17. PROTECTING AND PRESERVING MARINE BIODIVERSITY, INCLUDING THROUGH SUSTAINABLE FISHERIES

I. Introduction

1. The broad subject of biological diversity, or biodiversity, is examined primarily in chapter 15 of this Training Manual. This chapter provides an overview of the international legal framework for the protection and preservation of marine biodiversity, including through sustainable fisheries. The focus is exclusively on biodiversity in the marine environment, on marine biodiversity. Usage of the term (marine) biodiversity follows the definition laid down in article 2 of the Convention on Biological Diversity ("CBD"). Accordingly, biodiversity does not just include diversity at the species-level, such as marine plants, mammals, fishes and other living organisms, but also diversity of the ecosystems of which these species are part and genetic diversity within species. Concrete components of biodiversity are habitats, ecosystems, communities of species and genetic material. The term "marine environment" herein is used in a broad sense, and encompasses seas and oceans and its marine life, including gulfs and coastal areas, but not inland waters. The chapter has a special focus on marine capture fisheries (excluding therefore aquaculture) and the way in which these fisheries are managed in order to protect and preserve marine biodiversity.

2. The chapter first discusses the current threats to marine biodiversity posed by certain human activities. As the 2004 Kuala Lumpur Ministerial Declaration, made within the framework of the 1992 CBD, notes: "biological diversity is being lost at an unprecedented rate as a result of human activities." This certainly also applies to marine biodiversity.

3. Law, both international and national, is an indispensable tool for regulating human activities with the object of preventing or minimizing threats to marine biodiversity. Section II below examines the current international legal regime for the protection and preservation of marine biodiversity, with a special focus on marine capture fisheries. The international regime consists of legally binding and non-legally binding instruments, adopted at the global level or at the regional or sub-regional level. While the primary objective of many of these instruments may not always be the protection and preservation of marine biodiversity, they do contribute to that objective. The discussion concentrates on the main global and (sub-)regional instruments even though relevant instruments adopted at the bilateral level and those within the European Union are certainly no less relevant.

4. Ensuring that international instruments, whether legally binding or not, are effective, usually requires implementation at the national level and most often by means of legislation. Section III of this chapter, entitled National Implementation, therefore provides examples of the way in which states have implemented relevant international instruments through national legislation. These examples are also helpful for demonstrating how national legislation is applied to address marine biodiversity problems.

5. Our seas and oceans cover about 70% of the earth's surface and play important functions in maintaining and sustaining the earth's ecological balances. The seas and oceans produce a third of the oxygen that we breathe, offer a valuable source of protein and moderates global climatic change. Marine and coastal areas are home to a wide variety of ecosystems, for example, coral reefs found in both tropical and temperate areas, sea-grass beds and mangrove forests. Most of these ecosystems support a diverse spectrum of marine life, ranging from top predators such as marine mammals to organisms such as algae, which are at the bottom of the food web. Maintaining the abundance within and the biodiversity of these ecosystems is crucial for fisheries worldwide, including aquaculture. For many people throughout the world, the marine environment is not only a vital source of protein, but the activities which it sustains, such as fisheries, transport and tourism, also provides them with an income.

6. The need for the protection and preservation of marine biodiversity is especially necessary for organisms and habitats that are highly endemic, meaning they are found in very few places in the world. For example, the Indian Ocean is known to have 482 different species of coral, 27% of which live only at one location. Another example is the Baltic Sea, which is the largest body of brackish water in the world and contains many unique habitats that support rare marine organisms. Seamounts on the deep sea-bed are known for their endemism as well.

7. It is not just living marine resources that are beneficial to humans. The exploitation of non-living marine resources such as oil, gas, sand, gravel, and diamonds and other precious minerals provides states with substantial revenues. The benefits of the marine environment are also not limited to tangible resources. Other uses include the laying of submarine telecommunication cables and pipelines, maritime transport, tourism and various types of building activities. These latter building activities do not necessarily have to be related to resource exploitation, for example by oil rigs, but could also take the form of land reclamation, artificial islands or installations for producing energy from the water, currents or winds. Another use of the marine environment is marine scientific research, which has provided actual and potential benefits to all states on issues such as weather forecasting, the study of effects of ocean currents, and natural forces at work on the ocean floor. Marine bio-prospecting is a newly emerging use, which is aimed at identifying applications or uses of marine living organisms, parts thereof or their genetic material. While some regard it as marine scientific research, others prefer to treat it as a resource activity.

8. Many human activities that take place on land eventually also have an impact on the marine environment. Industrial activity and modern agricultural practices produce many pollutants that are either discharged directly into the marine environment or end up in the marine environment through the atmosphere or through rivers. Examples of pollutants are agricultural chemicals, heavy metals and nuclear waste. Once in the marine environment, these pollutants can cause ailments and death of living organisms, destroy marine habitats and otherwise have adverse effects on the functioning of marine ecosystems. If affected organisms in one way or another are consumed by humans, serious human health concerns can also arise.

9. Increasing global human population in recent decades and demographic trends of increasing population densities in coastal areas pose further problems to the marine environment. An estimated 67% of the current global population lives on the coast, or within 60 kilometres of the coast, and that percentage is still increasing. Many of the cities that currently experience the highest population growth, such as São Paulo, Shanghai, Hong Kong, Manila and Djakarta, are on or near the coast. These burgeoning populations do not only increase pressure on the utilization of resources in coastal areas but are also a continuously growing strain on the marine environment due to increased human activity both at sea and on land. The impact of untreated human waste alone is already a serious concern.

10. All of these uses, whether related to resources or not and whether they take place on land or at sea, have an impact on the marine environment and possibly on biodiversity. The expansion in types of uses of the marine environment as well as their intensity has not always been accompanied with adequate regulation at the national, regional or global levels. Also, if such regulation was in fact in place, compliance has often been inadequate to prevent serious adverse consequences for marine biodiversity. The most serious threats to marine biodiversity are degradation and loss of habitats, overexploitation and indiscriminate fishing practices, marine pollution, invasive alien species and climate change. The following paragraphs discuss marine biodiversity threats in relation to deforestation and mining, tourism, fishing and invasive alien species.

11. Deforestation and mining, even if occurring many hundreds of kilometres inland, often lead to widespread erosion and thereby large increases in sediment load in coastal areas. This has smothered coral reefs and other coastal habitats in Indonesia, Malaysia, the Philippines, Sri Lanka and in many other places in the world. Conversely, the construction of dams for hydro-electricity generation or for irrigation purposes has led to dramatic reductions in sediment loads, but with equally severe consequences for coastal ecosystems. The Nile Delta is reported to be sinking at an alarming rate due to a combination of lack of sediment input, enhanced erosion and severe reduction in nutrient load. Such problems have led to the collapse of fisheries in many places, including in the eastern Mediterranean region.

12. As a considerable segment of tourism occurs in coastal areas, it poses a sizeable threat to marine biodiversity. Such tourism can be land-based or vessel-based. Land-based tourism in coastal areas commonly requires permanent infrastructure, such as hotels and marinas. The establishment of this infrastructure has often led to the destruction of critical coastal habitats such as mangrove forests, wetlands, estuaries and coral reefs. Infrastructure development is often undertaken without proper evaluation of the functions and benefits of these habitats to local or regional ecosystem processes. Once constructed, the use of this infrastructure may also affect marine biodiversity, for example through the discharge of sewage, and tourism activities carried out in the marine environment, such as boating, recreational fishing, diving,

snorkelling and marine wildlife viewing. Coral reefs also suffer from extraction of coral for jewellery or souvenirs. This practice has resulted in the extinction of red and black corals in the Mediterranean and in the tropics. In Sri Lanka, reef cover is declining at an annual rate of 10% due to indiscriminate extraction methods. Vessel-based tourism, or cruise tourism, has grown considerably in recent decades. The environmental concerns of the increasing use of ever bigger vessels are largely similar to those of merchant ships. Once cruise vessels call in port, however, the environmental impact differs fundamentally. While supplying cruise vessels with large amounts of food, fresh water and fuel, collecting and processing huge quantities of various types of garbage and receiving many short-time visitors provides ports with financial benefits, these activities also lead to environmental and biodiversity concerns.

13. The essence of many of the problems currently faced by marine capture fisheries is caused by the fundamental characteristics of marine fish, namely that they are a common property and renewable natural resource that moves around freely. Failure to regulate will therefore inevitably lead to over-exploitation and economic inefficiency and ultimately to conflict at the national and/or the international level. As many fish stocks are not confined to single regulatory areas and cannot therefore be regulated by one single authority, it is often essential that fisheries management authorities cooperate in order to align their regulatory efforts. Non-alignment will eventually lead to declining catches in transboundary stocks on both sides of a maritime boundary. As the successful regulation of marine fisheries often depends on cooperation at the international level, the sovereign equality of states under international law is often perceived as a stumbling block. As no state, in principle, can be forced to do something against its will, international regulation may often be at the level of the 'lowest common denominator' and experience 'free rider' problems. This does not mean, as is by now widely recognized, that unilateral coastal State authority is a sufficient guarantee for sustainable fisheries.

14. According to figures released by the United Nations Food and Agriculture Organization in 2002, about 50% of the world's fish stocks are fully exploited and about 30% are over-exploited or depleted. However, those dramatic figures may be misleading due to massive over-reporting by China and El Niño fluctuations in the Peruvian anchoveta fishery. Consequently, the true situation is probably one of steadily declining global catches since the late 1980s. A well-known but sad case is that of the Northwest Atlantic cod stocks that collapsed in the early 1990s, and have not recovered since. Collapses of populations and extinction of species will often bring about changes in ecosystems. A very famous example is the North Eastern Pacific sea otter, which was hunted down to near extinction at the end of the 19th century. As sea otters prey on urchins, and urchins feed on kelp, this resulted in a loss of many kelp beds that are crucial habitats for fish and invertebrates. Intensive fishing activity can also lead to changes in the composition of fish stocks and loss of genetic diversity.

