conservation and management issues in support of subregional, regional and global cooperation and coordination in fisheries.

#### Endnotes

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1 References in this Code to the United Nations Convention on the Law of the Sea, 1982, or to other international agreements do not prejudice the position of any State with respect to signature, ratification or accession to the Convention or with respect to such other agreements

**ANNEX V****The international Plans of Action for the Conservation and Management of Sharks, Seabird Bycatch, Overcapacity, and IUU Fishing****ANNEX VI****The International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries****Introduction**

1. Seabirds are being incidentally caught in various commercial longline fisheries in the world, and concerns are arising about the impacts of this incidental catch. Incidental catch of seabirds may also have an adverse impact on fishing productivity and profitability. Governments, non-governmental organizations, and commercial fishery associations are petitioning for measures to reduce the mortality of seabirds in longline fisheries in which seabirds are incidentally taken.
2. Key longline fisheries in which incidental catch of seabirds are known to occur are: tuna, swordfish and billfish in some particular parts of oceans; Patagonian toothfish in the Southern Ocean, and halibut, black cod, Pacific cod, Greenland halibut, cod, haddock, tusk and ling in the northern oceans (Pacific and Atlantic). The species of seabirds most frequently taken are albatrosses and petrels in the Southern Ocean, northern fulmars in the North Atlantic and albatrosses, gulls and fulmars in the North Pacific fisheries.
3. Responding to the need to reduce the incidental catch of seabirds in commercial fisheries in the Southern Ocean, the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) adopted mitigation measures in 1992 for its 23 member countries to reduce incidental catch of seabirds.
4. Under the auspices of the Commission for the Conservation of Southern Bluefin Tuna (CCSBT), Australia, Japan and New Zealand have studied and taken seabird mitigation measures in their southern bluefin tuna longline fishery since 1994, and in 1995 CCSBT adopted a recommendation relating to ecologically related species, including the incidental mortality of seabirds by longline fishing. The recommendation stipulates a policy on data and information collection, mitigation measures, as well as education and information dissemination. All member nations of CCSBT have made the use of bird scaring lines (tori poles) mandatory in their fisheries.
5. The United States of America also adopted, by regulation, measures for reducing incidental catch of seabirds for its groundfish longline fisheries in Seabirds are being incidentally caught in various commercial longline the Bering Sea/Aleutian Islands and Gulf of Alaska in 1997, and for its halibut fishery in 1998. The United States is currently developing measures to mitigate the incidental catch of seabirds in the Hawaiian pelagic longline fisheries. Several other countries with longline fisheries have likewise adopted similar mitigation measures.

**Origin**

6. Noting an increased awareness about the incidental catch of seabirds in longline fisheries and its potential negative impacts on seabird populations, a proposal was made at the Twenty-second Session of the Committee on Fisheries (COFI) in March 1997 that FAO organize an expert consultation, using extra-budgetary funds, to develop Guidelines leading to a Plan of Action to be submitted at the next Session of COFI aiming at a reduction in such incidental catch.
7. *The International Plan of Action for reducing incidental catch of seabirds in longline fisheries (IPOA-SEABIRDS)* has been developed through the meeting of a Technical Working Group in Tokyo 25-27 March 1998<sup>1</sup> and the Consultation on the Management of Fishing Capacity, Shark Fisheries and Incidental Catch of Seabirds in Longline Fisheries held 26-30 October 1998 and its preparatory meeting held in Rome 22-24 July 1998<sup>2</sup>.

**Nature and Scope**

8. IPOA-Seabirds is voluntary. It has been elaborated within the framework of the Code of Conduct for Responsible Fisheries as envisaged by Article 2 (d). The provisions of Article 3 of the Code of Conduct apply to the interpretation and application of this document and its relationship with other international instruments. All concerned States<sup>3</sup> are encouraged to implement it.
9. The IPOA-SEABIRDS applies to States in the waters of which longline fisheries are being conducted by their own or foreign vessels and to States that conduct longline fisheries on the high seas and in the exclusive economic zones (EEZ) of other States.

## ANNEX V

# The International Plans of Action for the Conservation and Management of Sharks, Seabird Bycatch, Overcapacity, and IUU Fishing (cont'd)

### Objective

10. Taking into account in particular the objectives of articles 7.6.9 and 8.5 of the Code of Conduct, the objective of the IPOA-SEABIRDS is to reduce the incidental catch of seabirds in longline fisheries where this occurs.

### Implementation

11. In implementing the IPOA-SEABIRDS States should carry out a set of activities. This should be done as appropriate in conjunction with relevant international organizations. The exact configuration of this set of activities will be based on an assessment of the incidental catch of seabirds in longline fisheries.
12. States with longline fisheries should conduct an assessment of these fisheries to determine if a problem exists with respect to incidental catch of seabirds. If a problem exists, States should adopt a National Plan of Action for reducing the incidental catch of seabirds in longline fisheries (NPOA-SEABIRDS). (See below the "Technical note on developing a National Plan of Action for reducing the incidental catch of seabirds in longline fisheries".) When developing the NPOA-SEABIRDS experience acquired in regional management organizations should be taken into account as appropriate. FAO should provide a list of experts and a mechanism of technical assistance to countries for use in connection with development of NPOA-SEABIRDS.
13. States which determine that an NPOA-SEABIRDS is not necessary should review that decision on a regular basis, particularly taking into account changes in their fisheries, such as the expansion of existing fisheries and/or the development of new longline fisheries. If, based on a subsequent assessment, States determine that a problem exists, they should follow the procedures outlined in paragraph 12, and implement an NPOA-SEABIRDS within two years.
14. The assessment should be included as a part of each relevant State's NPOA-SEABIRDS.
15. Each State is responsible for the design, implementation and monitoring of its NPOA-SEABIRDS.
16. States recognize that each longline fishery is unique and the identification of appropriate mitigation measures can only be achieved through on-the-spot assessment of the concerned fisheries. Technical and operational mitigation measures are presently in use or under development in some longline fisheries where incidental catch of seabirds occurs. Measures developed by different States are listed in a Technical Note inserted at the end of this document (Technical note on developing a National Plan of Action for reducing the incidental catch of seabirds in longline fisheries). This list does not prejudice the right of States to decide to use any of these or other suitable measures that may be developed. A more comprehensive description and discussion of the mitigation measures currently used or under development can be found in FAO Fisheries Circular No. 937.
17. States should start the implementation of the NPOA-SEABIRDS no later than the COFI Session in 2001.
18. In implementing their NPOA-SEABIRDS States should regularly, at least every four years, assess their implementation for the purpose of identifying cost-effective strategies for increasing the effectiveness of the NPOA-SEABIRDS.
19. States, within the framework of their respective competencies and consistent with international law, should strive to cooperate through regional and subregional fisheries organizations or arrangements, and other forms of cooperation, to reduce the incidental catch of seabirds in longline fisheries.
20. In implementing the IPOA-SEABIRDS States recognize that cooperation among States which have important longline fisheries is essential to reduce the incidental catch of seabirds given the global nature of the issue. States should strive to collaborate through FAO and through bilateral and multilateral arrangements in research, training and the production of information and promotional material.
21. States should report on the progress of the
  - Status of seabird populations in the fishing areas, if known.
  - Total annual catch of seabirds (numbers per 1000 hooks set/species/longline fishery)

**ANNEX V****The International Plans of Action for the Conservation and Management of Sharks, Seabird Bycatch, Overcapacity, and IUU Fishing (cont'd)**

- Existing mitigation measures in use and their effectiveness in reducing incidental catch of seabirds.
- Incidental catch of seabirds monitoring (observer program, etc.).
- Statement of conclusions and decision to develop and implement an NPOA-SEABIRDS.

**II. NPOA-SEABIRDS**

The NPOA-SEABIRDS may contain the following elements:

**1. Prescription of mitigation measures**

The NPOA-SEABIRDS should prescribe appropriate mitigation methods. These should have a proven efficiency, and be cost-effective for the fishing industry. If effectiveness of mitigation measures can be improved by combining different mitigation measures or devices, it is likely that each State will find it advantageous to implement a number of different measures that reflect the need and particular circumstances of their specific longline fishery.

**2. Research and development**

The NPOA-SEABIRDS should contain plans for research and development, including those aiming: (i) to develop the most practical and effective seabird deterrent device; (ii) to improve other technologies and practices which reduce the incidental capture of seabirds; and (iii) undertake specific research to evaluate the effectiveness of mitigation measures used in the longline fisheries, where this problem occurs.

**3. Education, training and publicity**

The NPOA-SEABIRDS should prescribe means to raise awareness among fishers, fishing associations and other relevant groups about the need to reduce the incidental catch of seabirds in longline fisheries where this occurs; National and International Plans of Action and other information on the incidental catch of seabirds in longline fisheries; and to promote the implementation of the NPOA-SEABIRDS among national industry, research and its own administration.

Provide information about technical or financial assistance for reducing the incidental catch of seabirds.

Preferably design and implementation of outreach programmes for fishers, fisheries managers, gear technologists, maritime architects, shipbuilders, and conservationists and other interested members of the public should be described in the plan. These programmes should aim at improving the understanding of the problem resulting from incidental catch of seabirds and the use of mitigation measures. The outreach programme may include educational curricula, and guidelines disseminated through videos, handbooks, brochures and posters. The programme should focus on both the conservation aspects of this issue and on the economic benefits of expected increased fishing efficiency *inter alia* by eliminating bait loss to seabirds.

**4. Data Collection**

Data collection programmes should collect reliable data to determine the incidental catch of seabirds in longline fisheries and the effectiveness of mitigation measures. Such programmes may make use of onboard observers.

**TECHNICAL NOTE ON SOME OPTIONAL TECHNICAL AND OPERATIONAL MEASURES  
FOR REDUCING THE INCIDENTAL CATCH OF SEABIRDS IN LONGLINE FISHERIES**

**I. INTRODUCTION**

To reduce the incidental catch of seabirds, it is essential to reduce the number of encounters between seabirds and baited hooks. It should be noted that, if used in combination, the options could improve mitigation effectiveness.

For each of the measures, the effectiveness and the cost involved for fishers are briefly presented. In this presentation, "effectiveness" is defined as to what extent the measures reduces incidental catch of seabirds; "cost" is defined as the initial cost or investment and any ongoing operational costs.

Other technical options are currently under development and fishers and researchers in the field may develop new mitigation measures, so the list of measures is likely to increase over time.

## ANNEX V

## The International Plans of Action for the Conservation and Management of Sharks, Seabird Bycatch, Overcapacity, and IUU Fishing (cont'd)

If effectiveness of mitigation measures can be improved by combining different mitigation measures or devices, each State may find it advantageous to implement different measures that are more suitable for their conditions and reflect the needs of their specific longline fisheries.

The list below should not be considered mandatory or exhaustive and FAO shall maintain a data base of measures that are in use or under development.

### II. TECHNICAL MEASURES

#### 1. Increase the sink rate of baits

##### a) Weighting the longline gear

Concept: *Increase the sinking speed of baited hooks and reduce their exposure time to seabirds.*

Effectiveness: *Studies have shown that appropriate line-weighting can be highly effective in avoiding bait loss to birds.*

Cost: *The cost is the initial purchase of the weighting material (either heavier gear or weights) and any ongoing replacement of weights lost during fishing.*

##### b) Thawing bait

Concept: *Overcome buoyancy problems in bait by thawing and/or puncturing swim bladders.*

Effectiveness: *Rate of incidental catch of seabirds is reduced when thawed baits are used. It has also been shown that baitfish with deflated swim bladders sink more quickly than those with inflated swim bladders did.*

Cost: *Possible costs include bait thawing rack, or extra weight to compensate flotation resulting from the air bladder.*

##### c) Line-setting machine

Concept: *Increase line sinking rate by removing line tension during gear deployment.*

Effectiveness: *Although no quantitative assessments have been done, this practice would result in the line sinking more rapidly thereby reducing availability of baited hooks to seabirds.*

Cost: *For some fisheries, initial costs may include purchase of a line-setting device.*

#### 2. Below-the-water setting chute, capsule, or funnel

Concept: *Prevent access by seabirds to baited hooks by setting line under water.*

Effectiveness: *Underwater setting devices are still under development but could have high effectiveness.*

Cost: *Initial cost would include purchase of the underwater setting device.*

#### 3. Bird-scaring line positioned over or in the area where baited hooks enter the water

Concept: *Prevent seabirds access to baited hooks where they enter the water. The bird scaring line is designed to discourage birds from taking baited hooks by preventing their access to baited hooks. Design specifications may vary by vessel, fishing operation, and location and are critical to its effectiveness. Streamer lines and towing buoys are examples of these techniques.*

Effectiveness: *A number of studies and anecdotal observations have demonstrated significant effectiveness of these devices when properly designed and used.*

Cost: *Low initial cost for the purchase and installation of bird scaring line.*

#### 4. Bait casting machine

Concept: *Places bait in area protected by a bird scaring line and outside the turbulence caused by the propeller and the ship's wake.*

Effectiveness: *Deployment of bait under the protection zone of the bird-scaring line reduces the availability of baited hooks to seabirds. The extent to which bait loss is reduced by the use of bait casting machines, used either without a bird-scaring line or in such a manner that baits are not protected by a bird-scaring line, is yet to be determined.*

Cost: *High, initial costs may include purchase of a bait-casting device.*

**ANNEX V****The International Plans of Action for the Conservation and Management of Sharks, Seabird Bycatch, Overcapacity, and IUU Fishing (cont'd)****5. Bird-scaring curtain**

Concept: *To deter seabirds from taking baited hooks during the haul by using a bird scaring curtain.*

Effectiveness: *Anecdotal evidence indicates that the bird-scaring curtain can effectively discourage birds from seizing baits in the hauling area.*

Cost: *Low, cost for materials.*

**6. Artificial baits or lures**

Concept: *Reduce palatability or availability of baits.*

Effectiveness: *New baits are still under development and effectiveness has yet to be resolved.*

Cost: *Currently unknown.*

**7. Hook modification**

Concept: *Utilize hook types that reduce the probability of birds getting caught when they attack a baited hook.*

Effectiveness: *Hook size might effect the species composition of incidental caught seabirds. The effect of modification of hooks is, however, poorly understood.*

Cost: *Unknown.*

**8. Acoustic deterrent**

Concept: *Deterring birds from the longline using acoustic signals, such as high frequency, high volume, distress call, etc.*

Effectiveness: *Low probability of being effective as background noises are loud and habituation to noises is common among seabirds.*

Cost: *Unknown.*

**9. Water cannon**

Concept: *Concealing baited hooks by using high pressure water.*

Effectiveness: *There is no definite conclusion about the effectiveness of this method.*

Cost: *Unknown.*

**10. Magnetic deterrent**

Concept: *Perturbing the magnetic receptors of the birds by creating magnetic fields.*

Effectiveness: *No indication of effect in practical experiments.*

Cost: *Unknown.*

**III. OPERATIONAL MEASURES****Reduce visibility of bait (night setting)**

Concept: *Set during hours of darkness and reduce illumination of baited hooks in the water.*

Effectiveness: *This method is generally recognized as being highly effective. However, effectiveness can vary between fishing grounds and also seasonally according to the seabird species. Effectiveness of this measure may be reduced around the full moon.*

Cost: *A restriction of line setting to the hours of darkness may affect fishing capacity, especially for smaller longliners. Small costs may be incurred to make vessel lighting appropriate.*

Such restriction can also entail investing in costly technology for maximizing fishing efficiency in a shorter period of time.

