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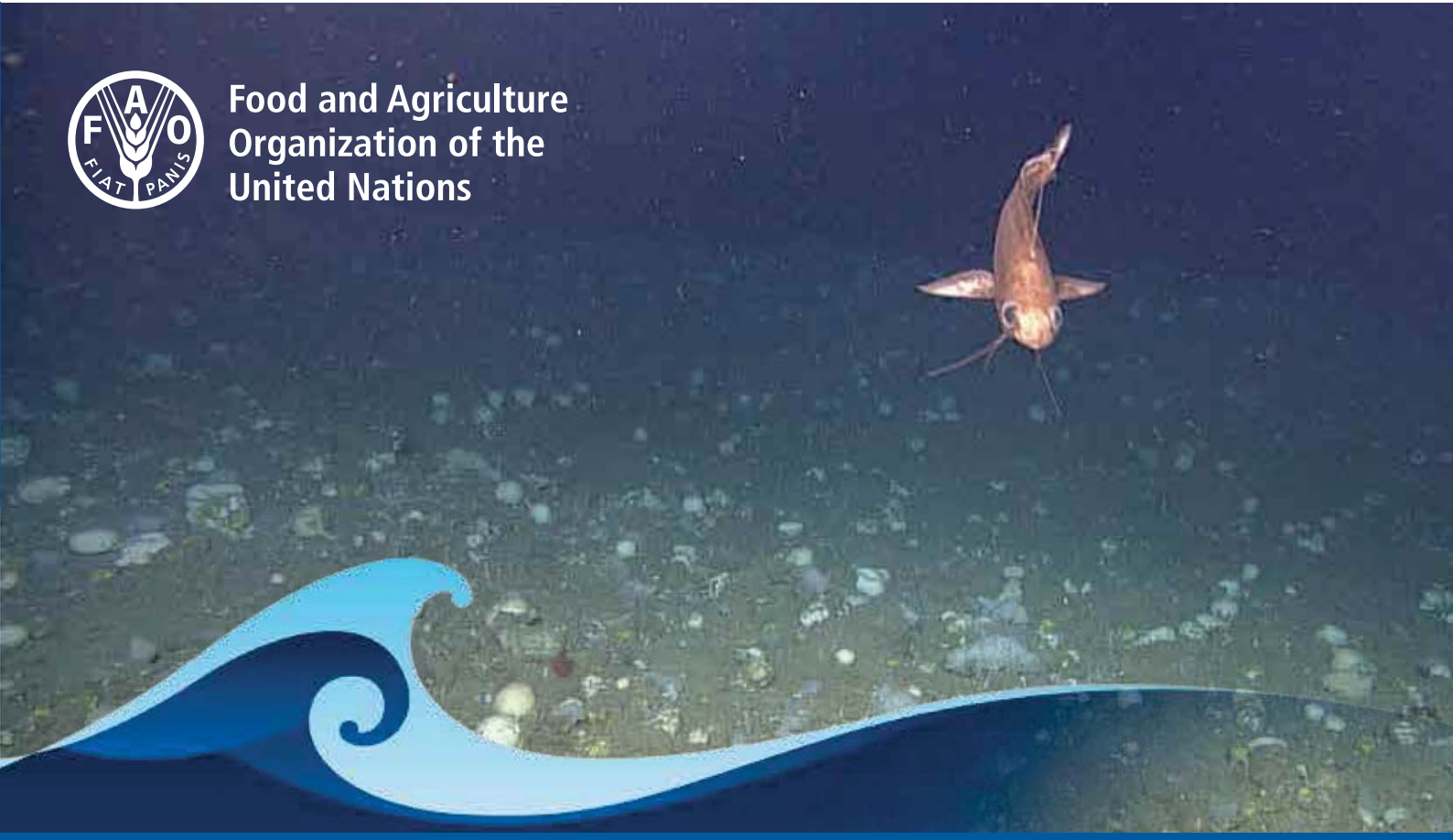

REVIEW AND ANALYSIS OF INTERNATIONAL LEGAL AND POLICY INSTRUMENTS RELATED TO DEEP-SEA FISHERIES AND BIODIVERSITY CONSERVATION IN AREAS BEYOND NATIONAL JURISDICTION

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Cover photograph: Unknown fish (possibly *Antimora* spp.) photographed in waters 1 800–3 000 m, 300 km northeast of St John's, Canada. Courtesy of Bedford Institute of Oceanography.

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ABBREVIATIONS

ABNJ	areas beyond national jurisdiction
ACAP	Agreement on the Conservation of Albatrosses and Petrels
ACCOBAMS	Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area
APM	associated protective measure
ASCOBANS	Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas
CBD	Convention on Biological Diversity
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CDS	catch documentation scheme
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMS	Convention on the Conservation of Migratory Species of Wild Animals
COFI	Committee on Fisheries (FAO)
COP	Conference of the Parties
EBSA	ecologically or biologically significant marine area
EIA	environmental impact assessment
FAO	Food and Agriculture Organization of the United Nations
FRA	fisheries restricted area
GFCM	General Fisheries Commission for the Mediterranean
IMO	International Maritime Organization
IPOA-Capacity	International Plan of Action for the Management of Fishing Capacity
IPOA-IUU	International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing
IPOA-Seabirds	International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries
IPOA-Sharks	International Plan of Action for the Conservation and Management of Sharks
ISA	International Seabed Authority
ITLOS	International Tribunal for the Law of the Sea
IUU	illegal, unreported and unregulated fishing
MARPOL	International Convention for the Prevention of Pollution from Ships
MCS	monitoring, control and surveillance
MOU	memorandum of understanding
MPA	marine protected area
NAFO	Northwest Atlantic Fisheries Organization
NEAFC	North East Atlantic Fisheries Commission
NPFC	North Pacific Fisheries Commission

OSPAR	Convention for the Protection of the Marine Environment of the North-East Atlantic
PSMA	FAO Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing
PSSA	Particularly Sensitive Sea Area
RFMO	regional fisheries management organization
RFMO/As	regional fisheries management organizations or arrangements
SEAFO	South East Atlantic Fisheries Organisation
SIOFA	Southern Indian Ocean Fisheries Agreement
SOLAS	International Convention for the Safety of Life at Sea
SPRFMO	South Pacific Regional Fisheries Management Organisation
UNCLOS	1982 United Nations Convention on the Law of the Sea
UNEP	United Nations Environment Programme
UNFSA	United Nations Fish Stocks Agreement
UNGA	United Nations General Assembly
VME	vulnerable marine ecosystem
VMS	vessel monitoring system

PURPOSE OF THIS DOCUMENT

The purpose of this document is to identify the range of instruments that are relevant to deep-sea fishing and its impacts on marine biological diversity in areas beyond national jurisdiction, with a view to providing advice to states on what steps may be necessary to implement these instruments at the national level. The document is specifically targeted at government officials who wish to familiarize themselves with the international instruments related to deep-sea fishing and its impacts on marine biological diversity in areas beyond national jurisdiction, as of January 2017.

There is no single definition of deep-sea fishing or fisheries used at the international level.[1] The International Guidelines for the Management of Deep-Sea Fisheries in the High Seas applies to fisheries where the total catch (including bycatch) includes species that can only sustain low exploitation rates and fishing gear that is likely to contact the sea floor during the normal course of fishing operations.[2] This definition will be used for the purpose of this document.

The following is an analysis of the international instruments that are relevant to the conservation and management of deep-sea fisheries and associated ecosystems. It covers relevant international treaties and non-binding instruments adopted by a range of international organizations and other treaty bodies. The document explains the key provisions of these instruments that are relevant to deep-sea fishing and its impacts on marine biological diversity in areas beyond national jurisdiction, with a particular focus on identifying those provisions that require implementation through legislation at the national level in order to be effective. A summary of requirements or aspects of the international instrument that should be reflected in national legislation is also provided.

A stepwise guide to the implementation of international policy and legal instruments described in this document is published separately. It will deal in more detail with the types of measures that states may wish to take, as matter of law or policy, in order to implement the instruments described in this document. The stepwise guide is aimed at policymakers, legislators and operational personnel. It explains the steps that must be taken in order to effectively implement these instruments into national law. It also identifies potential impediments to implementation and national or regional trends in implementing the relevant provisions.

[1] Deep-sea Fisheries Guidelines.
[2] Deep-sea Fisheries Guidelines, paragraph 8.

EXECUTIVE SUMMARY

Many valuable fish stocks are found in the waters beyond national jurisdiction, including in the deep seas. Deep-sea fishing occurs over continental slopes, seamounts, ridge systems and banks on bare, muddy sediments and hard, rocky substrates, mostly at depths between 400 and 1 500 metres, although some specialised vessels may fish as deep as 2 000 metres.

Deep-sea fishing can pose a threat to other fish that are caught incidentally by the fishing gear, or to other marine species such as seabirds, small cetaceans and sea turtles that become entangled in nets or ensnared on hooks. Furthermore, the seabed over which deep-sea fishing takes place may support species or communities that could be vulnerable to the impacts of certain bottom-fishing methods.

While areas beyond national jurisdiction are open to all states and they are subject to the so-called 'freedom of the high seas', fishing in the high seas is not unrestricted. Under the United Nations Convention on the Law of the Sea, the United Nations Fish Stocks Agreement,[3] and a range of other conservation-orientated obligations, states and those fisheries management organizations with a mandate for deep-sea fisheries in areas beyond national jurisdiction are required to address the sustainability of fish stocks and the impacts of fishing on marine biodiversity.

This document reviews the international policy and legal instruments, institutional arrangements and processes relevant to deep-seas fisheries management and biodiversity conservation, and describes the inter-linkages and overlaps between them. It covers relevant international treaties and non-binding instruments adopted by a range of international organizations and other treaty bodies. The document explains the key provisions of these instruments, with a particular focus on identifying those provisions that require implementation through legislation at the national level in order to be effective. A summary of requirements or aspects of the international instrument that should be reflected in national legislation is also provided.

The analysis shows that both impact and conservation issues in the management of deep-sea fishing are clearly recognised in over 19 international instruments and eight regional conventions that pertain to management of living resources in the deep-sea areas beyond national jurisdiction. This is further reinforced through explicit directions to implement an ecosystem-based approach, which includes taking a precautionary approach in management actions. In addition, there is widespread recognition of the need to collect information to control fishing activity; improve understanding of deep-sea resources, biodiversity and ecosystems; and to undertake impact assessments before new resources or areas are exploited.

This document is specifically targeted at government officials who wish to familiarize themselves with the international instruments related to deep-sea fishing and its impacts on marine biodiversity in areas beyond national jurisdiction, as of January 2017. It will also form the basis of a training programme to assist countries, where necessary, to better integrate their international obligations into national laws and policies.

[3] *Formally called*: 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.

1 INTRODUCTION

The areas beyond national jurisdiction, i.e. the high seas and the international seabed area, contain some of the most extreme environments on earth; nevertheless, living and non-living marine resources in these areas are increasingly being exploited.

Many valuable fish stocks are found in waters beyond national jurisdiction, including in the deep seas. Deep-sea fishing occurs over continental slopes, seamounts, ridge systems and banks on bare, muddy sediments and hard, rocky substrates. Most deep-sea[4] fishing occurs at depths between 400 and 1 500 metres, but some vessels may fish as deep as 2 000 metres.

Depending on the species being targeted, a range of fishing techniques are used in the deep sea, including bottom and midwater trawls and bottom-set longlines. Deep-sea prawns are fished with pots. Frostfish, hairtails and cutlass fish, which are caught using mainly midwater trawl gear, dominate deep-sea catches in terms of tonnages landed; whereas cods, whiting, saithe, pollack, hake and hoki, hakes, and grenadiers are among the most valuable species caught. Orange roughy and alfonsino are perhaps the most well-known and commercially lucrative deep-water fish species.

Slow growth and low productivity are characteristics of some deep-sea fish species, which make them vulnerable to overfishing. Some deep-sea sharks, orange roughy and grenadiers are, for example, classified as biologically vulnerable to overfishing, while others such as alfonsino and ling are less so. However, concerns associated with deep-sea fishing extend beyond the potential impact on the targeted stocks to the wider impacts on associated species and marine biodiversity more generally. As with other types of fishing, deep-sea fishing can pose a threat to other fish that are caught incidentally by the fishing gear, or to other marine species such as seabirds, small cetaceans and sea turtles that become entangled in nets or ensnared on hooks. The seabeds where deep-sea fishing takes place may support species or communities that could be vulnerable to bottom-fishing impacts. The potential negative impacts of fishing on vulnerable deep-sea habitats in the high seas have been an issue of increasing international concern over the last decade.

Under the United Nations Fish Stocks Agreement, states and regional fisheries management organizations and arrangements are required to address the impacts of fishing and the sustainability of fish stocks. In addition, there is a wide range of other conservation-based obligations for states that pertain to other operations in the deep-sea areas of the areas beyond natural jurisdiction. This document reviews the policy and legal instruments, institutional arrangements and processes relevant to deep-seas fisheries management and biodiversity conservation and describes the interlinkages and overlaps between them.

[4] Note that there are various definitions of "deep-sea". For instance, in the North-East Atlantic, the International Council for the Exploration of the Sea (1998) uses the term "deep sea" or "deep water" to refer to waters at a depth greater than around 400 metres, even if some of the deep-water species are caught frequently in more shallow waters. In other references, the term "deep-sea" is used to refer to depths beyond the shelf and slope (bathypelagic and abyssal areas of the oceans).

2. INTERNATIONAL EFFORTS TO ADDRESS THE ISSUE OF DEEP-SEA FISHING AND THE CONSERVATION OF MARINE BIOLOGICAL DIVERSITY IN AREAS BEYOND NATIONAL JURISDICTION

Since the early 2000s, the international community, acting through the United Nations General Assembly (UNGA), the Food and Agriculture Organization of the United Nations (FAO) and other competent international organizations, has focused increasing attention on the possible impacts of deep-sea fishing operations, in particular bottom fisheries, on vulnerable marine ecosystems (VMEs). States, acting through the United Nations and related international organizations, have sought to develop the international policy and legal framework in order to address this issue.

The issue of deep-sea fishing was first raised in the United Nations discussions on the law of the sea in the early 2000s.[5] The Third Session of the Informal Consultative Process on the Law of the Sea explicitly raised the issue of threats to seamounts and similar deep-water features during its discussions in June 2002, and participants called for the relevant international organizations to urgently consider how to integrate and improve, on a scientific basis, the management of risks to such fauna and flora found in these ecosystems.[6] The UNGA endorsed this proposal in its 2002 Resolution on Oceans and the Law of the Sea, encouraging "relevant international organizations, including the Food and Agriculture Organization of the United Nations, the International Hydrographic Organization, the International Maritime Organization, the International Seabed Authority, the United Nations Environment Programme, the World Meteorological Organization, the Secretariat of the Convention on Biological Diversity, and the United Nations Secretariat (Division for Ocean Affairs and the Law of the Sea), with the assistance of regional and subregional fisheries organizations, to consider urgently ways to integrate and improve, on a scientific basis, the management of risks to marine biodiversity of seamounts and certain other underwater features within the framework of the Convention."[7] This resolution was to initiate a series of recommendations and decisions on the topic of deep-sea fisheries and their impacts on VMEs beyond national jurisdiction. The issue continued to be addressed in a variety of forums,[8] but it was the UNGA that took on the role of coordinating the international response.

The UNGA used its 2003 resolution on sustainable fisheries to request the Secretary-General, in collaboration with the FAO, to provide further information on the current risks to marine biological diversity of VMEs arising from fishing operations.[9] A year later, the UNGA addressed the question of deep-sea fishing in a more substantive manner, when it

[5] See e.g. *Report on the work of the United Nations open-ended informal consultative process on oceans and law of the sea at its first meeting*. Document A/55/274 (2000), paragraph 73.
[6] *Report on the work of the United Nations open-ended informal consultative process established by the General Assembly in its resolution 54/33 in order to facilitate the annual review by the Assembly of developments in ocean affairs at its first meeting*. Document A/57/80 (2002), paragraph 20.
[7] Oceans and Law of the Sea. United Nations General Assembly Resolution 57/141 (2002), paragraph 56.
[8] See e.g. *Report of the work of the United Nations open-ended informal consultative process on oceans and law of the sea*. Document A/58/95 (2003); *Johannesburg plan of implementation*. Document A/CONF.199/20 (2002), paragraph 32(a) and (c).
[9] Sustainable fisheries, including through the 1995 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, and related instruments. United Nations General Assembly Resolution 58/14 (2003), paragraph 46.

adopted Resolution 59/25 calling upon "States, either by themselves or through regional fisheries management organizations or arrangements, where these are competent to do so, to take action urgently, and consider on a case-by-case basis and on a scientific basis, including the application of the precautionary approach, the interim prohibition of destructive fishing practices, including bottom trawling that has adverse impacts on vulnerable marine ecosystems, including seamounts, hydrothermal vents and cold-water corals located beyond national jurisdiction, until such time as appropriate conservation and management measures have been adopted in accordance with international law."[10] At the same time, the UNGA called upon "States, individually, or in collaboration with each other or with relevant international organizations and bodies, to improve understanding and knowledge of the deep sea, including, in particular, the extent and vulnerability of deep-sea biodiversity and ecosystems, by increasing their marine scientific research activities in accordance with the Convention."[11] This resolution was a turning point in international efforts to promote sustainable deep-sea fishing, but it was not the final instrument to be adopted. Further steps were taken by the UNGA in 2006, when it called upon states and regional fisheries management organizations or arrangements (RFMO/As) to, *inter alia*, identify VMEs and assess whether bottom fisheries are likely to cause significant adverse impacts to such ecosystems and the long-term sustainability of deep-sea fish stocks. Where such impacts were likely, states and RFMO/As were called upon to close such areas to bottom fishing until conservation and management measures could be put in place to prevent significant adverse impacts.[12]

Alongside the discussions at the United Nations, FAO has also been central in developing the international policy and legal framework for deep-sea fisheries. FAO adopted the International Guidelines for the Management of Deep-Sea Fisheries in the High Seas in August 2008, following a series of expert and technical consultations.[13] The International Guidelines constitute the international instrument that is most directly relevant to the regulation of deep-sea fisheries and their impacts on marine biological diversity. The International Guidelines are voluntary, but they cannot be read in isolation from the broader framework of applicable international policy and legal instruments. The International Guidelines themselves require states to adopt and implement measures "in conformity with relevant rules of international law" and "in a manner consistent with other relevant international instruments."[14] Thus, other international instruments – both binding and non-binding – can provide a reference point to assist states in implementing the International Guidelines in an effective and coordinated manner.

At the 2012 World Summit on Sustainable Development (Rio+20), the importance of protecting the VMEs was once again emphasised by the international community. The outcome document, the declaration titled *The Future We Want*, endorsed by UNGA

[10] Sustainable fisheries, including through the 1995 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, and related instruments. United Nations General Assembly Resolution 59/25 (2004), paragraph 66; see also Sustainable fisheries, including through the 1995 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, and related instruments. United Nations General Assembly Resolution 60/31 (2005), paragraph 72.

[11] Oceans and the Law of the Sea. United Nations General Assembly Resolution 59/24 (2004), paragraph 81; see also Oceans and Law of the Sea. United Nations General Assembly Resolution 60/30 (2005), paragraph 85.

[12] Sustainable fisheries, including through the 1995 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, and related instruments. United Nations General Assembly Resolution 61/105 (2006), paragraph 83.

[13] International Guidelines on the Management of Deep-sea Fisheries in the High Seas (Deep-sea Fisheries Guidelines) (FAO, 2009), paragraph 12(i).

[14] Deep-sea Fisheries Guidelines, paragraph 12(i).

Resolution 66/288, contains a chapter on oceans and seas that recognizes the multiple benefits of oceans and the threats oceans and their living resources face, including overfishing, ocean acidification, habitat loss and pollution. Alongside commitments relating to fishing effort and illegal, unreported and unregulated (IUU) fishing, states also expressed a commitment to enhance actions to protect VMEs from significant adverse impacts, including through the effective use of impact assessments, and reaffirmed the importance of area-based conservation measures, including marine protected areas consistent with international law and based on best available scientific information as a tool for conservation of biological diversity and sustainable use of its components.[15] This latter commitment emphasizes the ongoing resolve of the international community to promoting the conservation of marine biological diversity from the impacts of deep-sea fishing and the need for effective implementation of existing instruments in order to achieve this objective. The need for further action was restated at the 2016 Review Conference on the Fish Stocks Agreement, which recommended that states and regional fisheries management organizations (RFMOs) "continue to establish and implement long-term conservation and management measures for deep-sea fisheries in accordance with relevant General Assembly resolutions and the International Guidelines for the Management of Deep-sea Fisheries in the High Seas of the FAO."[16]

3. OVERVIEW AND SCOPE OF THE ANALYSIS

This document provides an analysis of the international instruments that are relevant to the protection of marine biological diversity from the impacts of deep-sea fishing. A small number of these instruments specifically target deep-sea fishing operations, such as the FAO International Guidelines for the Management of Deep-Sea Fisheries in the High Seas. However, there are many other international instruments relating to fisheries and marine biological diversity that may also be relevant to ensuring that deep-sea fishing is carried out in a sustainable manner. The instruments covered by this analysis have been selected to include those instruments that are most directly relevant to the impacts of deep-sea fishing on marine biological diversity, understood in a broad sense to include any marine species or ecosystems that may be affected by deep-sea fishing operations. Many of the instruments are concerned with the regulation of fishing *per se*. However, the analysis also covers those instruments that may not be directly addressed to fishing, but that may nevertheless have implications for states when regulating the impacts of fishing operations on relevant marine species, such as seabirds, turtles and small cetaceans, as well as relevant seabed ecosystems. It does not address those instruments that focus on threats to marine biological diversity in areas beyond national jurisdiction arising from other activities, such as navigation of ships, mining of seabed resources, or laying of cables or pipelines.

The analysis is divided into nine key chapters, including this overview section. Chapter 4 explains the nature of the international and regional legal and policy instruments that are addressed in the analysis. It will consider the legal status of international treaties and relevant non-binding instruments and how they may guide states in addressing the problems associated with deep-sea fishing. Chapter 5 introduces the United Nations Convention on the Law of the Sea (UNCLOS), which is generally understood to provide the legal framework for all maritime activities. The chapter explains which provisions of the UNCLOS are relevant to

[15] *The Future We Want*. United Nations General Assembly Resolution 66/28 (2012), Annex, paragraphs 168 and 177.

[16] Report of the Resumed Review Conference on the Agreement for the Implementation of 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. (23–27 May 2016), Annex, Section A, paragraph 13(a).

the regulation of deep-sea fisheries and their impacts on biological diversity. Chapter 6 covers global fisheries instruments that are relevant to deep-sea fisheries and the conservation of marine biological diversity. These instruments largely address fisheries in general, and the analysis will identify which provisions are relevant to the management of deep-sea fisheries and their impact on marine biological diversity in areas beyond national jurisdiction. Chapter 7 then turns its attention to regional fisheries instruments that are relevant to the regulation of deep-sea fisheries and their impacts on biological diversity. RFMO/As have been central in adopting measures to regulate deep-sea fisheries in areas beyond national jurisdiction and therefore the instruments adopted by these bodies are particularly pertinent to the topic. Chapter 8 addresses global shipping instruments that may be relevant to the regulation of deep-sea fisheries. Chapter 9 covers global environmental instruments related to the conservation of marine biological diversity that may be relevant to states when regulating deep-sea fisheries. While these instruments are not primarily concerned with the management of fisheries, they nevertheless contain provisions that should be taken into account by states when adopting measures at the national level in order to manage deep-sea fisheries. Chapter 10 highlights regional environmental instruments that are relevant to the protection of marine biological diversity beyond national jurisdiction. Finally, Chapter 11 provides an analysis of the key overlaps between the international instruments. This analysis forms a basis for the more detailed consideration of the steps that must be taken by states when implementing relevant international instruments. The stepwise guide is published separately.

4. INTERNATIONAL AND REGIONAL LEGAL AND POLICY INSTRUMENTS

The instruments covered by this analysis fall into two main categories: binding instruments and non-binding instruments. The purpose of this chapter is to explain the key characteristics of each type of instrument and the implications for states transcribing instruments into national law.

Treaties have been defined as “an international agreement concluded between states in written form and governed by international law, whether embodied in a single instrument or in two or more related instruments and whatever its particular designation.”[17] The key characteristic that differentiates treaties from other international instruments is their binding nature, as indicated by the text of the agreement itself. Normally, states are required to indicate their consent to be bound explicitly, either through signature, or, more usually, through ratification or accession.[18] It is only once they have consented to be bound that a state becomes a contracting party to a treaty and they are under an obligation to implement the treaty provisions in good faith, including transposing their treaty obligations into national law where relevant.[19]

In contrast, treaties do not impose any obligations on states unless they have consented to be bound,[20] apart from the situation when a treaty is accepted as reflecting customary international law.[21] However, states may nevertheless decide to voluntarily implement some

[17] 1969 Vienna Convention on the Law of Treaties (1155 UNTS 331). Concluded 23 May 1969. Entered into force 27 January 1980. 114 parties as of 10 October 2015. Article 2(1)(a).
[18] Ibid. Article 11.
[19] Ibid. Article 26.
[20] Ibid. Article 34.
[21] Ibid. Article 38.

aspects of international treaties to which they are not a party. Thus, even for non-parties to particular treaties, certain aspects of this analysis may provide useful sources of reference for improving their national legal frameworks in relation to deep-sea fisheries and the conservation of biological diversity.