15. Fishing can also cause the local or regional extinction of species. For example, incidental and accidental catches of the pre-historic Coelacanth off the coast of the Comoros have finally brought the species on the brink of extinction. A form of fishing that is currently highly criticized for its threat to biodiversity is deep-sea fishing, in particular those fisheries that use techniques like bottom-trawling or that target seamounts. Some extremely destructive fishing practices, such as those involving the use of explosives or poison, such as cyanide, are sometimes still used by fishermen in developing states. While this satisfies short-term nutrition or financial needs, such desperate behaviour kills many non-target species, destroys entire habitats and has severe mid-term and long-term nutrition and financial implications. Generally, by-catch of commercial uninteresting species, which is commonly discarded, is acknowledged to be a huge problem. Media attention to this problem is nevertheless frequently limited to by-catch of high profile species, such as marine mammals, birds and sea turtles.

16. The intentional or accidental introduction of aquatic organisms into the marine environment is certainly not a new phenomenon, but has received continuously increasing attention in recent years. Intentional introduction of alien or new species usually occurs for perceived benefits, for example resource exploitation, but often overlooks the risks associated with limited scientific knowledge about the impacts of introduction. There are various so-called pathways of accidental introduction. One of these is by means of large merchant vessels up-taking and discharging water used for ballast tanks, which mainly serve to ensure a vessel's stability once it has offloaded its cargo. Due to the global nature of merchant shipping, the biodiversity threats and consequences of accidental introduction of alien species through ballast water are experienced throughout the globe. For

example, the introduction of the North American comb jelly by ballast water into the Black and Azov Seas has contributed significantly to the collapse of fisheries, with massive economic and social impacts. The Caspian Sea is presently facing the same threat.

II. International Framework

1. Global Legally Binding Instruments

a) United Nations Convention on the Law of the Sea

17. The rapid pace of technological development following, and in part triggered by, the Second World War, effectively disclosed the ocean's huge reserves of non-renewable resources, dramatically increased fishing effort, and led to a quickly expanding number of large vessels and volumes of hazardous cargo that traversed the oceans. This coincided with a growing global demand for resources, a widening awareness of environmental degradation, and a fundamental change in the nature and composition of the international community as a consequence of the process of decolonization and the Cold War.

18. Under these circumstances, the then existing international law of the sea was regarded as inadequate. This was partly because it was unable to deal with some of the new issues and uses of the oceans that had emerged but also because it no longer reflected the needs and interests of the predominant part of the international community. This created considerable friction, which sometimes led to heated skirmishes (e.g., the 'cod wars' between Iceland and the United Kingdom between 1958 and 1976). The need for a legal order for the oceans that would be both general (relating to all ocean space) and comprehensive (for covering all uses and resources) was eventually widely recognized. After a lengthy process of negotiation, this need resulted in the adoption of the United Nations Convention on the Law of the Sea ("UNCLOS") on 10 December 1982. UNCLOS entered into force on 16 November 1994. (See also generally chapter 13 above).

19. The overarching objective of UNCLOS is to establish a universally accepted, just and equitable legal order - or 'Constitution' - for the oceans that lessens the risk of international conflict and enhances stability and peace in the international community. The fact that UNCLOS had, in September 2005, attracted 149 parties suggests that this objective has been achieved. However, UNCLOS is in many ways a framework convention that relies on implementation at the global and regional levels through various international organizations. In the sphere of vessel-source pollution, for example, this implementation mandate was entrusted to the International Maritime Organization ("IMO") while fisheries were foreseen to be managed at the regional level through Regional Fisheries Management Organizations ("RFMOs"). Moreover, in view of the constantly changing needs and interests of the international community, UNCLOS would need to be amended or complemented by new international instruments. While some of these instruments adopted since 1982 are closely connected with the UNCLOS, for others this is less so.

20. UNCLOS is a massive treaty. It consists of 320 articles in 17 separate parts and has 9 Annexes. As a 'Constitution for the Oceans,' the Convention deals with a much broader range of issues than those related to marine biodiversity and sustainable fisheries, but those are not discussed in this chapter. The parts in UNCLOS have either a zonal scope or a thematic scope. The zonal scope is used for part II 'Territorial Sea and Contiguous Zone,' part III 'Straits used for International Navigation,' part IV 'Archipelagic States,' part V 'Exclusive Economic Zone,' part VI 'Continental Shelf,' part VII 'High Seas,' and part XI 'The Area.' Of the remaining thematic parts, part XII 'Protection and Preservation of the Marine Environment' is particularly important for this chapter and is also covered in chapter 13.

21. International law recognizes that the "territory" of a state consists of the following components: the land (including islands and rocks), internal waters, territorial sea, archipelagic waters, and the subsoil below and the airspace above these. A state enjoys sovereignty within its territory but beyond that a state can only have less than sovereignty, for example sovereign rights, jurisdiction, rights or freedoms. States can establish a territorial sea with a maximum breadth of 12 nautical miles (1 nautical mile = 1,852 kilometres) measured from the baselines along the coast, as provided in article 2. Archipelagic waters are the waters enclosed by drawing lines around groups of islands according to specific conditions as provided in article 47. A coastal state's sovereignty within its territorial sea and archipelagic waters entitles it to all the living and non-living resources therein. It also gives the coastal state practically unlimited jurisdiction to prescribe and enforce its own laws and regulations with respect to all activities occurring therein, including those by foreign ships and aircrafts. The main exception to that jurisdiction is the right of innocent passage for ships of all states under article 17.

22. Coastal states are also entitled to an Exclusive Economic Zone ("EEZ") with a maximum width of 200 nautical miles, measured from the baselines. In their EEZs, coastal states have sovereign rights for the purpose of exploring, exploiting, conserving and managing the living and non-living natural resources, and for other economic activities (articles 55-57). These resources include those in the water column, such as fish, and on or under the sea bed, for example abalone, oil and gas. In their EEZs coastal states also have jurisdiction for the protection and preservation of the marine environment but this can only be exercised by taking account of the freedoms of other states in the EEZ, for instance navigation, over flight, and the laying of sub-marine cables and pipelines.

23. In certain circumstances, coastal states have a continental shelf that extends beyond the EEZ, sometimes even beyond 350 nautical miles measured from the baselines (article 76). Over its continental shelf, a coastal state has sovereign rights for the purpose of exploring it and exploiting its natural resources, including relevant jurisdiction. These natural resources consist of the non-living resources of the sea-bed and subsoil together with sedentary species, such as clams and abalone, as provided in article 77.

24. Those parts of the sea that are not internal waters, territorial sea, archipelagic waters or EEZ, are high seas. All states enjoy the freedoms of the high seas mentioned in paragraph 22 of this chapter in addition to the freedoms of scientific research, construction of artificial islands and fishing, except for sedentary species on a coastal state's juridical (legal) continental shelf as provided by articles 76 and 77. The 'Area' is the sea-bed and ocean floor beyond the coastal states' legal continental shelves. The non-living mineral resources in the area are part of the common heritage of mankind and subject to an internationalized management regime as provided by articles 1(1)(1), 133 and 136.

25. UNCLOS does not only grant rights but also imposes obligations. Whenever the Convention acknowledges or grants a right to states, whether in their capacity as flag state (the state where a ship is registered) or as a coastal state, it is commonly followed by an obligation for other states to respect these rights. In addition, UNCLOS imposes obligations on states acting in their different capacities that are owed to the international community. The most important of these are obligations on the conservation and utilization of marine living resources, and on the protection and preservation of the marine environment.

26. The obligations on the conservation and utilization of marine living resources are included in part V on the EEZ and Section 2 of part VII on the high seas, but (rather strangely) not in relation to sedentary species (article 68). Articles 61 and 62 contain obligations on conservation and utilization that apply to any category of species that occurs within a coastal State's EEZ. Article 61 requires a coastal state to establish a Total Allowable Catch ("TAC") to ensure that the harvesting of living resources within the state's EEZ is aimed at producing the Maximum Sustainable Yield ("MSY") and does not lead to over-exploitation. Serious over-exploitation often leads to the collapse of stocks and thereby affects the mid- and long-term interests of present and future generations. These obligations also require the coastal state to gather a wide range of relevant data to ensure that the TAC is based on the best scientific evidence available. A TAC can take many forms, for instance a maximum amount of fish that can be caught, a maximum number of licensed ships or a fixed fishing season. In the context of this chapter, it is important to note that article 61 does not just deal with targeted fish. The TAC should take account of the interdependence of stocks. Therefore, the conservation measures of the coastal state are also required to take into consideration the effects of fisheries on associated species (by-catch) and dependent species (predator-prey relationships), as well as environmental factors. However, these obligations still fall short of a firm obligation to engage in the recently emerging holistic notion of ecosystem-based fisheries management.

27. Article 62 contains a type of obligation that is very different from that in article 61. Article 62 requires the coastal state to promote the objective of optimum utilization of the living resources in its EEZ. In case the coastal state has insufficient capacity to harvest the entire TAC, it must give other states access to the surplus of the TAC. The coastal state is normally given compensation, monetary or otherwise, for allowing other states to harvest the surplus. In addition, under article 62(4), a coastal state's sovereign rights in its EEZ allow the coastal state to require foreign ships that harvest the surplus in its EEZ to comply with a wide range of laws and regulations. The objective of optimum utilization was inserted with concerns of global food security in mind. However, there are currently very few stocks that are under-utilized. Article 62 recognizes that the objective of optimum utilization is "without prejudice to" article 61, meaning that the objective must give way to the obligation to conserve and avoid over-exploitation.