**2. Reduce the attractiveness of the vessels to seabirds**

**ANNEX V****The International Plans of Action for the Conservation and Management of Sharks, Seabird Bycatch, Overcapacity, and IUU Fishing (cont'd)**

*Concept: Reducing the attractiveness of vessels to seabirds will reduce the potential for seabirds being incidentally caught. Materials (e.g. fish discards, garbage) discharged from vessels should be at a time or in a way that makes them least available to birds or least likely to cause them harm. This includes avoidance of the dumping of discarded fish, offal, fish heads, etc. with embedded hooks. If dumping offal is unavoidable, it should be done on the opposite side of the vessel to where lines are being set or in such a manner that birds are not attracted to the vessel (e.g. at night).*

*Effectiveness: The issue of offal discharge is a complex one, and there have been conflicting results regarding effects of various procedures in the studies done to date.*

*Cost: Low; in some situations costs may be associated with providing for offal containment or reconfiguration of offal discharge systems on the vessel.*

**3. Area and seasonal closures**

*Concept: Reduce incidental catch of seabirds when concentrations of breeding or foraging seabirds can be avoided.*

*Effectiveness: Area and seasonal closures could be effective (such as in high density foraging areas or during the period of chick care when parental duties limit the distances adults can fly from breeding sites) although displacement of fishing fleet to other seabird areas needs to be considered.*

*Cost: Unknown, but a restriction on fishing by area or season may effect fishing capacity.*

**4. Give preferential licensing to vessels that use mitigation measures that do not require compliance monitoring**

*Concept: Incentive provided for effective use of mitigation measures that do not require compliance monitoring.*

*Effectiveness: May be highly effective in stimulating the use of mitigation measures and development of fishing systems that reduce incidental catch of seabirds*

*Cost: Unknown.*

**Release live birds**

*Concept: If despite the precautions, seabirds are incidentally caught, every reasonable effort should be made to ensure that birds brought onboard alive are released alive and that when possible hooks should be removed without jeopardizing the life of the birds.*

*Effectiveness: Depends on the number of birds brought onboard alive and this is considered small by comparison to the numbers killed in line setting.*

*Cost: Unknown.*

**ANNEX Y****The International Plans of Action for the Conservation and Management of Sharks, Seabird Bycatch, Overcapacity, and IUU Fishing (cont'd)****ANNEX VII****International Plan of Action For the Conservation and Management of Sharks****Introduction**

1. For centuries artisanal fishermen have conducted fishing for sharks sustainably in coastal waters, and some still do. However, during recent decades modern technology in combination with access to distant markets have caused an increase in effort and yield of shark catches, as well as an expansion of the areas fished.
2. There is concern over the increase of shark catches and the consequences which this has for the populations of some shark species in several areas of the world's oceans. This is because sharks often have a close stock-recruitment relationship, long recovery times in response to over-fishing (low biological productivity because of late sexual maturity; few off-spring, albeit with low natural mortality) and complex spatial structures (size/sex segregation and seasonal migration).
3. The current state of knowledge of sharks and the practices employed in shark fisheries cause problems in the conservation and management of sharks due to lack of available catch, effort, landings and trade data, as well as limited information on the biological parameters of many species and their identification. In order to improve knowledge on the state of shark stocks and facilitate the collection of the necessary information, adequate funds are required for research and management.
4. The prevailing view is that it is necessary to better manage directed shark catches and certain multispecies fisheries in which sharks constitute a significant bycatch. In some cases the need for management may be urgent.
5. A few countries have specific management plans for their shark catches and their plans include control of access, technical measures including strategies for reduction of shark bycatches and support for full use of sharks. However, given the wide-ranging distribution of sharks, including on the high seas, and the long migration of many species, it is increasingly important to have international cooperation and coordination of shark management plans. At the present time there are few international management mechanisms effectively addressing the capture of sharks.
6. The Inter-American Tropical Tuna Commission, the International Council for the Exploration of the Sea, the International Commission for the Conservation of Atlantic Tunas, the Northwest Atlantic Fisheries Organization, the Sub-regional Fisheries Commission of West African States, the Latin American Organization for Fishery Development, the Indian Ocean Tuna Commission, the Commission for the Conservation of Southern Bluefin Tuna and the Oceanic Fisheries Programme of the Pacific Community have initiated efforts encouraging member countries to collect information about sharks, and in some cases developed regional databases for the purpose of stock assessment.
7. Noting the increased concern about the expanding catches of sharks and their potential negative impacts on shark populations, a proposal was made at the Twenty-second Session of the FAO Committee on Fisheries (COFI) in March 1997 that FAO organize an expert consultation, using extra-budgetary funds, to develop Guidelines leading to a Plan of Action to be submitted at the next Session of the Committee aimed at improved conservation and management of sharks.
8. This International Plan of Action for Conservation and Management of Sharks (IPOA-SHARKS) has been developed through the meeting of the Technical Working Group on the Conservation and Management of Sharks in Tokyo from 23 to 27 April 1998<sup>4</sup> and the Consultation on Management of Fishing Capacity, Shark Fisheries and Incidental Catch of Seabirds in Longline Fisheries held in Rome from 26 to 30 October 1998 and its preparatory meeting held in Rome from 22 to 24 July 1998<sup>5</sup>.
9. The IPOA-SHARKS consists of the nature and scope, principles, objective and procedures for implementation (including attachments) specified in this document. Nature and Scope
10. The IPOA-SHARKS is voluntary. It has been elaborated within the framework of the Code of Conduct for Responsible Fisheries as envisaged by Article 2 (d). The provisions of Article 3 of the Code of Conduct apply to the interpretation and application of this document and its relationship with other international instruments. All concerned States<sup>6</sup> are encouraged to implement it.

**ANNEX V****The International Plans of Action for the Conservation and Management of Sharks, Seabird Bycatch, Overcapacity, and IUU Fishing (cont'd)**

11. For the purposes of this document, the term "shark" is taken to include all species of sharks, skates, rays and chimaeras (Class *Chondrichthyes*), and the term "shark catch" is taken to include directed, bycatch, commercial, recreational and other forms of taking sharks.
12. The IPOA-SHARKS encompasses both target and non-target catches.

**Guiding principles**

13. *Participation.* States that contribute to fishing mortality on a species or stock should participate in its management.
14. *Sustaining stocks.* Management and conservation strategies should aim to keep total fishing mortality for each stock within sustainable levels by applying the precautionary approach.
15. *Nutritional and socio-economic considerations.* Management and conservation objectives and strategies should recognize that in some low-income food-deficit regions and/or countries, shark catches are a traditional and important source of food, employment and/or income. Such catches should be managed on a sustainable basis to provide a continued source of food, employment and income to local communities.

**Objective**

16. The objective of the IPOA-SHARKS is to ensure the conservation and management of sharks and their long-term sustainable use.

**Implementation**

17. The IPOA-SHARKS applies to States in the waters of which sharks are caught by their own or foreign vessels and to States the vessels of which catch sharks on the high seas.
18. States should adopt a national plan of action for conservation and management of shark stocks (*Shark-plan*) if their vessels conduct directed fisheries for sharks or if their vessels regularly catch sharks in non-directed fisheries. Suggested contents of the *Shark-plan* are found in Appendix A. When developing a *Shark-plan*, experience of subregional and regional fisheries management organizations should be taken into account, as appropriate.
19. Each State is responsible for developing, implementing and monitoring its *Shark-plan*.
20. States should strive to have a *Shark-plan* by the COFI Session in 2001.
21. States should carry out a regular assessment of the status of shark stocks subject to fishing so as to determine if there is a need for development of a shark plan. This assessment should be guided by article 6.13 of the Code of Conduct for Responsible Fisheries. The assessment should be reported as a part of each relevant State's *Shark-plan*. Suggested contents of a shark assessment report are found in Appendix B. The assessment would necessitate consistent collection of data, including *inter alia* commercial data and data leading to improved species identification and, ultimately, establishment of abundance indices. Data collected by States should, where appropriate, be made available to, and discussed within the framework of, relevant subregional and regional fisheries organizations and FAO. International collaboration on data collection and data sharing systems for stock assessments is particularly important in relation to transboundary, straddling, highly migratory and high seas shark stocks.
22. *The Shark-plan* should aim to:
  - Ensure that shark catches from directed and non-directed fisheries are sustainable;
  - Assess threats to shark populations, determine and protect critical habitats and implement harvesting strategies consistent with the principles of biological sustainability and rational long-term economic use;
  - Identify and provide special attention, in particular to vulnerable or threatened shark stocks;
  - Improve and develop frameworks for establishing and co-ordinating effective consultation involving all stakeholders in research, management and educational initiatives within and between States;
  - Minimize unutilized incidental catches of sharks;
  - Contribute to the protection of biodiversity and ecosystem structure and function;

## ANNEX V

## The International Plans of Action for the Conservation and Management of Sharks, Seabird Bycatch, Overcapacity, and IUU Fishing (cont'd)

- Minimize waste and discards from shark catches in accordance with article 7.2.2.(g) of the Code of Conduct for Responsible Fisheries (for example, requiring the retention of sharks from which fins are removed);
  - Encourage full use of dead sharks;
  - Facilitate improved species-specific catch and landings data and monitoring of shark catches;
  - Facilitate the identification and reporting of species-specific biological and trade data.
23. States which implement the *Shark-plan* should regularly, at least every four years, assess its implementation for the purpose of identifying cost-effective strategies for increasing its effectiveness.
  24. States which determine that a *Shark-plan* is not necessary should review that decision on a regular basis taking into account changes in their fisheries, but as a minimum, data on catches, landings and trade should be collected.
  25. States, within the framework of their respective competencies and consistent with international law, should strive to cooperate through regional and subregional fisheries organizations or arrangements, and other forms of cooperation, with a view to ensuring the sustainability of shark stocks, including, where appropriate, the development of subregional or regional shark plans.
  26. Where transboundary, straddling, highly migratory and high seas stocks of sharks are exploited by two or more States, the States concerned should strive to ensure effective conservation and management of the stocks.
  27. States should strive to collaborate through FAO and through international arrangements in research, training and the production of information and educational material.
  28. States should report on the progress of the assessment, development and implementation of their *Shark-plans* as part of their biennial reporting to FAO on the Code of Conduct for Responsible Fisheries.

### Role of FAO

29. FAO will, as and to the extent directed by its Conference, and as part of its Regular Programme activities, support States in the implementation of the IPOA-SHARKS, including the preparation of *Shark-plans*.
30. FAO will, as and to the extent directed by its Conference, support development and implementation of *Shark-plans* through specific, in-country technical assistance projects with Regular Programme funds and by use of extra-budgetary funds made available to the Organization for this purpose. FAO will provide a list of experts and a mechanism of technical assistance to countries in connection with development of *Shark-plans*.
31. FAO will, through COFI, report biennially on the state of progress in the implementation of the IPOA-SHARKS.

**ANNEX Y****The International Plans of Action for the Conservation and Management of Sharks, Seabird Bycatch, Overcapacity, and IUU Fishing (cont'd)****Appendix A Suggested Contents of a Shark Plan****I. BACKGROUND**

When managing fisheries for sharks, it is important to consider that the state of knowledge of sharks and the practices employed in shark catches may cause problems in the conservation and management of sharks, in particular:

- Taxonomic problems
- Inadequate available data on catches, effort and landings for sharks
- Difficulties in identifying species after landing
- Insufficient biological and environmental data
- Lack of funds for research and management of sharks
- Little coordination on the collection of information on transboundary, straddling, highly migratory and high seas stocks of sharks
- Difficulty in achieving shark management goals in multispecies fisheries in which sharks are caught.

**II. CONTENT OF THE SHARK-PLAN**

The Technical Guidelines on the Conservation and Management of Sharks, under development by FAO, provide detailed technical guidance, both on the development and the implementation of the *Shark plan*. Guidance will be provided on:

- Monitoring
- Data collection and analysis
- Research
- Building of human capacity
- Implementation of management measures

The *Shark-plan* should contain:

## A. Description of the prevailing state of:

- Shark stocks, populations;
- Associated fisheries: and.
- Management framework and its enforcement.

B. The objective of the *Shark-plan*.

## C. Strategies for achieving objectives. The following are illustrative examples of what could be included:

- Ascertain control over access of fishing vessels to shark stocks
- Decrease fishing effort in any shark where catch is unsustainable
- Improve the utilization of sharks caught
- Improve data collection and monitoring of shark fisheries
- Train all concerned in identification of shark species
- Facilitate and encourage research on little known shark species
- Obtain utilization and trade data on shark species

**ANNEX Y****The International Plans of Action for the Conservation and Management of Sharks, Seabird Bycatch, Overcapacity, and IUU Fishing (cont'd)****Appendix B Suggested Contents of a Shark Assessment Report**

A shark assessment report should *inter alia* contain the following information:

- Past and present trends for:
  - Effort: directed and non-directed fisheries; all types of fisheries;
  - Yield: physical and economic
- Status of stocks
- Existing management measures:
  - Control of access to fishing grounds
  - Technical measures (including by-catch reduction measures, the existence of sanctuaries and closed seasons)
  - Others
  - Monitoring, control and surveillance
- Effectiveness of management measures
- Possible modifications of management measures.

**ANNEX V**

**The International Plans of Action for the Conservation and Management of Sharks, Seabird Bycatch, Overcapacity, and IUU Fishing (cont'd)**

**ANNEX V.III.**

**International Plan of Action for the Management of Fishing Capacity**

**Introduction**

1. In the context of the Code of Conduct for Responsible Fisheries and its overall objective of sustainable fisheries, the issues of excess fishing capacity in world fisheries is an increasing concern. Excessive fishing capacity is a problem that, among others, contributes substantially to overfishing, the degradation of marine fisheries resources, the decline of food production potential, and significant economic waste.
2. The Code of Conduct provides that States should take measures to prevent or eliminate excess fishing capacity and should ensure that levels of fishing effort are commensurate with sustainable use of fishery resources.
3. At its last Session in 1997, the Committee on Fisheries (COFI), requested FAO to address the issue of fishing capacity. FAO organized a Technical Working Group on the Management of Fishing Capacity in La Jolla, USA, from 15 to 18 April 1998. A subsequent FAO consultation was held in Rome from 26 to 30 October 1998, preceded by a preparatory meeting from 22 to 24 July 1998.

**PART I - NATURE AND SCOPE OF THE INTERNATIONAL PLAN OF ACTION**

4. The International Plan of Action is voluntary. It has been elaborated within the framework of the Code of Conduct for Responsible Fisheries as envisaged by Article 2 (d). The provisions of Article 3 of the Code apply to the interpretation and application of this International Plan of Action and its relationship with other international instruments.
5. This document is in furtherance of the commitment of all States<sup>7</sup> to implement the Code of Conduct. States and regional\* fisheries organizations should apply this document consistently with international law and within the framework of the respective competencies of the organizations concerned.
6. The International Plan of Action constitutes an element of fishery conservation and sustainable management.

**PART II - OBJECTIVE AND PRINCIPLES**

7. The immediate objective of the International Plan of Action is for States and regional fisheries organizations, to achieve world-wide preferably by 2003, but not later than 2005, an efficient, equitable and transparent management of fishing capacity. *Inter alia*, States and regional fisheries organizations confronted with an overcapacity problem, where capacity is undermining achievement of long-term sustainability outcomes, should endeavour initially to limit at present level and progressively reduce the fishing capacity applied to affected fisheries. Where long-term sustainability outcomes are being achieved, States and regional fisheries organizations nevertheless need to exercise caution to avoid growth in capacity undermining long-term sustainability objectives.
8. The above objective may be achieved through a series of actions related to four major strategies:
  - i. the conduct of national, regional and global assessments of capacity and improvement of the capability for monitoring fishing capacity;
  - ii. the preparation and implementation of national plans to effectively manage fishing capacity and of immediate actions for coastal fisheries requiring urgent measures;
  - iii. the strengthening of regional fisheries organizations and related mechanisms for improved management of fishing capacity at regional and global levels;
  - iv. immediate actions for major transboundary, straddling, highly migratory and high seas fisheries requiring urgent measures.

These strategies may be implemented through complementary mechanisms to promote implementation of this international Plan of Action: awareness building and education, technical co-operation at the international level, and co-ordination.

## ANNEX V

## The International Plans of Action for the Conservation and Management of Sharks, Seabird Bycatch, Overcapacity, and IUU Fishing (cont'd)

9. The management of fishing capacity should be based on the Code of Conduct for Responsible Fisheries and take into consideration the following major principles and approaches:
- i. *Participation*: The International Plan of Action should be implemented by States either directly, in co-operation with other States, or through FAO in co-operation with other appropriate intergovernmental organizations, including regional fisheries organizations. States and regional fisheries organizations, as appropriate, are encouraged to give effect to it and to inform FAO of actions taken to implement it. FAO will regularly provide information about its implementation.
  - ii. *Phased implementation*: The management of fishing capacity on the basis of national and regional plans should be achieved through the following three phases: assessment and diagnosis (preliminary analysis to be completed by the end of 2000), adoption of management measures (preliminary steps to be adopted by the end of 2002) and periodic adjustment of such assessment and diagnosed measures, as appropriate. States and regional fisheries organizations should complete these steps and progressively implement by 2005 the complementary measures specified in the International Plan of Action.
  - iii. *Holistic approach*: The management of fishing capacity should consider all factors affecting capacity in both national and international waters;
  - iv. *Conservation*. The management of fishing capacity should be designed to achieve the conservation and sustainable use of fish stocks and the protection of the marine environment consistent with the precautionary approach, the need to minimize by-catch, waste and discard and ensure selective and environmentally safe fishing practices, the protection of biodiversity in the marine environment, and the protection of habitat, in particular habitats of special concern.
  - v. *Priority*: Priority should be given to managing the fishing capacity in those fisheries in which there already unequivocally exists overfishing;
  - vi. *New technologies*: The management of fishing capacity should be designed so that it takes into account the incorporation of environmentally sound and evolving technology in all areas of capture fisheries.
  - vii. *Mobility*: The management of fishing capacity should encourage efficient use of fishing capacity and discourage mobility when it negatively affects sustainability and take due account of socio-economic performances in other fisheries;
  - viii. *Transparency*: The International Plan of Action should be implemented in a transparent manner in accordance with Article 6.13 of the Code of Conduct.
10. The implementation of the International Plan of Action should be based on the Code of Conduct, particularly Article 5, in relation to enhancing the ability of developing countries, to develop their own fisheries as well as to participate in high seas fisheries, including access to such fisheries, in accordance with their legitimate rights and their obligations under international law.

### PART III - URGENT ACTIONS

#### Section I: Assessment and monitoring of fishing capacity

##### *Measurement of fishing capacity*

11. States should support coordinated efforts and research at national, regional and global levels to better understand the fundamental aspects of issues related to the measurement and monitoring of fishing capacity.
12. States should support the organization by FAO of a technical consultation to be held as early as possible in 1999 on the definition and measurement of fishing capacity and the subsequent preparation of technical guidelines for data collection and analysis, noting that the result of this consultation should provide specific guidance for preliminary assessments of fishing capacity and excess fishing capacity at national, regional and global levels.

##### *Diagnosis and identification of fisheries and fleets requiring urgent measures*

13. States should proceed, by the end of 2000, with a preliminary assessment of the fishing capacity deployed at the national level in relation to all the fleets of principal fisheries and update this assessment periodically.

**ANNEX V****The International Plans of Action for the Conservation and Management of Sharks, Seabird Bycatch, Overcapacity, and IUU Fishing (cont'd)**

14. States should proceed, by the end of 2001, with the systematic identification of national fisheries and fleets requiring urgent measures and update this analysis periodically.
15. States should cooperate, within the same time frame, in the organization of similar preliminary assessments of fishing capacity at the regional level (within the relevant regional fisheries organizations or in collaboration with them, as appropriate) and at the global level (in collaboration with FAO) for transboundary, straddling, highly migratory and high seas fisheries, as well as in the identification of regional or global fisheries and fleets requiring urgent measures.

***Establishment of records of fishing vessels***

16. States should support FAO in the development of appropriate and compatible standards for records of fishing vessels.
17. States should develop and maintain appropriate and compatible national records of fishing vessels, further specifying conditions for access to information.
18. While awaiting the entry into force of the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (Compliance Agreement), States should support the establishment by FAO by the end of 2000 of an international record of fishing vessels operating in the high seas, following the model indicated in the Compliance Agreement.