Not all international instruments adopted by states will take the form of a legally binding treaty. So-called soft law instruments include various types of intergovernmentally agreed instruments that do not have formal legally binding force.[22] They are generally called declarations, resolutions, recommendations or guidelines. Decisions and other outcomes of the Conference of the Parties to multilateral environmental agreements may also fall within this category. Even though they are not binding, soft law instruments are nevertheless often carefully negotiated and are in many cases intended to have some normative significance. Widespread acceptance of soft law instruments will tend to legitimize state conduct and make the legality of opposing positions harder to sustain.[23] When it is accepted by a sufficient number of states, soft law may also serve as evidence of existing or developing international law, such as general principles of international law or customary international law or as a stepping-stone to the negotiation of a new treaty. In other cases, soft law may be drawn upon an aid to the interpretation and application of pre-existing treaties and such instruments may constitute a "subsequent agreement between the parties regarding the interpretation of the treaty or the application of its provisions",[24] thereby providing a common understanding of what a treaty requires generally through detailed rules that facilitate implementation. Even when these instruments are not intended to have a legal effect, soft law may serve to codify good practices to improve national law-making, i.e. providing a menu of possible options to improve national practices while leaving flexibility to states. Indeed, states arguably cannot completely ignore soft law instruments adopted by international institutions of which they are a member. In this regard, the International Court of Justice has noted that states must have "due regard" to such instruments where they reflect a consensus of relevant states, even if they are not obliged to follow them in every single detail.[25] Moreover, implementation of international guidance may provide strong evidence that a state has complied with its due diligence obligations, as discussed below.

5. 1982 UNITED NATIONS CONVENTION ON THE LAW OF THE SEA (UNCLOS)[26]

The UNCLOS sets the legal framework for ocean governance. The UNCLOS establishes the basic rights and duties of states in relation to all maritime activities, and it is for that reason that it is an important instrument for the purposes of regulating deep-sea fishing and the conservation of marine biological diversity beyond national jurisdiction. Furthermore, many of the instruments outlined below make reference to the UNCLOS, either explicitly through their provisions or indirectly through dealing with issues covered by the more general provisions of the UNCLOS. Because the UNCLOS covers almost all aspects of marine activity

[22] See e.g. Boyle. A.E. 2014. Soft law in international law-making. *In* M.D. Evans. *International law,* pp. 118–136. 4th Edition, Oxford University Press; Chinkin, C. 1989. The challenge of soft law: development and change in international law. *International and Comparative Law Quarterly,* 38: 850; Edeson, W. 1999. Closing the gap: the role of soft international instruments to control fishing. *Australian Yearbook of International Law,* 20: 83.

[23] Boyle, A.E. & Chinkin, C. 2007. *The making of international law.* Oxford University Press. pp. 212–214.

[24] 1969 Vienna Convention on the Law of Treaties (1155 UNTS 331). Concluded 23 May 1969. Entered into force 27 January 1980. 114 parties as of 10 October 2015. Article 31(3)(a).

[25] Whaling in the Antarctic (Australia versus Japan: New Zealand intervening). 2014. I.C.J. Report 226, paragraph 83.

[26] 1982 United Nations Convention on the Law of the Sea (1833 UNTS 3). Concluded 10 December 1982. Entered into force 16 November 1994. 167 parties as of 9 February 2016.

and has close to universal participation, it remains of constant relevance also for the other instruments covered in this document. Indeed, many instruments share objectives with the UNCLOS, and thus implementation of these instruments may provide additional evidence as to compliance with the UNCLOS itself.

5.1 Fishing on the high seas

The water column beyond national jurisdiction is known as the high seas. High seas are defined in the UNCLOS as "all parts of the sea that are not included in the exclusive economic zone, in the territorial sea or in the internal waters of a state, or in the archipelagic waters of an archipelagic state" (Article 86). It follows that the precise extent of marine areas beyond national jurisdiction will depend upon what jurisdictional entitlements have been claimed by the coastal state. Where a coastal state has claimed an exclusive economic zone, the high seas will commence at a point located 200 nautical miles from the baselines of the coastal state. However, where a coastal state has not claimed an exclusive economic zone, the high seas will commence from the outer limit of the territorial sea, which is normally 12 nautical miles from the baselines of the coastal state.[27] It must be borne in mind that where the continental shelf extends from the land mass under the sea beyond 12 nautical miles, the coastal state will also have exclusive rights to sedentary species up to the outer edge of the continental margin. For this purpose, sedentary species are defined as "organisms, which, at the harvestable stage, either are immobile on or under the seabed or are unable to move except in constant physical contact with the seabed or the subsoil" (Article 77(4)). However, the sovereign rights of the coastal state over the continental shelf do not affect the status of the water column above the seabed (Article 78).

The high seas are open to all states and they are subject to the so-called freedom of the high seas, including freedom of navigation and freedom of fishing. It follows that all states have a right for their nationals to fish on the high seas. However, this freedom is not unrestricted, and it must be exercised subject to the conditions set down in the Convention and other applicable rules of international law (Article 116). In particular, the Convention places an obligation on states to cooperate with other states for the purposes of conservation and management of the living resources in the high seas. To this end, they are expected to enter into negotiations on conservation and management measures or to cooperate in establishing and participating in a regional or subregional fisheries organization (Article 118). States will be obliged to comply with any measures that they agree on in this context. Yet, even in the absence of agreed cooperative measures, the UNCLOS requires that individual states must adopt conservation measures in relation to nationals involved in fishing on the high seas. Although it could have a potentially wider scope, nationals in this context are largely concerned with vessels flying the flag of a particular state.[28] This obligation to take conservation measures is important because the flag state has exclusive jurisdiction over vessels flying its flag on the high seas (Article 92(1)). The concept of nationals may also be interpreted in a broader manner, however, to include operators or beneficial owners of fishing vessels.[29]

Steps to be taken by states in relation to vessels flying their flag are identified in Article 119 of the UNCLOS and they include the setting of an allowable catch and other conservation

[27] States may also claim a contiguous zone of up to 24 nautical miles (UNCLOS, Article 33), but this zone does not confer rights or obligations in relation to fishing or the protection of the marine environment.

[28] *Report of the International Law Commission covering the work of its eighth session* (A/3159). Article 49 commentary, paragraph 2, II YB ILC 1956, at 253, 286: "The term 'nationals' denotes fishing boats having the nationality of the States concerned, irrespective of the nationality of the members of the crew." See also Nordquist, M. et al. 1995. *The United Nations Convention on the Law of the Sea 1982: a commentary.* Volume III. Martinus Nijhoff Publishers.

[29] See e.g. International Plan of Action on IUU Fishing (FAO, 2001), paragraph 18.

measures designed to ensure the long-term sustainability of populations of harvested species, as well as associated or dependent species. The UNCLOS does not specify precisely what measures may be taken by states to achieve this end, although it explicitly says that flag states should take into account fishing patterns, the interdependence of stocks, and any generally recommended international minimum standards. There is no clear definition of "generally recommended international minimum standards", but the fisheries instruments discussed below, which have been agreed on by consensus, would fall into this category. The flag state is also required to exchange catch and fishing effort data with other states.

5.2 Jurisdiction and control of vessels on the high seas

The obligations in relation to high seas fishing are supplemented by the general obligation in Article 94 requiring flag states to "effectively exercise its jurisdiction and control in administrative, technical and social matters over ships flying its flag." It is through the implementation of this obligation that states fulfil the requirement in Article 91 of the UNCLOS to establish a genuine link with vessels flying their flag.[30] The International Tribunal for the Law of the Sea (ITLOS) has held that the obligation in Article 94 to exercise effective jurisdiction and control applies to administrative and technical issues relating to fishing vessels.[31] Moreover, the ITLOS made clear that Article 94 imposes an obligation of due diligence.[32] It explained the nature of this type of duty by drawing upon previous jurisprudence where a due diligence obligation was characterized as "an obligation to deploy adequate means, to exercise best possible efforts, to do the utmost to obtain this result."[33] Whether or not reasonable measures have been taken by a state will depend upon the circumstances in each case, although further guidance can be gleaned from relevant case law[34] or other international guidance.[35]

The obligation under Article 94 includes a duty to "maintain a register of ships containing the names and particulars of ships flying its flag" and "assume jurisdiction under its internal law over each ship flying its flag and its master, officers and crew." In interpreting the obligation, ITLOS has made clear that the flag state must adopt the necessary legislation in order to establish the necessary register and to require registered vessels to comply with relevant regulations. Legislation must also include "enforcement mechanisms to monitor and secure compliance with these laws and regulations" and "sanctions applicable to involvement in [illegal, unregulated and unreported (IUU)] fishing activities must be sufficient to deter violations and to deprive offenders of the benefits accruing from their IUU fishing activities."[36] It follows that national legislation must confer powers upon a

[30] See *M/V Saiga (No. 2)*. International Tribunal for the Law of the Sea. Case No. 2, 1 July 1999, paragraph 83: "…the purpose of the provisions of the Convention on the need for a genuine link between a ship and its flag State is to secure more effective implementation of the duties of the flag State…"

[31] *Fisheries Advisory Opinion*. International Tribunal for the Law of the Sea. Case No. 21, 2 April 2015, paragraph 119: *It follows from the provisions of article 94 of the Convention that as far as fishing activities are concerned, the flag State, in fulfilment of its responsibility to exercise effective jurisdiction and control in administrative matters, must adopt the necessary administrative measures to ensure that fishing vessels flying its flag are not involved in activities which will undermine the flag State's responsibilities under the Convention in respect of the conservation and management of marine living resources*.

[32] Ibid. Paragraph 127.

[33] Ibid. Paragraph 128. *Drawing upon the Advisory Opinion on Responsibilities and Obligations of States Sponsoring Persons and Entities with respect to activities in the Area*. Seabed Disputes Chamber of the International Tribunal for the Law of the Sea. Case No. 17, 1 February 2011, paragraph 110. Note, however, the warning of the Tribunal that "the relationship between sponsoring state and contractor is not entirely comparable to that existing between the flag State and vessels flying its flag…"

[34] See, in particular, *Pulp mills on the River Uruguay (Argentina versus Uruguay).* 2010. I.C.J. Report 14, paragraph 101 ff.

[35] See e.g. the discussion of due diligence in the International Law Commission: Draft articles on transboundary harm with commentaries, in *Yearbook of the International Law Commission*, 2001, Vol. II, Part Two, 148, 153–155.

[36] Ibid. Paragraph 138.

relevant national authority to stop and search vessels flying the flag of that state, seize any evidence related to a suspected offence, and to detain suspected offenders.

5.3 The protection and preservation of the marine environment

All freedoms of the high seas, including freedom of fishing, must also be exercised in a manner that respects the marine environment generally. The UNCLOS imposes a broad obligation on states to "protect and preserve the marine environment" (Article 192), which goes beyond a duty to prevent, reduce and control pollution of the marine environment and includes the taking of measures 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" (Article 194(5)). These obligations apply both within and beyond national jurisdiction. This means that more general environmental considerations, such as impacts on marine ecosystems, must also be taken in account by flag states when exercising their jurisdiction over fishing vessels on the high seas under Articles 116–119. It is also a duty of due diligence, however, and therefore it does not require the prevention of all harm, but rather the adoption of appropriate measures in response to the particular circumstances (see discussion of due diligence above). In particular, it has been held that Article 192, read in light of Article 194(5), imposes "a due diligence obligation to prevent the harvesting of species that are recognized internationally as being at risk of extinction and requiring international protection",[37] and it also extends to "the prevention of harm that would affect depleted, threatened or endangered species indirectly through the destruction of their habitat."[38] The scope of these obligations will be informed by the corpus of international instruments that have been adopted by the international community to address the protection of the marine environment and the conservation of marine biological diversity.[39] Thus, states must pay particular attention to the protection of those species or habitats that have been identified as being vulnerable in other international instruments, such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the Convention on the Conservation of Migratory Species of Wild Animals (CMS), and the Convention on Biological Diversity (CBD) (see below).

According to Article 206 of the UNCLOS, states are under a duty to carry out an environmental impact assessment (EIA) of any "planned activities under their jurisdiction or control" which they have "reasonable grounds to believe may cause substantial pollution or significant and harmful changes to the marine environment." The obligation applies to activities wherever they take place, either within national jurisdiction or beyond national jurisdiction. Thus, this obligation applies to activities subject to the jurisdiction or control of a state on the high seas, including fishing. It follows that flag states must conduct an assessment of planned fishing activities on the high seas where there are reasonable grounds to believe that fishing may cause significant or harmful changes to the environment. Such an assessment should be carried out prior to any decision authorizing the decision to go ahead. The UNCLOS does not specify the scope or content of an impact assessment, and states would seem to have some leeway in designing their national legislative framework. Some guidance on this matter can be found in the case law of the International Court of Justice, which has stated that, when carrying out an EIA under customary international law, a state must have regard to "the nature and magnitude of the proposed development and its likely adverse impact on the environment as well as to the need to exercise due diligence in conducting such an assessment."[40] The implementation of this obligation will also depend

[37] *Annex VII Arbitral Tribunal in the Matter of the South China Sea Arbitration*. PCA Case No. 2013–19, Award, 12 July 2016, paragraph 956.
[38] Ibid. Paragraph 959.
[39] Ibid. Paragraphs 941, 956–957.
[40] *Pulp mills on the River Uruguay (Argentina versus Uruguay)*. 2010. I.C.J. Report 14, paragraph 205.

upon the availability of baseline data about the relevant marine ecosystems. Further guidance may be found in subsequent instruments that clarify the scope of states' obligations to carry out environmental impact assessments.[41] Once an EIA has been conducted, states must "communicate reports of the results" (Article 206) to competent international organizations, which should then "make them available to all states" (Article 205). This reporting obligation is "absolute",[42] and it serves the function of allowing other states to ensure that EIAs are conducted in accordance with the relevant rules and principles of international law.

5.4 Protection of the marine environment on the seabed beyond national jurisdiction

The seabed beyond national jurisdiction is subject to a different regulatory regime than the water column beyond national jurisdiction. According to Article 1(1) of the UNCLOS, the seabed beyond national jurisdiction is called the Area, and it is designated under Article 136 as the "common heritage of mankind", which means that no state may claim sovereignty over the Area or its resources and any activities in the Area must be carried out in accordance with Part XI of the UNCLOS.

The International Seabed Authority (ISA) was established in 1994 upon entry into force of the UNCLOS as an international body to regulate mining and related activities in the Area. The mandate of the Authority is found in Part XI of the UNCLOS, as modified by the 1994 United Nations Agreement Relating to the Implementation of Part XI of the Convention.[43] The principal function of the ISA is to regulate deep seabed mining. In carrying out this function, it is also required to give special emphasis to ensuring that the marine environment is protected from harmful effects that may arise during mining activities (Article 145).

In furtherance of this mandate, the ISA has formulated regulations for prospecting and exploration for polymetallic nodules, polymetallic sulphides and cobalt-rich crusts, all of which contain provisions dedicated to the protection and preservation of the marine environment. These regulations set out the respective responsibilities of contractors, sponsoring states and the ISA itself in order to ensure environmentally sustainable development of seabed mineral resources. Part of the regulations concerns provisions for the setting aside of areas within a mining area as so-called "preservation reference zones", which are defined as "areas in which no mining shall occur to ensure representative and stable biota of the seabed in order to assess any changes in the biodiversity of the marine environment."[44] In addition, the ISA has also provisionally approved the Clarion-Clipperton Environmental Management Plan, which identifies nine Areas of Particular Environmental Interest covering a range of deep seabed habitats in the Clarion-Clipperton Fracture Zone in the Pacific Ocean, which should be protected from any form of mining activity.[45] It is likely

[41] See e.g. 1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (2167 UNTS 3). Concluded 4 August 1995. Entered into force 11 November 2001. 82 parties as of 10 October 2015. Article, 5(d); Deep-sea Fisheries Guidelines, paragraph 47; 1992 United Nations Convention on Biological Diversity (1760 UNTS 79). Concluded 22 May 1992. Entered into force 29 December 1993. 196 parties as of 10 October 2015. Article 14.

[42] *Annex VII Arbitral Tribunal in the Matter of the South China Sea Arbitration*. PCA Case No. 2013–19, Award, 12 July 2016, paragraph 948.

[43] 1994 Agreement Relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982 (1836 UNTS 3). Concluded on 28 July 1994. Entered into force 28 July 1996. 147 parties as of 10 October 2015.

[44] See e.g. Polymetallic Sulphide Regulations, Regulation 33; Cobalt-Rich Crust Regulations, Regulation 33.

[45] *Decision of the Council relating to an environmental management plan of the Clarion-Clipperton Zone*. Document ISBA/18/C/22 (2012).

that the ISA will elaborate additional environmental management plans for other areas of the seabed beyond national jurisdiction, such as the Mid-Atlantic Ridge.[46]

The ISA itself has no authority to regulate fishing vessels, even if deep-sea fishing activities may impact on the seabed beyond national jurisdiction. Nevertheless, the environmental measures adopted by the ISA to protect the marine environment of the seabed beyond national jurisdiction should be taken into account by flag states when regulating the activities of their vessels conducting deep-sea fishing. Indeed, coordination between the ISA and flag states will be necessary if measures adopted for the purposes of protecting deep-sea marine ecosystems are to be effective. Such areas may qualify as "rare and fragile ecosystems" for the purpose of Article 194(5), and thus states are required to take the necessary measures for their protection. States must also give "due regard" to activities in the Area when exercising their high seas freedoms under Article 87(2) of the UNCLOS. Thus, there is an obligation on flag states to have due regard to the environmental measures adopted or approved by the ISA, including the environmental management plans and the preservation reference zones, when carrying out their obligations in relation to freedom of fishing under Articles 116–119 of the UNCLOS.[47]

5.5 Developments on biodiversity in areas beyond national jurisdiction

Because of growing international concern about the increasing pressure posed by existing and emerging human activities on unique forms of life in areas beyond national jurisdiction, the UNGA established a working group in 2004 to study issues relating to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction.[48] The working group concluded its work in 2015 and, on the basis of its recommendations, the UNGA adopted Resolution 69/292, calling for the development of an international, legally binding instrument under the UNCLOS on the conservation and sustainable use of marine biological diversity in areas beyond national jurisdiction. In the resolution, the UNGA established a preparatory committee to make substantive recommendations on the elements of a draft text of such an instrument. Negotiations will address the topics identified as a package agreed upon in 2011: the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction; marine genetic resources, including on the sharing of benefits; and measures such as area-based management tools, including marine protected areas (MPAs), EIAs and capacity building, and the transfer of marine technology.[49] The UNGA is expected to decide on launching an intergovernmental negotiating conference to adopt the new instrument by the end of 2017.

For present purposes, it should be noted that the extent to which a new agreement would concern fisheries remains unclear and was one of the most contentious items discussed in the working group. In all events, it seems likely that a new agreement will contain rules that could affect fisheries, in particular with regard to the rules relating to MPAs and EIAs.

[46] See International Seabed Authority. *Implementation of the environmental management plan for the Clarion-Clipperton fracture zone and development of other environmental management plans in the Area.* 3 March 2015. Document ISBA/21/LTC/9/Rev.1.

[47] For further analysis of such obligations, see *Chagos Marine Protected Area Arbitration between Mauritius and the United Kingdom*, Award, 18 March 2015, paragraph 519: "The extent of the regard required by the Convention will depend upon the nature of the rights held …, their importance, the extent of the anticipated impairment, the nature and importance of the activities contemplated …, and the availability of alternative approaches. In the majority of cases, this assessment will necessarily involve at least some consultation with the rights-holding State."

[48] Oceans and Law of the Sea. United Nations General Assembly Resolution 59/24 (2004), paragraph 73.

[49] Oceans and Law of the Sea. United Nations General Assembly Resolution 66/231 (2011), Annex.

As to the former, during the negotiations in the working group, the point was made that existing sectoral and regional agreements would not be sufficient to create a globally representative network of multi-purpose MPAs. The question is, therefore, whether a new treaty will provide procedures for the identification and designation of new multi-purpose MPAs at the global level, or for the global recognition of existing regional or sectoral MPAs. In addition, it remains to be clarified whether a global process should also establish management measures for these areas, and provide monitoring and surveillance, or even enforcement in this regard. Another option is for a global mechanism to provide recommendatory criteria and guidelines to help existing (sectoral or regional) competent bodies to identify, establish and manage MPAs.

With regard to EIAs, negotiations in the working group pointed out that the UNCLOS general obligation may be ineffective when considering the cumulative impact of multiple stressors on the marine environment. It remains to be seen whether a new agreement will establish common procedures and standards for assessment, monitoring, reporting and management of EIAs leading to the development of a central information-sharing mechanism, or a recommendatory framework to develop capacity for the preparation and review by existing sectoral and regional bodies of EIAs of activities in areas beyond national jurisdiction that may pose a risk to biodiversity. Another possibility is for the agreement to create obligations for EIAs to be made public and subject to review by the international community.[50]

Summary

In order to implement their obligations under the UNCLOS, states must address the following issues in their national legislation:

- Establishment of a register of vessels flying their flag (Article 94(2)(a)).
- Requirement for all vessels flying their flag to obtain a licence prior to fishing on the high seas (Articles 92(1), 94(1), 117 and 119(1)).
- Identification of the factors to be taken into account in granting fishing licences, including the protection and preservation of rare or fragile ecosystems, as well as the habitat of depleted, threatened or endangered species and other forms of marine life (Articles 87(2), 94, 116, 119(1), 192, 194(5) and 206).
- Inclusion of a power to set binding conditions for fishing on the high seas (Articles 94, 117, 119(1) and 206).
- Inclusion of a power to prohibit or restrict fishing in certain areas in order to protect rare or fragile ecosystems (Articles 117, 119(1) and 194(5)).
- Inclusion of a power to prohibit or restrict fishing in certain areas in order to protect threatened or endangered species (Articles 117, 119(1) and 194(5)).

[50] Transmittal letter dated 9 March 2006 from the Co-Chairpersons of the Working Group to the President of the General Assembly, United Nations Document A/61/65 (2006); Letter dated 15 May 2008 from the Co-Chairpersons of the Ad Hoc Open-ended Informal Working Group to study issues relating to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction addressed to the President of the General Assembly, United Nations Document A/63/79 (2008); Letter dated 16 March 2010 from the Co-Chairpersons of the Ad Hoc Open-ended Informal Working Group to the President of the General Assembly, United Nations Document A/65/68 (2010*);* Letter dated 5 May 2014 from the Co-Chairs of the Ad Hoc Open-ended Informal Working Group to the President of the General Assembly, United Nations Document A/69/82 (2014); Letter dated 25 July 2014 from the Co-Chairs of the Ad Hoc Open-ended Informal Working Group to the President of the General Assembly, United Nations Document A/69/177 (2014); Letter dated 13 February 2015 from the Co-Chairs of the Ad Hoc Open-ended Informal Working Group to the President of the General Assembly, United Nations Document A/69/780 (2015).

- Requirement for all vessels flying their flag to report on catches (Articles 92(1), 94(1) and 119(1)).
- Establishment of appropriate monitoring, control and enforcement mechanisms (Articles 92(1), 94, 117, 118, 119, 194 and 206).
- Requirement to carry out environmental impact assessments of activities which may cause significant or harmful changes to the marine environment (Article 206).

6. GLOBAL FISHERIES INSTRUMENTS RELEVANT TO DEEP-SEA FISHERIES AND ITS IMPACT ON MARINE BIOLOGICAL DIVERSITY BEYOND NATIONAL JURISDICTION

A number of international instruments are devoted to the regulation of fishing and they have direct application to deep-sea fisheries on the high seas. These instruments include treaties like the United Nations Fish Stocks Agreement, the FAO Port State Measures Agreement or the FAO Compliance Agreement, as well as soft law instruments, such as the FAO Code of Conduct for Responsible Fisheries, the International Plan of Action on IUU Fishing or the International Guidelines for the Management of Deep-Sea Fisheries in the High Seas. The following chapter deals with the most relevant of these instruments, all of which establish specific requirements or recommendations for states to incorporate into their national legislation.

6.1 United Nations Fish Stocks Agreement (UNFSA)[51]

The objective of the UNFSA is to ensure the long-term conservation and sustainable use of straddling fish stocks and highly migratory fish stocks through effective implementation of the relevant provisions of the UNCLOS. Highly migratory species must be understood by reference to Article 64 of the UNCLOS and the list in Annex I of that treaty. Straddling stocks is also generally understood to refer to stocks that occur both within the exclusive economic zone and in an area beyond or adjacent to the zone, in accordance with Article 63(2) of the UNCLOS. No deep-sea species are included in the list of highly migratory species, and the UNFSA will have limited relevance in this regard. However, deep-sea fishing on straddling fish stocks will fall within the scope of the UNFSA. Moreover, the UNGA has continuously, since 2006, called upon states to adopt conservation and management measures also for discrete high seas fish stocks, consistent with the general principles set forth in the UNFSA.[52]

The UNFSA elaborates on the duty of states pursuant to UNCLOS Article 117 "to take, or to cooperate with other states in taking, such measures for their respective nationals as may be necessary for the conservation of the living resources of the high seas." The focus of the agreement is thus on the cooperation within RFMOs and Part III applies in that context. Parts

[51] 1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (2167 UNTS 3). Concluded 4 August 1995. Entered into force 11 November 2001. 82 parties as of 10 October 2015.

[52] See e.g. Sustainable fisheries, including through the 1995 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, and related instruments. General Assembly Resolution 69/109 (2014), paragraph 33: "Calls upon States, individually and, as appropriate, through subregional and regional fisheries management organizations and arrangements with competence over discrete high seas fish stocks, to adopt the measures necessary to ensure the long-term conservation, management and sustainable use of such stocks in accordance with the Convention and consistent with the Code and the general principles set forth in the Agreement."