28. Maritime boundaries only exist on maps. They do not impede the movement of marine species and they are also not drawn or negotiated with the range of distribution of marine species in mind. The need for states to cooperate in order to align their management of marine living resources with other states is therefore evident. Articles 63-67 lay down regimes for international cooperation for various different categories of species whose ranges of distribution are not confined to a single coastal state's EEZ. These categories are: shared stocks within the EEZs of two or more coastal states under article 63(1), straddling stocks between EEZs and the high seas under article 63(2), the highly migratory species listed in Annex I to the UNCLOS that are presumed to occur both in the EEZ and the high seas, for instance tuna species under article 64, marine mammals under article 65, anadromous species, such as salmon, which spawn in rivers but spend most of their life in the marine environment under article 66, and catadromous species, such as certain eel species, which spawn in the ocean but spend most of their life in rivers under article 67. Whereas the regimes for anadromous and catadromous species reserve harvesting for coastal states in their maritime zones and prohibit flag states to harvest these species on the high seas, the other regimes do not give preference to one or the other. They essentially require the states involved to cooperate either directly or through appropriate international organizations. Regional Fisheries Management Organizations are currently the most widely used vehicles for cooperative international management.

29. Articles 116-120 in Section 2 of part VII on the high seas contain the regime for the conservation and management of the living resources of the high seas. Article 116 recognizes the freedom of fishing on the high seas but makes this right explicitly subject to the obligation to respect the rights, duties and interests of coastal states under articles 63(2) and 64-67, the obligation to avoid over-exploitation and cooperation with other high seas fishing states. This regime therefore also applies to stocks whose range of distribution is confined to the high seas (discrete high seas stocks). Article 119 repeats many of the obligations that are also laid down in article 61 on the EEZ. For instance, those on the objective of MSY, science-based management and taking account of the effects on associated and dependent species and environmental factors.

30. The obligations in UNCLOS on the protection and preservation of the marine environment are largely laid down in part XII. It commences with article 192, which lays down a, by now, universally accepted legal norm: "states have an obligation to protect and preserve the marine environment." This is immediately followed by the overarching objective of sustainable development, which requires a balancing of economic, social and environmental considerations for present and future generations. It reads: "states have the sovereign right to exploit their natural resources pursuant to their environmental policies and in accordance with their duty to protect and preserve the marine environment." Part XII does not define 'their natural resources.' To determine what these are and which states have sovereign rights or freedoms over them, it is necessary to go back to the zonal parts of UNCLOS.

31. Part XII deals with 'pollution of the marine environment'. This term is defined in article 1(1)(4). Pollution as an activity is obviously very different from fishing. The object of fishing or hunting for marine mammals is expressly aimed at removing species from the natural environment. If unregulated, this intentional activity will therefore pose a risk to marine biodiversity. In addition, fishing activities may have side-effects that are not expressly intended, for instance by-catch of commercially uninteresting species that are discarded, or bottom trawling that has negative effects on the ecosystem. The actual object of pollution, on the other hand, is to get rid of substances or energy but not to cause environmental damage or pose a threat to marine biodiversity, even though it may have that effect.

32. Chapter 13 above discusses how UNCLOS deals with pollution of the marine environment. While UNCLOS does not embrace the notion or objective of marine biodiversity, or even define 'marine environment,' the definition of 'pollution of the marine environment' encompasses "harm to living resources and marine life." Whereas measures to prevent, reduce or control pollution of the marine environment are undeniably also beneficial to the protection and preservation of marine biodiversity, they are not often specifically designed for that purpose. Rather, these measures are intended to protect and preserve the marine environment in general.

33. Two provisions in part XII are exceptions to this general rule. First, article 194(5) requires all states, when they take measures to prevent, reduce or control pollution of the marine environment, to "include those (measures) necessary to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life." Measures

would be required in relation to any source of pollution, for example pollution by ships through dumping and operational discharges, from land (through rivers) or from the exploitation of the non-living resources on the sea-bed. Second, article 196(1) requires states to "take all measures necessary to prevent, reduce and control pollution of the marine environment resulting from … the intentional or accidental introduction of species, alien or new, to a particular part of the marine environment, which may cause significant and harmful changes thereto." It seems that the words "resulting from" are intended to qualify the introduction of new or alien species as 'pollution of the marine environment' or at least that it be treated as such. Regardless of the correctness of this interpretation, article 196(1) clearly imposes an obligation on states to prevent, reduce and control significant and harmful changes to the marine environment caused by the introduction of new or alien species. It is noteworthy that the IMO 2004 Ballast Water Convention, discussed below in paragraphs 49-50 of this chapter, does not refer to pollution.

b) Fish Stocks Agreement and other Developments

34. Even though UNCLOS was intended to be a Constitution for the Oceans, this did not mean that it was cast in stone. It was understood that the needs and interests of the international community would be constantly changing and that UNCLOS had to be adjusted accordingly. One such adjustment already took place before UNCLOS entered into force in 1994. The adjustment concerned the regime for the exploitation of the deep sea-bed in the area in part XI of UNCLOS. An important group of developed states that were expected to actually engage in such exploitation, including the United States, was dissatisfied with the regime. As these dissatisfied states were therefore unlikely to become parties to UNCLOS and would thereby effectively block universal acceptance and effectiveness, an Implementation Agreement was adopted in 1994 that met their concerns. This Agreement allowed for the current near-universal participation in UNCLOS.

35. In the early 1990s, the international community agreed that something needed to be done concerning international cooperation in the conservation and management of straddling fish stocks and highly migratory fish stocks. This eventually led to the adoption of the United Nations 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 ("1995 Fish Stocks Agreement") in New York, on 4 August 1995. The 1995 Fish Stocks Agreement entered into force on 11 December 2001, and has currently 56 parties (as of September 2005). The 1995 Fish Stocks Agreement only deals with straddling and highly migratory fish stocks, and therefore not with the other categories of species in articles 63(1) and 65-68 and discrete high seas species. However, some of the provisions and concepts in the 1995 Fish Stocks Agreement would be very useful for the international management and conservation of some of these categories of species as well. Some of these provisions could even be argued as already being part of customary international law.

36. The 1995 Fish Stocks Agreement does not fundamentally change the balance of rights of UNCLOS between coastal states and states that fish on the high seas. As the full title of the Agreement reveals, it implements certain provisions of UNCLOS. While building on the balance of rights of UNCLOS, it makes the obligations of states broader, stronger and more detailed. In addition, part VIII of the 1995 Fish Stocks Agreement contains a robust dispute settlement procedure which is largely linked to the similarly robust procedure of UNCLOS.

37. The widening of the obligations is, among other things, evident in the obligation to apply the precautionary approach and to protect marine biodiversity under articles 5(c) and 5(g) of the Agreement. The precautionary approach is described in article 6, noting that "The absence of adequate scientific information shall not be used as a reason for postponing or failing to take conservation and management measures." The remainder of the provision, as well as Annex II, give states very detailed guidance on how the precautionary approach needs to be implemented. The 1995 Fish Stocks Agreement places marine capture fisheries in a much wider context in comparison with UNCLOS. In addition to the need to take account of associated and dependent species, paragraphs (d), (e) and (f) of article 5 require states to take account of a wide range of ecosystem considerations, for instance assessing the impacts of non-fisheries activities on target stocks, minimizing pollution, waste, discards, catch by lost or abandoned gear and catch of non-target species. Together, the provisions require states to pursue a much more holistic approach to fisheries management. This is undoubtedly a significant advance of international law, even though the real litmus test remains, as always, implementation at the national and regional level.

38. The strengthening of obligations is, among other things, reflected in the concept of compatibility. Accordingly, article 7 stipulates that the conservation and management measures that the coastal state applies in its EEZ with respect to straddling and highly migratory fish stocks should be compatible with the conservation and management measures applied by states fishing on the high seas for those stocks. Moreover, article 8 firmly recognizes the role of the Regional Fisheries Management Organizations ("RFMOs") as international vehicles for fisheries governance. Only states that are members of RFMOs or that cooperate with them "shall have access to the fishery resources" (paragraph (4)). While this is a treaty provision that applies in principle only between states that are parties to the 1995 Fish Stocks Agreement, many RFMOs already take measures against non-cooperating states.

39. Article 312 of UNCLOS contains a procedure for the amendment of the Convention that can be used after it has been in force for ten years. As the article 312 procedure has become available in 2004, the international community is currently looking at issues that would be suitable for such a procedure. It should be observed, however, that the two implementation agreements of 1994 and 1995 show that there are alternatives to this procedure. Regarding marine biodiversity, there were already some calls to negotiate a more comprehensive regime to ensure high seas biodiversity or a more specific regime for high seas fishing or deep-sea fishing, as well as a specific instrument on biodiversity and genetic resources of the deep sea-bed.

c) Convention on Biological Diversity

40. The Convention on Biological Diversity ("CBD") was negotiated under the auspices of UNEP, adopted in 1992 and entered into force on 29 December 1993. It has 188 parties (as of November 2005), therefore, its application is even more universal than UNCLOS. CBD is one of the outcomes of the United Nations Conference on Environment and Development, held in Rio de Janeiro in 1992, and establishes a global legally binding framework for the conservation of biodiversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources. Since the Convention on Biological Diversity is examined in Chapter 15 above, this chapter's discussion focuses on the applicability of CBD to marine biodiversity, as well as relevant implementation efforts by its governing body, the Conference of Parties ("COP") and its Subsidiary Body on Scientific, Technical and Technological Advice ("SBSTTA").

41. The applicability of CBD to marine biodiversity is primarily determined by articles 4 and 22. Article 22 on 'Relationship with other International Conventions' stipulates in paragraph (1) that the Convention shall not affect rights and obligations under other existing international agreements except where their exercise "would cause a serious damage or threat to biological diversity." Paragraph (2) determines that parties to the CBD "shall implement this Convention with respect to the marine environment consistently with the rights and obligations of States under the law of the sea." Whereas paragraph (1) could be regarded as establishing the supremacy of biodiversity obligations, paragraph (2) ensures that this supremacy does not affect the balance between rights and obligations (or jurisdictional balance) within the law of the sea, most importantly UNCLOS. It does not say that the rights and obligations under the law of the sea are not constrained by the supremacy of biodiversity obligations; which they are! But the threshold of "serious damage or threat" ensures that this supremacy is not automatic. The manner in which they are constrained is indicated by article 4 on 'Jurisdictional Scope'. This provision effectively distinguishes between 'areas within the limits of national jurisdiction' and beyond.