**Section II: Preparation and implementation of national plans*****Development of national plans and policies***

19. States should develop, implement and monitor national plans of action for managing fishing capacity, taking into account, *inter alia*, the effect of different resource management systems on fishing capacity.
20. States should develop the means to monitor fishing capacity systematically and accurately, and to regularly assess any imbalance with available fishery resources and management objectives.
21. States should develop, adopt and make public, by the end of 2002, national plans for the management of fishing capacity and, if required, reduce fishing capacity in order to balance fishing capacity with available resources on a sustainable basis. These should be based on an assessment of fish stocks and giving particular attention to cases requiring urgent measures and taking immediate steps to address the management of fishing capacity for stocks recognized as significantly overfished.
22. States should give due consideration, in the development of national plans, to socio-economic requirements, including the consideration of alternative sources of employment and livelihood to fishing communities which must bear the burden of reductions in fishing capacity.
23. When it has been found that a national plan to manage capacity is not necessary, States should ensure that the matter of fishing capacity is addressed in an ongoing manner in fishery management.
24. At least every four years, States should review the implementation of their national plans to manage capacity for the purpose of identifying cost effective strategies for increasing effectiveness.

***Subsidies and economic incentives***

25. When developing their national plans for the management of fishing capacity, States should assess the possible impact of all factors, including subsidies, contributing to overcapacity on the sustainable management of their fisheries, distinguishing between factors, including subsidies, which contribute to overcapacity and unsustainability and those which produce a positive effect or are neutral.
26. States should reduce and progressively eliminate all factors, including subsidies and economic incentives and other factors which contribute, directly or indirectly, to the build-up of excessive fishing capacity thereby undermining the sustainability of marine living resources, giving due regard to the needs of artisanal fisheries.

**ANNEX V****The International Plans of Action for the Conservation and Management of Sharks, Seabird Bycatch, Overcapacity, and IUU Fishing (cont'd)*****Regional considerations***

27. States should cooperate, where appropriate, through regional fisheries organizations or arrangements and other forms of co-operation, with a view to ensuring the effective management of fishing capacity.
28. States should strive to collaborate through FAO and through international arrangements in research, training and the production of information and educational material aiming to promote effective management of fishing capacity.

**Section III: International considerations**

29. States should consider participating in international agreements which relate to the management of fishing capacity, and in particular, the Compliance Agreement and the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks.
30. States should support co-operation and the exchange of information among all regional fisheries organizations in accordance with their procedures.
31. States should take steps to manage the fishing capacity of their vessels involved in high seas fisheries and cooperate, as appropriate with other States, in reducing the fishing capacity applied to overfished high seas stocks.
32. States should improve, through regional fisheries organizations where appropriate, and in collaboration with FAO, the collection of data on catches on the high seas as well as in the coastal area by their fleet.
33. States should recognize the need to deal with the problem of those States which do not fulfil their responsibilities under international law as flag States with respect to their fishing vessels, and in particular those which do not exercise effectively their jurisdiction and control over their vessels which may operate in a manner that contravenes or undermines the relevant rules of international law and international conservation and management measures. States should also support multilateral co-operation to ensure that such flag States contribute to regional efforts to manage fishing capacity.
34. States should be encouraged to become members of regional fisheries organizations or arrangements, or agree to apply the conservation and management measures established by such organizations or arrangements to their vessels.
35. States should promote, with the assistance of FAO, the exchange of information about the fishing activity of vessels which do not comply with conservation and management measures adopted by regional fisheries organizations and arrangements, consistent with Article VI of the Compliance Agreement.
36. Anticipating the entry into force of the Compliance Agreement, States should strive to apply the provisions of Article III of that Agreement.
37. States should ensure that no transfer of capacity to the jurisdiction of another State should be carried out without the express consent and formal authorization of that State.
38. States should, in compliance with their duties as flag States, avoid approving the transfer of vessels flying their flag to high seas areas where such transfers are inconsistent with responsible fishing under the Code of Conduct.

**Section IV: Immediate actions for major international fisheries requiring urgent measures**

39. States should take immediate steps to address the management of fishing capacity for international fisheries requiring urgent attention, with priority being given to those harvesting transboundary, straddling, highly migratory and high seas stocks which are significantly overfished.
40. Within the framework of their respective competencies, States should act individually, bilaterally and multilaterally, as appropriate, to reduce substantially' the fleet capacity applied to these resources as part of management strategies to restore overfished stocks to sustainable levels considering, in addition to the other relevant provisions of the International Plan of Action:
  - i. the economic importance of the fleets catching overfished stocks and the need to limit these fleets to a level commensurate with stock sustainability and economic viability; and

**ANNEX V****The International Plans of Action for the Conservation and Management of Sharks, Seabird Bycatch, Overcapacity, and IUU Fishing (cont'd)**

- ii. the use of appropriate measures to control the transfer of overcapacity to fully exploited or overexploited fisheries, taking into consideration the condition of the fish stocks.

**PART IV - MECHANISMS TO PROMOTE IMPLEMENTATION**

- 41. States should develop information programmes at national, regional and global levels to increase awareness about the need for the management of fishing capacity, and the cost and benefits resulting from adjustments in fishing capacity.

***Scientific and technical co-operation***

- 42. States should support the exchange of scientific and technical information on issues related to the management of fishing capacity and promote its world-wide availability using existing regional and global fora.
- 43. States should support training and institutional strengthening and consider providing financial, technical and other assistance to developing countries on issues related to the management of fishing capacity.

***Reporting***

- 44. States should report to FAO on progress on assessment, development and implementation of their plans for the management of fishing capacity as part of their biennial reporting to FAO on the Code of Conduct.

***Role of FAO***

- 45. FAO will, as and to the extent directed by its Conference, collect all relevant information and data which might serve as a basis for further analysis aimed at identifying factors contributing to overcapacity such as, inter alia, lack of input and output control, unsustainable fishery management methods and subsidies which contribute to overcapacity.
- 46. FAO will, as and to the extent directed by its Conference, and as part of its Regular Programme activities, support States in the implementation of their national plans for the management of fishing capacity.
- 47. FAO will, as directed by its Conference, support development and implementation of national plans for the management of fishing capacity through specific, in-country technical assistance projects with Regular Programme funds and by use of extra-budgetary funds made available to the Organization for this purpose.
- 48. FAO will, through COFI, report biennially on the state of progress in the implementation of the International Plan of Action.

**Endnotes**

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- 1 See "Report of the FAO Technical Working Group Meeting on Reduction of Incidental Catch of Seabirds in Longline Fisheries". Tokyo, Japan, 25-27 March 1998. FAO Fisheries Report No. 585.
  - 2 See "Report of the Preparatory Meeting for the Consultation on the Management of Fishing Capacity, Shark Fisheries and Incidental Catch of Seabirds in Longline Fisheries". Rome, Italy, 22-24 July 1998. FAO Fisheries Report No. 584.
  - 3 In this document the term "State" includes Members and non-members of FAO and applies mutatis mutandis also to "fishing entities" other than States.
  - 4 See: "Report of the FAO Technical Working Group on the Conservation and Management of Sharks". Tokyo, Japan, 23-27 April 1998. FAO Fisheries Report No. 583.
  - 5 See "Report of the Preparatory Meeting for the Consultation on the Management of Fishing Capacity, Shark Fisheries and Incidental Catch of Seabirds in Longline Fisheries." Rome, Italy, 22-24 July, 1998. FAO Fisheries Report No. 584.
  - 6 In this document, the term "State" includes Members and non-members of FAO and applies mutatis mutandis also to "fishing entities" other than States.
  - 7 In this document, the term "State" includes Members and non-members of FAO and applies mutatis mutandis also to "fishing entities" other than States.
  - 8 In this document, the term "regional" includes sub-regional, as appropriate.
  - 9 The required reduction would vary from fishery to fishery; e.g. a 20 to 30% reduction was mentioned for large-scale tuna long line fleet (Report of the FAO Technical Working Group on the Management of Fishing Capacity. La Jolla, United States of America, 15-18 April 1998. FAO Fisheries Report No. 586).

**ANNEX V****The International Plans of Action for- the Conservation and Management of Sharks, Seabird Bycatch, Overcapacity, and IUU Fishing (cont'd)****ANNEX V.IV.****International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated (IUU) Fishing****I. INTRODUCTION**

1. In the context of the Code of Conduct for Responsible Fisheries and its overall objective of sustainable fisheries, the issue of illegal, unreported and unregulated (IUU) fishing in world fisheries is of serious and increasing concern. IUU fishing undermines efforts to conserve and manage fish stocks in all capture fisheries. When confronted with IUU fishing, national and regional fisheries management organizations can fail to achieve management goals. This situation leads to the loss of both short and long-term social and economic opportunities and to negative effects on food security and environmental protection. IUU fishing can lead to the collapse of a fishery or seriously impair efforts to rebuild stocks that have already been depleted. Existing international instruments addressing IUU fishing have not been effective due to a lack of political will, priority, capacity and resources to ratify or accede to and implement them.
2. The Twenty-third Session of the FAO Committee on Fisheries (COFI) in February 1999 addressed the need to prevent, deter and eliminate IUU fishing. The Committee was concerned about information presented indicating increases in IUU fishing, including fishing vessels flying "flags of convenience". Shortly afterwards, an FAO Ministerial Meeting on Fisheries in March 1999 declared that, without prejudice to the rights and obligations of States under international law, FAO "will develop a global plan of action to deal effectively with all forms of illegal, unregulated and unreported fishing including fishing vessels flying "flags of convenience" through coordinated efforts by States, FAO, relevant regional fisheries management bodies and other relevant international agencies such as the International Maritime Organization (IMO), as provided in Article IV of the Code of Conduct. The Government of Australia, in cooperation with FAO, organized an Expert Consultation on Illegal, Unreported and Unregulated Fishing in Sydney, Australia, from 15 to 19 May 2000. Subsequently, an FAO Technical Consultation on Illegal, Unreported and Unregulated Fishing was held in Rome from 2 to 6 October 2000 and a further Technical Consultation was held in Rome from 22 to 23 February 2001. The draft International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing was adopted by the Consultation on 23 February 2001 with a request that the report be submitted to the Twenty-fourth Session of COFI for consideration and eventual adoption. COFI approved the International Plan of Action, by consensus, on 2 March 2001. In doing so, the Committee urged all Members to take the necessary steps to effectively implement the International Plan of Action.

**II. NATURE AND SCOPE OF IUU FISHING AND THE INTERNATIONAL PLAN OF ACTION**

3. In this document:
  - 3.1 Illegal fishing refers to activities:
    - 3.1.1 conducted by national or foreign vessels in waters under the jurisdiction of a State, without the permission of that State, or in contravention of its laws and regulations;
    - 3.1.2 conducted by vessels flying the flag of States that are parties to a relevant regional fisheries management organization but operate in contravention of the conservation and management measures adopted by that organization and by which the States are bound, or relevant provisions of the applicable international law; or
    - 3.1.3 in violation of national laws or international obligations, including those undertaken by cooperating States to a relevant regional fisheries management organization.
  - 3.2 Unreported fishing refers to fishing activities:
    - 3.2.1 which have not been reported, or have been misreported, to the relevant national authority, in contravention of national laws and regulations; or
    - 3.2.2 undertaken in the area of competence of a relevant regional fisheries management organization which have not been reported or have been misreported, in contravention of the reporting procedures of that organization.

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- 3.3 Unregulated fishing refers to fishing activities:
- 3.3.1 in the area of application of a relevant regional fisheries management organization that are conducted by vessels without nationality, or by those flying the flag of a State not party to that organization, or by a fishing entity, in a manner that is not consistent with or contravenes the conservation and management measures of that organization; or
  - 3.3.2 in areas or for fish stocks in relation to which there are no applicable conservation or management measures and where such fishing activities are conducted in a manner inconsistent with State responsibilities for the conservation of living marine resources under international law.
- 3.4 Notwithstanding paragraph 3.3, certain unregulated fishing may take place in a manner which is not in violation of applicable international law, and may not require the application of measures envisaged under the International Plan of Action (IPOA).
4. The IPOA is voluntary. It has been elaborated within the framework of the FAO Code of Conduct for Responsible Fisheries as envisaged by Article 2 (d).
5. The FAO Code of Conduct for Responsible Fisheries, in particular Articles 1.1, 1.2, 3.1, and 3.2 applies to the interpretation and application of this IPOA and its relationship with other international instruments. The IPOA is also directed as appropriate towards fishing entities as referred to in the Code of Conduct. The IPOA responds to fisheries specific issues and nothing in it prejudices the positions of States in other fora.
6. In this document:
- (a) the reference to States includes regional economic integration organizations in matters within their competence;
  - (b) the term "regional" includes sub-regional, as appropriate;
  - (c) the term "regional fisheries management organization" means an intergovernmental fisheries organization or arrangement, as appropriate, that has the competence to establish fishery conservation and management measures;
  - (d) the term "conservation and management measures" means measures to conserve one or more species of living marine resources that are adopted and applied consistent with the relevant rules of international law;
  - (e) the term "1982 UN Convention" refers to the United Nations Convention on the Law of the Sea of 10 December 1982;
  - (f) the term "1993 FAO Compliance Agreement" refers to the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas, approved by the FAO Conference on 24 November 1993.
  - (g) the term "1995 UN Fish Stocks Agreement" refers to the Agreement for the Implementation of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks; and
  - (h) the term "Code of Conduct" refers to the FAO Code of Conduct for Responsible Fisheries.
7. This document is a further commitment by all States to implement the Code of Conduct.

**III OBJECTIVE AND PRINCIPLES**

8. The objective of the IPOA is to prevent, deter and eliminate IUU fishing by providing all States with comprehensive, effective and transparent measures by which to act, including through appropriate regional fisheries management organizations established in accordance with international law.
9. The IPOA to prevent, deter and eliminate IUU fishing incorporates the following principles and strategies. Due consideration should be given to the special requirements of developing countries in accordance with Article 5 of the Code of Conduct.
- 9.1 Participation and coordination: To be fully effective, the IPOA should be implemented by all States either directly, in cooperation with other States, or indirectly through relevant regional fisheries management organizations or through FAO and other appropriate international organizations. An important element in successful implementation will be close and effective coordination and consultation, and

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the sharing of information to reduce the incidence of IUU fishing, among States and relevant regional and global organizations. The full participation of stakeholders in combating IUU fishing, including industry, fishing communities, and non-governmental organizations, should be encouraged.

- 9.2 Phased implementation: Measures to prevent, deter and eliminate IUU fishing should be based on the earliest possible phased implementation of national plans of action, and regional and global action in accordance with the IPOA.
- 9.3 Comprehensive and integrated approach: Measures to prevent, deter and eliminate IUU fishing should address factors affecting all capture fisheries. In taking such an approach, States should embrace measures building on the primary responsibility of the flag State and using all available jurisdiction in accordance with international law, including port State measures, coastal State measures, market-related measures and measures to ensure that nationals do not support or engage in IUU fishing. States are encouraged to use all these measures, where appropriate, and to cooperate in order to ensure that measures are applied in an integrated manner. The action plan should address all economic, social and environmental impacts of IUU fishing.
- 9.4 Conservation: Measures to prevent, deter and eliminate IUU fishing should be consistent with the conservation and long-term sustainable use of fish stocks and the protection of the environment.
- 9.5 Transparency: The IPOA should be implemented in a transparent manner in accordance with Article 6.13 of the Code of Conduct.
- 9.6 Non-discrimination: The IPOA should be developed and applied without discrimination in form or in fact against any State or its fishing vessels.

**IV. IMPLEMENTATION OF MEASURES TO PREVENT, DETER AND ELIMINATE IUU FISHING****ALL STATE RESPONSIBILITIES*****International Instruments***

10. States should give full effect to relevant norms of international law, in particular as reflected in the 1982 UN Convention, in order to prevent, deter and eliminate IUU fishing.
11. States are encouraged, as a matter of priority, to ratify, accept or accede to, as appropriate, the 1982 UN Convention, the 1995 UN Fish Stocks Agreement and the 1993 FAO Compliance Agreement. Those States that have not ratified, accepted or acceded to these relevant international instruments should not act in a manner inconsistent with these instruments.
12. States should implement fully and effectively all relevant international fisheries instruments which they have ratified, accepted or acceded to.
13. Nothing in the IPOA affects, or should be interpreted as affecting, the rights and obligations of States under international law. Nothing in the IPOA affects, or should be interpreted as affecting, the rights and obligations contained in the 1995 UN Fish Stocks Agreement and the 1993 FAO Compliance Agreement, for States parties to those instruments.
14. States should fully and effectively implement the Code of Conduct and its associated International Plans of Action.
15. States whose nationals fish on the high seas in fisheries not regulated by a relevant regional fisheries management organization should fully implement their obligations under Part VII of the 1982 UN Convention to take measures with respect to their nationals as may be necessary for the conservation of the living resources of the high seas.

***National legislation*****Legislation**

16. National legislation should address in an effective manner all aspects of IUU fishing.
17. National legislation should address, inter alia, evidentiary standards and admissibility including, as appropriate, the use of electronic evidence and new technologies.

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### State Control over Nationals

18. In the light of relevant provisions of the 1982 UN Convention, and without prejudice to the primary responsibility of the flag State on the high seas, each State should, to the greatest extent possible, take measures or cooperate to ensure that nationals subject to their jurisdiction do not support or engage in IUU fishing. All States should cooperate to identify those nationals who are the operators or beneficial owners of vessels involved in IUU fishing.
19. States should discourage their nationals from flagging fishing vessels under the jurisdiction of a State that does not meet its flag State responsibilities.

### Vessels without Nationality

20. States should take measures consistent with international law in relation to vessels without nationality on the high seas involved in IUU fishing.

### Sanctions

21. States should ensure that sanctions for IUU fishing by vessels and, to the greatest extent possible, nationals under its jurisdiction are of sufficient severity to effectively prevent, deter and eliminate IUU fishing and to deprive offenders of the benefits accruing from such fishing. This may include the adoption of a civil sanction regime based on an administrative penalty scheme. States should ensure the consistent and transparent application of sanctions.