IV–VI apply to all UNFSA parties regardless of RFMO membership, which require national administrative actions and legislative implementation.

6.1.1 General

Part II of UNFSA establishes a set of rights and obligations for states for conservation and management, which would apply to deep-sea fishing as well as the protection of marine biological diversity.

Although the main objective of UNFSA is related to the conservation and management of fish stocks on the high seas, Article 5 (general principles), Article 6 (application of the precautionary approach) and Article 7 (compatibility of conservation and management measures) also apply to the conservation and management in areas under national jurisdiction. Consequently, these provisions are also applicable to coastal states not involved in fishing for deep-sea species on the high seas.

Article 5 sets out the general principles, which include, among other things, that states are required to adopt measures to ensure the "long-term sustainability" of fish stocks and to promote the objective of their optimum utilization; to ensure that such measures are based on the best scientific evidence available; and to apply the precautionary approach in accordance with Article 6 of the agreement. Article 5 calls for the conservation and management of marine ecosystems and the protection of biological diversity in the marine environment, and states are also required to minimize pollution, waste, discards, catch by lost or abandoned gear, catch of non-target species (both fish and non-fish species), and impacts on associated or dependent species. Under Article 5(d), states are required to assess the impact of fishing on target stocks and species belonging to the same ecosystem or associated with or dependent upon target stocks. In addition, measures shall be taken to prevent or eliminate overfishing and excess capacity, and to ensure that levels of fishing effort do not exceed those commensurate with sustainable use of fishery resources. States shall monitor their fishing capacity, and establish adequate schemes or measures to address excess capacity when needed. States are further required to collect, share and complete accurate data concerning fishing activities on, among other things, vessel position, catch and fishing effort, as set out in Annex I to the agreement, as well as information from national and international research programmes.

Article 6 requires states to apply the precautionary approach to conservation and management in order to protect the living marine resources and preserve the marine environment. Annex II of the agreement provides guidance for the application of precautionary reference points in conservation and management of the stocks concerned. The aim of the application of the precautionary approach to fisheries management is to reduce the risk of overexploitation and depletion of fish stocks. The use of precaution is required at all levels of the fishery system, including management decisions, research, technology development, as well as institutional frameworks. The application of the precautionary approach entails that the lack of full scientific information should not be used as a reason to postpone taking action by the establishment of conservation and management measures. The approach involves the setting of reference points for management and threshold levels for spawning stock size and fish mortality. The management objectives are to ensure that the fish mortality rates and the size of the spawning stock biomass are maintained at or above desired levels. A precautionary approach is particularly important for deep-sea fishing given the scientific uncertainty surrounding the population dynamics of many of the targeted stocks.

Article 7 obliges states to develop conservation and management measures that are compatible for the high seas and their national waters. Adoption of compatible conservation and management measures is essential because straddling deep-sea fish stocks may occur both within and beyond the national waters or may be available outside at one time and inside at another, with the consequence that amounts taken within areas under national jurisdiction may affect the catches beyond and vice versa.

These provisions in the UNFSA, while general in nature, are nevertheless important because they integrate environmental considerations into decision-making relating to fishing. While this is "very much in keeping with Article 194(5) of the [UNCLOS] and with the general obligation to protect and preserve the marine environment codified in Part XII, ... it is the very first time it has been spelt out explicitly in a major fisheries agreement."[53] The provisions on the application of the precautionary approach and of the ecosystem approaches to fishing activities are now often associated with generally accepted international minimum standards for the conservation of living marine resources, as referred to in the relevant provisions of the UNCLOS (see above).

6.1.2 Duty to cooperate

Article 8(3) obliges states to give effect to their duty to cooperate (derived from the UNCLOS) in conservation and management by applying measures established by RFMO/As. Article 8(4) further provides that only those states that participate in RFMO/As or abide by the relevant RFMO/A measures shall have access to the fishery in the high seas area to which those measures apply. Where an RFMO/A has competence, states that intend to authorize fishing shall become members of the RFMO/A or agree to apply the measures the RFMO/A adopts. This restricts the concept of freedom of fishing in areas beyond national jurisdiction. This duty should be implemented by requiring that conservation and management measures or equivalent measures are adhered to when vessels operate in an area managed by an RFMO/A. To this end, Article 17(1) of the UNFSA provides that "[a] State which is not a member of a subregional or regional fisheries management organization or is not a participant in a subregional or regional fisheries management arrangement, and which does not otherwise agree to apply the conservation and management measures established by such organization or arrangement, is not discharged from the obligation to cooperate, in accordance with the Convention and this Agreement, in the conservation and management of the relevant straddling fish stocks and highly migratory fish stocks." One way to address this could be that the flag state establishes a general prohibition against fishing by their flagged vessels in an area managed by an RFMO/A to which it is not a member. Any exception, by a special licence or authorization, shall be granted only if it is recognized by that particular RFMO/A as a cooperating flag state.

6.1.3 Flag state duties

Article 18 provides for flag state duties concerning control over fishing vessels, which would include those engaged in deep-sea fishing. Paragraph 1 imposes the basic obligation for a flag state to ensure that vessels flying its flag comply with RFMO/A measures and do not undermine the effectiveness of such measures. The measures to comply with would be defined by the relevant RFMO/A, and the flag state would be responsible for transposing those measures into its domestic law in accordance with its due diligence obligations under the UNCLOS (see above). Paragraph 2 provides that a flag state shall authorize its vessels to fish on the high seas only when able to exercise its duties in accordance with the UNCLOS

[53] Birnie, P., Boyle, A. & Redgwell, C. 2009. *International law and the environment*. 3rd edition. Oxford University Press. pp. 736.

and UNFSA. Paragraph 3 contains rather detailed specifications of the required suite of measures that would be necessary to comply with this obligation.

Articles 19–22 deal with international compliance and enforcement, and oblige flag states to enforce RFMO/A measures. Article 19 requires that the flag state ensures compliance by its vessels, which would require UNFSA parties to have in place mechanisms, both legal and administrative, and to investigate alleged violations, institute proceedings, ensure that in the case of a serious violation the vessel in question does not engage in high seas fishing until any outstanding sanctions have been complied with, and apply sanctions that are adequate in severity.

Article 21 states that in any high seas area covered by an RFMO/A, an UNFSA party, which is a member of that RFMO/A, may board and inspect fishing vessels flying the flag of another UNFSA party, whether or not that party is also a member of the RFMO/A concerned. The basic procedures for boarding and inspection are set out in Article 22. Some RFMO/As have established enforcement schemes tailored to their regional needs, and subsequent national implementation of such schemes would be required.

6.1.4 Port state measures

Article 23 of the UNFSA recognizes the wide discretion of states to exercise jurisdiction over vessels voluntarily present in their ports. The underlying principle formulated in Article 23(1) is "the right and the duty" of a port state to take non-discriminatory measures in accordance with international law in order to "promote the effectiveness of sub-regional, regional and global conservation and management measures." Paragraph 2 specifies, *inter alia*, inspections of documents, fishing gear and catch on board that the port state may voluntarily take on vessels in port. It is recognized that emphasis needs to be put not only on the "right" in Article 23 of UNFSA, but also on the "duty". Through the adoption of the FAO Agreement on Port State Measures, minimum standards for port state measures were established (see below).

Summary

The UNFSA requires the following issues to be implemented in national legislation:

- Identification of general principles for conservation and management (Articles 5, 6 and 7).
- Prohibition on vessels operating in areas managed by an RFMO/A to which it is not a member, or implement the relevant conservation and management measures of that RFMO/A (Article 8(4)).
- Requirement of mandatory authorizations for fishing vessels operating on the high seas and the imposition of conditions for those vessels granted such authorization (Article 18(1), 18(2) and 18(3)).
- Establishment and maintenance of a record of fishing vessels authorized to fish on the high seas (Article 18(3)(c)).
- Requirement for proper marking of fishing vessels (Article 18(3)(d)).
- Requirement of specified information on fishing operations, including vessel position, catch of target and non-target species (Article 18(3)(e) and Annex I).
- Establishment of a catch verification regime (Article 18(3)(f)).
- Introduction of transshipment regulations (Article 18(3)(h)).

- Establishment of a monitoring, control and enforcement system, including a legal and administrative mechanism to identify serious violations (Articles 18(3)(g), 18(3)(i), 19, 20, 21 and 22).
- Identification of basic procedures for boarding and inspection on the high seas (Articles 21 and 22).
- Establishment of a port state inspection system, including regulations prohibiting landings and transshipments if effectiveness of high seas measures have been undermined (Article 23).

6.2 FAO Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (PSMA)[54]

The Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing, also known as the Port State Measures Agreement (PSMA), seeks to combat IUU fishing through the implementation of effective port state measures as a means of ensuring the long-term conservation and sustainable use of living marine resources and marine ecosystems. Port state measures can be an important tool for deterring IUU fishing, and the PSMA is thus highly relevant in the context of deep-sea fishing and biodiversity conservation. The PSMA sets out minimum standards for port control of foreign fishing vessels. It also requires that the agreement is applied in a fair, transparent and non-discriminatory manner (Article 3(4)) in order to avoid disputes concerning preferential access to ports.

6.2.1 Definitions and application

The PSMA contains important definitions that must be reflected in national law; in particular, the terms for fish, fishing, fishing-related activities, port and vessel would be crucial for implementation, as they are used in the application provision in Article 3 and consequently describe the scope of the agreement. Article 3(1) states that the agreement applies to vessels not entitled to fly the flag of the port state (i.e. foreign vessels), with two categories that may be exempted, namely vessels of a neighbouring state and particular container vessels. A party could also, pursuant to Article 3(2), decide that the agreement shall not apply to chartered vessels. The application of the PSMA to activities and vessels as described in the agreement must be included in national law.

6.2.2 Entry into port

The PSMA establishes a step-by-step process for the port state to allow or deny the entry to and the use of its ports. Article 7 requires each party to designate and publicize ports to which entry may be requested, and to ensure sufficient capacity to conduct inspections.

Pursuant to Article 8, a party shall, prior to allowing a foreign vessel access to its port, require the provision of information on place, time and purposes of the port call, vessel information (various identifications and specifications), authorizations, transshipment information and catch details. Advance notification must be provided sufficiently in advance to allow the port state time for examination of the information provided.

[54] 2009 FAO Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing. Concluded 22 November 2009. The Agreement entered into force on 5 June 2016. As of 26 April 2017, there were 45 Parties to the Agreement.

Article 9 requires prior authorization of entry into port and presentation of authorization upon entry into port. It also requires the denial of entry or other actions that are as effective as denial, where there is sufficient proof of IUU fishing. Entry must be denied under Article 9(4), where the port state has sufficient proof that a vessel has engaged in IUU fishing, in particular where it is on an IUU vessel list established by an RFMO/A.

6.2.3 Use of port

Pursuant to Article 11, a vessel that has entered a port shall not be permitted to use that port if the vessel does not have a fishing authorization required by the relevant flag state or coastal state, or if there is clear evidence that the fish on board was taken in contravention of applicable measures. To this end, the use of port shall also be denied if the flag state, on request, fails to confirm within reasonable time that the fish on board was taken in accordance with requirements of an RFMO/A, or the port state has reasonable grounds to believe that IUU fishing had taken place, unless the vessel can establish otherwise. For this purpose, use includes landing, transshipping, packaging, processing, refuelling and resupplying, maintenance, and dry-docking. The use of port shall not be denied if services are essential to the safety or health of the crew or the safety of the vessel, or for scrapping the vessel.

6.2.4 Inspections and follow-up actions

Article 13 of the PSMA lists a series of duties on port states in carrying out inspections, including qualification of inspectors, identity cards, examination, cooperation and communication, and an obligation to minimize interference and inconvenience. The port state must thus ensure that inspectors perform functions of verification, review, examination, determination and evaluation. Inspections must be carried out in a fair, transparent and non-discriminatory manner (Article 13(2)(h)).

The port state is, pursuant to Article 14, required to include into a report of the inspection the result indicators, such as information on the vessel itself, authorizations, catch, gear and records, as well as findings by the inspector and apparent infringements, if any.

If, following an inspection, there are clear grounds for believing that the vessel has engaged in IUU fishing, the port state must, pursuant to Article 18, deny the vessel use of the port except for services essential for the safety or health of the crew or the safety of the vessel (see above).

6.2.5 Role of flag states

Article 20 contains obligations on a party as flag state, and most of them require procedures to be established. However, the provision also includes the duty to require its vessels to cooperate with the port state in inspections.

Summary

The PSMA requires the following issues to be implemented in national legislation:

- Definitions of key terms, including fish, fishing, fishing-related activities, port and vessel (Article 1).
- Identification of the authority with power to designate ports for access by foreign vessels (Article 7).

- Requirement of mandatory request for port entry authorization by foreign vessels, including the timing of the request and the information required for assessing the request (Article 8 and Annex A).
- Inclusion of a power to grant or deny port entry when sufficient proof of IUU fishing and penalties for entry without authorization and in a port that is not designated. Inclusion of a power to deny use after entry (with no inspection required) in special circumstances, and following an inspection when reasonable grounds to believe IUU fishing has taken place and to establish penalties for port use, despite denial, both by vessel and any entity assisting such use (Articles 7, 9(1), 9(4), 11(1)(e), and 18(1)).
- Inclusion of a power to withdraw denial of port use where grounds for denial were inadequate or erroneous (Article 11(4)).
- Authorization of inspectors, including their responsibilities (Articles 13, 14, 17, Annex B and Annex C).
- Establishment of procedures for inspections and drawing up reports (Article 13, 14, 15, 16, Annex B and Annex C).
- Requirement that vessels cooperate during inspections in foreign ports (Article 20(1)).

6.3 FAO Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (Compliance Agreement)[55]

The Compliance Agreement was finalized prior to UNFSA, in 1993, and some of the provisions of these two agreements overlap. The Compliance Agreement applies to all fishing vessels that are used or intended for fishing on the high seas. Each party is required to take such measures as may be necessary to ensure that fishing vessels entitled to fly its flag do not engage in any activity that undermines the effectiveness of "international conservation and management measures" adopted and applied in accordance with the UNCLOS.[56] It is thus not limited to species covered by UNFSA, but also covers discrete high seas stocks, including many deep-sea fish stocks. The focus of the Compliance Agreement is the authorization of fishing on the high seas and the development of the concept of flag state responsibility and of mechanisms to ensure the free flow of information on high seas fishing operations.

6.3.1 Scope of application

The Compliance Agreement applies, pursuant to Article II, to "all fishing vessels that are used or intended for fishing on the high seas", which of course would include those engaged in deep-sea fishing. The definition of fishing vessel[57] is set out in Article I. Any party may exempt fishing vessels of less than 24 metres in length from the application of some of the detailed administrative provisions of the Compliance Agreement, but this does not apply to

[55] 1993 FAO Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (2221 UNTS 91). Concluded 24 November 1993. Entered into force 24 April 2003. 40 parties as of 10 October 2015.

[56] Ibid. Article I(b): "'International conservation and management measures' means measures to conserve or manage one or more species of living marine resources that are adopted and applied in accordance with the relevant rules of international law as reflected in the 1982 United Nations Convention on the Law of the Sea. Such measures may be adopted either by global, regional or subregional fisheries organizations, subject to the rights and obligations of their members, or by treaties or other international agreements."

[57] Ibid. Article I(a): "'fishing vessel' means any vessel used or intended for use for the purposes of the commercial exploitation of living marine resources, including mother ships and any other vessels directly engaged in such fishing operations."

the main obligation, i.e. ensuring that the vessels concerned do not undermine the effectiveness of international conservation and management measures.

6.3.2 Flag state responsibility

The key provision of the Compliance Agreement is Article III. It requires a party to take measures as may be necessary to ensure that fishing vessels entitled to fly its flag do not engage in any activity that undermines the effectiveness of any international conservation and management measures. Such measures are defined in Article I, but it would be very difficult to specifically implement this in national legislation, as the definition also looks ahead to future measures. However, leaving the definition aside, the obligation in Article I could be included as a general principle or as an objective of a law, which then would be implemented by the subsequent provisions of that law.

A party shall not allow any of its vessels to fish on the high seas unless they have been authorized to do so, and each party must ensure that its vessels fish in accordance with the conditions of the authorization.

In addition, fishing vessels shall not be authorized, unless there is a "link" between the fishing vessel and the flag state. There are various "links", such as a certain percentage of local ownership and periodic returns to its ports, that could be included in national legislation. However, in the context of fisheries, the key issue is that the activities of the vessels are duly observed and monitored by the flag state through reporting schemes, including vessel monitoring systems, and that enforcement actions are taken against possible violations.[58] This obligation would thus be addressed by establishing comprehensive frameworks for monitoring and control of fishing vessels.

An important obligation is placed on states to refrain from granting fishing authorizations if a vessel has changed flag and is still in a period of suspension of its authorization in the former flag state, or during a three-year period following the withdrawal of the fishing authorization by the former flag state. The purpose of this provision is to prevent so-called flag-hopping, whereby an IUU vessel circumvents a fishing ban by simply changing flag. However, authorizations might be granted if it can be verified that there is no link between the new and the former owner or if the new flag state determines that granting the authorization would not undermine the objective and purpose of the agreement. It should be noted that any state would have the necessary discretion to decide on which vessels should be granted fishing authorizations.

The flag state must also ensure that its vessels are properly marked, and the FAO Standard Specifications for the Marking and Identification of Fishing Vessels is given as an example.[59]

The Compliance Agreement further requires a party to ensure that its fishing vessels provide information concerning their operation, including fishing area, catch and landing data, as may be necessary to fulfil its obligations under the agreement.

A party is required to take enforcement measures against any of its vessels that act in contravention of the agreement, and sanctions must be of sufficient gravity to be effective in securing compliance and deprive offenders of the benefits accruing from their illegal

[58] See discussion of the genuine link and Articles 91 and 94 of the UNCLOS above.

[59] FAO. 1993. *The standard specifications for the marking and identification of fishing vessels.* Available at ftp://ftp.fao.org/docrep/fao/008/t8240t/t8240t01.pdf

activities. Sanctions may include, for serious offences, refusal, suspension or withdrawal of the authorization to fish on the high seas.

6.3.3 Record of fishing vessels

According to Article IV, a party shall maintain a record of its fishing vessels authorized to fish on the high seas. The substance of such a record is not specified, but Article VI of the Compliance Agreement contains a list of the types of information to be provided to FAO, which thus could be regarded as the information relevant also to include in a national record.

Summary

The Compliance Agreement requires the following issues to be implemented in national legislation:

- Definition of fishing vessel (Article I(a)).
- Description of general duties of a flag state in the context of the agreement (Article III).
- Requirement of mandatory authorizations for fishing vessels operating on the high seas and conditions for those granted such authorization (Article III(2)).
- Inclusion of the power to refuse fishing authorizations in specific circumstances (Article III).
- Requirement to marking of fishing vessels in accordance with specified standards (Article III(6)).
- Requirement to provide specific information on fishing operations (Article III(7)).
- Establishment of enforcement measures and sanctions (Article III(8)).
- Establishment and maintenance of a record of fishing vessels authorized to fish on the high seas (Article IV).

6.4 Code of Conduct for Responsible Fisheries (the Code)

The Code was adopted by the FAO in 1995 in order to provide a framework for national and international efforts to ensure sustainable exploration of aquatic living resources in harmony with the environment. The overall objective of the Code is to promote a framework for sustainable use of fisheries resources, foster protection of the aquatic environment and maintain biodiversity while also making a contribution to the safety of fishing operations. The Code contains principles and standards applicable to the conservation, management and development of all fisheries. It covers the capture, processing and trade of fish and fishery products, fishing operations, aquaculture, fisheries research and the integration of fisheries into coastal management. The Code is a soft law instrument and it is therefore voluntary, although as noted in the Code itself, “certain parts of it are based on relevant rules of international law” (Article 1.1), and therefore the provisions of the Code may be relevant to the interpretation and application of other applicable instruments.

The principles of the Code are set out in Article 6, and they are subsequently dealt with in more detail later in the instrument. In relation to deep-sea fishing, in particular Articles 7 and 8 give important guidance. Article 7 includes provisions on management objectives, management framework and procedures, data gathering and management advice, application of the precautionary approach, and the establishment of management measures as well as their implementation. Article 8 deals with fishing operations and contains provisions on the duties of flag states and port states.

6.4.1 General principles and management objectives

Both Article 6 and Article 7 contain general principles for responsible fisheries that are highly relevant for deep-sea fishing and marine biodiversity protection and that could be implemented in national fisheries policy or law, or both.

From the outset, the Code makes clear that it is concerned with all aspects of fishing. Article 6.1 notes that "States and users of living aquatic resources should conserve aquatic ecosystems. The right to fish carries with it the obligation to do so in a responsible manner so as to ensure effective conservation and management of the living aquatic resources." The emphasis on ecosystems is echoed throughout the other principles found in the Code.

Article 7.2 addresses the management objectives of fisheries, which should include the avoidance of excess capacity, the conservation of biodiversity of aquatic habitats and ecosystems, the protection of endangered species, and the minimization of pollution, waste, discards, catch by lost or abandoned gear, catch of non-target species, and impacts on associated or dependent species. In addition, states should assess the impacts of environmental factors on target stocks and species belonging to the same ecosystem.

Article 6.2 refers to the maintenance of the quality, diversity and availability of fishery resources, including species belonging to the same ecosystem or associated with or dependent upon the target species, and similar language is found in Article 7.1.1. Pursuant to Articles 6.3 and 7.1.8, states should prevent or eliminate excess fishing capacity, adjusting effort commensurate to sustainable use of the fishery resources. In addition, according to Article 6.6, selective and environmentally safe fishing gear and practices should be used in order to maintain biodiversity and to conserve the population structure and aquatic ecosystems. This is further elaborated in Article 8.5, under which states should require that fishing gear, methods and practices are sufficiently selective so as to minimize waste, discards, catch of non-target species, both fish and non-fish species, and impacts on associated or dependent species.

Article 6.4 and Article 7.1.1 request that conservation and management decisions should be based on the best scientific evidence available, while Article 6.5 refers to the application of the precautionary approach to conservation and management and to preserve the aquatic environment. How to implement the precautionary approach is described in Article 7.5, underlining that when making relevant management decisions, "States should take into account, *inter alia*, uncertainties relating to the size and productivity of the stocks, reference points, stock condition in relation to such reference points, levels and distribution of fishing mortality and the impact of fishing activities, including discards, on non-target and associated or dependent species, as well as environmental and socio-economic conditions." This provision emphasizes that the range of relevant factors goes far beyond information concerning the target stock to include broader environmental concerns. Of particular relevance to the expansion of deep-sea fisheries is the recommendation that "in the case of new or exploratory fisheries, States should adopt as soon as possible cautious conservation and management measures, including, *inter alia*, catch limits and effort limits."

6.4.2 Flag state responsibilities

Article 8.2 sets out the responsibilities of flag states, some of which would be relevant for deep-sea fishing and biodiversity conservation in areas beyond national jurisdiction.

Many of the measures suggested by the Code overlap with obligations contained in some of the fisheries instruments already discussed. Thus, a flag state shall maintain a record of its

fishing vessels authorized for fishing, and it should ensure that none of its fishing vessels fish on the high seas unless they have been authorized to do so.

The flag state shall also ensure that its vessels are properly marked, and the FAO Standard Specifications for the Marking and Identification of Fishing Vessels is given as an example.[60] Gear should also be marked.

Article 6.11 calls on flag states to exercise control over their vessels and to ensure that they do not undermine the effectiveness of international or national conservation and management measures. Pursuant to Article 7.1.7, states should also establish effective mechanisms for monitoring, surveillance, control and enforcement of fishing vessels. States should ensure that documentation with regard to fishing operations, retained catch of fish and non-fish species is collected, and states should establish programmes, such as observer and inspection schemes, in order to promote compliance with applicable measures. A flag state is required to take enforcement measures against any of its vessels that have contravened applicable conservation and management measures, including, where appropriate, making such contravention an offence under national legislation. Sanctions must be of adequate severity to be effective in securing compliance and discouraging violations and should deprive offenders of the benefits accruing from their illegal activities, and they are to include, for serious offences, refusal, suspension, or withdrawal of the authorization to fish.

6.4.3 Port state measures

Article 8.3 calls for measures to be taken by the port state in order to assist other states to achieve the objectives of the Code and to promote compliance with subregional, regional or global conservation and management measures, or with internationally agreed minimum standards for the prevention of pollution and for safety, health and conditions of work on board fishing vessels. A port state should adopt procedures through regulations for inspection of foreign vessels in order to assist in ensuring that the vessel has fished in a responsible manner.

Summary

The Code recommends that the following issues be implemented in national legislation:

- Identification of objectives and general principles for conservation and management (Articles 2, 6, 7.1, and 7.2).
- Establishment and maintenance of a record of authorized fishing vessels (Article 8.2.1).
- Requirement for authorizations for fishing vessels operating on the high seas (Article 8.2.2).
- Requirement of marking of fishing vessels and fishing gear in accordance with specified standards (Articles 8.2.3 and 8.2.4).
- Prohibition on destructive fishing practices (Article 8.4.2).
- Requirement to provide specified information on fishing operations (Article 8.4.3).
- Establishment of regulations for inspection of foreign fishing vessels in ports (Article 8.3).
- Requirement to use selective gear (Articles 6.6 and 8.5).
- Establishment of enforcement measures and sanctions (Articles 7.1.7 and 8.2.7).