42. Beyond the limits of national jurisdiction, *inter alia*, the high seas and the area, only the CBD provisions on processes and activities carried out under the jurisdiction or control of states are applicable. Fishing on the high seas is an obvious example of such an activity. Flag states that become parties to the CBD thereby accept certain obligations in relation to fishing by their nationals, both natural and juridical, and vessels on the high seas. The limitation mentioned at the outset is a significant one as the CBD's obligations on processes and activities contained in articles 3, 5, 7(c) and 8(l) are not very specific. Article 3 obliges states "to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction." The wording of this obligation is similar to that in article 194(2) of the UNCLOS Convention. However, the biodiversity-focus of the CBD means that the term "environment" has a broader meaning here in comparison with the UNCLOS Convention. The obligation has therefore broadened as well. Article 7(c) of the CBD requires states to "identify processes and categories of activities which have or are likely to have significant adverse impacts on the conservation and sustainable use of biological diversity, and monitor their effects through sampling and other techniques." Article 8(l) requires states to regulate or manage processes and activities where a significant adverse effect on biological diversity has

been determined pursuant to article 7. These three provisions are complemented by article 5, which obliges states to cooperate "in respect of areas beyond national jurisdiction and on other matters of mutual interest, for the conservation and sustainable use of biological diversity."

43. In areas within the limits of national jurisdiction, which, *inter alia*, include the EEZ and the legal continental shelf, the provisions of the CBD are fully applicable. That is, they apply to components of biodiversity (for example a particular species or habitat) as well as to processes and activities carried out under the jurisdiction or control of states. With regard to processes and activities, the obligations identified in paragraph 42 of this chapter are applicable. Regarding components of biodiversity, the provisions of the CBD apply in principle in a similar way to the marine environment as to the terrestrial environment. The discussion in chapter 15 above would therefore be just as relevant to the maritime zones of coastal states. States are required, for example, by article 6 to "develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity" and to integrate these, as far as possible and as appropriate, into relevant sectoral or cross-sectoral plans, programmes and policies. Moreover, article 7 lays down identification and monitoring obligations, and article 8 obligations on 'in-situ conservation,' for example, through the establishment of a network of protected areas where measures apply to conserve one or more components of biodiversity, or by preventing the introduction of, controlling or eradicating alien species which threaten ecosystems, habitats or species.

44. As a framework convention, the CBD needed further implementation efforts to tailor it to concrete issues and to set priorities. For this purpose, the COP has so far developed seven Thematic Programmes and fourteen Cross-Cutting Issues, which are integrated into the Thematic Programmes. The Thematic Programme on the Conservation and Sustainable Use of Marine and Coastal Biological Diversity (Jakarta Mandate) was adopted by Decision II/10 at COP-2 (1995). The programme of work for the Jakarta Mandate was first adopted at COP-4 (1998) but has been elaborated at later COPs, most recently at COP-7 (2004). The programme of work aims at assisting the implementation of the Jakarta Mandate at the national, regional and global levels. It identifies key operational objectives, priority activities and time-schedules within each of the five programme elements: (1) integrated marine and coastal area management, (2) marine and coastal living resources, (3) marine and coastal protected areas, (4) mariculture, and (5) alien species and genotypes. A specific work plan on coral bleaching has been integrated into programme element (2). At this time, the Jakarta Mandate does not seriously address the shortcoming identified above, namely the non-applicability of the CBD to components of biodiversity beyond the limits of national jurisdiction. However, the Decision VII/5 'Marine and Coastal Biodiversity, adopted at COP-7 (2004), could be seen as a modest first step to address this in relation to the conservation and sustainable use of deep sea-bed genetic resources.

45. The cross-cutting issues that seem especially relevant to the Jakarta Mandate are the Ecosystem Approach, Protected Areas and Alien Species. Important COP decisions on these Cross-Cutting Issues include: Decision V/6 of COP-5 (2000) 'Ecosystem Approach', which contains a description (instead of a definition), offers operational guidance and recommends the application of 12 principles of the ecosystem approach; a Decision VII/11 on 'Ecosystem Approach' adopted at COP-7, whose Annex contains a refinement and elaboration of the ecosystem approach and annotations to the 12 ecosystem principles; the Decision VII/5 on 'Marine and Coastal Biodiversity' adopted at COP-7 (2004) which gives higher priority to marine protected areas, both within and beyond areas of national jurisdiction; the Decision VII/28 on 'Protected Areas (articles 8(A) to (E))' adopted at COP-7, whose Annex lays down a Programme of Work on Protected Areas; and Decision VI/23 of COP-6 (2002) 'Alien Species that threaten Ecosystems, Habitats or Species,' whose Annex contains 'Guiding Principles for the Prevention, Introduction and Mitigation of Impacts of Alien Species that threaten Ecosystems, Habitats or Species.'

46. The further implementation of the CBD at the national, regional and global levels goals is also addressed in Decision VI/26, by which COP-6 adopted the Strategic Plan for the Convention on Biological Diversity ("Strategic Plan"). The Strategic Plan's mission is "to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to the benefit of all life on earth." It also identifies various strategic goals and objectives. In relation to subgoals 1.1-1.3 on international cooperation, mention should also be made of the Decision on 'Cooperation with other Conventions and International Organizations and Initiatives,' adopted at COP-7. The general issue of cooperation between the CBD and other international organizations is discussed in Chapter

15 of this Manual. In the context of marine biodiversity, the CBD cooperates with global organizations like the FAO and with regional organizations such as the OSPAR Commission (see below) and other regional seas agreements, as well as with RFMOs.

d) Global Conventions on Marine Pollution

47. Chapter 13 on marine pollution discusses a number of global conventions aimed at the prevention, reduction and control of marine pollution. As noted in paragraph 32 above, however, these conventions are not specifically aimed at the protection and preservation of marine biodiversity, even though their effective implementation may lead to significant benefits in that regard. There are nevertheless some exceptions to this general rule. For instance, MARPOL 73/78 uses a system of special areas in which more stringent discharge and emission standards for polluting substances apply. The designation of such special areas and the more stringent standards could be justified on account of the need to protect marine biodiversity.

48. Also, a coastal state or a group of coastal states that have identified an area within their EEZ where marine biodiversity is threatened by international merchant shipping could ask the International Maritime Organization ("IMO") to designate this area as a Particularly Sensitive Sea Area ("PSSA") and have one or more associated protective measures applied therein. Appropriate protective measures could, for instance, be the designation of areas to be avoided or precautionary areas. As there is no exhaustive list of these measures, states could propose innovatory measures as well. Most of these measures would also be available without PSSA identification but not without IMO approval. In recent years, the IMO bodies with competence to approve such protective measures have appeared to be both pragmatic and broad-minded. This is reflected in the adoption of a ship reporting system aimed at avoiding ship strikes of the North Atlantic right whale off the Atlantic coast of the United States and the 'no-anchoring area' to protect coral reefs in the Flower Garden Banks Marine Sanctuary in the United States EEZ in the Gulf of Mexico. Neither of these measures was linked to a PSSA.

49. In February 2004 the International Convention for the Control and Management of Ships' Ballast Water and Sediments ("2004 Ballast Water Convention") was adopted within the IMO. The Convention is made up of 22 articles and a single Annex consisting of Regulations and two Appendices. Pursuant to its core obligation in article 2(1), states are obliged to give full and complete effect to all provisions in order to prevent, minimize and ultimately eliminate the transfer of harmful aquatic organisms and pathogens through the control and management of ships' ballast water and sediments. Article 1(8) defines 'harmful aquatic organisms and pathogens' as "aquatic organisms and pathogens which, if introduced into the sea including estuaries, or into fresh water courses, may create hazards to the environment, human health, property or resources, impair biological diversity or interfere with other legitimate uses of such areas". This explicit reference to "biological diversity" is probably the first of its kind in an IMO convention. As was already noted in paragraph 33 above, the 2004 Ballast Water Convention does not address impacts of ballast water in terms of pollution. This is also why it was regarded as inappropriate to lay down its substance in an Annex to MARPOL 73/78. Treatment in this subsection on 'Global Conventions on Marine Pollution' is therefore not strictly correct.

50. The 2004 Ballast Water Convention, which has not entered into force yet, establishes a minimum level of regulation for certain types of ships that carry ballast water. Among other things, ships are to have on board and implement a Ballast Water Management Plan, to carry a Ballast Water Record Book and to meet ballast water management requirements. The latter necessitates existing ships to meet ballast water exchange standards and new ships to meet performance standards or alternatives that offer equal levels of protection. Vessels using the ballast water exchange method should not discharge ballast water within 200 nautical miles from the nearest land or in waters with depths lower than 200 meters and must meet an efficiency of at least 95% volumetric exchange (Regulations B-4 and D-1). Interestingly, article 2(3) and Section C of the Annex allow states individually or in concert to regulate more stringently above this minimum level. The extent to which this Convention contributes to global uniformity in the regulation of international merchant shipping therefore remains to be seen. This concern is especially pertinent as IMO conventions take a long time to enter into force, and this convention is not expected to be any different. The residual regulatory competence of states pursuant to article 2(3) and Section C not only acknowledges existing mandatory and voluntary regulation but also that further regulation does not have to await entry into force of the Convention.

e) International Convention for the Regulation of Whaling

51. The International Convention for the Regulation of Whaling ("1946 ICRW") is presently the only instrument at the global level that deals specifically with both the conservation and utilization of marine living resources. The Preamble to the 1946 ICRW identifies this dual purpose as "to provide for the proper conservation of whale stocks and thus make possible the orderly development of the whaling industry." The ICRW was adopted on 2 December 1946 and came into force on 10 December 1948. The negotiation of the ICRW built on the 1937 International Agreement for the Regulation of Whaling and its 1938 and 1945 Protocols. At the time of writing, there were 51 states parties to the 1946 ICRW. The Schedule attached to the 1946 ICRW and which is an integral part of it contains the agreed definitions and technical conservation and management measures.