### Non Cooperating States

22. All possible steps should be taken, consistent with international law, to prevent, deter and eliminate the activities of non-cooperating States to a relevant regional fisheries management organization which engage in IUU fishing.

### Economic Incentives

23. States should, to the extent possible in their national law, avoid conferring economic support, including subsidies, to companies, vessels or persons that are involved in IUU fishing.

### Monitoring, Control and Surveillance

24. States should undertake comprehensive and effective monitoring, control and surveillance (MCS) of fishing from its commencement, through the point of landing, to final destination, including by:
  - 24.1 developing and implementing schemes for access to waters and resources, including authorization schemes for vessels;
  - 24.2 maintaining records of all vessels and their current owners and operators authorized to undertake fishing subject to their jurisdiction;
  - 24.3 implementing, where appropriate, a vessel monitoring system (VMS), in accordance with the relevant national, regional or international standards, including the requirement for vessels under their jurisdiction to carry VMS on board;
  - 24.4 implementing, where appropriate, observer programmes in accordance with relevant national, regional or international standards, including the requirement for vessels under their jurisdiction to carry observers on board;
  - 24.5 providing training and education to all persons involved in MCS operations;
  - 24.6 planning, funding and undertaking MCS operations in a manner that will maximize their ability to prevent, deter and eliminate IUU fishing;
  - 24.7 promoting industry knowledge and understanding of the need for, and their cooperative participation in, MCS activities to prevent, deter and eliminate IUU fishing;
  - 24.8 promoting knowledge and understanding of MCS issues within national judicial systems;
  - 24.9 establishing and maintaining systems for the acquisition, storage and dissemination of MCS data, taking into account applicable confidentiality requirements;
  - 24.10 ensuring effective implementation of national and, where appropriate, internationally agreed boarding and inspection regimes consistent

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with international law, recognizing the rights and obligations of masters and of inspection officers, and noting that such regimes are provided for in certain international agreements, such as the 1995 UN Fish Stocks Agreement, and only apply to the parties to those agreements.

***National Plans of Action***

25. States should develop and implement, as soon as possible but not later than three years after the adoption of the IPOA, national plans of action to further achieve the objectives of the IPOA and give full effect to its provisions as an integral part of their fisheries management programmes and budgets. These plans should also include, as appropriate, actions to implement initiatives adopted by relevant regional fisheries management organizations to prevent, deter and eliminate IUU fishing. In doing so, States should encourage the full participation and engagement of all interested stakeholders, including industry, fishing communities and non-governmental organizations.
26. At least every four years after the adoption of their national plans of action, States should review the implementation of these plans for the purpose of identifying cost-effective strategies to increase their effectiveness and to take into account their reporting obligations to FAO under Part VI of the IPOA.
27. States should ensure that national efforts to prevent, deter and eliminate IUU fishing are internally coordinated.

***Cooperation between States***

28. States should coordinate their activities and cooperate directly, and as appropriate through relevant regional fisheries management organizations, in preventing, deterring and eliminating IUU fishing. In particular, States should:
  - 28.1 exchange data or information, preferably in standardized format, from records of vessels authorized by them to fish, in a manner consistent with any applicable confidentiality requirements;
  - 28.2 cooperate in effective acquisition, management and verification of all relevant data and information from fishing;
  - 28.3 allow and enable their respective MCS practitioners or enforcement personnel to cooperate in the investigation of IUU fishing, and to this end States should collect and maintain data and information relating to such fishing;
  - 28.4 cooperate in transferring expertise and technology;
  - 28.5 cooperate to make policies and measures compatible;
  - 28.6 develop cooperative mechanisms that allow, inter alia, rapid responses to IUU fishing; and
  - 28.7 cooperate in monitoring, control and surveillance, including through international agreements.
29. In the light of Article VI of the 1993 FAO Compliance Agreement, flag States should make available to FAO and, as appropriate, to other States and relevant regional or international organizations, information about vessels deleted from their records or whose authorization to fish has been cancelled and to the extent possible, the reasons therefor.
30. In order to facilitate cooperation and exchange of information, each State and regional or international organization should nominate and publicize initial formal contact points.
31. Flag States should consider entering into agreements or arrangements with other States and otherwise cooperate for the enforcement of applicable laws and conservation and management measures or provisions adopted at a national, regional or global level.

***Publicity***

32. States should publicize widely, including through cooperation with other States, full details of IUU fishing and actions taken to eliminate it, in a manner consistent with any applicable confidentiality requirements.

***Technical Capacity and Resources***

33. States should endeavour to make available the technical capacity and resources which are needed to implement the IPOA. This should include, where appropriate, the establishment of special funds at the national, regional or global level. In this respect, international cooperation should play an important role.

**ANNEX V****The International Plans of Action for the Conservation and Management of Sharks, Seabird Bycatch, Overcapacity, and IUU Fishing (cont'd)****FLAG STATE RESPONSIBILITIES*****Fishing Vessel Registration***

34. States should ensure that fishing vessels entitled to fly their flag do not engage in or support IUU fishing.
35. A flag State should ensure, before it registers a fishing vessel, that it can exercise its responsibility to ensure that the vessel does not engage in IUU fishing.
36. Flag States should avoid flagging vessels with a history of non-compliance except where:
  - 36.1 the ownership of the vessel has subsequently changed and the new owner has provided sufficient evidence demonstrating that the previous owner or operator has no further legal, beneficial or financial interest in, or control of, the vessel; or
  - 36.2 having taken into account all relevant facts, the flag State determines that flagging the vessel would not result in IUU fishing.
37. All States involved in a chartering arrangement, including flag States and other States that accept such an arrangement, should, within the limits of their respective jurisdictions, take measures to ensure that chartered vessels do not engage in IUU fishing.
38. Flag States should deter vessels from reflagging for the purposes of non-compliance with conservation and management measures or provisions adopted at a national, regional or global level. To the extent practicable, the actions and standards flag States adopt should be uniform to avoid creating incentives for vessel owners to reflag their vessels to other States.
39. States should take all practicable steps, including denial to a vessel of an authorization to fish and the entitlement to fly that State's flag, to prevent "flag hopping"; that is to say, the practice of repeated and rapid changes of a vessel's flag for the purposes of circumventing conservation and management measures or provisions adopted at a national, regional or global level or of facilitating non-compliance with such measures or provisions.
40. Although the functions of registration of a vessel and issuing of an authorization to fish are separate, flag States should consider conducting these functions in a manner which ensures each gives appropriate consideration to the other. Flag States should ensure appropriate links between the operation of their vessel registers and the record those States keep of their fishing vessels. Where such functions are not undertaken by one agency, States should ensure sufficient cooperation and information sharing between the agencies responsible for those functions.
41. A Flag State should consider making its decision to register a fishing vessel conditional upon its being prepared to provide to the vessel an authorization to fish in waters under its jurisdiction, or on the high seas, or conditional upon an authorization to fish being issued by a coastal State to the vessel when it is under the control of that flag State.

***Record of Fishing Vessels***

42. Each flag State should maintain a record of fishing vessels entitled to fly its flag. Each flag State's record of fishing vessels should include, for vessels authorized to fish on the high seas, all the information set out in paragraphs 1 and 2 of Article VI of the 1993 FAO Compliance Agreement, and may also include, *inter alia*:
  - 42.1 the previous names, if any and if known;
  - 42.2 name, address and nationality of the natural or legal person in whose name the vessel is registered;
  - 42.3 name, street address, mailing address and nationality of the natural or legal persons responsible for managing the operations of the vessel;
  - 42.4 name, street address, mailing address and nationality of natural or legal persons with beneficial ownership of the vessel;
  - 42.5 name and ownership history of the vessel, and, where this is known, the history of non-compliance by that vessel, in accordance with national laws, with conservation and management measures or provisions adopted at a national, regional or global level; and
  - 42.6 vessel dimensions, and where appropriate, a photograph, taken at the time of registration or at the conclusion of any more recent structural alterations, showing a side profile view of the vessel.

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43. Flag States may also require the inclusion of the information in paragraph 42 in their record of fishing vessels that are not authorized to fish on the high seas.

***Authorization to Fish***

44. States should adopt measures to ensure that no vessel be allowed to fish unless so authorized, in a manner consistent with international law for the high seas, in particular the rights and duties set out in articles 116 and 117 of the 1982 UN Convention, or in conformity with national legislation within areas of national jurisdiction.
45. A flag State should ensure that each of the vessels entitled to fly its flag fishing in waters outside its sovereignty or jurisdiction holds a valid authorization to fish issued by that flag State. Where a coastal State issues an authorization to fish to a vessel, that coastal State should ensure that no fishing in its waters occurs without an authorization to fish issued by the flag State of the vessel.
46. Vessels should have an authorization to fish and where required carry it on board. Each State's authorization should include, but need not be limited to:
- 46.1 the name of the vessel, and, where appropriate, the natural or legal person authorized to fish;
  - 46.2 the areas, scope and duration of the authorization to fish; and
  - 46.3 the species, fishing gear authorized, and where appropriate, other applicable management measures.
47. Conditions under which an authorization is issued may also include, where required:
- 47.1 vessel monitoring systems;
  - 47.2 catch reporting conditions, such as:
    - 47.2.1 time series of catch and effort statistics by vessel;
    - 47.2.2 total catch in number, nominal weight, or both, by species (both target and non-target) as is appropriate to each fishery period (nominal weight is defined as the live weight equivalent of the catch);
    - 47.2.3 discard statistics, including estimates where necessary, reported as number or nominal weight by species, as is appropriate to each fishery;
    - 47.2.4 effort statistics appropriate to each fishing method; and
    - 47.2.5 fishing location, date and time fished and other statistics on fishing operations.
  - 47.3 reporting and other conditions for transshipping, where transshipping is permitted;
  - 47.4 observer coverage;
  - 47.5 maintenance of fishing and related log books;
  - 47.6 navigational equipment to ensure compliance with boundaries and in relation to restricted areas;
  - 47.7 compliance with applicable international conventions and national laws and regulations in relation to maritime safety, protection of the marine environment, and conservation and management measures or provisions adopted at a national, regional or global level;
  - 47.8 marking of its fishing vessels in accordance with internationally recognized standards, such as the FAO Standard Specification and Guidelines for the Marking and Identification of Fishing Vessels. Vessels' fishing gear should similarly be marked in accordance with internationally recognized standards;
  - 47.9 where appropriate, compliance with other aspects of fisheries arrangements applicable to the flag State; and
  - 47.10 the vessel having a unique, internationally recognized identification number, wherever possible, that enables it to be identified regardless of changes in registration or name over time.

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48. Flag States should ensure that their fishing, transport and support vessels do not support or engage in IUU fishing. To this end, flag States should ensure that none of their vessels re-supply fishing vessels engaged in such activities or transship fish to or from these vessels. This paragraph is without prejudice to the taking of appropriate action, as necessary, for humanitarian purposes, including the safety of crew members.
49. Flag States should ensure that, to the greatest extent possible, all of their fishing, transport and support vessels involved in transshipment at sea have a prior authorization to transship issued by the flag State, and report to the national fisheries administration or other designated institution:
- 49.1 the date and location of all of their transshipments of fish at sea;
  - 49.2 the weight by species and catch area of the catch transshipped;
  - 49.3 the name, registration, flag and other information related to the identification of the vessels involved in the transshipment; and
  - 49.4 the port of landing of the transshipped catch.
50. Flag States should make information from catch and transshipment reports available, aggregated according to areas and species, in a full, timely and regular manner and, as appropriate, to relevant national, regional and international organizations, including FAO, taking into account applicable confidentiality requirements.

**COASTAL STATE MEASURES**

51. In the exercise of the sovereign rights of coastal States for exploring and exploiting, conserving and managing the living marine resources under their jurisdiction, in conformity with the 1982 UN Convention and international law, each coastal State should implement measures to prevent, deter and eliminate IUU fishing in the exclusive economic zone. Among the measures which the coastal State should consider, consistent with national legislation and international law, and to the extent practicable and appropriate, are:
- 51.1 effective monitoring, control and surveillance of fishing activities in the exclusive economic zone;
  - 51.2 cooperation and exchange of information with other States, where appropriate, including neighbouring coastal States and with regional fisheries management organizations;
  - 51.3 to ensure that no vessel undertakes fishing activities within its waters without a valid authorization to fish issued by that coastal State;
  - 51.4 to ensure that an authorization to fish is issued only if the vessel concerned is entered on a record of vessels;
  - 51.5 to ensure that each vessel fishing in its waters maintains a logbook recording its fishing activities where appropriate;
  - 51.6 to ensure that at-sea transshipment and processing of fish and fish products in coastal State waters are authorized by that coastal State, or conducted in conformity with appropriate management regulations;
  - 51.7 regulation of fishing access to its waters in a manner which will help to prevent, deter and eliminate IUU fishing; and
  - 51.8 avoiding licensing a vessel to fish in its waters if that particular vessel has a history of IUU fishing, taking into account the provisions of paragraph 36.

**PORT STATE MEASURES**

52. States should use measures, in accordance with international law, for port State control of fishing vessels in order to prevent, deter and eliminate IUU fishing. Such measures should be implemented in a fair, transparent and non-discriminatory manner.
53. When used in paragraphs 52 to 64, port access means admission for foreign fishing vessels to ports or offshore terminals for the purpose of, *inter alia*, refuelling, re-supplying, transshipping and landing, without prejudice to the sovereignty of a coastal State in accordance with its national law and article 25.2 of the 1982 UN Convention and other relevant international law.
54. Notwithstanding paragraphs 52, 53 and 55; a vessel should be provided port access, in accordance with international law, for reasons of *force majeure* or distress or for rendering assistance to persons, ships or aircraft in danger or distress.

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55. Prior to allowing a vessel port access, States should require fishing vessels and vessels involved in fishing related activities seeking permission to enter their ports to provide reasonable advance notice of their entry into port, a copy of their authorization to fish, details of their fishing trip and quantities of fish on board, with due regard to confidentiality requirements, in order to ascertain whether the vessel may have engaged in, or supported, IUU fishing.
56. Where a port State has clear evidence that a vessel having been granted access to its ports has engaged in IUU fishing activity, the port State should not allow the vessel to land or transship fish in its ports, and should report the matter to the flag State of the vessel.
57. States should publicize ports to which foreign flagged vessels may be permitted admission and should ensure that these ports have the capacity to conduct inspections.
58. In the exercise of their right to inspect fishing vessels, port States should collect the following information and remit it to the flag State and, where appropriate, the relevant regional fisheries management organization:
  - 58.1 the flag State of the vessel and identification details;
  - 58.2 name, nationality, and qualifications of the master and the fishing master;
  - 58.3 fishing gear;
  - 58.4 catch on board, including origin, species, form, and quantity;
  - 58.5 where appropriate, other information required by relevant regional fisheries management organizations or other international agreements; and
  - 58.6 total landed and transshipped catch.
59. If, in the course of an inspection, it is found that there are reasonable grounds to suspect that the vessel has engaged in or supported IUU fishing in areas beyond the jurisdiction of the port State, the port State should, in addition to any other actions it may take consistent with international law, immediately report the matter to the flag State of the vessel and, where appropriate, the relevant coastal States and regional fisheries management organization. The port State may take other action with the consent of, or upon the request of, the flag State.
60. In applying paragraphs 58 and 59, States should safeguard the confidentiality of information collected, in accordance with their national laws.
61. States should establish and publicize a national strategy and procedures for port State control of vessels involved in fishing and related activities, including training, technical support, qualification requirements and general operating guidelines for port State control officers. States should also consider capacity-building needs in the development and implementation of this strategy.
62. States should cooperate, as appropriate, bilaterally, multilaterally and within relevant regional fisheries management organizations, to develop compatible measures for port State control of fishing vessels. Such measures should deal with the information to be collected by port States, procedures for information collection, and measures for dealing with suspected infringements by the vessel of measures adopted under these national, regional or international systems.
63. States should consider developing within relevant regional fisheries management organizations port State measures building on the presumption that fishing vessels entitled to fly the flag of States not parties to a regional fisheries management organization and which have not agreed to cooperate with that regional fisheries management organization, which are identified as being engaged in fishing activities in the area of that particular organization, may be engaging in IUU fishing. Such port State measures may prohibit landings and transshipment of catch unless the identified vessel can establish that the catch was taken in a manner consistent with those conservation and management measures. The identification of the vessels by the regional fisheries management organization should be made through agreed procedures in a fair, transparent and non-discriminatory manner.
64. States should enhance cooperation, including by the flow of relevant information, among and between relevant regional fisheries management organizations and States on port State controls.