[60] FAO. 1993. *The standard specifications for the marking and identification of fishing vessels*. Available at ftp://ftp.fao.org/docrep/fao/008/t8240t/t8240t01.pdf

6.5 International Guidelines for the Management of Deep-sea Fisheries in the High Seas (Deep-sea Fisheries Guidelines)

The Deep-sea Fisheries Guidelines were adopted by the FAO in 2008 as an instrument to directly address the challenges associated with the management of deep-sea fisheries in areas beyond national jurisdiction, as described in the introduction. The Deep-sea Fisheries Guidelines are not formally binding, but they make several references to other international agreements. Thus, the Deep-sea Fisheries Guidelines can be seen as providing direction to states on how to apply their existing international obligations in relation to the conservation and management of marine living resources in the context of deep-sea fishing operations.

The Deep-sea Fisheries Guidelines are designed for fisheries in which the catch includes species that can only sustain low exploitation rates and for fishing gear that are likely to contact the sea floor during normal use. The Deep-sea Fisheries Guidelines are principally concerned with fisheries on the high seas, although they could also serve as an important tool for coastal states when addressing deep-sea fishing and VME protection within national waters,[61] as they provide guidance on management factors ranging from an appropriate regulatory framework to the components of a good data collection programme.

The objective of the Deep-sea Fisheries Guidelines is to provide tools and guidance for sustainable deep-sea fisheries, and to assist and encourage states and RFMO/As to take actions towards sustainable use of marine living resources, to prevent significant adverse impacts on deep-sea VMEs, and to protect marine biodiversity that these ecosystems contain. In order to achieve this objective, states should adopt measures in accordance with the precautionary approach as set out in UNFSA and the Code.

The Deep-sea Fisheries Guidelines include the identification of some measures necessary to ensure the conservation of target and non-target species, as well as affected habitats that would require legal implementation at the national level. Suggested measures are scattered and repeated throughout the instrument. In order to implement the Deep-sea Fisheries Guidelines, it is necessary to obtain information on fishing location, gear used, depth and duration of deployment, catch by species, fishing effort, bycatch and discards.

6.5.1 Effort controls and/or catch controls

Pursuant to paragraph 71(i), conservation and management measures may include effort and/or catch controls. In order to implement a precautionary approach to sustainable exploitation of deep-sea fisheries, such measures should, according to paragraph 65, include precautionary effort limits, particularly where reliable assessments of sustainable exploitation rates of target and main bycatch species are not available, and precautionary spatial catch limits to prevent serial depletion of low-productivity stocks. Paragraph 63 deals with interim measures that may be necessary until a functioning regulatory framework can be put in place. States should refrain from expanding the level or spatial extent of effort of vessels involved in deep-sea fishing and reduce the effort in specific fisheries, as necessary, to nominal levels needed to provide information for assessing the fishery and obtaining relevant habitat and ecosystem information. Effort could be restricted by the number of vessels allowed to participate in deep-sea fishing, by setting a certain amount of fishing days, or by other means such as gear types, vessel size and engine power.

[61] See FAO Deep-sea Fisheries Guidelines (2009), paragraph 10.

6.5.2 The protection of vulnerable marine ecosystems and temporal and spatial restrictions or closures

The greatest part of the Deep-sea Fisheries Guidelines addresses issues related to the description of vulnerable marine ecosystems (VMEs) and significant adverse impacts, their identification and assessment, including the collection of research data and the establishment of management plans for deep-sea fisheries. There is no comprehensive definition of VMEs in the Deep-sea Fisheries Guidelines; rather, VMEs comprise species, communities or habitats which exhibit some or all of the following characteristics: uniqueness or rarity, functional significance of the habitat, fragility, life-history traits of component species that make recovery difficult, and structural complexity. VMEs are described in the Deep-sea Fisheries Guidelines as areas that contain ecosystems whose structure and function can be vulnerable to significant adverse impacts. Significant adverse impacts on VMEs are those activities that impair the ability of affected populations to replace themselves, degrade the long-term natural productivity of habitats, and cause significant loss of species richness, habitat or community types. Possible impacts should be evaluated individually, in combination and cumulatively. Examples of species groups, communities and habitats that can be identified as VMEs are certain cold-water corals and hydroids, e.g. reef builders and coral forest, sponge-dominated communities, communities composed of dense emergent fauna, and seep and vent communities. These typically occur on certain topographical, geological or hydrophysical features such as submerged edges and slopes, seamounts, banks, knolls, and hills, canyons and trenches, and hydrothermal vents.

In accordance with paragraph 21(ii), states (and RFMO/As) should identify areas or features where VMEs are known or likely to occur and the location of fisheries in relation to these areas and features. Furthermore, pursuant to paragraph 47(iii), states (and RFMO/As) should, when conducting impact assessments, identify, describe and map VMEs known or likely to occur in a fishing area in determining if deep-sea fishing activities are likely to produce significant adverse impacts. Paragraph 63(i) addresses the same issue by requesting states to close areas to deep-sea fishing where VMEs are known or likely to occur, based on the best available scientific and technical information.

6.5.3 Encounter protocols

States should, in accordance with paragraph 67, design an appropriate protocol in advance for how fishing vessels should respond to encounters with a VME during the course of fishing operations, including what constitutes evidence of an encounter (through the determination of species-specific thresholds). Such a protocol should ensure that states require their vessels to cease fishing activities at the site and report the encounter, including location and any available information on the type of VME encountered.

6.5.4 Use of selective gear

According to paragraph 21(v), states should develop and use selective and cost-effective fishing methods and gear. This is elaborated in paragraph 71(iii) to include changes in gear design and/or deployment or operational measures, including reduction of contact between the fishing gear and the seabed, use of effective bycatch reduction devices, and use of technical measures to eliminate or minimize ghost fishing.

6.5.5 Reporting

According to paragraph 35, states should monitor and ensure reporting of the location and activities of vessels flying their flag as close to real time as possible. It is highly desirable that electronic data collection and reporting are used.

6.5.6 Enforcement and compliance

States should, pursuant to paragraph 21(vi), implement and enforce conservation and management measures through effective monitoring, control and surveillance (MCS). Enforcement and compliance issues are specifically dealt with in paragraphs 54–60 of the Deep-sea Fisheries Guidelines. States should establish effective MCS frameworks that may include on-board observers, and electronic and satellite-based monitoring systems (VMSs). Higher levels of observer coverage are required, especially for experimental and exploratory fisheries under an RFMO/A and for fisheries outside of an RFMO/A.[62] States should also maintain and periodically update records of vessels authorized to fish for deep-sea species, and ensure that vessels fishing for deep-sea species are identified by the International Maritime Organization (IMO) number. States should establish measures aimed at combating IUU fishing, in particular by adopting measures for port control, and to identify vessels involved in IUU fishing for deep-sea resources, and adopt measures to prevent deep-sea fish products derived from IUU fishing from entering international trade.

Summary

The Deep-sea Fisheries Guidelines provide for the implementation of the following issues in national legislation:

- Identification of objectives and general principles for the conservation and management of deep-sea fisheries (paragraphs 11 and 12).
- Inclusion of a power to establish fisheries management plans for specific deep-sea fisheries (paragraph 75).
- Inclusion of a power for the relevant authority to set catch limits and/or restrict effort in deep-sea fisheries, if needed (paragraphs 65, 70 and 71(i)).
- Inclusion of a power for the relevant authority to close areas for fishing where VMEs are known or likely to occur (paragraphs 63(i), 70 and 71(ii)).
- Inclusion of a power for the relevant authority to regulate design and use of fishing gear (paragraphs 21(v), 70 and 71(iii)).
- Requirement of specified information on fishing operations, including through VMS (paragraphs 35 and 54).
- Definition of what constitutes an encounter with an VME, reporting requirements and move-on rules (paragraph 67).
- Establishment and maintenance of a record of authorized fishing vessels (paragraph 56).
- Requirement to mark fishing vessels with permanent identification, such as the IMO number (paragraph 56).
- Establishment of measures to combat IUU fishing in deep-sea fisheries, including the control of vessels in ports (paragraph 58).
- Establishment of measures to prevent deep-sea fish products gained as a result of IUU fishing from entering international trade (paragraph 60(ii)).

[62] FAO Deep-sea Fisheries Guidelines (2009), paragraph 55.

6.6 International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (IPOA-IUU)

Combating IUU fishing has been one of the main priorities on the international fisheries agenda for many years. IUU fishing is identified as a major threat to fisheries conservation and marine biodiversity. It can lead to a collapse of a fishery, which in turn may cause adverse consequences for the livelihood of people depending on them. IUU fishing occurs in all fisheries, whether they are conducted within areas under national jurisdiction or on the high seas. A number of initiatives have been taken by global organizations, regional bodies and states to counteract such activities. In this context, in particular, the IPOA-IUU is important.

FAO adopted the IPOA-IUU in 2001. The objective of the IPOA-IUU is to prevent, deter and eliminate IUU fishing through comprehensive, effective and transparent measures. Measures should be consistent with the conservation and long-term sustainable use of fish stocks and the protection of the environment, which in this context would apply to deep-sea fisheries and biodiversity protection. Although it is not binding, the action plan contains several suggested measures for combating IUU fishing, including those to be used by flag states, coastal states, port states and RFMO/As. The IPOA-IUU calls on states, through RFMO/As, to take various actions, such as developing boarding and inspection schemes, implementing VMS and observer programmes, identifying vessels that are engaged in IUU fishing, regulating transshipment operations, as well as adopting port inspection schemes, certification and/or trade documentation schemes and other marked-related measures.

The IPOA-IUU contains a specific section on national legislation, which addresses some particular issues, including state control over nationals, vessels without nationality, sanctions, and monitoring, control and surveillance.

6.6.1 Nationals

Paragraphs 18 and 19 call on states to take measures to ensure that their nationals do not support or engage in IUU fishing, which would require the scope of any IUU fishing legislation to be applicable to nationals wherever they are involved in fishing and fishing-related activities. In particular, the action plan highlights the possibility of targeting measures at the operators or beneficial owners of fishing vessels.

6.6.2 Stateless vessels

According to paragraph 20, states should take measures in relation to vessels without nationality involved in IUU fishing on the high seas. This could be implemented by including stateless vessels in the scope of their national law, i.e. assimilate such vessels to vessels under their jurisdiction and subject to control and enforcement measures.

6.6.3 Sanctions

In accordance with paragraph 21, states should ensure that sanctions for IUU fishing and their nationals are of sufficient severity to effectively prevent, deter and eliminate IUU fishing and deprive offenders of the benefits accruing from such activities. An example of a sanction regime is the administrative penalty scheme.

6.6.4 Monitoring, control and surveillance

Pursuant to paragraph 24, states should undertake comprehensive and effective MCS of fishing from its commencement, through the point of landing and to final destination. A set of actions is listed in the said paragraph, including establishing access schemes, maintaining records of all vessels and their current owners and operators authorized to undertake fishing subject to their jurisdiction, and the use of VMS and observer programmes.

6.6.5 Flag state responsibilities

Flag state responsibilities are addressed in a specific section of the IPOA-IUU, which deals with issues related to fishing vessel registration, records of fishing vessels and authorizations to fish.[63]

Concerning fishing vessel registration, states should, in accordance with paragraph 36, avoid flagging vessels with a history of non-compliance, except where the ownership has subsequently changed and the new owner has provided sufficient evidence demonstrating that the previous owner or operator has no further legal, beneficial or financial interest in, or control of, the vessel, or the flag state determines that flagging the vessel would not result in IUU fishing. In the same vein is paragraph 39, which calls on states to deny authorization and flag to prevent flag hopping, i.e. the practice of repeated and rapid changes of a vessel's flag for the purposes of circumventing relevant conservation and management measures.

According to paragraphs 42 and 43, a flag state should maintain a record of fishing vessels entitled to fly its flag. Concerning the content of such record, the paragraph makes a cross-reference to the relevant provisions of the Compliance Agreement and provides additional identification details to be included.

Paragraphs 44–47 deal with fishing authorizations and their conditions. A flag state should not allow its vessels to fish unless so authorized, and should ensure that each vessel fishing beyond national waters holds a valid authorization. Minimum content of such an authorization is listed in paragraph 46, while authorization conditions are outlined in paragraph 47.

According to paragraph 48, flag states should ensure that their fishing, transport and support vessels do not support or engage in IUU fishing. It is the responsibility of the flag state to ensure that none of its vessels resupply fishing vessels engaged in IUU fishing or transship fish to or from such vessels.

Paragraph 49 calls on flag states to ensure that their vessels involved in transshipment operations have a prior authorization and apply reporting requirements concerning the operation.

6.6.6 Port state measures

Paragraphs 52–64 of the IPOA-IUU address actions to be taken by port states to combat IUU fishing. States should, prior to allowing a vessel port access, require vessels to provide an advance notice, which includes the fishing authorization details of their fishing trip and quantities of fish on board.

[63] Paragraphs 34–50.

A port state should also not allow a vessel to land or transship fish in its port if it has clear evidence that a vessel having been granted access has engaged in IUU fishing activities.

Paragraph 57 calls on states to publicize ports to which foreign-flagged vessels may be admitted admission. Paragraph 58 provides a list of information that should be collected during a port inspection, which includes vessel and master identification details and information concerning catch and gear.

Summary

The IPOA-IUU provides for the following issues to be implemented in national legislation:

- Specification of objectives and general principles for combating IUU fishing (paragraphs 8 and 9).
- Application of measures to control nationals (paragraphs 18 and 19).
- Inclusion of a power to take actions against stateless vessels (paragraph 20).
- Establishment of schemes for sanctions, and monitoring, control and surveillance (paragraphs 21 and 24).
- Prohibition of flagging of IUU fishing vessels, except under special circumstances (paragraphs 36 and 39).
- Establishment and maintenance of vessel records (paragraphs 42 and 43).
- Requirement for fishing authorizations (paragraphs 44, 45, 46 and 47).
- Requirement for transshipment authorizations (paragraph 49).
- Prohibition of re-supply to and transshipment to or from IUU vessels (paragraph 48).
- Requirement of advance notice for port access (paragraph 55).
- Prohibition of landing or transshipment if clear evidence of IUU fishing (paragraph 56).
- Inclusion of a power to publicize ports to be accessed by foreign vessels (paragraph 57).
- Establishment of inspection authority and inspection details (paragraphs 58, 59 and 60).

6.7 International Plan of Action for the Conservation and Management of Sharks (IPOA-Sharks)

As sharks often have a long recovery time if overfished, concerns have been expressed in various forums about the rise in shark catches, either as targeted species or bycatch. In addition, the knowledge about shark populations and fishing practices is insufficient owing to lack of data. In order to address these concerns, FAO adopted the IPOA-Sharks in 1999 calling on states to take actions to ensure the conservation and management of sharks and their long-term sustainable use, including developing national plans that should contain shark stocks assessments based on consistent data collection. The IPOA-Sharks is not binding, but it may be used as guidance by states as to how to comply with their obligations under other international instruments.

Shark populations also include deep-sea sharks, such as goblin sharks and Portuguese dogfish. The IPOA-Sharks is thus relevant for deep-sea fishing in general and biodiversity protection.

The focus of IPOA-Sharks is providing guidance on the establishment of a national plan of action. Implementation of such a plan would also require regulations to be established for the conservation of sharks. Appendix A contains examples of strategies for achieving this objective, which include the introduction of access control of fishing vessels to shark stocks, a

decrease of fishing effort where the shark catch is unsustainable, and the improvement of data collection and monitoring of shark species. Pursuant to paragraph 22, states should also seek to minimize waste and discards from shark catches, for example, by requiring the retention of sharks from which the fins are removed, and to facilitate improved species-specific catch and landing data.

Summary

The IPOA-Sharks supports the implementation of the following issues in national legislation:

- Establishment of the objective to ensure that shark catches from directed and non-directed fisheries are sustainable (paragraphs 16 and 22).
- Inclusion of a power for the relevant authority to establish regulations on the conservation and management of sharks.
- Inclusion of a power to permit the adjustment of access to fisheries and/or fishing effort, if needed.
- Establishment of regulations to minimize waste and discards from shark catches.
- Establishment of data collection and monitoring systems.

6.8 International Plan of Action for the Management of Fishing Capacity (IPOA-Capacity)

In 1999, FAO adopted the IPOA-Capacity with the objective for states and RFMO/As to achieve an efficient, equitable and transparent management of fishery capacity. The IPOA-Capacity is not binding, but it may be used as guidance by states as to how to comply with their obligations under other international instruments.

IPOA-Capacity specifies actions to be taken for assessing and monitoring capacity, preparing and implementing national plans, international considerations, and immediate actions for major international fisheries requiring urgent measures. Overcapacity may be addressed in many ways, for example, by input regulations (fishing seasons/days, area closures, gear and vessel-related restrictions), as well as by output regulations such as right-based measures. Coordinated efforts are, however, essential.

From a conservation perspective, the management of capacity should, pursuant to paragraph 9(iv) of the IPOA-Capacity, be designed to achieve the conservation and sustainable use of fish stocks and the protection of the marine environment consistent with the precautionary approach. This also includes the need to minimize bycatch, waste and discards, and ensure selective and environmentally safe fishing practices, the protection of biodiversity in the marine environment, and the protection of habitat, in particular habitats of special concern.

6.8.1 Access control

The IPOA-Capacity is developed in the context of the Code, which provides that states should take measures to prevent and eliminate excess fishing capacity and should ensure that levels of fishing effort are commensurate with sustainable use of fishery resources. In the context of deep-sea fishing, states should limit participation by their vessels to the effort regarded to be commensurate with sustainable use of the deep-sea fisheries in question. This may be achieved through a form of licencing.

6.8.2 Establishment of records of fishing vessels

Pursuant to paragraph 17 of the IPOA-Capacity, states should develop and maintain appropriate and compatible national records of fishing vessels, further specifying conditions for access to information.

Summary

The IPOA-Capacity supports the implementation of the following issues in national legislation:

- Identification of general principles that contain a commitment to manage fishing capacity (paragraphs 7, 8, 9 and 10).
- Establishment of high seas access control regimes, where needed (paragraph 31).
- Establishment of a record of fishing vessels (paragraph 17).

6.9 FAO Voluntary Guidelines for Flag State Performance (Flag State Guidelines)

Improvement of flag state performance has been a topic on the international agenda for several years. An FAO technical consultation concluded its work in 2013 on the Voluntary Guidelines for Flag State Performance, which were endorsed by the Committee on Fisheries (COFI) in June 2014. The Flag State Guidelines are not legally binding, but they are an important indication of what flag states may need to do in order to comply with their obligations under the United Nations Convention on the Law of the Sea and other relevant treaties.[64]

The Flag State Guidelines contain an extensive set of assessment criteria, which include detailed criteria about how a flag state handles fisheries management, authorizations, information, registration and records, as well as monitoring, control and surveillance, and enforcement. The guidelines also contain procedures for carrying out assessments, encouraging compliance and deterring non-compliance, and assistance to developing countries with a view to capacity development and the role of FAO.

The Flag State Guidelines apply to fishing and fishing-related activities in areas beyond national jurisdiction, and thus apply to deep-sea fishing and biodiversity conservation on the high seas.

6.9.1 Information, registration and records

States are required to establish grounds for refusal of registration of a vessel, which would include vessels on an IUU vessel list adopted by an RFMO/A, vessels holding a registration from another state, and vessels with a history of non-compliance. The latter vessels may only be registered where the ownership of the vessel has changed and the new owner demonstrates that the previous owner has no further legal, beneficial or financial interest in, or control of, the vessel, or having taken into account all relevant facts, the state determines that flagging the vessel would not result in IUU fishing.

States should maintain up-to-date records of vessels authorized to engage in fishing and fishing-related activities on the high seas. The Flag State Guidelines list a number of items to

[64] See discussion in Chapter 5.2.

be contained in such a record in order to properly identify vessels, and include vessel name, names of owner, operator and beneficial owner, and their respective addresses, history and characteristics of the vessel.

6.9.2 Authorizations

Pursuant to the Flag State Guidelines, states should ensure that no vessel is allowed to operate unless authorized by them. Furthermore, states are to establish appropriate scope for such authorization, including conditions for the protection of marine ecosystems. Authorizations should also include minimum information requirements that include the name of the vessel and the owner of the vessel, the areas and duration of the authorization, as well as the species targeted and the fishing gear used.

6.9.3 Monitoring, control, surveillance and enforcement

The Flag State Guidelines require states to implement a control regime. Such a regime should include the legal authority to take control of the vessels (e.g. denial of sailing, recall to port), as well as monitoring tools such as VMS, logbooks/documentation and observers. In addition, a regime should include mandatory requirements regarding fisheries-related data that must be recorded and reported in a timely manner (e.g. catches, effort, bycatches and discards, landings and transshipments) and an inspection regime.

States should have in place an enforcement regime authority to conduct investigations of violations. They should prohibit high seas fishing by a vessel flying its flag where such vessel has been involved in the commission of a serious violation of relevant conservation and management measures applicable to the high seas, until such time as all outstanding sanctions imposed in respect of the violation have been complied with in accordance with its laws.

States should implement sanctions that are proportionate to the seriousness of the violation and are adequate in severity to be effective in securing compliance and to discourage violations wherever they occur and deprive offenders of benefits accruing from their illegal activities.

6.9.4 Other issues

States should require their vessels to be marked in accordance with the FAO Standard Specifications and Guidelines for Marking and Identification of Fishing Vessels[65] and relevant requirements of the International Maritime Organization (see below). The Guidelines also require states to have in place the legal means to manage capacity, fishing effort, catch limits and transshipment.

Summary

The Flag State Guidelines support the implementation of the following issues in national legislation:

- Inclusion of a power for an agency to refuse registration of vessels under specific circumstances (paragraphs 16(b), 18 and 20).
- Establishment, verification and maintenance of a fishing vessel record (paragraphs 25, 26, 27 and 28).

[65] FAO. 1993. *The standard specifications for the marking and identification of fishing vessels*. Available at ftp://ftp.fao.org/docrep/fao/008/t8240t/t8240t01.pdf

- Requirement of mandatory deep-sea fishing authorizations and conditions (paragraphs 29 and 30).
- Establishment of a control regime (paragraph 31).
- Establishment of an enforcement regime authority (paragraph 32).
- Prohibition of high seas fishing until such time outstanding sanctions imposed in respect of a serious violation have been complied with (paragraph 32(f)).
- Requirement that sanctions are applied in proportion to the seriousness of the violation and are adequate in severity and deprive offenders of any benefits accruing (paragraphs 32(d) and 38(a)).
- Inclusion of vessel marking requirements (paragraph 14(a)).
- Inclusion of a power to manage capacity, fishing effort, catch limits and transshipment (paragraphs 12(b) and 12(c)).

6.10 International Guidelines on Bycatch Management and Reduction of Discards (Bycatch Guidelines)

Concerns about bycatch and the practice of discarding have been expressed in many forums, including on repeated occasions at the UNGA, urging states and others to reduce or eliminate bycatch, catch by lost and abandoned gear, fish discards and post-harvest losses, including juvenile fish. The Bycatch Guidelines were adopted by FAO in 2010 to assist states and RFMO/As in implementing the Code and pursuing an ecosystem approach to fisheries through effective management of bycatch and reduction of discards. The main objective of the Bycatch Guidelines is to promote responsible fisheries by minimizing the capture and mortality of species and sizes. They contain a series of suggested measures that contribute towards more effective management of bycatch and reduction of discards, as well as how to improve reporting and the accounting of all components of the catch of which bycatch and discards are subsets. The Bycatch Guidelines are not legally binding, but they may be relevant for states in implementing their other international obligations.

Suggested measures to manage bycatch and reduce discards are contained in Chapter 9 of the Bycatch Guidelines, while pre-catch losses and ghost fishing are dealt with in Chapter 10. States are expected to ensure that bycatch management and discards reduction measures are, among other things, binding, clear and direct, ecosystem-based, ecologically efficient and enforceable. The Bycatch Guidelines suggest that a range of tools are available to manage bycatch and reduce discards, including input and/or output controls, the improvement of the design and use of fishing gear and bycatch mitigation devices, spatial and temporal measures, limits and/or quotas on bycatches, and bans on discards. Input controls, i.e. controls of fishing capacity and effort (e.g. limited fishing days, gear restrictions), should be used in a fishery where bycatch and discards occur and cause significant problems. Output control measures, such as individual or fleet-wide quotas, and/or limits on allowable bycatches may also be adopted. An important means for reducing bycatch is the improvement of gear selectivity, which could be achieved by requiring vessels to use fishing gear designed, rigged and deployed in a particular manner (e.g. mesh size, hook size, aimed trawling), requiring vessels to use bycatch reduction devices (e.g. turtle excluder devices, sorting grids, tori lines), and requiring vessels to follow operational techniques during fishing. States should also consider establishing areas where the use of all or certain gear is limited or prohibited to reduce interactions with particularly vulnerable bycatch (e.g. juveniles, and endangered or protected species). States are requested to consider the establishment of no-discard regimes, and individual and fleet-wide limits on bycatch in those fisheries where bycatch is unavoidable. States are requested to develop measures that reduce the mortalities and impacts associated with pre-catch losses and ghost

fishing, and some actions to assess impacts and magnitude are suggested. The Bycatch Guidelines contain a couple of concrete proposals to mitigate impacts, i.e. modification of gear and fishing methods.

Monitoring, control and surveillance are addressed in Chapter 11. States should require reporting of all information related to bycatch and discards. States should also establish legal frameworks for effective monitoring, control and surveillance of fisheries for management of bycatch and reduction of discards, which may include inspection of fishing vessels and gear prior to the commencement of fishing operations.