52. Marine mammals can be grouped together in three orders: the Cetacea (whales, dolphins and porpoises), the Sirenia (dugongs, manatees and seacows) and the Carnivoria (sea otters and polar bears and the species belonging to the Pinnipedia (seals, sea lions and walruses)). As most commentators regard the species coverage of the ICRW as being limited to baleen whales and large toothed whales (paragraph I of the Schedule), smaller types of whales, such as dolphins and porpoises and species from the other orders of marine mammals are excluded. Many of these species nevertheless fall within the coverage of the Convention on the Conservation of Migratory Species of Wild Animals ("CMS"). The CMS is largely a framework instrument which relies for its implementation on the creation of regulatory instruments at the regional level. In contrast with the ICRW's dual objectives of conservation and utilization, these regional instruments have so far been primarily or exclusively concerned with conservation. Chapter 14 above deals in detail with the CMS and the regional instruments that have been adopted under it.

53. 1946 ICRW predates UNCLOS by several decades. It is therefore no surprise that the coverage of the ICRW is not influenced by the division of the oceans in the maritime zones and the rights of coastal states and flag states therein as recognized by UNCLOS. 1946 ICRW "applies to factory ships, land stations and whale catchers under the jurisdiction of the Contracting Governments and to all waters in which whaling is prosecuted by such factory ships, land stations and whale catchers" as provided by article I(2). However, it should be realized that the ICRW does not affect the sovereign rights of coastal states over marine mammals in their EEZs under article 65 of UNCLOS. This means that whether or not a coastal state is a party to 1946 ICRW, it has a right under article 65 to regulate the exploitation of marine mammals more strictly than the ICRW. If, for instance, 1946 ICRW would in the future allow commercial whaling in the Indian Ocean, a coastal state like India could nevertheless prohibit all whaling within its EEZ. The reverse is not possible. That is, a party to the ICRW cannot authorize whaling in its own EEZ by invoking article 65 of UNCLOS if it is also legally bound to a ban on whaling under 1946 ICRW.

54. 1946 ICRW establishes the International Whaling Commission ("IWC") as its regulatory body. The main duty of the IWC is to review and revise as necessary the measures laid down in the Schedule that governs the conduct of whaling throughout the world. These measures, among other things, provide for the complete protection of certain species; designate specified areas as whale sanctuaries (for example, the Indian Ocean Sanctuary established in 1979 and the Southern Ocean Sanctuary established in 1994); set limits on the numbers and size of whales which may be taken; prescribe open and closed seasons and areas for whaling; and prohibit the capture of suckling calves and female whales accompanied by calves (see article V(1)). Parties to 1946 ICRW are required by article IX(1) to take appropriate measures to ensure the application of the provisions of this Convention and the punishment of infractions of its provisions in operations carried out by persons or by vessels under its jurisdiction. This will require states to enact the necessary national legislation.

55. As the IWC has become a highly politicized body where decisions are often not just based on science but also on political and cultural grounds, it is useful to look at the ICRW's decision-making procedures. Each contracting party to 1946 ICRW has one member in the IWC and one vote, as provided under article III(1). The IWC meets once a year in one of its member states to amend the Schedule. The core-decisions under article V(1) must be taken by a three-fourths majority; other decisions are taken by a simple majority, as required under article III(2). There is also an 'opting-out' procedure under article V(3), which enables parties to avoid becoming legally bound to amendments that were adopted with the necessary majority. This procedure currently allows, for instance, Norway to be legally engaged in

commercial whaling despite the general moratorium on commercial whaling that is in force. The IWC is assisted by a Scientific Committee, which assesses the status of the world's whale stocks and offers the IWC advice on the need for regulation. However, the IWC is not bound by that advice.

56. In the last decade, the Scientific Committee has also recognized the need for scientific research on the effects of environmental change on whales. The need to place the management and conservation of whales in a broader ecosystem context has, among other things, led to several workshops (including one on the interactions between whales and fish stocks), research programmes, and closer cooperation with the Secretariat of the CMS and the Commission for the Conservation of Antarctic Marine Living Resources ("CCAMLR"). At its 55th Annual Meeting in 2003, the IWC adopted the Berlin Initiative on Strengthening the Conservation Agenda of the International Whaling Commission, which established a permanent Conservation Committee. The efforts of this Committee may strengthen the conservation agenda of the IWC and place whaling in a broader ecosystem context. In 2001, the IWC recognized the importance of habitat protection and integrated coastal zone management for whales and urged states to take appropriate action within and under relevant international conventions.

57. Marine mammals have relatively low levels of reproduction and this especially holds true for large whales. Intensive hunting therefore brings a high risk of over-exploitation, the collapse of stocks and even extinction. By the late 1970s, there was a well-founded concern that centuries of whaling had brought most of the large whale species to the brink of extinction. In 1982, the IWC eventually agreed to a pause in commercial whaling on all whale stocks from the 1985/86 season onwards. This moratorium on commercial whaling has been in effect ever since. In the meantime, the IWC has developed a Revised Management Procedure ("RMP") which seeks to ensure that once the moratorium is lifted, sufficient account is taken of the high risks to over-exploitation and thereby loss to marine biodiversity. The moratorium will not be lifted until the completion of the Revised Management Scheme ("RMS"), which complements the RMP on matters of supervision, control and data-gathering to ensure that catch limits are not exceeded. Currently, the RMS appears to be nearing completion.

58. Today, whaling still continues despite the moratorium on commercial whaling. Some whaling is allowed for the purpose of aboriginal subsistence whaling, for example, in Greenland, the Russian Federation, St. Vincent and the Grenadines and the United States. Moreover, Norway continues commercial whaling on the northeast Atlantic minke whale stock after Norway opted-out of the moratorium; and both Iceland and Japan are engaged in scientific whaling pursuant to article VIII of 1946 ICRW. These three states are continuously criticized for their whaling activities. Finally, small numbers of large whales are occasionally taken by nationals of states that are not parties to 1946 ICRW.

59. It is difficult to predict what will happen with the IWC in the future, even in the near future. It is hard to deny that some stocks of some of the large whale species would allow limited commercial whaling. Some argue, however, that even if this were true, shortcomings in monitoring and control would inevitably lead to excess catches of authorized stocks and illegal catches of stocks for which the moratorium would still apply. The polarization of the IWC in a pro-whaling and an anti-whaling camp is, however, more than anything caused by cultural and political factors. Some members of the IWC have openly stated that they will never agree on a resumption of commercial whaling under any circumstances. At the closure of the 55th Annual IWC Meeting in 2003, a group of 17 members, including Iceland, Japan and Norway, issued a statement in which they concluded that the establishment of the Conservation Committee and the failure to adopt the RMS have "provoked an increased interest in examination of alternatives that would provide for the sustainable use of abundant whale resources." But as the IWC's collapse has been predicted so often in the past already, only time will tell. The key to a healthy IWC lies in the diligence by which the participating states respect each other's views and legitimate rights and interests in light of the overarching need for conservation of whale species.

60. One global instrument that should not be left unmentioned here is the Convention on International Trade in Endangered Species of Wild Fauna and Flora ("CITES"). Trade regulation by CITES can complement the efforts in the protection and preservation of marine biodiversity of the IWC and RFMOs. Chapter 14 above deals in detail with CITES while specific aspects, such as trade, are alluded to in other chapters and in particular chapter 24 on Trade and Environment.

2. Regional Legally Binding Instruments

a) Regional Fisheries Management Organizations

61. As most fish stocks are not confined to the maritime zones of a single coastal state, management and conservation needs to take place at the bilateral, regional or sub-regional level. The framework character of the UNCLOS and the Fish Stocks Agreement envisages this as well. Article 8 of the Fish Stocks Agreement clearly confirmed the international community's preference for RFMOs as the appropriate international vehicles for fisheries governance. There are currently more than 30 international fisheries bodies. However, not all of these have a management mandate that allows them to determine a TAC or allocate the TAC between the participating states. The fisheries bodies established under article VI(1) and (2) of the Constitution of the United Nations Food and Agriculture Organization have, for instance, merely an advisory role. Other bodies only have a scientific advisory role, such as the International Council for the Exploration of the Sea ("ICES"). Table 1 lists some of the main RFMOs.

Table 1: Some Regional Fisheries Management Organizations

- Commission for the Conservation of Antarctic Marine Living Resources ("CCAMLR")
- Commission for the Conservation of Southern Bluefin Tuna ("CCSBT")
- General Fisheries Commission for the Mediterranean ("GFCM")
- Inter-American Tropical Tuna Commission ("IATTC")
- International Baltic Sea Fishery Commission ("IBSFC ")
- International Commission for the Conservation of Atlantic Tunas ("ICCAT")
- Indian Ocean Tuna Commission ("IOTC")
- International Pacific Halibut Commission ("IPHC")
- Northwest Atlantic Fisheries Organization ("NAFO")
- North Atlantic Salmon Conservation Organization ("NASCO")
- North-East Atlantic Fisheries Commission ("NEAFC")
- North Pacific Anadromous Fish Commission ("NPAFC")
- Pacific Salmon Commission ("PSC")
- South East Atlantic Fisheries Organization ("SEAFO")*
- Western and Central Pacific Fisheries Commission ("WCPFC")*

** Constitutive instrument in force but Commission not yet fully operational*

62. While all the RFMOs that are listed in Table 1 have management powers, there are numerous important differences between them. These differences relate to, among other things, their geographical scope of operation, the type or categories of species for which they have competence and their management and conservation mandates. To illustrate some of these differences, two of these RFMOs will be discussed in more detail. These are ICCAT and CCAMLR. As a general observation, however, many RFMOs take account of associated and dependent species as required by the UNCLOS Convention but only CCAMLR and the IBSFC take a more holistic, ecosystem-oriented approach.

i. International Convention for the Conservation of Atlantic Tunas

63. The International Convention for the Conservation of Atlantic Tunas ("1966 ICCAT") was adopted on 14 May 1966, and entered into force on 21 March 1969. The 1992 Protocol with the new calculation scheme for annual financial contributions had not yet entered into force at the time of writing. There were 40 contracting parties to 1966 ICCAT at the time of writing. In addition, the special status known as 'Cooperating Party, Entity or Fishing Entity' was created, which was enjoyed by Chinese Taipei (Taiwan) at the time of writing.