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65. The measures in paragraphs 66 to 76 are to be implemented in a manner which recognizes the right of States to trade in fish and fishery products harvested in a sustainable manner and should be interpreted and applied in accordance with the principles, rights and obligations established in the World Trade Organisation, and implemented in a fair, transparent and non-discriminatory manner.
66. States should take all steps necessary, consistent with international law, to prevent fish caught by vessels identified by the relevant regional fisheries management organization to have been engaged in IUU fishing being traded or imported into their territories. The identification of the vessels by the regional fisheries management organization should be made through agreed procedures in a fair, transparent and non-discriminatory manner. Trade-related measures should be adopted and implemented in accordance with international law, including principles, rights and obligations established in WTO Agreements, and implemented in a fair, transparent and non-discriminatory manner. Trade-related measures should only be used in exceptional circumstances, where other measures have proven unsuccessful to prevent, deter and eliminate IUU fishing, and only after prior consultation with interested States. Unilateral trade-related measures should be avoided.
67. States should ensure that measures on international trade in fish and fishery products are transparent, based on scientific evidence, where applicable, and are in accordance with internationally agreed rules.
68. States should cooperate, including through relevant global and regional fisheries management organizations, to adopt appropriate multilaterally agreed trade-related measures, consistent with the WTO, that may be necessary to prevent, deter and eliminate IUU fishing for specific fish stocks or species. Multilateral trade-related measures envisaged in regional fisheries management organizations may be used to support cooperative efforts to ensure that trade in specific fish and fish products does not in any way encourage IUU fishing or otherwise undermine the effectiveness of conservation and management measures which are consistent with the 1982 UN Convention.
69. Trade-related measures to reduce or eliminate trade in fish and fish products derived from IUU fishing could include the adoption of multilateral catch documentation and certification requirements, as well as other appropriate multilaterally-agreed measures such as import and export controls or prohibitions. Such measures should be adopted in a fair, transparent and non-discriminatory manner. When such measures are adopted, States should support their consistent and effective implementation.
70. Stock or species-specific trade-related measures may be necessary to reduce or eliminate the economic incentive for vessels to engage in IUU fishing.
71. States should take steps to improve the transparency of their markets to allow the traceability of fish or fish products.
72. States, when requested by an interested State, should assist any State in deterring trade in fish and fish products illegally harvested in its jurisdiction. Assistance should be given in accordance with terms agreed by both States and fully respecting the jurisdiction of the State requesting assistance.
73. States should take measures to ensure that their importers, transshippers, buyers, consumers, equipment suppliers, bankers, insurers, other services suppliers and the public are aware of the detrimental effects of doing business with vessels identified as engaged in IUU fishing, whether by the State under whose jurisdiction the vessel is operating or by the relevant regional fisheries management organizations in accordance with its agreed procedures, and should consider measures to deter such business. Such measures could include, to the extent possible under national law, legislation that makes it a violation to conduct such business or to trade in fish or fish products derived from IUU fishing. All identifications of vessels engaged in IUU fishing should be made in a fair, transparent and non-discriminatory manner.
74. States should take measures to ensure that their fishers are aware of the detrimental effects of doing business with importers, transshippers, buyers, consumers, equipment suppliers, bankers, insurers and other services suppliers identified as doing business with vessels identified as engaged in IUU fishing, whether by the State under whose jurisdiction the vessel is operating or by the relevant regional fisheries management organization in accordance with its agreed procedures, and should consider measures to deter such business. Such measures could include, to the extent possible under national law, legislation that makes it a violation to conduct such business or to trade in fish or fish products derived from IUU fishing. All identifications of vessels engaged in IUU fishing should be made in a fair, transparent and non-discriminatory manner.

**ANNEX V****The International Plans of Action for the Conservation and Management of Sharks, Seabird Bycatch, Overcapacity, and IUU Fishing (cont'd)**

75. States should work towards using the Harmonized Commodity Description and Coding System for fish and fisheries products in order to help promote the implementation of the IPOA.
76. Certification and documentation requirements should be standardized to the extent feasible, and electronic schemes developed where possible, to ensure their effectiveness, reduce opportunities for fraud, and avoid unnecessary burdens on trade.

**RESEARCH**

77. States should encourage scientific research on methods of identifying fish species from samples of processed products. FAO should facilitate the establishment of a network of databases of genetic and other markers used to identify fish species from processed product, including the ability to identify the stock of origin where possible.

**REGIONAL FISHERIES MANAGEMENT ORGANIZATIONS**

78. States should ensure compliance with and enforcement of policies and measures having a bearing on IUU fishing which are adopted by any relevant regional fisheries management organization and by which they are bound. States should cooperate in the establishment of such organizations in regions where none currently exist.
79. As the cooperation of all relevant States is important for the success of measures taken by relevant regional fisheries management organizations to prevent, deter and eliminate IUU fishing, States which are not members of a relevant regional fisheries management organization are not discharged from their obligation to cooperate, in accordance with their international obligations, with that regional fisheries management organization. To that end, States should give effect to their duty to cooperate by agreeing to apply the conservation and management measures established by that regional fisheries management organization, or by adopting measures consistent with those conservation and management measures, and should ensure that vessels entitled to fly their flag do not undermine such measures.
80. States, acting through relevant regional fisheries management organizations, should take action to strengthen and develop innovative ways, in conformity with international law, to prevent, deter, and eliminate IUU fishing. Consideration should be given to including the following measures:
  - 80.1 institutional strengthening, as appropriate, of relevant regional fisheries management organizations with a view to enhancing their capacity to prevent, deter and eliminate IUU fishing;
  - 80.2 development of compliance measures in conformity with international law;
  - 80.3 development and implementation of comprehensive arrangements for mandatory reporting;
  - 80.4 establishment of and cooperation in the exchange of information on vessels engaged in or supporting IUU fishing;
  - 80.5 development and maintenance of records of vessels fishing in the area of competence of a relevant regional fisheries management organization, including both those authorized to fish and those engaged in or supporting IUU fishing;
  - 80.6 development of methods of compiling and using trade information to monitor IUU fishing;
  - 80.7 development of MCS, including promoting for implementation by its members in their respective jurisdictions, unless otherwise provided for in an international agreement, real time catch and vessel monitoring systems, other new technologies, monitoring of landings, port control, and inspections and regulation of transshipment, as appropriate;
  - 80.8 development within a regional fisheries management organization, where appropriate, of boarding and inspection regimes consistent with international law, recognizing the rights and obligations of masters and inspection officers;
  - 80.9 development of observer programmes;
  - 80.10 where appropriate, market-related measures in accordance with the IPOA;
  - 80.11 definition of circumstances in which vessels will be presumed to have engaged in or to have supported IUU fishing;

**ANNEX V****The International Plans of Action for the Conservation and Management of Sharks, Seabird B/catch, Overcapacity, and IUU Fishing (cont'd)**

- 80.12 development of education and public awareness programmes;
- 80.13 development of action plans; and
- 80.14 where agreed by their members, examination of chartering arrangements, if there is concern that these may result in IUU fishing.
81. States, acting through relevant regional fisheries management organizations, should compile and make available on a timely basis, and at least on an annual basis, to other regional fisheries management organizations and to FAO, information relevant to the prevention, deterrence and elimination of IUU fishing, including:
- 81.1 estimates of the extent, magnitude and character of IUU activities in the area of competence of the regional fisheries management organization;
- 81.2 details of measures taken to deter, prevent and eliminate IUU fishing;
- 81.3 records of vessels authorized to fish, as appropriate; and
- 81.4 records of vessels engaged in IUU fishing.
82. Objectives of institutional and policy strengthening in relevant regional fisheries management organizations in relation to IUU fishing should include enabling regional fisheries management organizations to:
- 82.1 determine policy objectives regarding IUU fishing, both for internal purposes and co-ordination with other regional fisheries management organizations;
- 82.2 strengthen institutional mechanisms as appropriate, including mandate, functions, finance, decision making, reporting or information requirements and enforcement schemes, for the optimum implementation of policies in relation to IUU fishing;
- 82.3 regularize coordination with institutional mechanisms of other regional fisheries management organizations as far as possible in relation to IUU fishing, in particular information, enforcement and trade aspects; and
- 82.4 ensure timely and effective implementation of policies and measures internally, and in cooperation with other regional fisheries management organizations and relevant regional and international organizations.
83. States, acting through relevant regional fisheries management organizations, should encourage non-contracting parties with a real interest in the fishery concerned to join those organizations and to participate fully in their work. Where this is not possible, the regional fisheries management organizations should encourage and facilitate the participation and cooperation of non-contracting parties, in accordance with applicable international agreements and international law, in the conservation and management of the relevant fisheries resources and in the implementation of measures adopted by the relevant organizations. Regional fisheries management organizations should address the issue of access to the resource in order to foster cooperation and enhance sustainability in the fishery, in accordance with international law. States, acting through relevant regional fisheries management organizations, should also assist, as necessary, non-contracting parties in the implementation of paragraphs 78 and 79 of the IPOA.
84. When a State fails to ensure that fishing vessels entitled to fly its flag, or, to the greatest extent possible, its nationals, do not engage in IUU fishing activities that affect the fish stocks covered by a relevant regional fisheries management organization, the member States, acting through the organization, should draw the problem to the attention of that State. If the problem is not rectified, members of the organization may agree to adopt appropriate measures, through agreed procedures, in accordance with international law.

**V. SPECIAL REQUIREMENTS OF DEVELOPING COUNTRIES**

85. States, with the support of FAO and relevant international financial institutions and mechanisms, where appropriate, should cooperate to support training and capacity building and consider providing financial, technical and other assistance to developing countries, including in particular the least developed among them and small island developing States, so that they can more fully meet their commitments under the IPOA and obligations under international law, including their duties as flag States and port States. Such assistance should be directed in particular to help such States in the development and implementation of national plans of action in accordance with paragraph 25.

**ANNEX V****The International Plans of Action for the Conservation and Management of Sharks, Seabird Bycatch, Overcapacity, and IUU Fishing (cont'd)**

86. States, with the support of FAO and relevant international financial institutions and mechanisms, where appropriate, should cooperate to enable:
- 86.1 review and revision of national legislation and regional regulatory frameworks;
  - 86.2 the improvement and harmonization of fisheries and related data collection;
  - 86.3 the strengthening of regional institutions; and
  - 86.4 the strengthening and enhancement of integrated MCS systems, including satellite monitoring systems.

**VI. REPORTING**

87. States and regional fisheries management organizations should report to FAO on progress with the elaboration and implementation of their plans to prevent, deter and eliminate IUU fishing as part of their biennial reporting to FAO on the Code of Conduct. These reports should be published by FAO in a timely manner.

**VII. ROLE OF FAO**

88. FAO will, as and to the extent directed by its Conference, collect all relevant information and data that might serve as a basis for further analysis aimed at identifying factors and causes contributing to IUU fishing such as, *inter alia*, a lack of input and output management controls, unsustainable fishery management methods and subsidies that contribute to IUU fishing.
89. FAO will, as and to the extent directed by its Conference, support development and implementation of national and regional plans to prevent, deter and eliminate IUU fishing through specific, in-country technical assistance projects with Regular Programme funds and through the use of extra-budgetary funds made available to the Organization for this purpose.
90. FAO should, in collaboration with other relevant international organizations, in particular IMO, further investigate the issue of IUU fishing.
91. FAO should convene an Expert Consultation on the implementation of paragraph 76 of the IPOA.
92. FAO should investigate the benefits of establishing and maintaining regional and global databases, including but not limited to, information as provided for in Article VI of the 1993 FAO Compliance Agreement.
93. The FAO Committee on Fisheries will, based on a detailed analysis by the Secretariat, biennially evaluate the progress towards the implementation of the IPOA.

**ANNEX VI****Chapter 17 Agenda 21**

**PROTECTION OF THE OCEANS, ALL KINDS OF SEAS, INCLUDING ENCLOSED AND SEMI-ENCLOSED SEAS, AND COASTAL AREAS AND THE PROTECTION, RATIONAL USE AND DEVELOPMENT OF THEIR LIVING RESOURCES**

- 17.1. The marine environment—including the oceans and all seas and adjacent coastal areas—forms an integrated whole that is an essential component of the global life-support system and a positive asset that presents opportunities for sustainable development. International law, as reflected in the provisions of the United Nations Convention on the Law of the Sea<sup>12</sup> referred to in this chapter of Agenda 21, sets forth rights and obligations of States and provides the international basis upon which to pursue the protection and sustainable development of the marine and coastal environment and its resources. This requires new approaches to marine and coastal area management and development, at the national, subregional, regional and global levels, approaches that are integrated in content and are precautionary and anticipatory in ambit, as reflected in the following programme areas:<sup>3</sup>
- Integrated management and sustainable development of coastal areas, including exclusive economic zones;
  - Marine environmental protection;
  - Sustainable use and conservation of marine living resources of the high seas;
  - Sustainable use and conservation of marine living resources under national jurisdiction;
  - Addressing critical uncertainties for the management of the marine environment and climate change;
  - Strengthening international, including regional, cooperation and coordination;
  - Sustainable development of small islands.
- 17.2. The implementation by developing countries of the activities set forth below shall be commensurate with their individual technological and financial capacities and priorities in allocating resources for development needs and ultimately depends on the technology transfer and financial resources required and made available to them.

**PROGRAMME AREAS**

**A. Integrated management and sustainable development of coastal and marine areas, including exclusive economic zones**

**Basis for action**

- 17.3. The coastal area contains diverse and productive habitats important for human settlements, development and local subsistence. More than half the world's population lives within 60 km of the shoreline, and this could rise to three quarters by the year 2020. Many of the world's poor are crowded in coastal areas. Coastal resources are vital for many local communities and indigenous people. The exclusive economic zone (EEZ) is also an important marine area where the States manage the development and conservation of natural resources for the benefit of their people. For small island States or countries, these are the areas most available for development activities.
- 17.4. Despite national, subregional, regional and global efforts, current approaches to the management of marine and coastal resources have not always proved capable of achieving sustainable development, and coastal resources and the coastal environment are being rapidly degraded and eroded in many parts of the world.

**Objectives**

- 17.5. Coastal States commit themselves to integrated management and sustainable development of coastal areas and the marine environment under their national jurisdiction. To this end, it is necessary to, *inter alia*:
- Provide for an integrated policy and decision-making process, including all involved sectors, to promote compatibility and a balance of uses;
  - Identify existing and projected uses of coastal areas and their interactions;
  - Concentrate on well-defined issues concerning coastal management;
  - Apply preventive and precautionary approaches in project planning and implementation, including prior assessment and systematic observation of the impacts of major projects;

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- Promote the development and application of methods, such as national resource and environmental accounting, that reflect changes in value resulting from uses of coastal and marine areas, including pollution, marine erosion, loss of resources and habitat destruction;
- Provide access, as far as possible, for concerned individuals, groups and organizations to relevant information and opportunities for consultation and participation in planning and decision-making at appropriate levels.

## Activities

## (a) Management-related activities

17.6. Each coastal State should consider establishing, or where necessary strengthening, appropriate coordinating mechanisms (such as a high-level policy planning body) for integrated management and sustainable development of coastal and marine areas and their resources, at both the local and national levels. Such mechanisms should include consultation, as appropriate, with the academic and private sectors, non-governmental organizations, local communities, resource user groups, and indigenous people. Such national coordinating mechanisms could provide, *inter alia*, for:

- Preparation and implementation of land and water use and siting policies;
- Implementation of integrated coastal and marine management and sustainable development plans and programmes at appropriate levels;
- Preparation of coastal profiles identifying critical areas, including eroded zones, physical processes, development patterns, user conflicts and specific priorities for management;
- Prior environmental impact assessment, systematic observation and follow-up of major projects, including the systematic incorporation of results in decision-making;
- Contingency plans for human induced and natural disasters, including likely effects of potential climate change and sealevel rise, as well as contingency plans for degradation and pollution of anthropogenic origin, including spills of oil and other materials;
- Improvement of coastal human settlements, especially in housing, drinking water and treatment and disposal of sewage, solid wastes and industrial effluents;
- Periodic assessment of the impacts of external factors and phenomena to ensure that the objectives of integrated management and sustainable development of coastal areas and the marine environment are met;
- Conservation and restoration of altered critical habitats;
- Integration of sectoral programmes on sustainable development for settlements, agriculture, tourism, fishing, ports and industries affecting the coastal area;
- Infrastructure adaptation and alternative employment;
- Human resource development and training;
- Public education, awareness and information programmes;
- Promoting environmentally sound technology and sustainable practices;
- Development and simultaneous implementation of environmental quality criteria.

17.7. Coastal States, with the support of international organizations, upon request, should undertake measures to maintain biological diversity and productivity of marine species and habitats under national jurisdiction. *inter alia*, these measures might include: surveys of marine biodiversity, inventories of endangered species and critical coastal and marine habitats; establishment and management of protected areas; and support of scientific research and dissemination of its results.

## (b) Data and information

17.8. Coastal States, where necessary, should improve their capacity to collect, analyse, assess and use information for sustainable use of resources, including environmental impacts of activities affecting the coastal and marine areas. Information for management purposes should receive priority support in view of the intensity and magnitude of the changes occurring in the coastal and marine areas. To this end, it is necessary to, *inter alia*:

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- Develop and maintain databases for assessment and management of coastal areas and all seas and their resources;
  - Develop socio-economic and environmental indicators;
  - Conduct regular environmental assessment of the state of the environment of coastal and marine areas;
  - Prepare and maintain profiles of coastal area resources, activities, uses, habitats and protected areas based on the criteria of sustainable development;
  - Exchange information and data.
- 17.9 Cooperation with developing countries, and, where applicable, subregional and regional mechanisms, should be strengthened to improve their capacities to achieve the above.
- (c) International and regional cooperation and coordination
- 17.10. The role of international cooperation and coordination on a bilateral basis and, where applicable, within a subregional, interregional, regional or global framework, is to support and supplement national efforts of coastal States to promote integrated management and sustainable development of coastal and marine areas.
- 17.11. States should cooperate, as appropriate, in the preparation of national guidelines for integrated coastal zone management and development, drawing on existing experience. A global conference to exchange experience in the field could be held before 1994.

**Means of implementation**

- (a) Financing and cost evaluation
- 17.12. The Conference secretariat has estimated the average total annual cost (1993-2000) of implementing the activities of this programme to be about \$6 billion including about \$50 million from the international community on grant or concessional terms. These are indicative and order-of-magnitude estimates only and have not been reviewed by Governments. Actual costs and financial terms, including any that are non-concessional, will depend upon, *inter alia*, the specific strategies and programmes Governments decide upon for implementation.
- (b) Scientific and technological means
- 17.13. States should cooperate in the development of necessary coastal systematic observation, research and information management systems. They should provide access to and transfer environmentally safe technologies and methodologies for sustainable development of coastal and marine areas to developing countries. They should also develop technologies and endogenous scientific and technological capacities.
- 17.14. International organizations, whether subregional, regional or global, as appropriate, should support coastal States, upon request, in these efforts, as indicated above, devoting special attention to developing countries.
- (c) Human resource development
- 17.15. Coastal States should promote and facilitate the organization of education and training in integrated coastal and marine management and sustainable development for scientists, technologists, managers (including community-based managers) and users, leaders, indigenous peoples, fisherfolk, women and youth, among others. Management and development, as well as environmental protection concerns and local planning issues, should be incorporated in educational curricula and public awareness campaigns, with due regard to traditional ecological knowledge and socio-cultural values.
- 17.16. International organizations, whether subregional, regional or global, as appropriate, should support coastal States, upon request, in the areas indicated above, devoting special attention to developing countries.
- (d) Capacity-building
- 17.17. Full cooperation should be extended, upon request, to coastal States in their capacity-building efforts and, where appropriate, capacity-building should be included in bilateral and multilateral development cooperation. Coastal States may consider, *inter alia*:
- Ensuring capacity-building at the local level;

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- Consulting on coastal and marine issues with local administrations, the business community, the academic sector, resource user groups and the general public;
- Coordinating sectoral programmes while building capacity;
- Identifying existing and potential capabilities, facilities and needs for human resources development and scientific and technological infrastructure;
- Developing scientific and technological means and research;
- Promoting and facilitating human resource development and education;
- Supporting "centres of excellence" in integrated coastal and marine resource management;
- Supporting pilot demonstration programmes and projects in integrated coastal and marine management.