Summary

The Bycatch Guidelines support the implementation of the following issues in national legislation:

- Input and/or output controls (paragraphs 7.3(i) and 7.4).
- Requirements relating to the design and use of fishing gear and mitigation devices (paragraphs 7.3(ii) and 7.5).
- Inclusion of a power to set spatial and temporal measures to minimize bycatch (paragraphs 7.3(iii) and 7.6).
- Inclusion of a power to set limits and/or quotas on bycatches and discards (paragraphs 7.3(iv) and 7.7).
- Prohibition of discards (paragraphs 7.3(v) and 7.7.1).
- Establishment of MCS regimes (paragraph 9).

6.11 United Nations General Assembly resolutions

The UNGA has a longstanding interest in the law of the sea, and it has monitored developments in this field on a regular basis since at least the adoption of the UNCLOS in 1982. To this end, the UNGA adopts an annual resolution on oceans and law of the sea, in which it addresses the pressing maritime issues of the day. Since 2003, the UNGA has also adopted annually a resolution dedicated to fisheries and fisheries-related issues, the so-called Sustainable Fisheries Resolution. UNGA resolutions are not legally binding, but they call on states and RFMO/As to implement them. RFMO/As play the key role at the regional level in operationalizing the resolutions by setting rules to be complied with.

The Sustainable Fisheries Resolution addresses numerous issues, including the implementation of UNFSA, combating IUU fishing, monitoring, control and surveillance and enforcement, fishing overcapacity, large-scale pelagic driftnet fishing, fisheries bycatch and discards, subregional and regional cooperation, responsible fisheries in the marine ecosystem, protection of VMEs from bottom fisheries, and capacity-building. Many of the paragraphs are general in nature and directed at policy considerations rather than legal implementation. However, there are also paragraphs that call for states to take legal actions at the national level. Many of those are relevant to deep-sea fishing and biodiversity protection. Particular attention has been paid to so-called bottom fishing in UNGA Resolutions 59/25, 61/105, 64/72 and 66/68.

The UNGA emphasizes that IUU fishing remains one of the greatest threats to fish stocks and the marine environment, and lists a series of actions that should be taken to counteract this activity, in particular through RFMO/As. States are also addressed in various ways, both on policy and suggested measures that require legal implementation at the national level.

The UNGA urges states to exercise effective control over their nationals, including beneficial owners, and vessels flying their flag in order to deter them from engaging in IUU fishing or supporting vessels engaged in IUU fishing, including those vessels listed by RFMO/As as engaged in those activities.

The UNGA also calls on states not to permit vessels flying their flag to engage in fishing on the high seas, unless duly authorized by the authorities of the states concerned and in accordance with the conditions set out in the authorization, and to take specific measures, including deterring the reflagging of vessels by their nationals, in accordance with the UNCLOS, the UNFSA and the Compliance Agreement. States are also encouraged to implement effective management measures to reduce the incidence of catch and discards of non-target species, including the utilization of selective fishing gear. The UNGA furthermore calls upon states to take all measures necessary to ensure that vessels flying their flag do not engage in transshipment of fish caught by fishing vessels engaged in IUU fishing. To reinforce such measures, the UNGA urges states to establish mandatory monitoring, control and surveillance systems, in particular to require that VMS be carried by all vessels fishing on the high seas.

States are called upon to prohibit vessels from accessing their ports, followed by a report of the flag state concerned, when there is clear evidence that they are or have been engaged in or have supported IUU fishing, or when they refuse to give information either on the origin of the catch or on the authorizations under which the catch was made.

The UNGA also urges states to adopt and implement internationally agreed market-related measures. Thus, states are also requested to take the necessary measures to help to prevent fish and fishery products caught in a manner that undermines applicable conservation and management measures from entering international trade.

As noted in the introduction, recent UNGA resolutions have paid particular attention to the protection of VMEs from fishing activities, particularly bottom fishing and similar destructive fishing practices. The UNGA calls upon states to sustainably manage deep-sea fish stocks and protect VMEs, including seamounts, hydrothermal vents and cold-water corals, from destructive fishing practices, recognizing the immense importance and value of deep-sea ecosystems and the biodiversity they contain. In this regard, states are explicitly called upon to ensure that their vessels do not engage in deep-sea fishing until impact assessments have been carried out. States are requested to make publicly available assessments of whether individual deep-sea fishing activities would have significant adverse impacts on VMEs and the measures adopted, which should be consistent with domestic law. This reinforces the recommendations that are now found in the International Deep-sea Fisheries Guidelines (see above). States should consequently prohibit their vessels to fish for deep-sea species in fishing areas not assessed. This recommendation has particular relevance to the implementation of national authorizations relating to deep-sea fishing on the high seas.

Furthermore, states should identify where VMEs are known to occur or are likely to occur and adopt conservation and management measures to prevent significant adverse impacts on such ecosystems, or close such areas to bottom fishing until conservation and management measures (which can include fisheries closures, gear modification, etc.) have been established.

States are requested to establish and implement appropriate protocols, including definitions of what constitutes evidence of an encounter with a VME, in particular threshold levels and indicator species.

The UNGA calls on states to establish mechanisms to promote and enhance compliance with applicable measures related to the protection of VMEs, which would, in most cases, require implementation in national law. States have also been asked to make publicly available, through FAO, a list of those vessels flying their flag that are authorized to conduct bottom fisheries in areas beyond national jurisdiction.

Summary

The following issues addressed by the UNGA resolutions should be implemented in national legislation:

- Requirement to apply IUU fishing measures to nationals.
- Prohibition of flagging of IUU fishing vessels.
- Mandatory fishing authorizations.
- Prohibition of transshipment to or from IUU fishing vessels.
- Prohibition of port access of IUU fishing vessels.
- Allocation of power to implement market-related measures
- Mandatory VMS.
- Design of gear (to improve selectivity and/or reduce the likelihood of bottom contact, e.g. midwater trawl on seamounts).
- Authorization of deep-sea fishing only in areas assessed for possible significant impacts;
- Allocation of power to publicize impact assessments.
- Allocation of power to close high seas areas for its vessels.
- Deep-sea fishing protocols (VME thresholds, indicator species, etc.).
- Establishment of monitoring, control and surveillance schemes.

7. REGIONAL FISHERIES INSTRUMENTS RELEVANT TO DEEP-SEA FISHING AND ITS IMPACT ON MARINE BIOLOGICAL DIVERSITY BEYOND NATIONAL JURISDICTION

There are eight RFMO/As with mandates to manage deep-sea species in areas beyond national jurisdiction: the Commission for the Conservation of Antarctic Marine Living Resources[66] (CCAMLR), the General Fisheries Commission for the Mediterranean (GFCM), the Northwest Atlantic Fisheries Organization (NAFO), the North East Atlantic Fisheries Commission (NEAFC), the North Pacific Fisheries Commission (NPFC), the South East Atlantic Fisheries Organisation (SEAFO), the Southern Indian Ocean Fisheries Agreement (SIOFA), and the South Pacific Regional Fisheries Management Organisation (SPRFMO). Their role is significantly strengthened by UNFSA (see above), and RFMO/As are regarded as the appropriate mechanism for responding to the duties set out in the UNCLOS for cooperation in managing high seas fish stocks, which would include deep-sea species. NPFC, SEAFO, SIOFA and SPRFMO have been established after the adoption of UNFSA, using the agreement as a template for negotiating the treaties. Most pre-UNFSA RFMO/As have also revised and/or amended their founding treaties in order to bring themselves into line with modern management principles. Furthermore, since the adoption of UNFSA, all RFMO/As have used the agreement as a basis and inspiration for the development and subsequent adoption of

[66] CCAMLR is a conservation organization with some attributes of an RFMO (CCAMLR-XXI, paragraph 15.2).

conservation and management measures. RFMO/As are also an important mechanism through which other fisheries instruments are implemented.

RFMO/As are usually tasked with collecting fisheries statistics, assessing resources, making conservation and management decisions, and monitoring activities. Most of the RFMO/As responsible for the management of marine living resources in the high seas have established a series of measures for deep-sea fisheries and biodiversity protection. Members of such RFMO/As are thus obliged to implement those measures. Moreover, in accordance with the UNFSA and related fisheries instruments, non-members shall also implement equivalent measures in order to have access to the resources in question (see above). In areas not covered by an RFMO/A, or in areas where the relevant RFMO/A has not established appropriate measures, flag states should implement adequate measures unilaterally through national legislation.

7.1 Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)[67]

The CCAMLR is responsible for the conservation and management of living marine resources in the Southern Ocean. The CAMLR Convention applies to all species of marine organisms, including fish, molluscs, crustaceans and birds. It also applies to the complex relationships they form with each other and the physical environment, which include the conservation of populations or ecosystems that are not only directly related to harvested marine resources, but also dependent and related populations.

The CCAMLR adopts both non-mandatory resolutions and legally binding conservation measures for the harvesting of deep-sea resources. Such decisions include catch limits, gear and area restrictions, and control and enforcement measures that are implemented through national legislation.

The deep-sea fisheries in the Convention Area target Patagonian toothfish, Antarctic toothfish, mackerel icefish and Antarctic krill.[68] The fisheries operate within a regulatory framework that reflects the stage of development of a fishery and level of information that is available on the status and trends for target stocks and species taken incidentally. A fishery is characterized as a "new fishery" when biological and fishery data are not available, which require notification prior to fishing and becomes an exploratory fishery after the first year of fishing. An "exploratory fishery" is not allowed to expand until sufficient information is available on appropriate catch and effort levels and the potential impacts on dependent and related species, and notification and permission are required prior to fishing. A fishery is defined as an "established fishery" when appropriate data are available for stock assessment and management strategy, and notification and permission are required prior to fishing. Research fishing, based on a plan that has been reviewed by the Scientific Committee, may be proposed by members for any area of the CCAMLR Convention Area.

Fisheries are managed using a suite of measures that regulate the extent of fishing, including catch limits for target and bycatch species, mitigation of incidental mortality, data collection, and spatial and temporal closures. In addition, measures have been introduced to specifically protect benthic communities, including VMEs and potential VMEs, on the high seas.

[67] 1980 Convention on the Conservation of Antarctic Marine Living Resources (1329 UNTS 47). Concluded 20 May 1980. Entered into force 7 April 1982.
[68] Although Antarctic krill is caught using midwater trawl nets deployed to depths of up to 200 metres and may occur at depths up to 600 metres, it is arguable whether the fishery can be considered a deep-sea fishery.

There are 13 licenced deep-sea fisheries currently targeting toothfish in various regions using mainly bottom-set longlines in depths of 1 200–1 800 metres, including seven exploratory fisheries. In one of those fisheries, trawls can be used. Currently, there are two established fisheries for icefish, one of them using bottom trawls. For all of these fisheries, catch limits are established, which determine where and how fisheries are conducted in order to manage the potential impacts on the ecosystem. CCAMLR has not allocated allowable catches between members, and the secretariat will close a fishery when catch reports determine that the allowed quantities have been reached. In addition, there are bycatch limits in new and exploratory fisheries for certain species in specified regions. A bycatch limit may trigger a move-on rule or a fishery closure.

Those participating in exploratory fishing are required to report daily about catch and effort, while those fishing within the framework of an established fishery must report catch and effort data every fifth day. In addition, flag states shall obtain from their vessels fine-scale catch and effort data and fine-scale biological data, which shall be submitted to the secretariat on a monthly basis.

The CCAMLR has in place measures for general environmental protection during fishing, which include prohibitions on disposal of plastic packaging and discharges in high-latitude fisheries. There is also a system of longline weighting for seabird conservation, and measures for the minimization of incidental mortality of seabirds in the course of longline fishing, as well as measures for the minimization of incidental mortality of seabirds and marine mammals in the course of trawling. Direct fishing for sharks is prohibited.

The CCAMLR has adopted a series of measures concerning deep-sea fishing, which include prohibition on directed fishing in various areas and measures relating to bottom fisheries for toothfish, including spatial and temporal closures. Furthermore, deep-sea gillnetting is prohibited, there are restrictions on the use of bottom-trawling gear, protocols for bottom fishing are established, measures are adopted for bottom fishing activities encountering potential vulnerable marine ecosystems, and there is a prohibition on fishing for toothfish in depths shallower than 550 metres in exploratory fisheries.

There are in place measures to protect VMEs from bottom fishing activities that have significant adverse impacts on such ecosystems. Members must, each year, submit information on the potential significant adverse impacts on VMEs from the proposed bottom fishing. The CCAMLR decides whether the fishery can proceed and the conditions under which it may operate. For approved fisheries, there are threshold values defined in terms of the number of VME indicator units (corals, sponges, etc.) recovered during fishing. The presence of VME indicator organisms above a certain threshold level is taken as evidence of a VME. Fishing vessels are required to take certain actions when they encounter evidence of a VME. An encounter is defined as catching VME indicator taxa above a certain threshold value, and the action depends upon whether a high or low threshold is exceeded. If the higher threshold is exceeded, the vessel must inform its flag state and the secretariat of the position and the number of VME indicator units caught. An area of 1 nautical mile radius around the reported mid-point of the encounter is closed to fishing and is designated a “risk area”. Similarly, if the lower threshold is exceeded, the vessel must inform its flag state and the secretariat of the position and the number of VME indicator units caught. Upon receipt of a fifth such notification within a single fine-scale rectangle, the secretariat notifies all relevant fishing vessels that a VME may be present in the rectangle, but vessels may continue to fish within this area subject to further notifications.

The CCAMLR has adopted licencing and inspection obligations for flag states with regard to their vessels operating in the Convention Area, which includes prohibiting their vessels to fish except pursuant to a licence issued setting forth specific areas, species and time periods for which such fishing is authorized. The licence must be carried on board the vessel. There is an obligation to ensure that fishing vessels are equipped with a VMS and a series of details concerning its use. A measure has been adopted for the marking of fishing vessels and gear.

A catch documentation scheme (CDS) for toothfish is in place in order to track the landings and trade flows of toothfish caught in the CCAMLR Convention Area, and to restrict access to markets for toothfish harvested illegally in order to combat IUU fishing. The CDS enables the identification of the origin of toothfish entering the markets of all parties to the scheme and helps determine whether the fish is caught in a manner consistent with CCAMLR measures. The scheme requires specific control by port states and applies to all fishing vessels carrying toothfish. A fishing vessel must provide a prior notification of port entry, including a declaration that it has not engaged in IUU fishing, which also shall be confirmed by the flag state of the vessel. Members shall require that each landing at their ports and each transshipment from or to their vessels be accompanied by a catch document and that each shipment imported into, or exported or re-exported from its territory, be accompanied by an export document. The landing or transshipment of toothfish without a catch document is prohibited, and import, export or re-export without an export document is also prohibited.

Fishing vessels must carry designated scientific observers. In exploratory bottom fisheries, all vessels are required to carry one scientific observer certified under the CCAMLR Scheme of International Scientific Observation, and where possible, one additional observer that may be from the flag state.

Members shall require vessels seeking entry to their ports to provide in advance details concerning the vessel and the catch. They shall prohibit entry in specified circumstances, and if in port for any reason, vessels shall be inspected and denied landing or transshipment if it is established that the vessel has been engaged in IUU fishing. All fishing vessels carrying toothfish, and at least 50 percent of fishing vessels that enter their ports carrying other species that have been harvested in the CAMLR Convention Area, shall be inspected. The port measures also include the required content of a port inspection report.

The CCAMLR has established a notification system for transshipments that requires advance notice to the secretariat by vessels intending to transship within the Convention Area, which shall include details concerning the vessel, catch and/or other goods.

The CCAMLR has adopted two measures to list vessels proven to have been engaged in IUU fishing; one for contracting party vessels and another for non-contracting party vessels. The measures establish obligations in respect of the listed vessels, including prohibition of port entry, prohibition against import of fish coming from such vessels and refusal of registration for flagging purposes.

The CCAMLR has established an at-sea system of inspection that provides for procedures for the designation of inspectors, the rights and duties of inspectors, procedures for boarding and inspection, inspection reporting, and procedures for flag state reporting and sanctions based on evidence acquired under the system. All members shall ensure that masters on their vessels permit inspectors from other members to board their vessels and there are duties on masters during inspections.

Summary

The following issues shall be implemented in national legislation:

- Mandatory fishing authorizations.
- Fishing vessel requirements.
- Power to establish catch limits.
- Power to regulate port access and use of ports by foreign vessels.
- Power to implement market-related measures; i.e. catch documentation scheme.
- Mandatory recording and reporting, including VMS and logbook requirements.
- Design and use of gear.
- Power to require on-board observer coverage.
- Power to close high seas areas for its vessels.
- Deep-sea fishing protocols (VME thresholds, indicator species, move-on rules etc.).
- Power to target IUU fishing vessels: denial of port entry, refusal to grant them their flag, prohibition against import etc.
- Establishment of monitoring, control and surveillance schemes.

Additional details for all of the measures that have been implemented by CCAMLR are available at www.ccamlr.org

7.2 General Fisheries Commission for the Mediterranean (GFCM)[69]

The objective of the GFCM is to promote the development, conservation, rational management and best utilization of living marine resources. The GFCM regulates fisheries within the Mediterranean Sea, the Black Sea and connecting waters. Some of these waters are considered to be high seas because states in the Mediterranean have not claimed their full maritime entitlements under the UNCLOS.

The GFCM has a series of functions and responsibilities, which relate to deep-sea fishing and biodiversity conservation. These include adoption of appropriate measures for the conservation and rational management of living marine resources, including measures regulating fishing methods and fishing gear, prescribing the species minimum size, establishing open and closed fishing seasons and areas, and regulating the amount of total catch and fishing effort and their allocation among members.

The Commission must apply the precautionary approach to conservation and management decisions, taking into account also the best scientific evidence available and the need to promote the development and proper utilization of the marine living resources.

In 2014, the GFCM agreement was amended, but the amendments are not yet in force. Wording has now been included in the agreement relating to the need for the GFCM to take also into account the possible negative impacts on marine ecosystems. Furthermore, the functions of the GFCM now expressly include the setting up of fisheries restricted areas (FRAs) in which stricter fisheries management measures apply.

[69] 1949 Agreement for the Establishment of the General Fisheries Commission for the Mediterranean. Concluded 24 September 1949. Entered into force on 20 February 1952. Amendments to the Agreement were adopted in 1963, 1976, 1997 and 2014.

The Commission has established a record of vessels over 15 metres authorized to operate in the GFCM area, implying that such vessels not entered into the record are deemed not to be authorized. For fishing demersal species, there are minimum mesh sizes in trawl nets and there is a minimum mesh size for bottom-set gillnets in the Black Sea.

The GFCM has adopted measures for the conservation of sharks and rays, including promptly released alive of endangered or threatened species taken with bottom-set nets or longlines and prohibited directed fishery for species of the thresher shark. In addition, general measures to reduce incidental bycatch of seabirds as well as measures targeting longlines in particular have been established.

The Commission has partially addressed the protection of VMEs, principally through the establishment of FRAs which are "geographically defined areas in which all or certain fishing activities are temporarily or permanently banned or restricted in order to improve the exploitation and conservation of harvested living aquatic resources or the protection of marine ecosystems." The role of FRAs is "to maintain and/or recovery of marine living resources to a healthy state while ensuring the conservation of marine biodiversity for the sustainable exploitation." FRAs can thus potentially be established to protect any kind of marine resource and environment from fishing activities. Such areas can therefore include benthic habitats with criteria that match or are similar to those established for VMEs. FRAs are established by the GFCM, which then can apply management measures, such as closures to specified fishing gear (e.g. towed dredges and bottom-trawl nets) or effort restrictions (e.g. fishing effort by specified gear in relation to demersal stocks).

The GFCM prohibits the use of towed dredges and trawl nets at depths greater than 1 000 metres. The ban is mainly for the protection of fish stocks and to halt the expansion of fisheries into deeper waters when the stock status is unknown, but also for the presence both of unmapped sensitive habitats (deep-water coral reefs, sea vents, sea mounds, etc.) and of the fragile nature of deep-water fish assemblages, as well as the presence of juveniles of different crustacean species at such depths.

On monitoring and control, the GFCM has agreed to minimum standards for VMS and has established a GFCM logbook. It has established a regional scheme on port state measures to combat IUU fishing that imposes obligations on parties to designate ports to which a foreign vessel may be permitted access, to require prior notice of entry into port, and to deny the use of ports if the vessel has been involved in IUU fishing. The scheme further contains inspection levels, inspection procedures and reporting, and places obligations on parties as flag states by requiring them to ensure that masters on their fishing vessels cooperate and assist port inspectors.

The GFCM has established a list of vessels presumed to have carried out IUU fishing in the GFCM area, and it obliges contracting parties to take actions against those listed vessels, including prohibition of port entry, refusal of granting flag, and prohibition against the import of fish coming from such vessels.

Summary

The following issues shall be implemented in national legislation:

- Mandatory fishing authorizations.
- Fishing vessel requirements.
- Power to regulate port access and use of port by foreign fishing vessels.
- Mandatory VMS and logbook requirements.

- Design and use of gear.
- Power to restrict fishing in defined high seas areas for its vessels.
- Power to target IUU fishing vessels: refusal to grant them their flag, prohibition against import, etc.

Additional details for all of the measures that have been implemented by GFCM are available at www.fao.org/gfcm/en

7.3 Northwest Atlantic Fisheries Organization (NAFO)[70]

NAFO is responsible for the conservation and management of fisheries in areas beyond national jurisdiction in the northwest Atlantic. The prime objective of NAFO has been to contribute through consultation and cooperation to the optimum utilization, rational management and conservation of fishery resources. The NAFO Convention was amended in 2006, but these amendments are not yet in force. Article II of the amended Convention establishes that "the objective of this Convention is to ensure the long-term conservation and sustainable use of the fishery resources in the Convention Area and, in so doing, to safeguard the marine ecosystems in which these resources are found". Article III further provides for nine principles, whereby, *inter alia*, "in giving effect to the objective of this Convention, Contracting parties individually or collectively, as appropriate, shall: ... (c) apply the precautionary approach, (d) take due account of the impact of fishing activities on other species and marine ecosystems and, in doing so, adopt measures to minimize harmful impact on living resources and marine ecosystems; (e) take due account of the need to preserve marine biological diversity; ... ." In 2008, NAFO declared in a resolution the implementation of the general principles set forth in Article III of the amended Convention, including the adoption of measures to prevent, deter and eliminate IUU fishing activities.[71]

NAFO adopts legally binding measures that consequently have to be implemented through national legislation of member states.

NAFO establishes total allowable catches annually for certain deep-sea species, which are distributed among contracting parties based on agreed allocation keys. Some parties have not been allocated a quota of a particular stock, but are allowed to fish on a quota allocated to "others". One deep-sea fish stock, i.e. shrimp on the Flemish Cap, has been managed through an effort allocation scheme, but currently that fishery is under moratorium. Bycatch limitations apply to vessels flying the flag of a contracting party for which no quota has been allocated, when quotas have been fully utilized and in cases where a ban on fishing is in force. If the level of bycatch in any one haul exceeds the permitted level, the vessel must move a minimum of 10 nautical miles. NAFO has established gear requirements, which includes marking obligations, minimum mesh sizes for nets in trawls used in deep-sea fisheries, attachment to such gear, and there is an obligation to use sorting grids when fishing for shrimp with trawls. NAFO has also adopted minimum fish size requirements for four fish species, and has banned the removal of shark fins at sea and the retention on board, transshipment and landing of shark fins.

NAFO has established two types of fishing areas. "Existing bottom fishing areas" are those areas where VMS data and/or other available georeference data indicate that bottom fishing activities have been conducted, while "new bottom fishing areas" are all other areas that

[70] 1978 Convention on Future Multilateral Cooperation in the Northwest Atlantic Fisheries (1135 UNTS 369). Concluded 24 October 1978. Entered into force 1 January 1979.
[71] NAFO/GC Doc 08-3. Resolution on the Interpretation and Implementation of the Convention on the Future Multilateral Cooperation in the Northwest Atlantic Fisheries (2008).

are not defined as existing bottom fishing areas. In addition, NAFO has identified areas that may, or do contain, vulnerable benthic organisms, and has temporarily closed several areas to deep-sea fishing to protect VMEs. These closures will be reviewed again in 2020 and possibly renewed. Fishing in new bottom fishing areas may only be permitted as exploratory fishing. Contracting parties proposing to participate in exploratory bottom fishing activities shall submit, in support of their proposal, a preliminary assessment of the known and anticipated impacts of the bottom fishing activity, which will be exercised by the vessels flying their flag on VMEs. Such fishing has to be approved by the NAFO Fisheries Commission after due consideration by the Scientific Council, and thereafter a special authorization/licence has to be granted to the vessel by its flag state. Commercial deep-sea fishing can therefore only take place within an area defined as existing bottom fishing area.

NAFO has agreed to encounter protocols and actions to be taken if catches of VME indicator species are above the allowed threshold levels. The threshold values are expressed as catch of live VME indicator taxa per set (e.g. trawl tow, longline set or gillnet set). The catch of VME indicator species, i.e. corals and sponges, must be recorded. In existing fishing areas, catches above the threshold must be reported, and the vessel is required to move at least 2 nautical miles away. These encounters must also be reported to the flag state. In new fishing areas, the process is the same, except that the encounter results in a temporary closure of 2 nautical miles radius.

NAFO has also adopted rules concerning vessel requirements that include authorizations to fish, vessel marking, and documents to be carried on board. On fisheries monitoring, vessels must report their position via the VMS on an hourly basis. There are duties on logbook recording, mandatory implementation of VMS, and communication requirements concerning entry and exit to and from the area, daily catch reports, and reports on transshipment operations. NAFO has also established product-labelling requirements. Vessels are required to carry a compliance observer at all times, except for vessels implementing the “electronic observer scheme”, which may apply to carry an observer for only 25 percent of the time spent in the area. Observers under this scheme transmit daily catch reports separate and independent from the fishing masters’ catch reports. Any vessel undertaking exploratory fishing is required to carry an additional scientific observer.