64. The objective of 1966 ICCAT, as stated in the Preamble, is to maintain the populations of tunas and tuna-like fishes caught in the Convention Area at levels which will permit the maximum sustainable catch, or yield for food and other purposes. The Preamble and article IV of 1966 ICCAT stipulate that the species covered by the Convention are the tuna and tuna-like species and such other species of fish exploited in tuna fishing in the Convention area that are not under the auspices of any other international organization. About 30 species are of direct concern, including yellowfin, skipjack, bigeye, albacore and bluefin tuna. The Convention applies to "all waters of the Atlantic Ocean, including the adjacent Seas" (such

as the Mediterranean Sea and the Caribbean Sea). There is no precise definition in terms of longitude and latitude.

65. 1966 ICCAT establishes as its main regulatory body the International Commission for the Conservation of Atlantic Tunas ("Tunas Commission"). While the Tunas Commission takes decisions by a simple majority, as provided by article III(3), there is also an opting-out procedure under article VIII(3). The Tunas Commission works through a variety of Committees, Subcommittees, Working Groups and Panels, which deal with a wide range of issues, such as stock assessment, compliance and allocation.

66. The recommendations adopted by the Commission include TACs, minimum size limits and vessel effort limitations. The Tunas Commission has also introduced statistical documentation programmes for swordfish, and bigeye and bluefin tuna. These programmes require contracting parties to ensure that imports of these species are accompanied by validated statistical documents. The Tunas Commission occasionally also imposes import prohibitions on consignments from non-complying states. The research mandate of the Tunas Commission encompasses the oceanography of the environment in which the target species live and the effects of natural and human factors upon their abundance, as provided by article IV(1). While the Tunas Commission compiled data on by-catch, principally for certain species of sharks, there has been little progress towards ecosystem-oriented management. However, two Resolutions adopted by the Tunas Commission in 2003 may change this. Resolution 03-10, 'On the Shark Fishery,' is aimed at supporting the implementation of FAO's 1999 International Plan of Action for the Conservation and Management of Sharks and requests data on directed shark fishing carried out in the 1966 ICCAT Convention area. Resolution 03-11, 'On Sea Turtles,' calls for data collection on interactions between sea turtles in the Tunas Commission fisheries and on impacts on sea turtles in the 1966 ICCAT Convention area, and supports FAO's efforts towards a more holistic approach on the management and conservation of sea turtles.

ii. Convention on the Conservation of Antarctic Marine Living Resources

67. The Convention on the Conservation of Antarctic Marine Living Resources ("1980 CAMLR") was adopted on 20 May 1980, and entered into force on 7 April 1982. At the time of writing, there were 32 parties to the CAMLR Convention, 24 of which were Members of the convention's regulatory body, the Commission for the Conservation of Antarctic Marine Living Resources ("CCAMLR").

68. The objective of 1980 CAMLR the "conservation of Antarctic marine living resources," while "the term 'conservation' includes rational use," as provided by article II. Paragraph (3) of article II lists the three principles of conservation that are to be observed for harvesting and other activities in the CAMLR Convention Area. Even though these principles are not named, it is generally accepted that they embrace ecosystem-based (fisheries) management and a precautionary approach avant la lettre. This addresses the concerns that led to the negotiation of the convention, namely that large-scale krill harvesting would threaten the Antarctic marine ecosystem as a whole. In view of the relatively low biodiversity and the few trophic levels in the Southern Ocean, an ecosystem approach was a logical choice and - it was probably expected - also a relatively feasible one. After more than 20 years after 1980 CAMLR entered into force, it appears that this expectation was optimistic. Today, CCAMLR is nevertheless widely credited for its efforts in ecosystem-based fisheries management and is regarded as the leading RFMO in this respect. Among CCAMLR's successes in this context are its measures to minimize by-catch of birds, in particular albatrosses and petrels, in long-line fishing and CCAMLR's Ecosystem Monitoring Program ("CEMP").

69. 1980 CAMLR applies to Antarctic marine living resources, which are defined in article I as "the populations of fin fish, molluscs, crustaceans and all other species of living organisms, including birds, found south of the Antarctic Convergence." Article IV recognizes the primacy of the International Convention for the Regulation of Whaling and the Convention on the Conservation of Antarctic Seals in relation to whaling and sealing. The main fisheries that took place at the time of writing targeted Patagonian and Antarctic toothfish, krill and mackerel icefish. While the estimates of the total annual removals of toothfish in recent years indicate a serious risk of over-exploitation of some or all stocks, the annual catches of krill have remained well below the annual TAC. This is not to say that technological innovations and changing market forces may not bring an end to the under-utilization of the krill resources in the future.

70. Under article I, the geographical scope of 1980 CAMLR includes large areas north of the Antarctic Treaty Area (south of 60° South latitude) and is based on an approximation of the Antarctic Convergence, which separates the warmer northern waters from the cooler southern waters. The CAMLR Convention Area is therefore regarded as one of the few RFMOs whose regulatory area largely overlaps with that of a Large Marine Ecosystem ("LME"), with all the consequential

advantages that should offer for ecosystem-based management. In reality, however, several species managed by CCAMLR also occur outside the Convention Area. The actual and alleged occurrence of Patagonian toothfish outside the Convention Area has in recent years caused serious difficulties in combating illegal, unreported and unregulated fishing for this species.

71. CCAMLR is charged with giving effect to the Convention's objective and principles of conservation. The various ways by which it can fulfill its mandate are listed in paragraph (1) of article IX. These include facilitating research, compiling data, adopting and reviewing conservation measures. The non-exhaustive list of types of Conservation Measures in paragraph (2) of article IX include the designation of TACs, protected species and open and closed seasons for harvesting.

72. CCAMLR takes decisions by consensus on matters of substance while on other matters decisions are taken by a simple majority of the Members present and voting as required by article XII(1) and (2). To accommodate members that do not want to oppose consensus, but nevertheless want to avoid becoming legally bound by Conservation Measures, article IX(6)(c) and (d) of 1980 CAMLR contains an opting-out procedure. Instead of blocking consensus, members often prefer to voice their informal objections and concerns in Commission Reports. Consensus decision-making is a characteristic of the Antarctic Treaty System ("ATS"), of which CCAMLR is part. While the advantages and disadvantages of this method of decision-making are well known, the prospects for majority decision-making in the ATS are especially bleak in view of the sensitive Antarctic sovereignty issue. A state that becomes party to 1980 CAMLR or even a Member of CCAMLR, but not party to the Antarctic Treaty, should realize that CCAMLR is more than 'just' another RFMO. This is evident in article IV of 1980 CAMLR, which makes the agreement to disagree as laid down in article IV of the Antarctic Treaty applicable to states that are parties to 1980 CAMLR, and reiterates its substance.

73. The Commission is assisted by a Scientific Committee, whose recommendations and advice must be taken fully into account as provided by article IX(4). This leaves the Commission a margin of discretion that is quite common in RFMOs. Since 1980 CAMLR came into force, the Commission has established two permanent subcommittees: the Standing Committee on Administration and Finance ("SCAF") and the Standing Committee on Implementation and Compliance ("SCIC"). The Secretariat of 1980 CAMLR is based in Hobart, Australia, which is also the venue for all the annual meetings of the Commission and the Scientific Committee. The challenges for CCAMLR in the future are likely to be related on the one side to its ambitious commitment to ecosystem-based fisheries management and on the other side to dealing with illegal, unreported and unregulated fishing, which at the time of writing was carried out by ships flying the flag of both parties and non-parties to 1980 CAMLR.

b) Regional Seas Agreements

74. Regional seas agreements have been extensively examined in Chapter 13 above with respect to their provisions on the protection and preservation of the marine environment from pollution. However, some of these agreements also have provisions that relate more specifically to the protection and preservation of marine biodiversity. Two of these are discussed below for illustrative purposes.

i. Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (Cartagena Convention)

75. The Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region ("Cartagena Convention") has been discussed in detail in Chapter 13. It establishes a broadly oriented framework for cooperation on the protection and development of the marine environment of the Wider Caribbean Region. The Preamble to the Cartagena Convention identifies "the protection of the ecosystems of the marine environment of the wider Caribbean region" as one of its principal objectives and recognizes the need to strive for sustainable development. In furtherance of these objectives, article 10 requires parties to "individually or jointly, take all appropriate measures to protect and preserve rare or fragile ecosystems, as well as the habitat of depleted, threatened or endangered species, in the Convention area." This wording is clearly inspired by article 194(5) of UNCLOS. Article 10 of the Cartagena Convention complements these provisions by stating, "To this end, the Contracting Parties shall endeavour to establish protected areas." However, the activities that would need to be regulated in these protected areas are not indicated. Although the primary focus of the Cartagena Convention is pollution, nothing in the Convention prevents the parties from imposing restrictions on harvesting of marine living resources in these protected areas.

76. Evidence of a focus that is broader than pollution is the Protocol concerning Specially Protected Areas and Wildlife in the Wider Caribbean Region ("SPAW Protocol"). The SPAW Protocol was adopted on 18 January 1990, and entered into force on 18 June 2000. While article 3(1) of the SPAW Protocol essentially repeats the obligation articulated under article 10 of the Cartagena Convention, article 5(2) contains a long list of activities that should, where appropriate, be regulated. This list includes vessel-source pollution, dumping, navigation, fishing, introducing non-indigenous species, tourism, and "any other measure aimed at conserving, protecting or restoring natural processes, ecosystems or populations for which the protected areas were established."

ii. OSPAR Convention

77. The Convention for the Protection of the Marine Environment of the North-East Atlantic ("1992 OSPAR Convention") was adopted on 22 September 1992, and entered into force on 25 March 1998. The 1992 OSPAR Convention consists of a Preamble and Articles, five Annexes and three Appendices. Annexes I-III deal with pollution from various sources, Annex IV deals with the assessment of the quality of the marine environment and, most relevant for our purpose, Annex V concerns 'the protection and conservation of the ecosystems and biological diversity of the maritime area,' while Appendix 3 contains 'criteria for identifying human activities for the purpose of Annex V.' Annex V and Appendix 3 were adopted in 1998, and entered into force on 30 August 2000. At the time of writing, the 16 contracting parties to the Convention were Belgium, Denmark, the EU, Germany, Finland, France, Iceland, Ireland, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom. Of these, Belgium, France, and Portugal were not yet parties to Annex V and Appendix 3.