**B. Marine environmental protection****Basis for action**

- 17.18. Degradation of the marine environment can result from a wide range of sources. Land-based sources contribute 70 per cent of marine pollution, while maritime transport and dumping-at-sea activities contribute 10 per cent each. The contaminants that pose the greatest threat to the marine environment are, in variable order of importance and depending on differing national or regional situations, sewage, nutrients, synthetic organic compounds, sediments, litter and plastics, metals, radionuclides, oil/hydrocarbons and polycyclic aromatic hydrocarbons (PAHs). Many of the polluting substances originating from land-based sources are of particular concern to the marine environment since they exhibit at the same time toxicity, persistence and bioaccumulation in the food chain. There is currently no global scheme to address marine pollution from land-based sources.
- 17.19. Degradation of the marine environment can also result from a wide range of activities on land. Human settlements, land use, construction of coastal infrastructure, agriculture, forestry, urban development, tourism and industry can affect the marine environment. Coastal erosion and siltation are of particular concern.
- 17.20. Marine pollution is also caused by shipping and sea-based activities. Approximately 600,000 tons of oil enter the oceans each year as a result of normal shipping operations, accidents and illegal discharges. With respect to offshore oil and gas activities, currently machinery space discharges are regulated internationally and six regional conventions to control platform discharges have been under consideration. The nature and extent of environmental impacts from offshore oil exploration and production activities generally account for a very small proportion of marine pollution.
- 17.21. A precautionary and anticipatory rather than a reactive approach is necessary to prevent the degradation of the marine environment. This requires, *inter alia*, the adoption of precautionary measures, environmental impact assessments, clean production techniques, recycling, waste audits and minimization, construction and/or improvement of sewage treatment facilities, quality management criteria for the proper handling of hazardous substances, and a comprehensive approach to damaging impacts from air, land and water. Any management framework must include the improvement of coastal human settlements and the integrated management and development of coastal areas.

**Objectives**

- 17.22. States, in accordance with the provisions of the United Nations Convention on the Law of the Sea on protection and preservation of the marine environment, commit themselves, in accordance with their policies, priorities and resources, to prevent, reduce and control degradation of the marine environment so as to maintain and improve its life-support and productive capacities. To this end, it is necessary to:
- Apply preventive, precautionary and anticipatory approaches so as to avoid degradation of the marine environment, as well as to reduce the risk of long-term or irreversible adverse effects upon it;
  - Ensure prior assessment of activities that may have significant adverse impacts upon the marine environment;
  - Integrate protection of the marine environment into relevant general environmental, social and economic development policies;
  - Develop economic incentives, where appropriate, to apply clean technologies and other means consistent with the internalization of environmental costs, such as the polluter pays principle, so as to avoid degradation of the marine environment;

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- Improve the living standards of coastal populations, particularly in developing countries, so as to contribute to reducing the degradation of the coastal and marine environment.

17.23. States agree that provision of additional financial resources, through appropriate international mechanisms, as well as access to cleaner technologies and relevant research, would be necessary to support action by developing countries to implement this commitment.

**Activities**

- (a) Management-related activities

Prevention, reduction and control of degradation of the marine environment from land-based activities

17.24. In carrying out their commitment to deal with degradation of the marine environment from land-based activities, States should take action at the national level and, where appropriate, at the regional and subregional levels, in concert with action to implement programme area A, and should take account of the Montreal Guidelines for the Protection of the Marine Environment from Land-Based Sources.

17.25. To this end, States, with the support of the relevant international environmental, scientific, technical and financial organizations, should cooperate, *inter alia*, to:

- Consider updating, strengthening and extending the Montreal Guidelines, as appropriate;
- Assess the effectiveness of existing regional agreements and action plans, where appropriate, with a view to identifying means of strengthening action, where necessary, to prevent, reduce and control marine degradation caused by land-based activities;
- Initiate and promote the development of new regional agreements, where appropriate;
- Develop means of providing guidance on technologies to deal with the major types of pollution of the marine environment from land-based sources, according to the best scientific evidence;
- Develop policy guidance for relevant global funding mechanisms;

Identify additional steps requiring international cooperation.

17.26. The UNEP Governing Council is invited to convene, as soon as practicable, an intergovernmental meeting on protection of the marine environment from land-based activities.

17.27. As concerns sewage, priority actions to be considered by States may include:

- Incorporating sewage concerns when formulating or reviewing coastal development plans, including human settlement plans;
- Building and maintaining sewage treatment facilities in accordance with national policies and capacities and international cooperation available;
- Locating coastal outfalls so as to maintain an acceptable level of environmental quality and to avoid exposing shell fisheries, water intakes and bathing areas to pathogens;
- Promoting environmentally sound co-treatments of domestic and compatible industrial effluents, with the introduction, where practicable, of controls on the entry of effluents that are not compatible with the system;
- Promoting primary treatment of municipal sewage discharged to rivers, estuaries and the sea, or other solutions appropriate to specific sites;
- Establishing and improving local, national, subregional and regional, as necessary, regulatory and monitoring programmes to control effluent discharge, using minimum sewage effluent guidelines and water quality criteria and giving due consideration to the characteristics of receiving bodies and the volume and type of pollutants.

17.28. As concerns other sources of pollution, priority actions to be considered by States may include:

- Establishing or improving, as necessary, regulatory and monitoring programmes to control effluent discharges and emissions, including the development and application of control and recycling technologies;
- Promoting risk and environmental impact assessments to help ensure an acceptable level of environmental quality;
- Promoting assessment and cooperation at the regional level, where appropriate, with respect to the input of point source pollutants from new installations;

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- Eliminating the emission or discharge of organohalogen compounds that threaten to accumulate to dangerous levels in the marine environment;
  - Reducing the emission or discharge of other synthetic organic compounds that threaten to accumulate to dangerous levels in the marine environment;
  - Promoting controls over anthropogenic inputs of nitrogen and phosphorus that enter coastal waters where such problems as eutrophication threaten the marine environment or its resources;
  - Cooperating with developing countries, through financial and technological support, to maximize the best practicable control and reduction of substances and wastes that are toxic, persistent or liable to bio-accumulate and to establish environmentally sound land-based waste disposal alternatives to sea dumping;
  - Cooperating in the development and implementation of environmentally sound land-use techniques and practices to reduce run-off to water-courses and estuaries which would cause pollution or degradation of the marine environment;
  - Promoting the use of environmentally less harmful pesticides and fertilizers and alternative methods for pest control, and considering the prohibition of those found to be environmentally unsound;
  - Adopting new initiatives at national, subregional and regional levels for controlling the input of non-point source pollutants, which require broad changes in sewage and waste management, agricultural practices, mining, construction and transportation.
- 17.29. As concerns physical destruction of coastal and marine areas causing degradation of the marine environment, priority actions should include control and prevention of coastal erosion and siltation due to anthropogenic factors related to, *inter alia*, land-use and construction techniques and practices. Watershed management practices should be promoted so as to prevent, control and reduce degradation of the marine environment.

Prevention, reduction and control of degradation of the marine environment from sea-based activities

- 17.30. States, acting individually, bilaterally, regionally or multilaterally and within the framework of IMO and other relevant international organizations, whether subregional, regional or global, as appropriate, should assess the need for additional measures to address degradation of the marine environment:

From shipping, by:

- Supporting wider ratification and implementation of relevant shipping conventions and protocols;
- Facilitating the processes in (i), providing support to individual States upon request to help them overcome the obstacles identified by them;
- Cooperating in monitoring marine pollution from ships, especially from illegal discharges (e.g., aerial surveillance), and enforcing MARPOL discharge, provisions more rigorously;
- Assessing the state of pollution caused by ships in particularly sensitive areas identified by IMO and taking action to implement applicable measures, where necessary, within such areas to ensure compliance with generally accepted international regulations;
- Taking action to ensure respect of areas designated by coastal States, within their exclusive economic zones, consistent with international law, in order to protect and preserve rare or fragile ecosystems, such as coral reefs and mangroves;
- Considering the adoption of appropriate rules on ballast water discharge to prevent the spread of non-indigenous organisms;
- Promoting navigational safety by adequate charting of coasts and ship-routing, as appropriate;
- Assessing the need for stricter international regulations to further reduce the risk of accidents and pollution from cargo ships (including bulk carriers);
- Encouraging IMO and IAEA to work together to complete consideration of a code on the carriage of irradiated nuclear fuel in flasks on board ships;
- Revising and updating the IMO Code of Safety for Nuclear Merchant Ships and considering how best to implement a revised code;
- Supporting the ongoing activity within IMO regarding development of appropriate measures for reducing air pollution from ships;

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- Supporting the ongoing activity within IMO regarding the development of an international regime governing the transportation of hazardous and noxious substances carried by ships and further considering whether the compensation funds similar to the ones established under the Fund Convention would be appropriate in respect of pollution damage caused by substances other than oil;
  - From dumping, by:
    - Supporting wider ratification, implementation and participation in relevant Conventions on dumping at sea, including early conclusion of a future strategy for the London Dumping Convention;
    - Encouraging the London Dumping Convention parties to take appropriate steps to stop ocean dumping and incineration of hazardous substances;
    - From offshore oil and gas platforms, by assessing existing regulatory measures to address discharges, emissions and safety and assessing the need for additional measures;
    - From ports, by facilitating establishment of port reception facilities for the collection of oily and chemical residues and garbage from ships, especially in MARPOL special areas, and promoting the establishment of smaller scale facilities in marinas and fishing harbours.
- 17.31. IMO and as appropriate, other competent United Nations organizations, when requested by the States concerned, should assess, where appropriate, the state of marine pollution in areas of congested shipping, such as heavily used international straits, with a view to ensuring compliance with generally accepted international regulations, particularly those related to illegal discharges from ships, in accordance with the provisions of Part III of the United Nations Convention on the Law of the Sea.
- 17.32. States should take measures to reduce water pollution caused by organotin compounds used in anti-fouling paints.
- 17.33. States should consider ratifying the Convention on Oil Pollution Preparedness, Response and Cooperation, which addresses, *inter alia*, the development of contingency plans on the national and international level, as appropriate, including provision of oil-spill response material and training of personnel, including its possible extension to chemical spill response.
- 17.34. States should intensify international cooperation to strengthen or establish, where necessary, regional oil/chemical-spill response centres and/or, as appropriate, mechanisms in cooperation with relevant subregional, regional or global intergovernmental organizations and, where appropriate, industry-based organizations.
- (b) Data and information
- 17.35. States should, as appropriate, and in accordance with the means at their disposal and with due regard for their technical and scientific capacity and resources, make systematic observations on the state of the marine environment. To this end, States should, as appropriate, consider:
- Establishing systematic observation systems to measure marine environmental quality, including causes and effects of marine degradation, as a basis for management;
  - Regularly exchanging information on marine degradation caused by land-based and sea-based activities and on actions to prevent, control and reduce such degradation;
  - Supporting and expanding international programmes for systematic observations such as the mussel watch programme, building on existing facilities with special attention to developing countries;
  - Establishing a clearing-house on marine pollution control information, including processes and technologies to address marine pollution control and to support their transfer to developing countries and other countries with demonstrated needs;
  - Establishing a global profile and database providing information on the sources, types, amounts and effects of pollutants reaching the marine environment from land-based activities in coastal areas and sea-based sources;
  - Allocating adequate funding for capacity-building and training programmes to ensure the full participation of developing countries, in particular, in any international scheme under the organs and organizations of the United Nations system for the collection, analysis and use of data and information.

**Means of implementation**

- (a) Financing and cost evaluation

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- 17.36. The Conference secretariat has estimated the average total annual cost (1993-2000) of implementing the activities of this programme to be about \$200 million from the international community on grant or concessional terms. These are indicative and order-of-magnitude estimates only and have not been reviewed by Governments. Actual costs and financial terms, including any that are non-concessional, will depend upon, *inter alia*, the specific strategies and programmes Governments decide upon for implementation.
- (b) Scientific and technological means
- 17.37. National, subregional and regional action programmes will, where appropriate, require technology transfer, in conformity with chapter 34, and financial resources, particularly where developing countries are concerned, including:
- Assistance to industries in identifying and adopting clean production or cost-effective pollution control technologies;
  - Planning development and application of low-cost and low-maintenance sewage installation and treatment technologies for developing countries;
  - Equipment of laboratories to observe systematically human and other impacts on the marine environment;
  - Identification of appropriate oil- and chemical-spill control materials, including low-cost locally available materials and techniques, suitable for pollution emergencies in developing countries;
  - Study of the use of persistent organohalogenes that are liable to accumulate in the marine environment to identify those that cannot be adequately controlled and to provide a basis for a decision on a time schedule for phasing them out as soon as practicable;
  - Establishment of a clearing-house for information on marine pollution control, including processes and technologies to address marine pollution control, and support for their transfer to developing and other countries with demonstrated needs. (c) Human resource development
- 17.38. States individually or in cooperation with each other and with the support of international organizations, whether subregional, regional or global, as appropriate, should:
- Provide training for critical personnel required for the adequate protection of the marine environment as identified by training needs' surveys at the national, regional or subregional levels;
  - Promote the introduction of marine environmental protection topics into the curriculum of marine studies programmes;
  - Establish training courses for oil- and chemical-spill response personnel, in cooperation, where appropriate, with the oil and chemical industries;
  - Conduct workshops on environmental aspects of port operations and development;
  - Strengthen and provide secure financing for new and existing specialized international centres of professional maritime education;
  - States should, through bilateral and multilateral cooperation, support and supplement the national efforts of developing countries as regards human resource development in relation to prevention and reduction of degradation of the marine environment.
- (d) Capacity-building
- 17.39. National planning and coordinating bodies should be given the capacity and authority to review all land-based activities and sources of pollution for their impacts on the marine environment and to propose appropriate control measures.
- 17.40. Research facilities should be strengthened or, where appropriate, developed in developing countries for systematic observation of marine pollution, environmental impact assessment and development of control recommendations and should be managed and staffed by local experts.
- 17.41. Special arrangements will be needed to provide adequate financial and technical resources to assist developing countries in preventing and solving problems associated with activities that threaten the marine environment.
- 17.42. An international funding mechanism should be created for the application of appropriate sewage treatment technologies and building sewage treatment facilities, including grants or concessional loans from international agencies and appropriate regional funds, replenished at least in part on a revolving basis by user fees.
- 17.43. In carrying out these programme activities, particular attention needs to be given to the problems of developing countries that would bear an unequal burden because of their lack of facilities, expertise or technical capacities.

**ANNEX VI****Chapter 17 Agenda 21 (cont'd)****C. Sustainable use and conservation of marine living resources of the high seas****Basis for action**

- 17.44. Over the last decade, fisheries on the high seas have considerably expanded and currently represent approximately 5 per cent of total world landings. The provisions of the United Nations Convention on the Law of the Sea on the marine living resources of the high seas sets forth rights and obligations of States with respect to conservation and utilization of those resources.
- 17.45. However, management of high seas fisheries, including the adoption, monitoring and enforcement of effective conservation measures, is inadequate in many areas and some resources are overutilized. There are problems of unregulated fishing, overcapitalization, excessive fleet size, vessel reflagging to escape controls, insufficiently selective gear, unreliable databases and lack of sufficient cooperation between States. Action by States whose nationals and vessels fish on the high seas, as well as cooperation at the bilateral, subregional, regional and global levels, is essential particularly for highly migratory species and straddling stocks. Such action and cooperation should address inadequacies in fishing practices, as well as in biological knowledge, fisheries statistics and improvement of systems for handling data. Emphasis should also be on multi-species management and other approaches that take into account the relationships among species, especially in addressing depleted species, but also in identifying the potential of underutilized or unutilized populations.

**Objectives**

- 17.46. States commit themselves to the conservation and sustainable use of marine living resources on the high seas. To this end, it is necessary to:
- Develop and increase the potential of marine living resources to meet human nutritional needs, as well as social, economic and development goals;
  - Maintain or restore populations of marine species at levels that can produce the maximum sustainable yield as qualified by relevant environmental and economic factors, taking into consideration relationships among species;
  - Promote the development and use of selective fishing gear and practices that minimize waste in the catch of target species and minimize by-catch of non-target species;
  - Ensure effective monitoring and enforcement with respect to fishing activities;
  - Protect and restore endangered marine species;
  - Preserve habitats and other ecologically sensitive areas;
  - Promote scientific research with respect to the marine living resources in the high seas.
- 17.47. Nothing in paragraph 17.46 above restricts the right of a State or the competence of an international organization, as appropriate, to prohibit, limit or regulate the exploitation of marine mammals on the high seas more strictly than provided for in that paragraph. States shall cooperate with a view to the conservation of marine mammals and, in the case of cetaceans, shall in particular work through the appropriate international organizations for their conservation, management and study.
- 17.48. The ability of developing countries to fulfil the above objectives is dependent upon their capabilities, including the financial, scientific and technological means at their disposal. Adequate financial, scientific and technological cooperation should be provided to support action by them to implement these objectives.