NAFO has in place a joint inspection and surveillance scheme, applicable to all authorized vessels fishing for deep-sea species. The scheme contains duties concerning inspections at sea. Parties must ensure that NAFO inspectors from another party shall be allowed to carry out inspections on board its fishing vessels. Fishing masters are obliged to cooperate with NAFO inspectors. Details of vessel master obligations during inspection procedures are described in the scheme. On inspections, the scheme includes procedures on boarding and the ways and means concerning examination on board the fishing vessels.

NAFO has established general procedures and serious infringement procedures to be applied by an inspecting party, as well as how an inspected party shall follow up in case of serious infringements, which in essence is tailored after the relevant provisions of UNFSA. Parties shall further ensure appropriate measures to be taken, including administrative action or criminal proceedings in conformity with their national laws.

As part of the MCS suite of measures, port state control requires the contracting parties as port states to implement domestic legislation on designation of ports, advance notification for port entry, conditions for allowing landing or transshipment, and conduct of inspections. Contracting parties have to adopt national legislation concerning obligations of masters on their vessels during inspection procedures.

NAFO has adopted a non-contracting party scheme that puts a series of obligations on contracting parties, including port state measures and follow-up actions concerning identified IUU fishing vessels. Pursuant to these port measures, contracting parties shall prohibit entry in special circumstances, and if allowed to port, such vessels shall be inspected and denied landing or transshipment if established that the vessel has been engaged in IUU fishing. NAFO has established a system whereby vessels identified to have been involved in IUU fishing are listed (NAFO IUU Vessel List), and contracting parties are obliged to take a number of follow-up actions against those listed vessels, including but not limited to the prohibition of port entry, refusal of granting flag and prohibition against import of fish coming from such vessels, etc.

Summary

The following issues shall be implemented in national legislation:

- Mandatory fishing authorizations.
- Fishing vessel requirements.
- Power to establish catch limitations.
- Power to require on-board observer coverage.
- Mandatory recording and reporting, including VMS and logbook requirements.
- Design and use of gear.
- Authorize deep-sea fishing only in areas assessed for possible significant impacts.
- Power to close high seas areas for its vessels.
- Deep-sea fishing protocols (VME thresholds, indicator species, move-on rules, etc.).
- Power to target IUU fishing vessels: denial of port entry, refusal to grant them their flag, prohibition against imports, etc.
- Establishment of monitoring, control and surveillance schemes.

Additional details for all of the measures that have been implemented by NAFO are available at www.nafo.int.

7.4 North East Atlantic Fisheries Commission (NEAFC)[72]

The mandate of NEAFC is the conservation and optimum utilization of fishery resources, excluding, in so far as they are dealt with by other international agreements, tuna species and anadromous stocks in the northeast Atlantic. Its objective is to ensure the long-term conservation and optimum utilization of the fishery resources, providing sustainable economic, environmental and social benefits. In order to meet this objective, NEAFC can consider measures for, among others, fishing gear, net mesh sizes, size limits for fish in the catch, closed seasons and areas, total allowable catches, and effort. To this end, NEAFC adopts management measures for various fish stocks and control measures to ensure that they are properly implemented. NEAFC also adopts measures to protect other parts of the marine ecosystem from potential adverse impacts caused by fishing. Decisions on the fishery and the fisheries resources shall: (i) be based on the best scientific evidence available; (ii) apply the precautionary approach; (iii) take account of the impact of fisheries on other species and marine ecosystems, and minimize harmful impacts on living marine resources and marine ecosystems; and (iv) take account of the need to conserve marine biological diversity.

[72] 1980 Convention on Future Multilateral Cooperation in North-East Atlantic Fisheries (1285 UNTS 129). Concluded 18 November 1980. Entered into force 18 November 1982.

NEAFC can adopt legally binding measures for fisheries in its Convention Area, which comprises areas within and beyond national jurisdiction. To adopt measures that apply to areas within national jurisdiction, the proposal for such measures must be proposed by the relevant coastal state and receive its affirmative vote. In practice, NEAFC mainly focuses on fisheries in the portion of its Convention Area beyond national jurisdiction, denoted as the Regulatory Area, which comprises four subareas.

NEAFC has established an effort scheme for deep-sea species, which shall not exceed 65 percent of the highest level put into deep-sea fishing in previous years, calculated as aggregate power, aggregate tonnage, fishing days at sea or number of vessels that participated. In addition, NEAFC has adopted a prohibition against directed fishing for 17 deep-sea shark species, established annual catch levels for two deep-sea fish stocks, and agreed to a seasonal closed area for one deep-sea fish stock. NEAFC has banned the removal of shark fins at sea and the retention on board, transshipment and landing of shark fins. NEAFC has prohibited the deployment of gillnets, entangling nets and trammel nets in any position where chartered depth is greater than 200 metres, and there is an obligation to use sorting grids when fishing for shrimp with trawls. Furthermore, fishing vessels shall have on board equipment to retrieve lost gear, and to attempt to retrieve lost gear as soon as possible. If the gear cannot be retrieved, the vessel shall report the incident, including type of gear and position, to its flag state and subsequently to all contracting parties.

Over the last decade, NEAFC has taken numerous actions in order to protect VMEs from significant adverse impacts from fishing. Based on historical information concerning fishing activities, NEAFC established a system based on area closures, "existing bottom fishing areas" (i.e. where deep-sea fishing had occurred) and "new bottom fishing areas" (i.e. where deep-sea fishing had not occurred). Fishing in the latter areas – so-called exploratory fishing – requires a special authorization/licence and vessels must carry observers. Contracting parties must submit a "notice of intent" for such a fishery, and in support of their proposal a preliminary assessment of the known and anticipated impacts of the bottom fishing activity. The proposal will be examined, and subsequently approved or rejected by NEAFC. Thus, commercial deep-sea fishing can only take place within an area defined as existing bottom fishing area. Within such an area, however, approval for an exploratory fishery is needed if there are significant changes in the conduct and technology of the deep-sea fishing.

If scientific advice indicates that VMEs are present or likely, subareas within both existing and new bottom fishing areas are closed to deep-sea fishing to prevent significant adverse impacts on VMEs. The parts of existing bottom fishing areas that are not closed are subject to various measures, including reporting duties and an encounter protocol. One of the tools used by NEAFC for protecting unidentified VMEs from significant adverse impacts is by implementing encounter protocols, which requires a temporary closure to be applied in all instances of encounters above the defined threshold levels of live corals and sponges. Following an encounter with a VME, the vessel has to move a defined distance and the relevant area will temporarily be closed to fishing. The size of the closed area is dependent on the gear used: for bottom trawls, it is 2 nautical miles on each side of the trawl track, and for other gear, it is a 2 nautical mile radius around the most likely position of the encounter. Similar encounter provisions apply to exploratory fisheries in "new" fishing areas.

NEAFC has in place a scheme of control and enforcement, which puts a series of duties on those fishing for deep-sea species in the regulatory area. These include general control measures such as authorizations, vessel requirements (e.g. marking of vessels, documents to be carried on board, up-to-date drawings of their fish rooms) and marking of fishing gear. On monitoring, there are duties on logbook recording, mandatory implementation of VMS,

and communication requirements concerning entry and exit to and from the regulatory area, daily catch reports and reports on transshipment operations.

The scheme also contains duties concerning inspections at sea applicable to contracting parties, both as inspected and inspecting parties. Parties must ensure that NEAFC inspectors from another party shall be allowed to carry out inspections on board its fishing vessels and adopt domestic measures obliging masters of fishing vessels to cooperate with NEAFC inspectors. Details of vessel master obligations during inspection procedures are described and include procedures on boarding and examination of the fishing vessel.

Furthermore, the scheme contains a chapter on port state control of foreign fishing vessels (i.e. those flying the flag of another contracting party), which requires the contracting parties as port states to implement domestic legislation on designation of ports to be used by foreign vessels, advance request for port entry, conditions for allowing landing, transshipment and other use of ports, and conduct of inspections.

On violations, NEAFC has established general procedures and serious infringement procedures to be applied by an inspecting party, as well as directions on how an inspected party shall follow up in case of serious infringements, which in essence is tailored after the relevant provisions of UNFSA. Parties shall further ensure appropriate measures to be taken, including administrative action or criminal proceedings in conformity with their national laws.

The scheme contains a specific chapter on measures to promote compliance by non-contracting party vessels, which puts a series of obligations on contracting parties, including port state measures and follow-up actions concerning identified IUU vessels. Pursuant to these port measures, contracting parties shall prohibit entry in special circumstances, and if allowed to port, such vessels shall be inspected and denied the use of port if it is established that the vessels have been engaged in IUU fishing. NEAFC has established a system whereby vessels identified to have been involved in IUU fishing are listed (NEAFC IUU Vessel List) and contracting parties must take a number of follow-up actions against those listed vessels. Actions requiring domestic implementation include the prohibition of port entry, prohibition against the import of fish coming from such vessels, and the refusal of granting nationality.

Summary

The following issues shall be implemented in national legislation:

- Mandatory fishing authorizations.
- Fishing vessel requirements.
- Power to establish catch and effort limitations.
- Power to require on-board observer coverage.
- Mandatory recording and reporting, including VMS and logbook requirements.
- Design and use of gear.
- Authorize deep-sea fishing only in areas assessed for possible significant impacts.
- Power to close high seas areas for its vessels.
- Deep-sea fishing protocols (VME thresholds, indicator species, move-on rules, etc.).
- Power to target IUU vessels: denial of port entry, refusal to grant nationality, prohibition against import etc.
- Establishment of monitoring, control and surveillance schemes.

Additional details for all of the measures that have been implemented by NEAFC are available at http://neafc.org.

7.5 North Pacific Fisheries Commission (NPFC)[73]

The objective of the NPFC Convention is "to ensure the long-term conservation and sustainable use of the fisheries resources in the Convention Area while protecting the marine ecosystems of the North Pacific Ocean in which these resources occur." The Convention applies to the high seas areas of the North Pacific Ocean excluding the Bering Sea and other high seas areas that are surrounded by the exclusive economic zone of a single state. The Convention reflects many important developments in international fisheries law, including the precautionary approach, the ecosystem approach and protecting biodiversity in the marine environment. In furtherance of these general principles, the NPFC is empowered to adopt conservation and management measures and strategies for both targeted species and species belonging to the same ecosystem or dependent upon or associated with the target species.

The general principles in the NPFC Convention reinforce aspects relating to the identification and protection of the marine ecosystems through assessing the impacts of fishing activities on species belonging to the same ecosystem or dependent upon or associated with the target species, protecting biodiversity in the marine environment, including by preventing significant adverse impacts on VMEs. In this regard, Article 7(1)(e) of the Convention makes explicit reference to the ability of the NPFC to adopt "conservation and management measures to prevent significant adverse impacts on vulnerable marine ecosystems in the Convention Area, including but not limited to (i) measures for conducting and reviewing impact assessments to determine if fishing activities would produce such impacts on such ecosystems in a given area; (ii) measures to address unexpected encounters with vulnerable marine ecosystems in the course of normal bottom fishing activities; and (iii) as appropriate, measures that specify locations in which fishing activities shall not occur." Measures to prohibit directed fishing on certain deep-sea corals (*Alcyonacea*, *Antipatharia*, *Gorgonacea* and *Scleractinia*) as well as observers for all deep-sea fishing are explicitly required by the Convention.

The Convention only entered into force in 2015. As such, the interim measures that have been adopted by the participants to date have been applied on a voluntary basis.

The application of measures is divided in two, one set of measures for the Northwest and another for the Northeast Pacific Ocean. In the Northwest Pacific Ocean, fisheries are conducted on deep-sea species using trawls, gillnets and longlines, while longline is the main gear used in the Northeast Pacific Ocean. NPFC has established a list of authorized fishing vessels.

Interim measures for the protection of VMEs have been established in the Northwest Pacific Ocean. The measures require assessments of the impacts of fishing activity on marine species and VMEs for existing as well as for new and exploratory fisheries. Furthermore, the measures limit fishing effort in bottom fisheries to the existing levels, limiting bottom fisheries to seamounts located south of 45 degrees north latitude, and do not allow bottom fisheries to expand into areas where no such fishing is currently occurring. Exceptions to these restrictions may be provided in cases where it can be shown that any fishing activity beyond such limits or in any new areas would not have significant adverse impacts on marine

[73] 2009 Convention for the Conservation and Management of High Seas Fisheries Resources in the North Pacific Ocean. Concluded 24 February 2012. Entered into force 19 July 2015.

species or VMEs. Such fishing activity is subject to an exploratory fishery protocol. These measures contain a provision for encounters with cold-water corals that requires fishing vessels to cease fishing and move away no less than 5 nautical miles prior to further fishing. Vessels shall be equipped with VMS and carry an observer.

Interim measures for the protection of VMEs in the Northeast Pacific Ocean require impact assessments for all fisheries that are or are likely to take place. There is a prohibition to engage in directed fishing on four orders of coral as well as any other indicator species for VMEs as may be identified and call for the closure of areas where VMEs are known to occur or are likely to occur. One hundred percent observer coverage is called for in these interim measures.

Summary

The following issues shall be implemented in national legislation:

- Record of fishing vessels.
- Fishing authorizations/licences.
- Power to establish effort limitations.
- Power to require on-board observer.
- Mandatory VMS.
- Authorize deep-sea fishing only in areas assessed for possible significant impacts.
- Deep-sea fishing protocols (VME thresholds, indicator species, move-on rules, etc.).
- Power to close high seas areas for its vessels.

Additional details for all of the measures that have been implemented by NPFC are available at http://nwpbfo.nomaki.jp.

7.6 South East Atlantic Fisheries Organisation (SEAFO)[74]

SEAFO is mandated to conserve and manage fishery resources on the high seas in the Southeast Atlantic. Its objective is to ensure long-term conservation and sustainable use of the fishery resources through the adoption of conservation and management measures, applying the precautionary approach and ecosystem-based management.

The general objective of the SEAFO Convention is to ensure the long-term conservation and sustainable use of the fishery resources in accordance with the ecosystem approach to fisheries management. The SEAFO Convention addresses the management of the fishery resources that include fish, molluscs, crustaceans and other sedentary species, but excludes highly migratory species (typically tuna and tuna-like fish) as listed in the UNCLOS and some sedentary species. The SEAFO Convention takes into account impacts that fishing may have on non-target species and ecosystems, identifying the need to minimize harmful impacts on living marine resources and protect biodiversity. It further stipulates the need to adopt measures based upon the best available scientific information and the application of the precautionary approach. There are clear definitions of "fishery resources" and "living marine resources", with the latter defined as "all living components of marine ecosystems, including seabirds". SEAFO can adopt legally binding measures related to fishing in the Convention Area.

[74] 2001 Convention on the Conservation and Management of Fishery Resources in the South East Atlantic Ocean (2221 UNTS 189). Concluded 20 April 2001. Entered into force 12 April 2003.

SEAFO sets annual total allowable catches for four deep-sea species and one deep-sea crab stock that also include bycatch regulations in one mixed fishery. The quotas are not allocated between parties, but a fishery on one particular stock will be closed when the agreed total catch level is reached. SEAFO has prohibited direct fishing on deep-sea sharks. It has banned the use of gillnets and established measures for longline and trawl fisheries with the aim of reducing incidental catch of seabirds, based on the International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries. SEAFO has in place a system minimizing the risk of "ghost fishing" by obliging parties to ensure that their vessels attempt to retrieve any lost gear, and if unsuccessful, notification requirements (gear type, position, etc.).

SEAFO has taken a series of measures in order to protect VMEs from significant adverse impacts through deep-sea fishing. First, SEAFO has identified several areas that may or do contain benthic organisms and has closed those areas to fishing. Second, SEAFO has established a system of area management, defining "existing fishing areas" to be those areas where VMS data and/or other available data indicate that bottom fishing activities have been conducted, while "new fishing areas" are all other areas that are not defined as existing fishing areas. Fishing in new fishing areas can only be undertaken as exploratory fishing. In order to participate in exploratory fishing activities, parties must submit an assessment of the known and anticipated impacts that the fishing activity may have on VMEs. Such fishing has to be approved by the SEAFO Commission and thereafter a special authorization/licence shall be granted to the vessel by its flag state. Commercial deep-sea fishing can therefore only take place within an area defined as existing fishing area. However, within such an area, approval for an exploratory fishery is needed if there are significant changes in the conduct and technology of the deep-sea fishing. Thus, contracting parties shall establish national legislation prohibiting their vessels to fish outside such fishing areas.

With the aim to protect unidentified VMEs from significant adverse impacts, SEAFO has also established encounter protocols. An encounter is considered to occur when the bycatch of VME indicator species (live corals and sponges) is above threshold levels. The threshold values are different for trawls, longlines and pots. If the bycatch is above threshold levels, the vessel is required to cease fishing and move away at least 2 nautical miles from the end point of the trawl tow in the direction least likely to result in further encounters. If another gear is being used, then the "move-on" rule is 1 nautical mile from the most likely position of the encounter. The incident must also be reported.

SEAFO has established a system of observation, inspection, compliance and enforcement that puts a series of duties on those fishing for deep-sea species in the Convention Area. These include general control measures, such as authorizations to fish, vessel requirements (e.g. marking of vessels, documents to be carried on board), marking of fishing gear and product labelling requirements. SEAFO has prohibited transshipment operations at sea. In relation to monitoring, there are duties on logbook recording, mandatory implementation of VMS and communication requirements concerning entry and exit to and from the Convention Area, and catch reports every five days. In addition, parties shall ensure that all their vessels operating in the SEAFO area carry scientific observers. The system also contains details concerning monitoring of transshipments in port describing duties on contracting parties, both as flag states of any donor or receiving vessel.

SEAFO has not yet adopted a special inspection programme for inspections at sea, but the system includes a cross-reference to the relevant provisions in part VI of UNFSA.

Furthermore, the scheme contains a chapter on port state control, which requires the contracting parties as port states to implement domestic legislation on designation of ports, advance request

for port entry of foreign vessels (i.e. vessels not flying the flag of the port state), conditions for allowing landing, transshipment and other use of ports by foreign vessels, and conduct of inspections. Contracting parties must also adopt national legislation concerning obligations of masters on their vessels during inspection procedures in foreign ports.

The system contains a specific chapter on measures to promote compliance, which in essence deals with vessels identified to have been involved in IUU fishing. They are listed (SEAFO IUU Vessel List), and the system subsequently obliges contracting parties to take a number of follow-up actions against those listed vessels. Actions requiring domestic implementation include the prohibition of port entry, refusal of granting nationality, and prohibition against chartering such vessels.

Summary

The following issues shall be implemented in national legislation:

- Mandatory fishing authorizations.
- Fishing vessel requirements.
- Power to establish catch and effort limitations.
- Power to require on-board observer coverage.
- Mandatory recording and reporting, including VMS and logbook requirements.
- Design and use of gear.
- Authorization of deep-sea fishing only in areas assessed for possible significant impacts.
- Power to close high seas areas for its vessels.
- Deep-sea fishing protocols (VME thresholds, indicator species, move-on rules, etc.).
- power to target IUU vessels: denial of port entry, refusal to grant them their flag, prohibition against import, etc.
- establishment of monitoring, control and surveillance schemes.

Additional details for all of the measures that have been implemented by SEAFO are available at www.seafo.org

7.7 Southern Indian Ocean Fisheries Agreement (SIOFA)[75]

The objective of SIOFA is to ensure the long-term conservation and sustainable use of the resources under its auspices through regular studies of the fish stocks and the impact of fishing on the environment as well as the implementation of conservation and management measures. The general principles include that fishing practices and management measures shall take due account of the need to minimize the harmful impact that fishing activities may have on the marine environment and that biodiversity in the marine environment shall be protected.

The agreement contains provisions on flag state duties that, among other things, require parties to ensure that vessels operating in the SIOFA area are authorized to fish in the SIOFA area and are equipped with VMS. The agreement also contains port state obligations requiring parties to conduct inspections and not permit landings, transshipments or supply services unless they are satisfied that the fish on board have been caught in a manner consistent with SIOFA measures.

[75] 2006 The Southern Indian Ocean Fisheries Agreement. Concluded 7 July 2006. Entered into force 8 June 2012.

Parties have met twice, and so far one conservation and management measure has been agreed on, namely a prohibition on the use of gillnets in the area of application. Discussions are, however, ongoing in relation to proposals for the limitation of fishing effort, protection of VMEs, and a system of monitoring, control and enforcement.

Summary

The following issues shall be implemented in national legislation:

- Design and use of gear.
- Authorization of vessels operating in the SIOFA area if equipped with VMS.
- Port state obligations.

7.8 South Pacific Regional Fisheries Management Organisation (SPRFMO)[76]

The objective of the SPRFMO Convention is, through the application of a precautionary approach and an ecosystem approach to fisheries management, to ensure the long-term conservation and sustainable use of fishery resources and, in so doing, safeguard the marine ecosystems in which these resources occur.

The SPRFMO Convention establishes that the measures adopted by the Commission shall include measures to protect the habitats and marine ecosystems in which fishery resources and non-target and associated or dependent species occur from the impacts of fishing, including measures to prevent significant adverse impacts on VMEs and precautionary measures where it cannot adequately be determined whether VMEs are present or whether fishing would cause significant adverse impacts on VMEs.

The Commission has adopted a measure for the management of bottom fishing that incorporates and expands on earlier voluntary interim measures. This measure promotes the sustainable management of bottom fisheries, including target fish stocks and non-target species taken as bycatch, and protection of the marine ecosystems in which those resources occur, including the prevention of significant adverse impacts on VMEs.

SPRFMO has agreed to limit catch levels of deep-sea species to the 2002–2006 annual average and also restricts participants to fishing within their bottom fishing footprint, defined as the spatial extent of their bottom fishing conducted during 2002–2006. More than 99 percent of the Convention Area is outside footprints and thus is currently closed to commercial deep-sea fishing. Protocols for new or exploratory fishing outside the footprint or above the 2002–2006 catch levels have been adopted.

Parties are required to assess whether individual bottom fishing activities would have significant adverse impacts on VMEs and, if so, to ensure that they are managed to prevent such impacts, or not authorized to proceed. Vessels are required to cease bottom fishing activities within 5 nautical miles of any position where evidence of a VME is encountered during fishing operations. Details of the encounter are reported to the secretariat so that appropriate action can be taken in respect of the relevant site. No SPRFMO-wide definition has been provided of "evidence of a VME", and it has been left to flag states to develop national protocols for detecting encounters with possible VMEs.

[76] 2009 Convention on the Conservation and Management of High Seas Fishery Resources in the South Pacific Ocean. Concluded 14 November 2009. Entered into force 24 August 2012.

SPRFMO has banned the use of gillnets, including deep-water gillnets, in order to protect fishery resources, bycatch species and deep-sea habitats. It has also established a measure for minimizing bycatch of seabirds that describes mitigation measures to be used in demersal longline fisheries and trawl fisheries, respectively.

On monitoring, SPRFMO has adopted a record of vessels authorized to fish in the Convention Area. Parties shall further ensure that their vessels collect data for each fishing operation, including information on gear type and deployment, catch and effort of species retained on board, bycatch of species of concern (marine mammals, seabirds, reptiles, etc.), and catches of VME species (sponges, sea fans, corals). SPRFMO has approved a measure for the regulation of transshipment and other transfer activities obliging parties to notify the secretariat of each transshipment and to ensure that an observer is on board the unloading or receiving vessel. Parties are required to ensure 100 percent observer coverage for vessels using trawl gear, and at least 10 percent observer coverage in each fishing year for each other bottom fishing gear type.

Concerning control, SPRFMO has agreed that procedures on at-sea boarding and inspection shall be those contained in Articles 21 and 22 of UNFSA. SPRFMO has also adopted minimum standards of inspections in port that require parties to designate port to which foreign vessel may request entry, information to be provided to the port state and that parties shall deny entry if determined that the vessel has engaged in IUU fishing. Of the vessels allowed to port, at least 5 percent of landings and transshipments shall be inspected. The measure specifies how inspections shall be conducted and procedures in the event of infringements.

SPRFMO has established a list of vessels presumed to have carried out IUU fishing activities in the Convention Area. Parties are obliged to take a number of follow-up actions against those listed vessels that include prohibition of port entry, refusal of granting flag, prohibition against chartering such vessels, prohibition of the imports, or landing and/or transshipment from vessels listed, etc.

Summary

The following issues shall be implemented in national legislation:

- Mandatory fishing authorizations.
- Fishing vessel requirements.
- Power to establish catch limitations.
- Power to require on-board observer coverage.
- Mandatory recording and reporting, including VMS and logbook requirements.
- Design and use of gear.
- Authorization of deep-sea fishing only in areas assessed for possible significant impacts.
- Power to close high seas areas for its vessels.
- Deep-sea fishing protocols (VME thresholds, indicator species, move-on rules, etc.).
- Power to target IUU vessels; denial of port entry, refusal to grant them their flag, prohibition against import, etc.

Additional details for all of the measures that have been implemented by SPRFMO are available at www.sprfmo.int.

8. GLOBAL SHIPPING INSTRUMENTS RELEVANT TO DEEP-SEA FISHING AND ITS IMPACT ON MARINE BIOLOGICAL DIVERSITY BEYOND NATIONAL JURISDICTION

The International Maritime Organization (IMO) is a specialized agency of the United Nations with a mandate to promote the safety, security and environmental performance of international shipping.[77] Its main role is to create a regulatory framework for the shipping industry. It does so through the adoption of treaties and other international instruments covering all aspects of international shipping, including ship design, construction, equipment, manning, operation and disposal. Many of the regulatory instruments adopted by the IMO are directed at merchant vessels, such as oil tankers, cargo vessels and passenger ships. However, some IMO instruments are applicable to fishing vessels, and thus they may be relevant to the regulation of deep-sea fishing and its impact on marine biological diversity in areas beyond national jurisdiction.