78. Geographically, the 1992 OSPAR Convention applies to the 'Maritime area', which is defined in article 1(a) as the marine waters (including internal waters) of the North-East Atlantic, excluding the Baltic Sea and the Belts and the Mediterranean Sea and its dependent seas. Article 2(1)(a) contains the core obligation, which is for contracting parties "to prevent and eliminate pollution and … to protect the maritime area against the adverse effects of human activities so as to safeguard human health and to conserve marine ecosystems and, when practicable, restore marine areas which have been adversely affected." The OSPAR Commission is established to facilitate and supervise the implementation of this objective. As article 4 of Annex V recognizes, the competence of the Commission does not extend to vessel-source pollution and fisheries, for which primacy lies with the IMO, the EU, ICCAT, the North Atlantic Salmon Conservation Organization ("NASCO") and the North-East Atlantic Fisheries Commission ("NEAFC"). Where the Commission has, for instance, through Quality Status Reports ("QSRs") drawn up pursuant to Annex IV, identified threats posed by these activities to marine ecosystems and marine biodiversity, it can do little else than bring these threats to the attention of these organizations. The 2000 QSR lists fisheries among the human activities with the most adverse impacts on the marine environment.

79. Annex V builds on the general obligation in article 2(a) of the 1992 OSPAR Convention "...to protect and conserve the ecosystems and the biological diversity in the maritime area..." It also serves to implement the 1992 Convention on Biological Diversity and its Jakarta Mandate at the regional level. Contracting parties are required, *inter alia*, to take the necessary measures in this regard to restore adversely affected marine areas and cooperate in adopting programmes and measures for the control of the human activities identified by the application of the criteria in Appendix 3. The OSPAR Commission is, among other things, charged with drawing up such programmes and measures, to gather relevant data on the impacts of human activities on ecosystems and biodiversity and to aim for an integrated ecosystem approach. OSPAR's Biological Diversity and Ecosystems Strategy, which was updated in 2003, provides the Commission further guidance on these tasks and sets priorities. Presently, these tasks are mainly carried out by the Biodiversity Committee ("BDC"). The main priorities include assessing which species and habitats need protection, assessing which human activities are likely to have an actual or potential adverse effect on these species and habitats or on ecological processes, and developing Ecological Quality Objectives, for which the North Sea has been selected as a pilot project. These will eventually have to culminate in programmes and measures designed to regulate human activities and restore areas.

80. Progress under Annex V so far includes the Texel-Faial criteria for the selection of threatened and declining species and habitats; the OSPAR List of Threatened and Declining Species and Habitats; the OSPAR Guidelines for the Identification and Selection of Marine Protected Areas in the OSPAR Maritime Area; the OSPAR Guidelines for the

Management of Marine Protected Areas in the OSPAR Maritime Area; and OSPAR Recommendation 2003/3 on a Network of Marine Protected Areas. The development of the latter network is carried out in cooperation with the Helsinki Commission (established under the Convention on the Protection of the Marine Environment of the Baltic Sea Area).

3. Global Non-Legally Binding Instruments

a) Rio Declaration and Agenda 21

81. The Rio Declaration and Agenda 21 are two non-legally binding instruments adopted by the international community at the 1992 UNCED. UNCED was another incremental step in the evolution of international environmental law. While the Rio Declaration contains general principles and objectives, Agenda 21, the Action Plan for the 21st Century, contains detailed guidance on their practical implementation. See also chapters 3 and 7 above.

82. Although general support existed as to the need to balance social, economic and environmental factors within the overarching objective of sustainable development, the interests of developed and developing states in the 1992 Rio Declaration differed significantly. While developed states lobbied strongly for the incorporation of Principles 10, 15 and 16 on public participation, precaution, and the polluter-pays principle, developing states insisted on Principles 3, 5, and 7, which emphasised the right of development, poverty alleviation and 'common but differentiated responsibilities'.

83. Agenda 21 is a massive document consisting of forty chapters. For our purposes, Chapter 15 on 'Conservation of Biological Diversity' and chapter 17 on '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' are especially relevant. Each Chapter usually consists of several programme areas, which are in turn broken down into a basis for action, objectives, activities, and/or means of implementation. Activities include management-related recommendations, data and information requirements, and requirements for international and regional coordination and cooperation. Means of implementation include financial and cost evaluations, scientific and technological means, human resource development and capacity building.

84. One of the main elements of Chapter 15 is its support for the Convention on Biological Diversity, which was adopted during UNCED. The states also committed themselves to its early entry into force. Paragraph 1 of chapter 17 refers to UNCLOS, thereby respecting its jurisdictional framework. Also noteworthy are paragraph 17.30(vi) which calls on the development of rules on ballast water exchange, paragraphs 17.50 and 17.80 which call for the conference which eventually culminated in the Fish Stocks Agreement; paragraph 17.54 on destructive fishing practices; and paragraph 17.75 which, inter alia, emphasises the need to preserve rare or fragile ecosystems.

b) FAO Code of Conduct for Responsible Fisheries

85. The Code of Conduct for Responsible Fisheries ("1995 FAO Code of Conduct") was adopted at the Twenty-eight Session of the FAO Conference on 31 October 1995. The drafting of the Code occurred parallel to the negotiations of the Fish Stocks Agreement and the 1993 FAO Agreement to promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas ("1993 FAO Compliance Agreement"). Care was taken to ensure that these three instruments would not contradict each other. In fact, the 1993 FAO Compliance Agreement forms an integral part of the Code of Conduct. Even though there are non-contradictory overlaps, the three instruments largely complement each other. The principal purpose of the FAO Code of Conduct is to offer practical guidance to states and all those involved in fisheries. The Code of Conduct is therefore essentially a 'Responsible Fisheries. How to do it?'

86. The scope of the FAO Code of Conduct is much broader than the Fish Stocks Agreement or the Compliance Agreement. First, it is not just limited to marine capture fisheries, but extends to all fisheries, including inland (freshwater) fishing and aquaculture. Consequently, unlike the Fish Stocks Agreement, its application is not limited to the EEZ and the high seas, but also extends to internal waters, territorial seas and archipelagic waters. Second, the guidance offered is not limited to aspects of conservation and management but also covers fisheries development, marketing, trade, energy use, food hygiene and quality, a safe working environment, marine pollution and integrated coastal zone management. Third, the FAO Code of Conduct is not just directed to states but also specifically at persons, financial institutions and vessel-owners and charterers.

87. As the Introduction to the Code already emphasizes, due respect for the ecosystem and biodiversity is fundamental to responsible fishing. Specific references to biodiversity occur in articles 6.6, 7.2.2(d), 8.4.8 and 12.10. But indirect acknowledgment of the importance of biodiversity is present throughout the code, for example in articles 2(i), 6.2, 6.5, 6.6, 7.2.2(g), 7.2.3, 7.5.2, by way of taking account of associated and dependent species and ecosystems and, of course, by way of striving for sustainable and responsible fishing.

88. Apart from implementation efforts by all those directly involved, including states, the implementation of the FAO Code of Conduct is also fostered by three other main processes. First, FAO's Committee on Fisheries ("COFI") monitors the implementation and application of the Code. Second, article 2(d) of the Code of Conduct envisages the development of international agreements in furtherance of the Code's objectives. So far, this has led to four non-legally binding International Plans of Action ("IPOAs"): the 1999 IPOA for Reducing Incidental Catch of Seabirds in Longline Fisheries, the 1999 IPOA on the Management of Fishing Capacity, the 1999 IPOA on the Management and Conservation of Sharks, and the 2001 IPOA to Prevent, Deter and Eliminate, Illegal, Unreported and Unregulated Fishing. Third, the FAO Fisheries Department has developed various technical guidelines in support of the implementation of the Code of Conduct, among them we can find, 'Fisheries Management'. The Ecosystem Approach to Fisheries,' was finalized in 2003.

c) Johannesburg Plan of Implementation

89. The 2002 World Summit on Sustainable Development was held in Johannesburg, South Africa, to assess the progress made in implementing Agenda 21 and to expedite the realization of the remaining goals. It culminated in two instruments: the Johannesburg Declaration on Sustainable Development ("Declaration") and the Johannesburg Plan of Implementation of the World Summit on Sustainable Development ("JPOI").

90. While the Declaration refers to the protection and management of the natural resource base for economic and social development as one of the overarching objectives, and to the protection of biodiversity as a basic requirement for humans, these issues appear to have less priority than for instance poverty eradication. The first substantive Chapter (II) of the JPOI is in fact devoted to the latter issue. Unlike Agenda 21, the JPOI does not have a separate chapter on oceans and seas. Issues of marine biodiversity and sustainable fisheries are integrated into chapter IV 'Protecting and Managing the Natural Resource Base of Economic and Social Development,' in particular in paragraphs 29-34 and 42. These paragraphs advocate sustainable fisheries, integrated coastal and ocean management, the maintenance of the productivity and biodiversity of important and vulnerable marine and coastal areas as well as more specific actions, including adherence to international instruments and the establishment of marine protected areas. Target dates of 2010 and 2012 are set for the application of the ecosystems approach, a significant reduction in the current rate of loss of biological diversity and the establishment of representative networks of marine protected areas.