**Activities**

## (a) Management-related activities

- 17.49. States should take effective action, including bilateral and multilateral cooperation, where appropriate at the subregional, regional and global levels, to ensure that high seas fisheries are managed in accordance with the provisions of the United Nations Convention on the Law of the Sea. In particular, they should:
- Give full effect to these provisions with regard to fisheries populations whose ranges lie both within and beyond exclusive economic zones (straddling stocks);
  - Give full effect to these provisions with regard to highly migratory species;

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- Negotiate, where appropriate, international agreements for the effective management and conservation of fishery stocks;
  - Define and identify appropriate management units;
  - States should convene, as soon as possible, an intergovernmental conference under United Nations auspices, taking into account relevant activities at the subregional, regional and global levels, with a view to promoting effective implementation of the provisions of the United Nations
  - Convention on the Law of the Sea on straddling fish stocks and highly migratory fish stocks. The conference, drawing, *inter alia*, on scientific and technical studies by FAO, should identify and assess existing problems related to the conservation and management of such fish stocks, and consider means of improving cooperation on fisheries among States, and formulate appropriate recommendations. The work and the results of the conference should be fully consistent with the provisions of the United Nations Convention on the Law of the Sea, in particular the rights and obligations of coastal States and States fishing on the high seas.
- 17.50. States should ensure that fishing activities by vessels flying their flags on the high seas take place in a manner so as to minimize incidental catch.
- 17.51. States should take effective action consistent with international law to monitor and control fishing activities by vessels flying their flags on the high seas to ensure compliance with applicable conservation and management rules, including full, detailed, accurate and timely reporting of catches and effort.
- 17.52. States should take effective action, consistent with international law, to deter reflagging of vessels by their nationals as a means of avoiding compliance with applicable conservation and management rules for fishing activities on the high seas.
- 17.53. States should prohibit dynamiting, poisoning and other comparable destructive fishing practices.
- 17.54. States should fully implement General Assembly resolution 46/215 on large-scale pelagic drift-net fishing.
- 17.55. States should take measures to increase the availability of marine living resources as human food by reducing wastage, post-harvest losses and discards, and improving techniques of processing, distribution and transportation.
- (b) Data and information
- 17.56. States, with the support of international organizations, whether subregional, regional or global, as appropriate, should cooperate to:
- Promote enhanced collection of data necessary for the conservation and sustainable use of the marine living resources of the high seas;
  - Exchange on a regular basis up-to-date data and information adequate for fisheries assessment;
  - Develop and share analytical and predictive tools, such as stock assessment and bioeconomic models;
  - Establish or expand appropriate monitoring and assessment programmes.
- (c) International and regional cooperation and coordination
- 17.57. States, through bilateral and multilateral cooperation and within the framework of subregional and regional fisheries bodies, as appropriate, and with the support of other international intergovernmental agencies, should assess high seas resource potentials and develop profiles of all stocks (target and non-target).
- 17.58. States should, where and as appropriate, ensure adequate coordination and cooperation in enclosed and semi-enclosed seas and between subregional, regional and global intergovernmental fisheries bodies.
- 17.59. Effective cooperation within existing subregional, regional or global fisheries bodies should be encouraged. Where such organizations do not exist, States should, as appropriate, cooperate to establish such organizations.
- 17.60. States with an interest in a high seas fishery regulated by an existing subregional and/or regional high seas fisheries organization of which they are not members should be encouraged to join that organization, where appropriate.
- 17.61. States recognize:
- The responsibility of the International Whaling Commission for the conservation and management of whale stocks and the regulation of whaling pursuant to the 1946 International Convention for the Regulation of Whaling;

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- The work of the International Whaling Commission Scientific Committee in carrying out studies of large whales in particular, as well as of other cetaceans;
- The work of other organizations, such as the Inter-American Tropical Tuna Commission and the Agreement on Small Cetaceans in the Baltic and North Sea under the Bonn Convention, in the conservation, management and study of cetaceans and other marine mammals.

17.62. States should cooperate for the conservation, management and study of cetaceans.

**Means of implementation**

## (a) Financing and cost evaluation

17.63. The Conference secretariat has estimated the average total annual cost (1993-2000) of implementing the activities of this programme to be about \$12 million from the international community on grant or concessional terms. These are indicative and order-of-magnitude estimates only and have not been reviewed by Governments. Actual costs and financial terms, including any that are non-concessional, will depend upon, *inter alia*, the specific strategies and programmes Governments decide upon for implementation.

## (b) Scientific and technological means

17.64. States, with the support of relevant international organizations, where necessary, should develop collaborative technical and research programmes to improve understanding of the life cycles and migrations of species found on the high seas, including identifying critical areas and life stages.

17.65. States, with the support of relevant international organizations, whether subregional, regional or global, as appropriate, should:

- Develop databases on the high seas marine living resources and fisheries;
- Collect and correlate marine environmental data with high seas marine living resources data, including the impacts of regional and global changes brought about by natural causes and by human activities;
- Cooperate in coordinating research programmes to provide the knowledge necessary to manage high seas resources.

## (c) Human resource development

17.66. Human resource development at the national level should be targeted at both development and management of high seas resources, including training in high seas fishing techniques and in high seas resource assessment, strengthening cadres of personnel to deal with high seas resource management and conservation and related environmental issues, and training observers and inspectors to be placed on fishing vessels.

## (d) Capacity-building

17.67. States, with the support, where appropriate, of relevant international organizations, whether subregional, regional or global, should cooperate to develop or upgrade systems and institutional structures for monitoring, control and surveillance, as well as the research capacity for assessment of marine living resource populations.

17.68. Special support, including cooperation among States, will be needed to enhance the capacities of developing countries in the areas of data and information, scientific and technological means, and human resource development in order to participate effectively in the conservation and sustainable utilization of high seas marine living resources.

**D. Sustainable use and conservation of marine living resources under national jurisdiction****Basis for action**

17.69. Marine fisheries yield 80 to 90 million tons of fish and shellfish per year, 95 per cent of which is taken from waters under national jurisdiction. Yields have increased nearly fivefold over the past four decades. The provisions of the United Nations Convention on the Law of the Sea on marine living resources of the exclusive economic zone and other areas under national jurisdiction set forth rights and obligations of States with respect to conservation and utilization of those resources.

17.70. Marine living resources provide an important source of protein in many countries and their use is often of major importance to local communities and indigenous people. Such resources provide food and livelihoods to millions of people and, if sustainably utilized, offer increased potential to meet nutritional and social needs, particularly in developing countries. To realize this potential requires improved knowledge and

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identification of marine living resource stocks, particularly of underutilized and unutilized stocks and species, use of new technologies, better handling and processing facilities to avoid wastage, and improved quality and training of skilled personnel to manage and conserve effectively the marine living resources of the exclusive economic zone and other areas under national jurisdiction. Emphasis should also be on multi-species management and other approaches that take into account the relationships among species.

- 17.71. Fisheries in many areas under national jurisdiction face mounting problems, including local overfishing, unauthorized incursions by foreign fleets, ecosystem degradation, overcapitalization and excessive fleet sizes, underevaluation of catch, insufficiently selective gear, unreliable databases, and increasing competition between artisanal and large-scale fishing, and between fishing and other types of activities.
- 17.72. Problems extend beyond fisheries. Coral reefs and other marine and coastal habitats, such as mangroves and estuaries, are among the most highly diverse, integrated and productive of the Earth's ecosystems. They often serve important ecological functions, provide coastal protection, and are critical resources for food, energy, tourism and economic development. In many parts of the world, such marine and coastal systems are under stress or are threatened from a variety of sources, both human and natural.

**Objectives**

- 17.73. Coastal States, particularly developing countries and States whose economies are overwhelmingly dependent on the exploitation of the marine living resources of their exclusive economic zones, should obtain the full social and economic benefits from sustainable utilization of marine living resources within their exclusive economic zones and other areas under national jurisdiction.
- 17.74. States commit themselves to the conservation and sustainable use of marine living resources under national jurisdiction. To this end, it is necessary to:
- Develop and increase the potential of marine living resources to meet human nutritional needs, as well as social, economic and development goals;
  - Take into account traditional knowledge and interests of local communities, small-scale artisanal fisheries and indigenous people in development and management programmes;
  - Maintain or restore populations of marine species at levels that can produce the maximum sustainable yield as qualified by relevant environmental and economic factors, taking into consideration relationships among species;
  - Promote the development and use of selective fishing gear and practices that minimize waste in the catch of target species and minimize by-catch of non-target species;
  - Protect and restore endangered marine species;
  - Preserve rare or fragile ecosystems, as well as habitats and other ecologically sensitive areas.
- 17.75. Nothing in paragraph 17.74 above restricts the right of a coastal State or the competence of an international organization, as appropriate, to prohibit, limit or regulate the exploitation of marine mammals more strictly than provided for in that paragraph. States shall cooperate with a view to the conservation of marine mammals and in the case of cetaceans shall in particular work through the appropriate international organizations for their conservation, management and study.
- 17.76. The ability of developing countries to fulfil the above objectives is dependent upon their capabilities, including the financial, scientific and technological means at their disposal. Adequate financial, scientific and technological cooperation should be provided to support action by them to implement these objectives.

**Activities**

## (a) Management-related activities

- 17.77. States should ensure that marine living resources of the exclusive economic zone and other areas under national jurisdiction are conserved and managed in accordance with the provisions of the United Nations Convention on the Law of the Sea.
- 17.78. States, in implementing the provisions of the United Nations Convention on the Law of the Sea, should address the issues of straddling stocks and highly migratory species, and, taking fully into account the objective set out in paragraph 17.73, access to the surplus of allowable catches.

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- 17.79. Coastal States, individually or through bilateral and/or multilateral cooperation and with the support, as appropriate of international organizations, whether subregional, regional or global, should *inter alia*:
- Assess the potential of marine living resources, including underutilized or unutilized stocks and species, by developing inventories, where necessary, for their conservation and sustainable use;
  - Implement strategies for the sustainable use of marine living resources, taking into account the special needs and interests of small-scale artisanal fisheries, local communities and indigenous people to meet human nutritional and other development needs;
  - Implement, in particular in developing countries, mechanisms to develop mariculture, aquaculture and small-scale, deep-sea and oceanic fisheries within areas under national jurisdiction where assessments show that marine living resources are potentially available;
  - Strengthen their legal and regulatory frameworks, where appropriate, including management, enforcement and surveillance capabilities, to regulate activities related to the above strategies;
  - Take measures to increase the availability of marine living resources as human food by reducing wastage, post-harvest losses and discards, and improving techniques of processing, distribution and transportation;
  - Develop and promote the use of environmentally sound technology under criteria compatible with the sustainable use of marine living resources, including assessment of the environmental impact of major new fishery practices;
  - Enhance the productivity and utilization of their marine living resources for food and income.
- 17.80. Coastal States should explore the scope for expanding recreational and tourist activities based on marine living resources, including those for providing alternative sources of income. Such activities should be compatible with conservation and sustainable development policies and plans.
- 17.81. Coastal States should support the sustainability of small-scale artisanal fisheries. To this end, they should, as appropriate:
- Integrate small-scale artisanal fisheries development in marine and coastal planning, taking into account the interests and, where appropriate, encouraging representation of fishermen, small-scale fishworkers, women, local communities and indigenous people;
  - Recognize the rights of small-scale fishworkers and the special situation of indigenous people and local communities, including their rights to utilization and protection of their habitats on a sustainable basis;
  - Develop systems for the acquisition and recording of traditional knowledge concerning marine living resources and environment and promote the incorporation of such knowledge into management systems.
- 17.82. Coastal States should ensure that, in the negotiation and implementation of international agreements on the development or conservation of marine living resources, the interests of local communities and indigenous people are taken into account, in particular their right to subsistence.
- 17.83. Coastal States, with the support, as appropriate, of international organizations should conduct analyses of the potential for aquaculture in marine and coastal areas under national jurisdiction and apply appropriate safeguards as to the introduction of new species.
- 17.84. States should prohibit dynamiting, poisoning and other comparable destructive fishing practices.
- 17.85. States should identify marine ecosystems exhibiting high levels of biodiversity and productivity and other critical habitat areas and should provide necessary limitations on use in these areas, through, *inter alia*, designation of protected areas. Priority should be accorded, as appropriate, to:
- Coral reef ecosystems;
  - Estuaries;
  - Temperate and tropical wetlands, including mangroves;
  - Seagrass beds;
  - Other spawning and nursery areas.
- (b) Data and information
- 17.86. States, individually or through bilateral and multilateral cooperation and with the support, as appropriate, of international organizations, whether subregional, regional or global, should:

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- Promote enhanced collection and exchange of data necessary for the conservation and sustainable use of the marine living resources under national jurisdiction;
- Exchange on a regular basis up-to-date data and information necessary for fisheries assessment;
- Develop and share analytical and predictive tools, such as stock assessment and bioeconomic models;
- Establish or expand appropriate monitoring and assessment programmes;
- Complete or update marine biodiversity, marine living resource and critical habitat profiles of exclusive economic zones and other areas under national jurisdiction, taking account of changes in the environment brought about by natural causes and human activities.

## (c) International and regional cooperation and coordination

- 17.87. States, through bilateral and multilateral cooperation, and with the support of relevant United Nations and other international organizations, should cooperate to:
- Develop financial and technical cooperation to enhance the capacities of developing countries in small-scale and oceanic fisheries, as well as in coastal aquaculture and mariculture;
  - Promote the contribution of marine living resources to eliminate malnutrition and to achieve food self-sufficiency in developing countries, *inter alia*, by minimizing post-harvest losses and managing stocks for guaranteed sustainable yields;
  - Develop agreed criteria for the use of selective fishing gear and practices to minimize waste in the catch of target species and minimize by-catch of non-target species;
  - Promote seafood quality, including through national quality assurance systems for seafood, in order to promote access to markets, improve consumer confidence and maximize economic returns.
- 17.88. States should, where and as appropriate, ensure adequate coordination and cooperation in enclosed and semi-enclosed seas and between subregional, regional and global intergovernmental fisheries bodies.
- 17.89. States recognize:
- The responsibility of the International Whaling Commission for the conservation and management of whale stocks and the regulation of whaling pursuant to the 1946 International Convention for the Regulation of Whaling;
  - The work of the International Whaling Commission Scientific Committee in carrying out studies of large whales in particular, as well as of other cetaceans;
  - The work of other organizations, such as the Inter-American Tropical Tuna Commission and the Agreement on Small Cetaceans in the Baltic and North Sea under the Bonn Convention, in the conservation, management and study of cetaceans and other marine mammals.
- 17.90. States should cooperate for the conservation, management and study of cetaceans.

**Means of implementation**

## (a) Financing and cost evaluation

- 17.91. The Conference secretariat has estimated the average total annual cost (1993-2000) of implementing the activities of this programme to be about \$6 billion, including about \$60 million from the international community on grant or concessional terms. These are indicative and order-of-magnitude estimates only and have not been reviewed by Governments. Actual costs will depend upon, *inter alia*, the specific strategies and programmes Governments decide upon for implementation.

## (b) Scientific and technological means

- 17.92. States, with the support of relevant intergovernmental organizations, as appropriate, should:
- Provide for the transfer of environmentally sound technologies to develop fisheries, aquaculture and mariculture, particularly to developing countries;
  - Accord special attention to mechanisms for transferring resource information and improved fishing and aquaculture technologies to fishing communities at the local level;

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- Promote the study, scientific assessment and use of appropriate traditional management systems;
- Consider observing, as appropriate, the FAO/ICES Code of Practice for Consideration of Transfer and Introduction of Marine and Freshwater Organisms;
- Promote scientific research on marine areas of particular importance for marine living resources, such as areas of high diversity, endemism and productivity and migratory stopover points.

## (c) Human resource development

17.93. States individually, or through bilateral and multilateral cooperation and with the support of relevant international organizations, whether subregional, regional or global, as appropriate, should encourage and provide support for developing countries, *inter alia*, to:

- Expand multidisciplinary education, training and research on marine living resources, particularly in the social and economic sciences;
- Create training opportunities at national and regional levels to support artisanal (including subsistence) fisheries, to develop small-scale use of marine living resources and to encourage equitable participation of local communities, small-scale fish workers, women and indigenous people;
- Introduce topics relating to the importance of marine living resources in educational curricula at all levels.

## (d) Capacity-building

17.94. Coastal States, with the support of relevant subregional, regional and global agencies, where appropriate, should:

- Develop research capacities for assessment of marine living resource populations and monitoring;
- Provide support to local fishing communities, in particular those that rely on fishing for subsistence, indigenous people and women, including, as appropriate, the technical and financial assistance to organize, maintain, exchange and improve traditional knowledge of marine living resources and fishing techniques, and upgrade knowledge on marine ecosystems;
- Establish sustainable aquaculture development strategies, including environmental management in support of rural fish-farming communities;
- Develop and strengthen, where the need may arise, institutions capable of implementing the objectives and activities related to the conservation and management of marine living resources.

17.95. Special support, including cooperation among States, will be needed to enhance the capacities of developing countries in the areas of data and information, scientific and technological means and human resource development in order to enable them to participate effectively in the conservation and sustainable use of marine living resources under national jurisdiction.

**E. Addressing critical uncertainties for the management of the marine environment and climate change****Basis for action**

17.96. The marine environment is vulnerable and sensitive to climate and atmospheric changes. Rational use and development of coastal areas, all seas and marine resources, as well as conservation of the marine environment, requires the ability to determine the present state of these systems and to predict future conditions. The high degree of uncertainty in present information inhibits effective management and limits the ability to make predictions and assess environmental change. Systematic collection of data on marine environmental parameters will be needed to apply integrated management approaches and to predict effects of global climate change and of atmospheric phenomena, such as ozone depletion, on living marine resources and the marine environment. In order to determine the role of the oceans and all seas in driving global systems and to predict natural and human-induced changes in marine and coastal environments, the mechanisms to collect, synthesize and disseminate information from research and systematic observation activities need to be restructured and reinforced considerably.