8.1 The International Convention for the Prevention of Pollution from Ships (MARPOL)

Perhaps the most important treaty related to the environmental performance of shipping is the International Convention for the Prevention of Pollution from Ships.[78] This treaty regulates the construction and design of ships to minimize the potential for harm to the marine environment arising from shipping casualties. It also regulates discharges of polluting substances by ships. Annexes to the MARPOL Convention contain detailed regulations relating to oil (Annex I), hazardous and noxious chemicals (Annex II), hazardous substances in packaged form (Annex III), sewage (Annex IV), garbage (Annex V), and air pollution (Annex VI). Technical rules relating to vessels are also found in other IMO treaties, such as the International Convention for the Safety of Life at Sea (SOLAS Convention),[79] the Convention on Anti-Fouling Substances,[80] the Convention on Ballast Water Management,[81] and the Load Lines Convention.[82]

The regulations in Annex V of the MARPOL Convention are particularly relevant to the conduct of deep-sea fishing operations, as they control the disposal of garbage, which includes fishing gear. Garbage at sea can cause serious harm to marine biological diversity. Marine creatures can ingest waste material, which can accumulate in the stomach of the animal, affecting its ability to process sufficient food and leading to starvation. Marine creatures can also become entangled in debris, restricting their movement and affecting their ability to hunt and feed. Entanglement can be a particular problem with discarded fishing gear, including nets and lines. The MARPOL regulations on garbage apply to all ships, including fishing vessels and supply vessels. The regulations prohibit any discharge of waste

[77] 1948 Convention on the International Maritime Organization (289 UNTS 3). Concluded 6 March 1948. Entry into force 17 March 1958. 171 parties as of 19 October 2015.
[78] 1973 International Convention for the Prevention of Pollution from Ships (1340 UNTS 184). Concluded 2 November 1973. Modified by the Protocol to the 1973 Convention (1341 UNTS 3). Concluded 17 February 1978. Entered into force 2 October 1983. 153 parties as of 19 October 2015.
[79] 1974 International Convention for the Safety of Life at Sea (1184 UNTS 2). Concluded 1 November 1974. Entered into force 25 May 1980. 162 parties as of 19 October 2015.
[80] 2001 International Convention on the Control of Harmful Anti-fouling Systems on Ships. Concluded 5 October 2001. Entered into force 17 September 2008. 71 parties as of 19 October 2015.
[81] 2004 International Convention for the Control and Management of Ships' Ballast Water and Sediments. Concluded 13 February 2004. Not yet entered into force. 44 parties as of 19 October 2015.
[82] 1966 International Convention on Load Lines (640 UNTS 133). Concluded 5 April 1966. Entered into force 21 July 1968. 161 parties as of 19 October 2015.

material (including ash and clinkers from shipboard incinerators), unless it falls within an exception within the regulations.

There are two major exceptions to the general garbage discharge ban. First, discharge of food waste is permitted for ships en route in areas beyond national jurisdiction. Second, cargo residues and cleaning agents or additives contained in wash water may also be disposed by ships en route in areas beyond national jurisdiction, provided that they do not contain substances that are harmful to the marine environment. Additional regulations may apply to larger vessels, such as maintaining a Garbage Record Book.[83]

More stringent standards apply to particular sea areas that are recognized as needing special protection. The Mediterranean Sea, Black Sea, Baltic Sea, Red Sea, the Gulf, Wider Caribbean Region, and the North Sea are all designated as so-called special areas under Annex V of the MARPOL Convention (MARPOL Annex V, Regulation 1). Most of these special areas are within national jurisdiction, but some of them are located on the high seas, e.g. parts of the Mediterranean Sea. Additional precautions must be taken by vessels operating in special areas. Thus, food waste may only be discharged if it has been comminuted or ground and is capable of passing through a screen with openings no greater than 25 mm. In addition, cargo residues should be retained on board, unless the ship is operating solely within the special area and no adequate reception facilities are available in ports. The Antarctic area receives an even higher level of protection under Annex V. As well as the other rules relating to special areas, regulations require that no avian products are discharged in the Antarctic area, and flag states must ensure that all their vessels operating in this area have sufficient capacity on board for the retention of all garbage and have concluded arrangements to discharge such garbage at reception facilities after leaving the area.

While the majority of the regulations will apply generally to shipping and they will therefore probably be implemented through national shipping legislation, there are aspects of MARPOL Annex V that are specifically addressed to fishing vessels. The regulations make clear that the prohibition on garbage discharge includes fishing gear, which may not be intentionally discarded from vessels into the sea. However, the accidental loss of fishing gear will not be considered to be a violation of the regulations if it can be demonstrated that all reasonable precautions were taken to prevent the loss. Discharge of fishing gear is also permitted for the protection of the marine environment or for the safety of the ship or crew. Under the regulations, any accidental loss of fishing gear, which may pose a significant threat to the marine environment or navigation, must be reported to the flag state. The IMO has recommended that particular attention should be paid to the loss of whole or nearly whole nets or other fishing gear and the loss of gear in particularly sensitive areas such as coral reefs or the breeding or foraging grounds of protected species.[84]

Article 4 of the MARPOL Convention also explicitly requires states to criminalize violations of the MARPOL Convention and therefore states must establish the necessary offences as a matter of national law. This may include a particular offence relating to the intentional discard of fishing gear in contravention of the regulations. Not only must the flag state have the powers to punish a vessel, but it must also have the administrative procedures in place to

[83] It has been noted that the requirement to carry a Garbage Record Book, which only applies to vessels of 400 gross tonnes and above, will not apply to many fishing vessels, making it more difficult to monitor compliance by smaller fishing vessels with the disposal regulations in Annex V; see Chen, C.-L. & Liu, T.-K. 2013. Fill the gap: developing management strategies to control garbage pollution from fishing vessels. *Marine Policy,* 40: 34–40.

[84] See 2012 Guidelines for the Implementation of MARPOL Annex V – Resolution MEPC.219(63), paragraph 2.2.2. See further Gilman, E. 2015. Status of international monitoring and management of abandoned, lost and discarded fishing gear and ghost fishing. *Marine Policy,* 60: 225–239.

ensure that it can respond to reports provided by other states of possible pollution offences in contravention of the Convention.

Given the difficulties of investigating offences committed on the high seas, it is often necessary for the flag state to request cooperation from other states in such investigations. Article 6 of the MARPOL Convention imposes a duty of cooperation on states in relation to the detection of violations and the enforcement of the Convention. Port states play a particularly important role in investigating offences given it is much easier to inspect a vessel once it has entered a port and it is stationary. Officials may carry out inspections of vessels and their documents (such as the Garbage Record Book) in order to detect relevant violations.

Summary

The MARPOL Convention requires, *inter alia*, the following issues to be implemented in national legislation:

- Prohibition on the disposal of waste material and garbage, including, *inter alia,* fishing gear, ash and clinkers from shipboard incinerators, subject to specific and limited exceptions (Annex V, Regulation 3).
- Prohibition on the disposal of waste material and garbage within special areas beyond national jurisdiction, subject to specific and limited exceptions (Annex V, Regulation 5(2)).
- Requirement that no avian products are discharged in the Antarctic special area, and that all vessels under the jurisdiction of the flag state have sufficient capacity on board for the retention of all garbage (Annex V, Regulation 5(5)(b)).
- Requirement to report to the flag state any accidental loss of fishing gear that may pose a significant threat to the marine environment and navigation (Annex V, Regulation 9(3)(d)).
- Establishment of enforcement measures and sanctions (Article 4).
- Inclusion of a power of port state control officers to inspect vessels while they are in port in order to determine whether they have committed a violation at sea (Articles 4 and 6(2)).
- Requirement to compensate a vessel if unduly detained or delayed (Article 7(2)).
- Requirement of international cooperation with regard to the detection of violations and the enforcement of the Convention (Article 6(1)).

8.2 Particularly Sensitive Sea Areas (PSSAs)

Aside from the standards adopted to regulate pollution discharges from ships, the IMO is also the international agency that is responsible for adopting other shipping measures, such as navigational restrictions. Such navigational measures may address both the promotion of maritime safety as well as the protection of the marine environment.

In this context, the Revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas (IMO Assembly Resolution A.982(24), adopted 1 December 2005) are used by the IMO in order to protect marine ecosystems that possess recognized ecological, socio-ecological or scientific attributes that render the area vulnerable to damage by international shipping activities. PSSAs can be adopted to protect a number of different types of marine features, including unique or rare habitats; sea areas that are critical for the survival of marine species; areas that have exceptional variety of species; areas that have experienced a relative lack of human induced-disturbance; or areas that provide an outstanding or

illustrative example of a specific natural feature. No PSSAs have been designated on the high seas to date, but there is no restriction in the PSSA Guidelines that would prevent the IMO from doing so in the future.[85] Thus, PSSAs may be used to protect VMEs on the high seas and they may be relevant to the conservation of marine biological diversity in areas beyond national jurisdiction.

Designation of a PSSA itself involves no restrictions on ships, and the IMO must also adopt so-called associated protective measures (APMs) in order to safeguard the attributes of the proposed PSSA. An APM must have an identified legal basis in another IMO instrument, and it may include the adoption of special discharge regulations under the relevant annexes of the MARPOL Convention or routeing or other navigational measures adopted by the IMO on the basis of Chapter V of the SOLAS Convention and the General Provisions on Ships' Routeing. Such navigational measures may include traffic separation schemes, two-way routes, recommended tracks, precautionary areas, deep-water routes, areas to be avoided, no anchoring areas, ship reporting systems, and vessels traffic services. Navigational measures would normally be applicable to all ships, including fishing vessels.

Summary

It is recommended that the following issues be implemented in national legislation:

- Definition of PSSA (paragraph 1.2).
- Authority to take appropriate measures with regard to vessels flying their flag to protect PSSAs, including, *inter alia*, traffic separation schemes, two-way routes, precautionary areas, deep-water routes, ship reporting systems and vessel traffic services (paragraph 6.1).

8.3 IMO ship identification scheme

The IMO ship identification scheme is relevant to fishing vessels engaged in deep-sea fishing on the high seas in light of discussions in other international forums over the identification of vessels for the purpose of maintaining a register of fishing vessels. The ship identification scheme was first introduced in 1987 by IMO Assembly Resolution A.600(15) with the intention of establishing the means to allocating a unique identification number to individual ships for the purposes of enhancing maritime safety, pollution prevention and facilitating the prevention of maritime fraud. Initially, the scheme was applied on a voluntary basis, but it was made compulsory in 1994 through an amendment to the SOLAS Convention (Regulation X/3).

The original scheme excluded fishing vessels from its scope. However, the IMO Assembly adopted Resolution A.1078(28) in December 2013, amending the IMO ship identification scheme and making it possible for flag states to voluntarily apply the scheme to fishing vessels of 100 gross tonnes or more. This resolution is not legally binding, but rather it "invites" IMO members states to implement the scheme in relation to fishing vessels. It follows that this instrument may be relevant for the purposes of establishing fishing vessel records, as required under other international instruments considered in this document.

[85] R. Churchill. 2013. High seas marine protected areas: implications for shipping. *In* R. Caddell & R. Thomas, eds. *Shipping, law and the marine environment in the 21st century*. Lawtext Publishing Limited, 73; J. Roberts, *et al.* 2010. Area-based management on the high seas: possible applications of the IMO's Particularly Sensitive Sea Area concept. *International Journal of Marine and Coastal Law,* 25: 483–522.

Summary

The IMO ship identification scheme calls for the implementation of the following issue in national legislation:

- Requirement that fishing vessels over 100 gross tonnes carry an IMO ship identification number (paragraph 3).

9. GLOBAL ENVIRONMENTAL INSTRUMENTS RELEVANT TO DEEP-SEA FISHING AND ITS IMPACT ON MARINE BIOLOGICAL DIVERSITY BEYOND NATIONAL JURISDICTION

An increasingly large number of international legal instruments are devoted to the preservation of biological diversity and the conservation of ecosystems. Not many of these instruments explicitly deal with deep-sea fishing. Nevertheless, they do relate to the preservation of species affected by such activities, for example, through problems of bycatch or the overuse or destruction of marine resources. Most of these instruments apply to both marine areas under the national jurisdiction of states and to the high seas.

9.1 Convention on Biological Diversity (CBD)[86]

The objectives of the CBD comprise the conservation of biological diversity and the sustainable use of its components. Biological diversity is defined as "the variability among living organisms from all sources ... and the ecological complexes of which they are part", and it includes "diversity within species, between species and of ecosystems". Sustainable use is understood as use "in a way and at a rate that does not lead to the long-term decline of biodiversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations" (Article 2). The CBD applies to both marine areas under the national jurisdiction of state parties to the Convention and to the process and activities carried out under a state party's jurisdiction or control in marine areas within and beyond national jurisdiction (Article 4). Fishing would qualify as an activity carried out under the jurisdiction of the flag state of the fishing vessel and therefore the CBD is relevant for the regulation of deep-sea fishing in areas beyond national jurisdiction by flag states.

CBD obligations do not affect the rights and obligations of any party deriving from other international agreements, except where the exercise of those rights and obligations would cause a serious damage or threat to biodiversity. In addition, CBD obligations are to be implemented consistently with the rights and obligations of states under the law of the sea (Article 22). In other words, CBD obligations provide specifications to the general obligations on the protection of the marine environment contained in Part XII of the UNCLOS and are relevant to the interpretation of UNCLOS provisions on activities such as fishing that cause or threaten serious damage to biodiversity.[87]

CBD obligations are quite general and often qualified, thereby leaving considerable discretion to state parties with regard to the choice of the means of implementation. Their open-ended nature has allowed for an evolving understanding in specific sectors (such as

[86] 1992 United Nations Convention on Biological Diversity (1760 UNTS 79). Concluded 22 May 1992. Entered into force 29 December 1993. 196 parties as of 10 October 2015.
[87] Boyle, A.E. & Chinkin, C. 2007. *The making of international law.* Oxford University Press. pp. 256–257.

marine and coastal biodiversity) and in consideration of new and emerging threats to biodiversity (such as underwater noise). More specific guidance to the interpretation of the Convention can be found in the decisions adopted by consensus by the Conference of the Parties (COP) to the CBD, which meets every two years. COP decisions are not binding, but they provide important guidance for contracting parties on what measures they can take to fulfil their obligations under the Convention. The following analysis will include an explanation of the key decisions of the CBD Conference of the Parties that are relevant to the regulation of deep-sea fishing in areas beyond national jurisdiction.

9.1.1 Monitoring and impact assessment

The CBD requires parties to monitor biodiversity components identified as important for conservation and sustainable use, paying particular attention to those requiring urgent conservation measures and those that offer the greatest potential for sustainable use; and also to monitor the effects of processes and categories of activities that have or are likely to have significant adverse impacts on biodiversity conservation and sustainable use (Article 7). Where a significant adverse effect on biodiversity has been determined, parties are to regulate or manage the relevant processes and categories of activities.

In addition, CBD parties are required to introduce appropriate procedures requiring environmental impact assessments (EIAs) of proposed projects that are likely to have significant adverse effects on biodiversity with a view to avoiding or minimizing such effects and, where appropriate, allow for public participation in such procedures. In addition, CBD parties are to introduce appropriate arrangements to ensure that the environmental consequences of programmes and policies that are likely to have significant adverse impacts on biodiversity are duly taken into account (so-called strategic environmental assessments). Further, CBD parties are also to promote national arrangements for emergency responses to activities or events, whether caused naturally or otherwise, which present a grave and imminent danger to biodiversity (Article 14).

According to COP decisions, CBD parties are expected to incorporate marine biodiversity issues into the different stages of an EIA (Decision VIII/30), making efforts to minimize the specific, as well as cumulative, detrimental impacts of human activities on marine and coastal biodiversity both in areas within and beyond national jurisdiction, particularly in areas that are affected by multiple direct and indirect anthropogenic influences originating from the watershed area, and where the biodiversity issues require an integrated holistic approach aiming to improve the water quality and restore the health and functioning of the whole ecosystem (Decision X/29).

In 2012, the CBD Conference of the Parties took note of specific marine-specific considerations to the guidelines on biodiversity-inclusive EIAs and strategic environmental assessments endorsed by Decision VIII/28 (voluntary guidelines for the consideration of biodiversity in environmental impact assessments and strategic environmental assessments in marine and coastal areas: CBD Decision XI/18B and Annex of UNEP/CBD/COP/11/23). The CBD guidelines are relevant to the conservation of marine biodiversity both within and beyond areas of national jurisdiction and are expected to apply to activities that are currently unregulated, with no procedures for assessing impacts. The guidelines stress the importance of the precautionary approach, particularly in the context of EIAs and strategic environmental assessments in areas beyond national jurisdiction, and make reference, including for setting thresholds and biodiversity-inclusive screening criteria in deep-sea habitats, to the CBD criteria to describe ecologically and biologically significant marine areas (EBSAs), discussed below, and to the criteria for VMEs under the Deep-sea Fisheries Guidelines. The CBD guidelines emphasize the greater dependence on incremental and

iterative test-based approaches to permitting activities in the marine environment, given the outcome of the EIA, allowing a particular activity at a small scale with stringent conditions for monitoring and surveillance. Such an application of the precautionary approach may be particularly relevant to deep-sea fisheries beyond national jurisdiction where there may be little scientific evidence available. In areas beyond national jurisdiction, the guidelines note that responsibility to prepare and approve assessments may require consensus among the proponent, flag state authorities and international organizations with functional responsibility for the activities involved, with the responsibility to monitor and ensure compliance with the EIA falling principally on the flag state. The CBD guidelines further note that for activities affecting deep-sea habitats, more emphasis needs to be placed on the protection of habitats of importance for threatened, endangered or declining species, and on factors that may cause changes to biological or ecological processes that may affect such species, relying on criteria of "the potential to cause significant adverse impacts" building upon the Deep Sea Fisheries Guidelines.

9.1.2 Conservation and sustainable use

With regard to conservation, CBD parties are required to establish a system of protected areas to conserve biodiversity; regulate or manage resources important to conservation within and outside protected areas; and promote environmentally sound and sustainable development in areas adjacent to protected areas. In addition, CBD parties are required to develop necessary legislation and/or other regulatory provisions for the protection of threatened species and populations; promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings; rehabilitate and restore degraded ecosystems and promote the recovery of threatened species; and endeavour to provide the conditions needed for compatibility between present uses, conservation and sustainable use (Article 10). With regard to sustainable use, parties are required to support local populations to develop and implement remedial action in degraded areas, and encourage cooperation between governmental authorities and the private sector in developing methods for sustainable use of biological resources (Article 10 (c-d)).

Decisions of the CBD Conference of the Parties have explicitly clarified that the obligations relating to the conservation and sustainable use of biological diversity apply to fishing. According to relevant COP decisions, CBD parties are expected to undertake a comprehensive review of domestic environmental and other related legislation and consider appropriate institutional mechanisms to support the provisions of the international and regional instruments relevant to integrated marine and coastal area management, and to design adaptive integrated marine and coastal area management programmes that respond to environmental change, as well as recurrent or emerging physical or biological hazards, as long-term mitigation tools complementary to early warning systems for coastal/marine hazards (Decision VIII/22).

CBD parties have committed to achieve Aichi Target 6, according to which by 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem-based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits (Decision X/2). To this end, CBD parties are expected to support sustainable management practices by including general restrictions that would apply to an entire area (e.g. bans on certain destructive fishing methods), and site-specific restrictions imposed for non-biodiversity purposes (e.g. trawling restrictions to protect cables, restricted areas for defence purposes), as well as protect wide-

ranging marine biodiversity species which are difficult to address through site-specific measures (e.g. restrictions on fishing practices that cause a bycatch of species such as albatross, marine mammals and turtles). CBD parties have also been further encouraged to identify threats to biodiversity in areas beyond national jurisdiction, in particular areas with seamounts, hydrothermal vents and cold-water corals, and certain other underwater features, and urgently take the necessary short-term, medium-term and long-term measures to eliminate/avoid destructive practices, including consideration, on a case-by-case basis, of interim prohibition of destructive practices (Decision VII/5). This COP decision is directly relevant to the regulation of the impacts of deep-sea fishing in areas beyond national jurisdiction on marine biological diversity. In addition, CBD parties are expected to ensure sustainability in the fisheries for the protection of coral reefs and closely associated ecosystems by conducting national assessments to determine the level of unsustainable fishing practices; implementing management measures for multispecies reef fisheries to reduce unsustainable fishing practices; sustainably managing populations of key reef fish and invertebrate species targeted by export-driven fisheries; and prioritizing the recovery and sustainable management of reef species with key ecological functions, in particular herbivorous reef fish populations (Decision XII/23).

With specific regard to conservation of ecosystems, CBD parties are also required to establish a system of protected areas to conserve biodiversity; regulate or manage resources important to conservation within and outside protected areas; and promote environmentally sound and sustainable development in areas adjacent to protected areas. As part of the Strategic Plan for Biodiversity 2011–2020, CBD parties are committed to a global target (Aichi Target 11), whereby by 2020 at least 10 percent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures and integrated into the wider landscapes and seascapes (Decision X/29). A number of previous COP decisions can assist with the achievement of this goal. Thus, CBD parties are expected to develop clear national legal frameworks to promote adequate protection of areas important for reproduction, such as spawning and nursery areas, and restoration of such areas and other important habitats for marine living resources on the basis of the ecosystem and precautionary approaches. The parties are also expected to develop integrated networks of MPAs, consisting of: (i) protected areas where threats are managed for the purpose of biodiversity conservation and/or sustainable use and where extractive uses may be allowed; and (ii) areas where extractive uses are excluded, and other significant human pressures are removed or minimized, to enable the integrity, structure and functioning of ecosystems to be maintained or recovered (Decision VII/5). For areas beyond national jurisdiction, such activities will have to take place through appropriate international institutions (see below). CBD parties are further expected to clearly identify in their legal framework prohibited activities that will be contrary to the objectives of the MPAs; activities that will be allowed with clear restrictions or conditions to ensure that they will not be contrary to MPA objectives; and an inclusive and transparent decision-making process for all other activities. They are also expected to minimize the number of discretionary activities in order to minimize potential harmful impacts in MPAs, as well as provide for inter-agency coordination and appropriate penalties (decision VII/5). In order to identify relevant MPAs, CBD parties are encouraged to establish multisectoral advisory committees to ensure inter-agency and intersectoral coordination, identify policy and legislative barriers, and improve enabling conditions (Decision IX/18), especially for integrating protected areas into wider land- and seascapes, including using protected areas as natural solutions in ecosystem-based approaches to climate change adaptation and mitigation (Decision XI/24).

It should also be noted that the CBD has established a global process for describing EBSA through the application of scientific criteria (Decisions IX/20 and X/29), whereby an area should contain at least one of the following features: uniqueness or rarity; special importance for life history stages of species; importance for threatened, endangered or declining species and/or habitats; vulnerability, fragility, sensitivity or slow recovery; biological productivity; biological diversity; and naturalness.[88] The CBD Conference of the Parties has encouraged parties to make use, as appropriate, of the scientific information regarding the description of areas meeting EBSA criteria, including the information in the CBD EBSA repository and information-sharing mechanism, as well as the information from indigenous and local communities and from the fisheries sector, when carrying out marine spatial planning, development of representative networks of marine protected areas, and application of other area-based management measures (Decision XII/22). To date, only a few competent organizations (e.g. NAFO and the International Commission for the Conservation of Atlantic Tunas with respect to the Sargasso Sea EBSA)[89] have started to consider the impacts of their regulated activities on EBSAs.[90]

9.1.3 Indigenous and local communities

CBD parties are required to respect and maintain the traditional knowledge of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biodiversity, promote its wider application with the approval and involvement of the holders of such knowledge, and encourage the equitable sharing of the benefits arising from the utilization of such knowledge (Articles 8(j)). In addition, CBD parties are required to protect and encourage customary use of biological resources in accordance with traditional cultural practices of indigenous and local communities that are compatible with conservation or sustainable use requirements (Article 10(c)). With regard to sustainable use, parties are required to support local populations to develop and implement remedial action in degraded areas, and encourage cooperation between governmental authorities and the private sector in developing methods for sustainable use of biological resources (Article 10 (c)-(d)). While it is difficult to determine to what extent these provisions are relevant to marine areas beyond national jurisdiction, as the existence and extent of traditional knowledge related to these areas is not well documented,[91] it cannot be excluded that these provisions may apply on a case-by-case basis.