III. National Implementation

91. As stated in paragraph 4 above, international agreements usually require implementation at the national level to give effect to their provisions. This is commonly done by means of national legislation and some international agreements in fact specifically stipulate this. Therefore, this section presents three examples of national legislation, two implementing UNCLOS, and one the Convention on Biological Diversity, all related to the protection and preservation of marine biodiversity, including through sustainable fisheries.

a) China: Implementation of UNCLOS

92. China ratified UNCLOS on 7 June 1996, and thereby committed itself to act in accordance with the Convention and implement it by means of national legislation where required. In part, this has been achieved by China's Exclusive Economic Zone and Continental Shelf Act ("EEZ Act"), which was adopted on 26 June 1998 and came into force on the same day. By means of articles 2 and 3 of the Act, China establishes an EEZ and claims therein sovereign rights related to natural resources and other economic uses and jurisdiction for various purposes in accordance with articles 56 and 57 of the UNCLOS. Article 4 of the EEZ Act confirms China's sovereign rights and jurisdiction over its continental shelf. Articles 6 and 10-12 of the Act, the last three of which are reproduced below, claim rights that are relevant to the protection and preservation of marine biodiversity. Article 15 of the EEZ Act provides a basis for the Chinese Government to enact relevant regulations.

93. The State Oceanic Administration of China is one of the bodies entrusted with implementation of the EEZ Act. In collaboration with other governmental

The People's Republic of China:
Law on the Exclusive Economic Zone and the Continental Shelf

Article 10: "The competent authorities of the People's Republic of China shall have the right to take the necessary measures to prevent, reduce and control pollution of the marine environment and to protect and preserve the marine environment of the exclusive economic zone and the continental shelf."

Article 11: "Any State, provided that it observes international law and the laws and regulations of the People's Republic of China, shall enjoy in the exclusive economic zone and the continental shelf of the People's Republic of China freedom of navigation and overflight and of laying submarine cables and pipelines, and shall enjoy other legal and practical marine benefits associated with these freedoms. The laying of the submarine cables and pipelines must be authorized by the competent authorities of the People's Republic of China."

Article 12: "The People's Republic of China may, in the exercise of its sovereign rights to explore, exploit, conserve and manage the living resources of the exclusive economic zone, take such measures, including boarding, inspection, arrest, detention and judicial proceedings, as may be necessary to ensure compliance with its laws and regulations. …"

bodies, the Administration has taken a number of measures to implement the Act. For example, to guard against adverse consequences to the marine ecosystem that might result from the exploration of mineral resources of the deep-sea bed, China has, through the Administration, been closely collaborating with the International Seabed Authority established by UNCLOS.

b) Belize: Implementation of UNCLOS

94. Belize ratified UNCLOS on 13 August 1983, and became a party upon the Convention's entry into force on 16 November 1994. To be able to implement the conservation requirements of UNCLOS, Belize undertook major amendments to its Coastal Zone Management Act ("Coastal Zone Act"), Chapter 329. The amendments took effect on 31 December 2002. One of the Coastal Zone Act's key provisions is Section 1, which creates a body known as the Coastal Zone Management Authority, which is charged with the responsibility of taking specific steps and actions to implement the Act.

95. The Authority has the statutory mandate to assist in the development and implementation of programmes and projects that translate policies of the government related to conservation of the marine environment into activities that contribute to sustainable development of coastal resources. The Coastal Zone Act also requires the Authority to assist in the development and execution of programmes and projects that foster and encourage regional and international collaboration in the use of marine resources. In addition, the Authority is required to undertake research and monitoring activities in Belize's coastal areas to determine activities that may have adverse impacts on the marine environment. It also requires the Authority to promote public awareness of the unique nature of Belize's coastal zone and the need for effective and sustainable conservation and management of its resources.

96. The Coastal Zone Act also establishes an Advisory Council, which works with the Authority and is in charge of the country's fisheries. It also establishes

Belize: Coastal Zone Management Act (Chapter 329)

"The objects of the Institute are: (a) to stimulate and advance the conduct of marine scientific research in Belize; (b) to promote the utilization and conservation of the marine resources for the economic and social benefit of Belize, and to enhance the national capabilities of Belize in the conduct of marine scientific research; (c) to promote a public understanding of the appreciation for all aspects of the marine and related environment…" (Section 9).

"The functions of the Institute are: (a) to conduct research and development on the marine environment of Belize, the Caribbean and adjacent regions; (b) to collaborate in the maintenance of a centralized accessible centre for information and research related to the coastal zone; … (d) to study the multiple uses of the sea and coastal zones, their resources and potential use in Belize, the Caribbean and adjacent regions, and to evaluate and promote such studies with a view to minimizing possible conflicts which may result from such uses; ...(j) to assist the Authority in the development of technical guidelines for the sustainable use of coastal resources;...(l) to provide advice, as required, on development activities within the coastal zone;…" (Section 10 (a) -(l)).

a Coastal Zone Management Institute ("Management Institute"), and charges it with the responsibility of managing the country's coastal areas, promoting utilization and conservation of marine resources and conducting marine scientific research.

97. Through collaboration, the Coastal Zone Management Authority, the Management Institute and other institutions have provided technical guidance to the Fisheries Department of Belize on matters related to conservation and sustainable fisheries. They have also assisted the Fisheries Department in developing a project for the construction and deployment of safe fish aggregating devices that will allow for the exploitation of commercially important fish species in the maritime zones of Belize, and in the high seas without threatening to deplete the resources.

98. The Ecosystems Management Unit of the Fisheries Department has been conducting monitoring activities for lobsters and other commercially important species to detect any reductions in their populations for necessary restorative measures. It has also implemented programmes for on-site protection of species of fish, for protection of the marine ecosystems and for enforcement of fisheries regulations to promote sustainable fisheries. A heightening of enforcement activities has led to a 50% increase in patrols compared to 1999-2000; resulted in more arrests and prosecutions; had a significant impact on illegal fishing activities; led to sixty-seven convictions in the year 2001; resulted in a total of US $120,720 in fines, resulted in the confiscation of US $137,020 worth of fishing equipment and curbed non-compliance with fisheries regulations. Areas where enforcement activities have been regular include Bacalar Chico Marine Reserve, Hol Chan Marine Reserve, Glovers Reef Marine Reserve and Sapodilla Cayes Marine Reserve.

c) Australia: Implementation of the Convention on Biological Diversity

99. Australia ratified the CBD on 18 June 1993, and became a party upon the CBD's entry into force on 29 December 1993. In order to implement the CBD, the federal government ("Commonwealth") of Australia passed the Environment Protection and Biodiversity Conservation Act ("EPBC Act"), Number 91 of 1999, which entered into force on 16 July 2000. The EPBC Act, which has been amended several times since its adoption, is a massive piece of legislation comprising 528 Sections. The EPBC Act establishes a national framework for environment protection through a focus on protecting matters of national environmental significance and on the conservation of Australia's biodiversity, including marine biodiversity. Among other things, the EPBC Act requires the preparation of lists of endangered, threatened and critically endangered species of animals, plants and other organisms so that appropriate action can be taken to conserve, preserve and restore their populations. Particular attention is given to the tool of the establishment of protected areas. In addition, the EPBC Act creates specific offenses in relation to the export or import of endangered and threatened species.

100. Chapter 5, part 12 of the EPBC Act establishes a system for identifying and monitoring biodiversity

Australia: Environment Protection and Biodiversity Conservation Act, Number 91 of 1999

Section 171: "(1) The Minister may, on behalf of the Commonwealth, co-operate with, and give financial or other assistance to, any person for the purpose of identifying and monitoring components of biodiversity. …the co-operation and assistance may include co-operation and assistance in relation to all or any of the following: (a) identifying and monitoring components of biodiversity that are important for its conservation and ecologically sustainable use."

Section 171(3): "In this Act: *components of biodiversity* includes species, habitats, ecological communities, genes, ecosystems and ecological processes."

Section 178(1): "The Minister must, by instrument published in the *Gazette*, establish a list of threatened species divided into the following categories: (a) extinct; (b) extinct in the wild; (c) critically endangered; (d) endangered; (e) vulnerable; (f) conservation dependent."

Section 196: "(1) A person is guilty of an offence if: (a) the person takes an action; and (b) the action results in the death or injury of a member of a native species or a member of an ecological community; and (c) the member is a member of a listed threatened species (except a conservation dependent species) or of a listed threatened ecological community; and (d) the member is in or on a Commonwealth area.… (3) The offence is punishable on conviction by imprisonment for not more than 2 years or a fine not exceeding 1,000 penalty units, or both."

to allow necessary actions to be taken for conservation and preservation. Part 12 requires approval of activities involving the marine environment through a permitting system, which allows conditions to be placed on the permits to prevent human activities from causing harm to marine organisms and their environment.

101. The administration of the EPBC Act and the Environment Protection and Biodiversity Conservation Regulations of 2000 (as amended) is one of the key functions of the Commonwealth's Department of Heritage. The Approvals and Wildlife Division is the body responsible for the implementation of the Act of 1999. The Division consists of three Branches: the Environment Assessment and Approvals Branch, the Policy and Compliance Branch and the Wildlife Branch. These bodies have undertaken a number of activities aimed at implementing the EPBC Act. For example, action plans have been developed to guide the government in undertaking conservation measures that the EPBC Act stipulates. The plans include strategies to be undertaken by scientists to review the conservation status of different categories of Australia's marine organisms, identify any threats to their conservation and recommend appropriate response actions. Such plans assist not only governmental bodies, but also non-governmental organizations to set priorities for conservation of threatened species.

102. In addition, the EPBC Act recognizes a Biodiversity Day, which is celebrated in Australia in September of each year. There is also a National Threatened Species Day every year. On these days, the government makes specific efforts to create awareness of the need and obligation to protect and conserve biodiversity in Australia. On such days, the Commonwealth Government involves Australians in practical measures to conserve their unique and valuable species by holding workshops and conferences, planting trees, and conducting school projects on biological diversity, among other conservation activities.

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