17.97. There are many uncertainties about climate change and particularly about sealevel rise. Small increases in sealevel have the potential of causing significant damage to small islands and low-lying coasts. Response strategies should be based on sound data. A long-term cooperative research commitment is needed to provide the data required for global climate models and to reduce uncertainty. Meanwhile, precautionary measures should be undertaken to diminish the risks and effects, particularly on small islands and on low-lying and coastal areas of the world.

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17.98. Increased ultraviolet radiation derived from ozone depletion has been reported in some areas of the world. An assessment of its effects in the marine environment is needed to reduce uncertainty and to provide a basis for action.

**Objectives**

- 17.99. States, in accordance with provisions of the United Nations Convention on the Law of the Sea on marine scientific research, commit themselves to improve the understanding of the marine environment and its role on global processes. To this end, it is necessary to:
- Promote scientific research on and systematic observation of the marine environment within the limits of national jurisdiction and high seas, including interactions with atmospheric phenomena, such as ozone depletion;
  - Promote exchange of data and information resulting from scientific research and systematic observation and from traditional ecological knowledge and ensure its availability to policy makers and the public at the national level;
  - Cooperate with a view to the development of standard inter-calibrated procedures, measuring techniques, data storage and management capabilities for scientific research on and systematic observation of the marine environment.

**Activities**

(a) Management-related activities

17.100. States should consider, *inter alia*:

- Coordinating national and regional observation programmes for coastal and near-shore phenomena related to climate change and for research parameters essential for marine and coastal management in all regions;
- Providing improved forecasts of marine conditions for the safety of inhabitants of coastal areas and for the efficiency of maritime operations;
- Cooperating with a view to adopting special measures to cope with and adapt to potential climate change and sealevel rise, including the development of globally accepted methodologies for coastal vulnerability assessment, modelling and response strategies particularly for priority areas, such as small islands and low-lying and critical coastal areas;
- Identifying ongoing and planned programmes of systematic observation of the marine environment, with a view to integrating activities and establishing priorities to address critical uncertainties for oceans and all seas;
- Initiating a programme of research to determine the marine biological effects of increased levels of ultraviolet rays due to the depletion of the stratospheric ozone layer and to evaluate the possible effects.

17.101. Recognizing the important role that oceans and all seas play in attenuating potential climate change, IOC and other relevant competent United Nations bodies, with the support of countries having the resources and expertise, should carry out analysis, assessments and systematic observation of the role of oceans as a carbon sink.

(b) Data and information

17.102. States should consider, *inter alia*:

Increasing international cooperation particularly with a view to strengthening national scientific and technological capabilities for analysing, assessing and predicting global climate and environmental change;

- Supporting the role of the IOC in cooperation with WMO, UNEP and other international organizations in the collection, analysis and distribution of data and information from the oceans and all seas, including as appropriate, through the Global Ocean Observing System, giving special attention to the need for IOC to develop fully the strategy for providing training and technical assistance for developing countries through its Training, Education and Mutual Assistance (TEMA) programme;
- Creating national multisectoral information bases, covering the results of research and systematic observation programmes;
- Linking these databases to existing data and information services and mechanisms, such as World Weather Watch and Earthwatch;
- Cooperating with a view to the exchange of data and information and its storage and archiving through the world and regional data centres;
- Cooperating to ensure full participation of developing countries, in particular, in any international scheme under the organs and organizations of the United Nations system for the collection, analysis and use of data and information.

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## (c) International and regional cooperation and coordination

- 17.103. States should consider bilaterally and multilaterally and in cooperation with international organizations, whether subregional, regional, inter-regional or global, where appropriate:
- Providing technical cooperation in developing the capacity of coastal and island States for marine research and systematic observation and for using its results;
  - Strengthening existing national institutions and creating, where necessary, international analysis and prediction mechanisms in order to prepare and exchange regional and global oceanographic analyses and forecasts and to provide facilities for international research and training at national, subregional and regional levels, where applicable.
- 17.104. In recognition of the value of Antarctica as an area for the conduct of scientific research, in particular research essential to understanding the global environment, States carrying out such research activities in Antarctica should, as provided for in Article III of the Antarctic Treaty, continue to:
- Ensure that data and information resulting from such research are freely available to the international community;
  - Enhance access of the international scientific community and specialized agencies of the United Nations to such data and information, including the encouragement of periodic seminars and symposia.
- 17.105. States should strengthen high-level inter-agency, subregional, regional and global coordination, as appropriate, and review mechanisms to develop and integrate systematic observation networks. This would include:
- Review of existing regional and global databases;
  - Mechanisms to develop comparable and compatible techniques, validate methodologies and measurements, organize regular scientific reviews, develop options for corrective measures, agree on formats for presentation and storage, and communicate the information gathered to potential users;
  - Systematic observation of coastal habitats and sealevel changes, inventories of marine pollution sources and reviews of fisheries statistics;
  - Organization of periodic assessments of ocean and all seas and coastal area status and trends.
- 17.106. International cooperation, through relevant organizations within the United Nations system, should support countries to develop and integrate regional systematic long-term observation programmes, when applicable, into the Regional Seas Programmes in a coordinated fashion to implement, where appropriate, subregional, regional and global observing systems based on the principle of exchange of data. One aim should be the predicting of the effects of climate-related emergencies on existing coastal physical and socio-economic infrastructure.
- 17.107. Based on the results of research on the effects of the additional ultraviolet radiation reaching the Earth's surface, in the fields of human health, agriculture and marine environment, States and international organizations should consider taking appropriate remedial measures.

**Means of implementation**

## (a) Financing and cost evaluation

- 17.108. The Conference secretariat has estimated the average total annual cost (1993-2000) of implementing the activities of this programme to be about \$750 million, including about \$480 million from the international community on grant or concessional terms. These are indicative and order-of-magnitude estimates only and have not been reviewed by Governments. Actual costs and financial terms, including any that are non-concessional, will depend upon, *inter alia*, the specific strategies and programmes Governments decide upon for implementation.
- 17.109. Developed countries should provide the financing for the further development and implementation of the Global Ocean Observing System.

## (b) Scientific and technological means

- 17.110. To address critical uncertainties through systematic coastal and marine observations and research, coastal States should cooperate in the development of procedures that allow for comparable analysis and soundness of data. They should also cooperate on a subregional and regional basis, through existing programmes where applicable, share infrastructure and expensive and sophisticated equipment, develop quality assurance procedures and develop human resources jointly. Special attention should be given to transfer of scientific and technological knowledge and means to support States, particularly developing countries, in the development of endogenous capabilities.

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- 17.111. International organizations should support, when requested, coastal countries in implementing research projects on the effects of additional ultraviolet radiation.
- (c) Human resource development
- 17.112. States, individually or through bilateral and multilateral cooperation and with the support, as appropriate, of international organizations whether subregional, regional or global, should develop and implement comprehensive programmes, particularly in developing countries, for a broad and coherent approach to meeting their core human resource needs in the marine sciences.
- (d) Capacity-building
- 17.113. States should strengthen or establish as necessary, national scientific and technological oceanographic commissions or equivalent bodies to develop, support and coordinate marine science activities and work closely with international organizations.
- 17.114. States should use existing subregional and regional mechanisms, where applicable, to develop knowledge of the marine environment, exchange information, organize systematic observations and assessments, and make the most effective use of scientists, facilities and equipment. They should also cooperate in the promotion of endogenous research capabilities in developing countries.

**F. Strengthening international, including regional, cooperation and coordination****Basis for action**

- 17.115. It is recognized that the role of international cooperation is to support and supplement national efforts. Implementation of strategies and activities under the programme areas relative to marine and coastal areas and seas requires effective institutional arrangements at national, subregional, regional and global levels, as appropriate. There are numerous national and international, including regional, institutions, both within and outside the United Nations system, with competence in marine issues, and there is a need to improve coordination and strengthen links among them. It is also important to ensure that an integrated and multisectoral approach to marine issues is pursued at all levels.

**Objectives**

- 17.116. States commit themselves, in accordance with their policies, priorities and resources, to promote institutional arrangements necessary to support the implementation of the programme areas in this chapter. To this end, it is necessary, as appropriate, to:
- Integrate relevant sectoral activities addressing environment and development in marine and coastal areas at national, subregional, regional and global levels, as appropriate;
  - Promote effective information exchange and, where appropriate, institutional linkages between bilateral and multilateral national, regional, subregional and interregional institutions dealing with environment and development in marine and coastal areas;
  - Promote within the United Nations system, regular intergovernmental review and consideration of environment and development issues with respect to marine and coastal areas;
  - Promote the effective operation of coordinating mechanisms for the components of the United Nations system dealing with issues of environment and development in marine and coastal areas, as well as links with relevant international development bodies.

**Activities**

- (a) Management-related activities

**Global**

- 17.117. The General Assembly should provide for regular consideration, within the United Nations system, at the intergovernmental level of general marine and coastal issues, including environment and development matters, and should request the Secretary-General and executive heads of United Nations agencies and organizations to:
- Strengthen coordination and develop improved arrangements among the relevant United Nations organizations with major marine and coastal responsibilities, including their subregional and regional components;

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- Strengthen coordination between those organizations and other United Nations organizations, institutions and specialized agencies dealing with development, trade and other related economic issues, as appropriate;
- Improve representation of United Nations agencies dealing with the marine environment in United Nations system-wide coordination efforts;
- Promote, where necessary, greater collaboration between the United Nations agencies and subregional and regional coastal and marine programmes;
- Develop a centralized system to provide for information on legislation and advice on implementation of legal agreements on marine environmental and development issues.

17.118. States recognize that environmental policies should deal with the root causes of environmental degradation, thus preventing environmental measures from resulting in unnecessary restrictions to trade. Trade policy measures for environmental purposes should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade. Unilateral actions to deal with environmental challenges outside the jurisdiction of the importing country should be avoided. Environmental measures addressing international environmental problems should, as far as possible, be based on an international consensus. Domestic measures targeted to achieve certain environmental objectives may need trade measures to render them effective. Should trade policy measures be found necessary for the enforcement of environmental policies, certain principles and rules should apply. These could include, *inter alia*, the principle of non-discrimination; the principle that the trade measure chosen should be the least trade-restrictive necessary to achieve the objectives; an obligation to ensure transparency in the use of trade measures related to the environment and to provide adequate notification of national regulations; and the need to give consideration to the special conditions and development requirements of developing countries as they move towards internationally agreed environmental objectives.

**Subregional and regional**

17.119. States should consider, as appropriate:

- Strengthening, and extending where necessary, intergovernmental regional cooperation, the Regional Seas Programmes of UNEP, regional and subregional fisheries organizations and regional commissions;
- Introduce, where necessary, coordination among relevant United Nations and other multilateral organizations at the subregional and regional levels, including consideration of co-location of their staff;
- Arrange for periodic intraregional consultations;
- Facilitate access to and use of expertise and technology through relevant national bodies to subregional and regional centres and networks, such as the Regional Centres for Marine Technology.

(b) Data and information

17.120. States should, where appropriate:

- Promote exchange of information on marine and coastal issues;
- Strengthen the capacity of international organizations to handle information and support the development of national, subregional and regional data and information systems, where appropriate. This could also include networks linking countries with comparable environmental problems;
- Further develop existing international mechanisms such as Earthwatch and GESAMP.

**Means of implementation**

(a) Financing and cost evaluation

17.121. The Conference secretariat has estimated the average total annual cost (1993-2000) of implementing the activities of this programme to be about \$50 million from the international community on grant or concessional terms. These are indicative and order-of-magnitude estimates only and have not been reviewed by Governments. Actual costs and financial terms, including any that are non-concessional, will depend upon, *inter alia*, the specific strategies and programmes Governments decide upon for implementation.

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(b) Scientific and technological means, human resource development and capacity-building

17.122. The means of implementation outlined in the other programme areas on marine and coastal issues, under the sections on Scientific and technological means, human resource development and capacity-building are entirely relevant for this programme area as well. Additionally, States should, through international cooperation, develop a comprehensive programme for meeting the core human resource needs in marine sciences at all levels.

**G. Sustainable development of small islands****Basis for action**

17.123. Small island developing States, and islands supporting small communities are a special case both for environment and development. They are ecologically fragile and vulnerable. Their small size, limited resources, geographic dispersion and isolation from markets, place them at a disadvantage economically and prevent economies of scale. For small island developing States the ocean and coastal environment is of strategic importance and constitutes a valuable development resource.

17.124. Their geographic isolation has resulted in their habitation of a comparatively large number of unique species of flora and fauna, giving them a very high share of global biodiversity. They also have rich and diverse cultures with special adaptations to island environments and knowledge of the sound management of island resources.

17.125. Small island developing States have all the environmental problems and challenges of the coastal zone concentrated in a limited land area. They are considered extremely vulnerable to global warming and sealevel rise, with certain small low-lying islands facing the increasing threat of the loss of their entire national territories. Most tropical islands are also now experiencing the more immediate impacts of increasing frequency of cyclones, storms and hurricanes associated with climate change. These are causing major set-backs to their socio-economic development.

17.126. Because small island development options are limited, there are special challenges to planning for and implementing sustainable development. Small island developing States will be constrained in meeting these challenges without the cooperation and assistance of the international community.

**Objectives**

17.127. States commit themselves to addressing the problems of sustainable development of small island developing States. To this end, it is necessary:

- To adopt and implement plans and programmes to support the sustainable development and utilization of their marine and coastal resources, including meeting essential human needs, maintaining biodiversity and improving the quality of life for island people;
- To adopt measures which will enable small island developing States to cope effectively, creatively and sustainably with environmental change and to mitigate impacts and reduce the threats posed to marine and coastal resources.

**Activities**

(a) Management-related activities

17.128. Small island developing States, with the assistance as appropriate of the international community and on the basis of existing work of national and international organizations, should:

- Study the special environmental and developmental characteristics of small islands, producing an environmental profile and inventory of their natural resources, critical marine habitats and biodiversity;
- Develop techniques for determining and monitoring the carrying capacity of small islands under different development assumptions and resource constraints;
- Prepare medium- and long-term plans for sustainable development that emphasize multiple use of resources, integrate environmental considerations with economic and sectoral planning and policies, define measures for maintaining cultural and biological diversity and conserve endangered species and critical marine habitats;
- Adapt coastal area management techniques, such as planning, siting and environmental impact assessments, using Geographical

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Information Systems (GIS), suitable to the special characteristics of small islands, taking into account the traditional and cultural values of indigenous people of island countries;

- Review the existing institutional arrangements and identify and undertake appropriate institutional reforms essential to the effective implementation of sustainable development plans, including intersectoral coordination and community participation in the planning process;
- Implement sustainable development plans, including the review and modification of existing unsustainable policies and practices;
- Based on precautionary and anticipatory approaches, design and implement rational response strategies to address the environmental, social and economic impacts of climate change and sealevel rise, and prepare appropriate contingency plans;
- Promote environmentally sound technology for sustainable development within small island developing States and identify technologies that should be excluded because of their threats to essential island ecosystems.

(b) Data and information

17.129. Additional information on the geographic, environmental, cultural and socio-economic characteristics of islands should be compiled and assessed to assist in the planning process. Existing island databases should be expanded and geographic information systems developed and adapted to suit the special characteristics of islands.

(c) International and regional cooperation and coordination

17.130. Small island developing States, with the support, as appropriate, of international organizations, whether subregional, regional or global, should develop and strengthen inter-island, regional and interregional cooperation and information exchange, including periodic regional and global meetings on sustainable development of small island developing States with the first global conference on the sustainable development of small island developing States, to be held in 1993.

17.131. International organizations, whether subregional, regional or global, must recognize the special development requirements of small island developing States and give adequate priority in the provision of assistance, particularly with respect to the development and implementation of sustainable development plans.

### **Means of implementation**

(a) Financing and cost evaluation

17.132. The Conference secretariat has estimated the average total annual cost (1993-2000) of implementing the activities of this programme to be about \$130 million, including about \$50 million from the international community on grant or concessional terms. These are indicative and order-of-magnitude estimates only and have not been reviewed by Governments. Actual costs and financial terms, including any that are non-concessional, will depend upon, *inter alia*, the specific strategies and programmes Governments decide upon for implementation.

(b) Scientific and technical means

17.133. Centres for the development and diffusion of scientific information and advice on technical means and technologies appropriate to small island developing States, especially with reference to the management of the coastal zone, the exclusive economic zone and marine resources, should be established or strengthened, as appropriate, on a regional basis.

(c) Human resource development

17.134. Since populations of small island developing States cannot maintain all necessary specializations, training for integrated coastal management and development should aim to produce cadres of managers or scientists, engineers and coastal planners able to integrate the many factors that need to be considered in integrated coastal management. Resource users should be prepared to execute both management and protection functions and to apply the polluter pays principle and support the training of their personnel. Educational systems should be modified to meet these needs and special training programmes developed in integrated island management and development. Local planning should be integrated in educational curricula of all levels and public awareness campaigns developed with the assistance of non-governmental organizations and indigenous coastal populations.

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## (d) Capacity-building

- 17.135. The total capacity of small island developing States will always be limited. Existing capacity must therefore be restructured to meet efficiently the immediate needs for sustainable development and integrated management. At the same time, adequate and appropriate assistance from the international community must be directed at strengthening the full range of human resources needed on a continuous basis to implement sustainable development plans.
- 17.136. New technologies that can increase the output and range of capability of the limited human resources should be employed to increase the capacity of very small populations to meet their needs. The development and application of traditional knowledge to improve the capacity of countries to implement sustainable development should be fostered.

**Endnotes**

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- 1 References to the United Nations Convention on the Law of the Sea in this chapter of Agenda 21 do not prejudice the position of any State with respect to signature, ratification of or accession to the Convention.
- 2 References to the United Nations Convention on the Law of the Sea in this chapter of Agenda 21 do not prejudice the position of States which view the Convention as having a unified character.
- 3 Nothing in the programme areas of this chapter should be interpreted as prejudicing the rights of the States involved in a dispute of sovereignty or in the delimitation of the maritime areas concerned.

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