The COP has adopted a number of decisions that provide guidance on the implementation of these provisions. CBD parties are expected to facilitate the participation of indigenous and local communities in the establishment and maintenance of individual MPAs and national and regional networks (Decision VII/5); respect their interests and preserve and maintain their traditional knowledge as input into integrated marine and coastal management (Decision VIII/22); and give consideration to the challenge of incorporating land and marine issues, including tenure, in the application of the ecosystem approach, taking note of the United Nations Declaration on the Rights of Indigenous Peoples (Decision IX/7). In particular, CBD parties are encouraged to: (i) improve and diversify protected-area governance types, including recognizing indigenous, local and other community-based organizations; (ii) recognize the contribution of co-managed protected areas and indigenous and local community conserved areas within the national protected area system through

[88] CBD Decision IX/20, Annex I.
[89] Sargasso Sea Commission. www.sargassoalliance.org/about-the-alliance; accessed 21 March 2015.
[90] Diz, D. Unraveling the intricacies of marine biodiversity conservation and its sustainable use: an overview of global frameworks and applicable concepts. *In* J. Razzaque & E. Morgera, eds. *Encyclopedia of environmental law: nature protection* (EE, forthcoming 2017); Diz, D. The seamounts of the sargasso sea: adequately protected? *The International Journal of Marine and Coastal Law,* 31(2): 359–370.
[91] Vierros, M, Tawake, A., Hickey, F., Tiraa, A. & Noa, R. 2010. *Traditional marine management areas of the Pacific in the context of national and international law and policy*. United Nations University.

acknowledgement in national legislation; (iii) establish effective processes for the full and effective participation of indigenous and local communities, in full respect of their rights and recognition of their responsibilities, in the governance of protected areas; and (iv) develop measures for the equitable sharing of both costs and benefits arising from the establishment and management of protected areas with the full and effective participation of indigenous and local communities and, where applicable, taking into account indigenous and local communities' own management systems and customary use (Decision IX/18), including by ensuring communities' prior and informed consent in the establishment, expansion, governance and management of MPAs, encourage the application of traditional knowledge in MPAs and promote the use of community protocols (Decision XII/12). Finally, CBD parties are invited to consider the integration of traditional knowledge in the application of scientific criteria for identification of EBSAs, the establishment and management of MPAs (Decision XI/17), and the promotion of community-based measures, including community rights-based management, to manage fisheries sustainably in the context of efforts to protect coral reefs (Decision XII/23).

9.1.4 Marine areas beyond national jurisdiction

In areas beyond national jurisdiction, CBD parties have an obligation to cooperate with other parties, directly or through competent international organizations, for the conservation and sustainable use of biodiversity (Article 5). This is particularly relevant for the process of describing EBSAs in areas beyond national jurisdiction. When activities under the jurisdiction or control of one state are likely to significantly affect adversely the biodiversity of other states or areas beyond national jurisdiction, CBD parties are to promote notification, exchange of information and consultation by encouraging the conclusion of bilateral, regional or multilateral arrangements, as appropriate. In the case of imminent or grave danger or damage, CBD parties must notify the potentially affected states immediately, as well as initiate action to prevent or minimize such danger or damage, and encourage international cooperation to supplement national efforts for emergency responses, with joint contingency plans where appropriate and agreed by the states or regional economic integration organizations concerned (Article 14(c-e)).

In this connection, it may be noted that it remains debated whether the Nagoya Protocol on Access to Genetic Resources and Benefit-sharing to the CBD,[92] which was adopted to support the implementation of the third objective of the CBD (fair and equitable benefit-sharing from the utilization of genetic resources), applies to areas beyond national jurisdiction.[93] Its article on scope (Article 3) is silent on the matter, although its reference to CBD Article 15 can be interpreted so as to limit the Protocol scope only to genetic resources over which states exercise sovereign rights.[94] As the Protocol objective is the fair and equitable sharing of the benefits arising from the use of genetic resources (Article 1), with "use" being defined as the research and development over the genetic and/or biochemical composition of genetic

[92] Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from Their Utilization to the Convention on Biological Diversity. 29 October 2010, entered into force on 12 October 2014, UN Doc. UNEP/CBD/COP/DEC/X/1, 2010.

[93] Morgera, E., Tsioumani, E. & Buck, M. 2014. *Unraveling the Nagoya Protocol: a commentary of the protocol on access and benefit-sharing to the Convention on Biological Diversity*. Martinus Nijhoff Publishers.

[94] In favour of this interpretation: Buck, M. & Hamilton, C. 2011. The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from Their Utilization to the Convention on Biological Diversity. *Review of European Community & International Environmental Law*, 20: p. 47, para. 57; *Koester, V. 2012. The Nagoya Protocol on ABS: ratification by the EU and its member states and implementation challenges,* paragraphs 16–17. IDDRI. Accessed 30 November 2013. www.iddri.org/Publications/Collections/Analyses/STUDY0312_VK_nagoya%20abs.pdf; Salpin, C. 2013. The law of the sea: a before and an after Nagoya? In E. Morgera, M. Buck & E. Tsioumani, eds. 2010 *Nagoya Protocol on access and benefit-sharing in perspective: implications for international law and implementation challenges*, pp. 149, 177. Martinus Nijhoff Publishers.

resources (Article 2), it could be argued that the Nagoya Protocol may be relevant for present purposes in as far as fishing activities may provide an incidental means for accessing genetic resources for subsequent research and development, including through fishing waste.[95]

Summary

The CBD requires the following issues to be addressed in national legislation:

- Requirements for monitoring the status of species, and of process and activities that may affect them (Article 7).
- Requirements for marine biodiversity inclusive of environmental and strategic environmental assessments (Article 14; CBD COP Decision VIII/30; Decision XI/18B; and Annex to UNEP/CBD/11/23).
- Authority for the creation and management of protected areas, the protection of endangered species, and for the application of conservation measures around protected areas, including requirements for inter-agency and intersectoral coordination (Articles 8(a)-(f), Article 10(b); CBD COP Decision X/29, Decision VII/5, Decision IX/18, Decision XI/24, Decision VIII/22, Decision XII/22 and Decision IX/20).
- Requirements to ensure the sustainable use of marine biological resources, including particular protection of coral reefs and associated ecosystems (Article 10; CBD COP Decision X/2, Decision VII/5 and Decision XII/23).
- Provisions for the protection of traditional knowledge and the inclusion of indigenous and local communities in decision-making on marine biodiversity and in the management of marine protected areas (Articles 8(j) and 10(c)); CBD COP Decision VII/5, Decision VIII/22, Decision IX/7, Decision IX/18, Decision XII/12, Decision XI/17 and Decision XII/23).
- Requirements for international cooperation with regard to conservation and sustainable use of biodiversity in areas beyond national jurisdiction or in case of actual or potential significant adverse effects on the biodiversity of other states (Articles 5 and 14(c)-(e)).

9.2 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)[96]

The CITES is concerned with one particular threat faced by many species, namely international trade. The objective of the CITES is to ensure that international trade in specimens of wild animals and plants does not threaten their survival. Trade is defined to include "introduction from the sea", which in turn is defined as "transportation into a state of specimens of any species which were taken in the marine environment not under the jurisdiction of any state" (Article I(e)). Thus, the CITES potentially applies to the capture of marine species on the high seas and it may have relevance to deep-sea fisheries, depending on whether any relevant species have been listed for protection.

[95] Salpin (no. 93 above), at 154, referring to G. Cataldi, 2006, Biotechnology and marine biogenetic resources: the interplay between UNCLOS and the CBD. *In* F. Francioni & T. Scovazzi, eds. *Biotechnology and International Law*, p. 104. Hart Publishing.

[96] 1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora (993 UNTS 243). Concluded 3 March 1973. Entered into force 1 July 1975. 181 parties as of 10 October 2015.

9.2.1 Scope of the CITES

Species covered by CITES are listed in three different appendixes according to the degree of protection required. Appendix I covers species threatened with extinction, which are or may be affected by trade. The CITES essentially prohibits the commercial trade in Appendix I species, and any trade for non-commercial purposes must be certified as not being detrimental to the survival of the species. Appendix II covers species for which trade must be controlled in order to avoid utilization incompatible with their survival. Appendix II species may only be traded if it has been certified that, *inter alia*, the export will not be detrimental to the survival of the species. Appendix III contains species that are protected in at least one country and that country has asked other CITES parties for assistance in controlling the trade.

In recent years, an increasing number of marine species have been listed in order to receive protection from the CITES, including many species of sturgeons, sharks, rays, whales, dolphins, seals, turtles, conches, seahorses and corals. At present, there are no deep-sea fish species protected under CITES, but it is possible that such species could be included in the future. Several deep-sea species have been under discussion (such as leafscale gulper shark, Portuguese dogfish, orange roughy and roundnose grenadier) in the relevant CITES treaty bodies.

9.2.2 The licencing regime

The CITES operates by introducing a licencing regime for the species listed in the appendixes. The licencing regime applies to all trade in a species, including live or dead specimens, as well as any recognizable part or derivative of a species. The regime also applies to trade with non-parties, in which case comparable documentation may be accepted if it substantially conforms with the requirements of the CITES. The permit requirements are complex and they differ depending upon which appendix a species is listed in and the circumstances in which the species was transported.

Where a specimen included in Appendix I or II is caught on the high seas[97] by a vessel registered in a contracting party and transported into that same state, a permit should be issued by that state in advance. A so-called permit of introduction shall only be issued if the state of introduction has confirmed that the introduction of the species will not be detrimental to the survival of the species and, if it is a living specimen, that the proposed recipient is suitably equipped to handle and care for it. For Appendix I species, there is also a requirement to demonstrate that the specimen is not to be used for primarily commercial purposes. There is no general definition of commercial, but the parties have agreed that "an activity can generally be described as commercial if its purpose is to obtain economic benefit (whether in cash or otherwise), and is directed toward resale, exchange, provision of a service or any other form of economic use or benefit" (CITES Resolution 5.10, paragraph 2). Furthermore, Resolution 5.10 encourages contracting parties to define "commercial purposes" as widely as possible in their national legislation in order to ensure the effectiveness of the CITES regime.

Where a specimen included in Appendix I is caught on the high seas by a vessel registered in one state and transported into another state, the flag state of the vessel is considered as the state of export and the other state is considered as the state of import. Thus, in the first place, the state of import must issue an import permit confirming that the import will be for

[97] This area is referred to by CITES as the "marine environment not under the jurisdiction of any State" in the context of an "introduction from the sea".

a purpose that is not detrimental to the survival of the species, that the recipient of any living specimen is suitably equipped to house and care for it, and that specimen is not to be used for a primarily commercial purpose. Following the issue of an import permit, the flag state is also required to issue an export permit, certifying that the export will not be detrimental to the survival of the species, the specimen was not obtained in violation of that state's laws, that the transport of a live specimen will be done in a manner which minimizes the risk of injury or cruel treatment, and an import permit has been granted. In the case of an Appendix II species, only an export permit is required on similar conditions to those described above.

The CITES also regulates the re-export of specimens to third states and additional permits may be required.

Summary

The CITES requires the following issues to be implemented in national legislation:

- Definition of "introduction from the sea" (Article 1(e) and CITES Resolution 14.6).
- Requirement to possess a certificate in order to introduce a listed species from the sea or a permit for export/import a marine species listed in the CITES (Article III(2), (3), (4), (5) cf. Appendix I; Article IV(2), (4), (5), (6) cf. Appendix II; Article V(2), (3), (4) cf. Appendix III; CITES Resolution 14.6).
- Specification of the conditions under which a permit may be granted and any conditions to be attached to a permit (Article III(2)(a–d), (3)(a–c), (4)(a–c), (5)(a–c) cf. Appendix I; Article IV(2)(a–c), (5)(a–b), (6)(a–b) cf. Appendix II; Article V(2)(a–b) cf. Appendix III; CITES Resolutions 16.7, 14.7, 12.3).
- Establishment of the management authority to grant permits and the scientific authority to advise on the issuing of permits (Article IX(1) and CITES Resolution 10.3).
- Establishment of a monitoring, control and enforcement system (Article VIII).
- Establishment of penalties for trade without a permit and powers to confiscate illegally traded specimens [or for trade in contravention of conditions of a permit] (Article VIII(1–5) and CITES Resolutions 9.10, 9.10).

9.3 Convention on the Conservation of Migratory Species of Wild Animals (CMS)[98]

The CMS is a global conservation treaty with the objective of protecting migratory species, particularly those species that have an unfavourable conservation status. Migratory species are defined as "the entire population or any geographically separate part of the population of any species or lower taxon of wild animals, a significant proportion of whose members cyclically and predictably cross one or more national jurisdictional boundaries" (Article I(a)). The CMS applies to migratory species wherever they are found, including beyond national jurisdiction.

9.3.1 The protection of endangered migratory species

The CMS confers most protection on those species that are considered to be endangered and listed in Appendix I of the Convention. At the time of writing, 27 of the species listed in

[98] 1979 Convention on the Conservation of Migratory Species of Wild Animals (1651 UNTS 333). Concluded 23 June 1979. Entered into force 1 November 1983. 121 parties as of 1 August 2015.

Appendix I are found in areas beyond national jurisdiction, including several species of whales, albatross, turtles and sharks. The CMS specifies several measures that must be taken by range states of listed species. For this purpose, a range state includes "a State, flag vessels of which are engaged outside national jurisdictional limits in taking that migratory species" (Article I(h)). First and foremost, range states must prohibit the taking of listed species, unless one of a number of exceptions applies. The exceptions relate to when the taking of species is for scientific purposes, the taking is for the purpose of enhancing the propagation or survival of the species, the taking is to accommodate the needs of traditional subsistence users of such species, or other extraordinary reasons (Article III(5)). Second, range states must "endeavour" to conserve and, where appropriate, restore the habitats of the species and to prevent, reduce or control other activities that may impede the migration of species or that may contribute to the further endangerment of such species. This includes an obligation to protect Appendix I species against bycatch, as confirmed by CMS Resolution 6.2 of the CMS Conference of the Parties. Although the evidence relating to bycatch in deep-sea fisheries is not clear, these provisions may nevertheless be relevant where there is a potential threat that a covered species could be affected by a fishing operation.

9.3.2 Additional protection for migratory species

The CMS also establishes a legal framework for further cooperation to protect migratory species, which would benefit from international cooperation. Such species are included in a list in Appendix II. In particular, priority should be given to listing those species with an unfavourable conservation status. Species may be listed on both appendixes. There are currently 53 species on Appendix II that have areas beyond national jurisdiction as part of their range.

If a species is listed on Appendix II, the range states of that species are required to endeavour to enter into agreements for the conservation of the listed species, with a view to restoring or maintaining their favourable conservation status. Agreements should cover the whole of the range of the listed species, including areas beyond national jurisdiction. Measures that may be included in agreements include exchange of information, coordinated conservation and management plans, maintenance of a network of suitable habitats relating to the migration routes of the species, and management of the taking of the species. Several agreements have been adopted which may be relevant for the purposes of protecting marine biological diversity from the impacts of deep-sea fishing.

9.3.3 Agreement on the Conservation of Albatrosses and Petrels (ACAP)[99]

The ACAP may be relevant to deep-sea fishing where there is a threat of bycatch of seabirds, for example, through longline fishing. The ACAP aims to achieve and maintain a favourable conservation status of albatrosses and petrels listed in Annex I of the CMS. The ACAP was initially aimed at protecting birds located in the southern hemisphere, but it has since been amended to include other species from the northern hemisphere. Some of the provisions of the agreement are only relevant to the territory or maritime zones of contracting parties, but several provisions also apply to areas beyond national jurisdiction. Indeed, all of the species covered by the agreement are found in areas beyond national jurisdiction and therefore it is important that the instrument is applied effectively in these areas.

Parties must prohibit the deliberate taking of these species, subject to a similar range of exceptions that are found under the CMS (Article III(2)). Parties must also, *inter alia*,

[99] 2001 Agreement on the Conservation of Albatrosses and Petrels (2258 UNTS 257). Concluded 19 June 2001. Entered into force 1 February 2004. 13 parties as of 19 October 2015.

"develop and implement measures to prevent, remove, minimize or mitigate the adverse effects of activities that may influence the conservation status of albatrosses and petrels" (Article III(1)(c)). Fishing would be covered by this provision and the ACAP explicitly calls for parties to support the implementation of the FAO International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries (see below). In addition, an Action Plan is contained in Annex 2 of the ACAP, which lists specific measures that should be progressively undertaken by the parties in relation to species conservation, habitat conservation, management of human activities, research and monitoring, collation of information and education and public awareness. In general, the ACAP Action Plan requires states to "assess the potential impact on albatrosses and petrels, plan, programmes and projects which they consider likely to affect the conservation of albatrosses and petrels before any decision on whether to adopt such policies, plans, programmes or projects, and shall make the results of these assessments publically available" (Annex 2, paragraph 3.1). The ACAP Action Plan also includes a number of actions that are particularly relevant to deep-sea fishing operations, including the need to ensure the sustainability of marine living resources that provide food for albatrosses and petrels, the avoidance of pollution that may harm albatrosses and petrels, the conservation of marine areas that are critical for the survival or restoration of albatrosses and petrels, the reduction or elimination of the mortality of albatrosses and petrels resulting incidentally from fishing activities, and the use of at-sea observers on fishing vessels or other appropriate methods to collect reliable and verifiable data on the nature and extent of albatross and petrel interactions with fisheries.

9.3.4 Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas (ASCOBANS)[100]

ASCOBANS is a short agreement aimed at the conservation of all small cetaceans found in the Baltic, North East Atlantic, Irish and North Seas. It applies to all species, subspecies or populations of toothed whales (Odontoceti), except the sperm whale. Several species covered by the agreement – notably the common porpoise, bottlenose dolphin, Risso's dolphin, orca, bottlenosed whale, striped dolphin and common dolphin – include areas beyond national jurisdiction within their range. It has been known that small marine mammals can become entangled in trawl nets and therefore the agreements may be relevant to addressing the biodiversity impacts of certain deep-sea fishing activities in areas beyond national jurisdiction.

Parties to ASCOBANS are expected to adopt certain management measures that are listed in the annex to the agreement. Parties must endeavour to establish laws that prohibit the intentional taking and killing of small cetaceans, as well as an obligation to release immediately any animal caught alive and in good health. Other measures that may be particularly relevant to deep-sea fishing operations include: the prevention of the release of substances that are a potential threat to the health of animals; the development or modification of fishing gear and practices that reduce bycatches; the establishment of an efficient system for reporting and retrieving bycatches, including the reporting of such information in an international database; the prevention of fishing gear from getting adrift or being discarded at sea; and the effective regulation of activities that seriously affect the food resources of animals.

[100] 1991 Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas (1772 UNTS 217). Concluded 13 September 1991. Entered into force 29 March 1994. 10 parties as of 11 October 2015.

9.3.5 Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS)[101]

ACCOBAMS is similar to ASCOBANS, but it applies to the maritime areas of the Mediterranean and Black Seas. Some of these waters are areas beyond national jurisdiction because the relevant coastal states have not yet declared an exclusive economic zone. Thus, ACCOBAMS may be relevant to deep-sea fishing beyond national jurisdiction where there is a threat of bycatch of small cetaceans, for example, through the use of trawls or gillnets.

As with ASCOBANS, the agreement requires the parties to regulate the intentional taking of cetaceans, subject to similar exceptions as contained in the other agreements concluded under the auspices of the CMS. Annex 2 of the ASCOBANS contains a conservation plan, which identifies measures that states should take to achieve the aims of the agreement. ACCOBAMS explicitly requires parties to conduct "impact assessments ... for either allowing or prohibiting the continuation or the future development of activities that may affect cetaceans or their habitat in the area of application, including fisheries" (Annex 2, paragraph 1(c)). More specifically, the ASCOBANS requires the prohibition of vessels keeping driftnets on board (Annex 2, paragraph 1(a)), and the introduction or amendment or regulations for preventing fishing gear from being discarded or left adrift at sea, as well as requiring the immediate release of cetaceans caught incidentally in fishing gear in conditions that assure their survival (Annex 2, paragraph 1(b)). Parties must collect data concerning direct and indirect interactions between humans and cetaceans and national implementation of this obligation may require placing an obligation on fishing vessels to report such interactions.

9.3.6 Memoranda of understanding for the conservation of migratory species

Contracting parties have also negotiated measures for the protection of migratory species in the form of memoranda of understanding (MOUs). These instruments are not legally binding, but they are intended to guide states on how to implement the general obligations found in the CMS in relation to specific species. Relevant MOUs have been adopted in relation to Atlantic turtles, Indian Ocean and South-East Asian turtles, sharks and Pacific Island cetaceans. All of the MOUs also contain action plans that identify the threats faced by the species and possible measures that may be taken by range states, including measures for the protection of species from intentional taking and measures to address bycatch. Also relevant in this context is the Single Species Action Plan for the loggerhead turtle in the South Pacific, which recommends conservation measures for this species.

9.3.7 Recommendations of the contracting parties to the Convention on Migratory Species

The CMS Conference of the Parties has the power to adopt recommendations to the parties for improving the conservation status of migratory species in general, whether or not they are listed in the appendixes, as well as recommendations to improve the effectiveness of the CMS. Such recommendations, adopted in the form of resolutions of the COP, are not legally binding, but they may provide guidance to states on how to implement their obligations under the CMS. The contracting parties have adopted a number of resolutions that are relevant to deep-sea fishing and the conservation of biological diversity beyond national jurisdiction.

[101] 1996 Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (2183 UNTS 303). Concluded 24 November 1996. Entered into force 1 June 2001. 23 parties as of 11 October 2015.

A major focus of the COP has been on minimizing the threat of bycatch for migratory species, with a particular focus on turtles, cetaceans, seabirds and sharks. It has adopted several resolutions which underline the need for states to take measures to protect migratory species against bycatch. Thus, Resolution 6.2 requests all parties to strengthen the measures to protect migratory species against bycatch by fisheries, including by vessels fishing on the high seas under their flag. Subsequent resolutions on this topic have called on parties to compile information concerning the resources that are being caught by accident (Resolution 7.2). The COP has identified the use of on-board observers as another means through which to collate information (Resolutions 8.14, 10.14 and 11.20) and the application of appropriate fisheries management measures to mitigate bycatch of migratory species (Resolutions 7.2, 8.14, 8.16 and 9.18).

Another focus of CMS resolutions has been on the reduction of marine debris that may affect migratory species. Resolution 10.4 recommends that parties develop national plans of action addressing this issue, including lost, abandoned and otherwise discarded fishing gear. Such plans of action should ideally include targets and marine debris management strategies and engagement with key stakeholders (Resolution 11.30).

Parties to the CMS have also been encouraged to take measures to minimize the impacts of human activities, including fishing, on migratory corridors. Resolution 11.20 specifically addresses this issue in the context of migratory sharks and rays, whereas Resolutions 10.3 and 11.25 call more generally for parties to develop ecological networks to address the needs of migratory species. Such areas may be a factor to be taken into account when national authorities are making decisions relating to the authorization of fishing activities.

Finally, the COP has recognized the importance of effective enforcement of conservation laws. Resolution 11.31 urges parties to ensure that penalties for wildlife crime are "effective, act as a deterrent and reflect the gravity of the offence". Alongside the existing prohibition on the intentional taking of listed species in the CMS and associated agreements, the resolution suggests that any possession or sale of illegally obtained wildlife specimens should also be prohibited. The resolution also explicitly calls for the inclusion of confiscation of specimens as a remedy when a species has been taken in contravention of the CMS.

Summary

States should address the following issues in their national legislation when implementing the CMS, associated agreements, MOUs and resolutions:

- Require the carrying out of impact assessments of activities that may adversely affect listed migratory species (CMS: Article III(4)(b); ACAP: Article III(1)(c), Annex 2, paragraph 3.1; ASCOBANS: Article 2.2, Annex, Article 1; ACCOBAMS: Article 2(3), Annex 2, paragraph 1(c)).
- Prohibit the deliberate taking of listed migratory species, subject to specific and limited exceptions (CMS: Article III(5); ACAP: Article III(2), Annex 2, paragraph 1.1.1; ASCOBANS: Article 2.2, Annex, Article 1; ACCOBAMS: Article II(1), Annex 2, paragraph 6; CMS COP: Resolution 11.31).
- Require the introduction of measures to reduce and minimize bycatch of listed migratory species (CMS: Articles III(4) and IV(3); ACAP: Article III(1)(c), Annex 2, paragraph 3.2.1; ASCOBANS: Article 2.2, Annex, paragraphs 1 and 3; ACCOBAMS: Article 2(3), Annex 2, paragraph 1; CMS COP: Resolution 6.2, 7.2, 8.14, 8.16, 9.18).
- Require the use of observers, or alternative methods, to collect data on the impact of fisheries on listed species (ACAP: Article III(1)(d), Annex 2, paragraph 4.2; ASCOBANS: Article

2.2, Annex, paragraph 2; ACCOBAMS: Article 2(3), Annex 2, paragraph 2; CMS COP: Resolutions 8.14, 10.14, 11.20).

9.4 International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries (IPOA-Seabirds)

There are concerns about the incidental catch of seabirds in longline fisheries, as seabirds might be caught incidentally during the setting and hauling of a line. Longline is a gear often used in deep-sea fisheries and it thus represents a possible impact on biodiversity of fishing activity. Consequently, implementation of the IPOA-Seabirds is relevant to deep-sea fishing and biodiversity protection. The IPOA-Seabirds, which was endorsed by FAO in 2000, is not binding, but it may be used as guidance by states as to how to comply with their obligations under other international instruments.

The objective of the IPOA-Seabirds is to reduce the incidental catch of seabirds in longline fisheries where this occurs. According to the action plan, states should, either individually or through appropriate RFMO/As, conduct assessments of these fisheries to determine if a problem exists with respect to incidental catch of seabirds. If a problem is identified, initiatives should include the adoption of mitigation measures, plans for research and development, awareness campaigns and data collection programmes. The IPOA-Seabirds also contains an annex describing some optional technical and operational measures for reducing the incidental catch of seabirds in longline fisheries.

9.4.1 Operational measures

Section III of the IPOA-Seabirds contains suggested operational measures that may be taken by a flag state. Regulations might include a duty to reduce visibility of bait by setting during hours of darkness. In order to reduce the attractiveness of the vessel to seabirds, a regulation should regulate disposal of garbage or offal, either by banning the practice, or if disposal is unavoidable, requiring it to be done on the opposite side of the vessel from where lines are being set. Furthermore, area and seasonal closures should be established when concentrations of breeding or foraging take place, preferential licencing should be given to vessels that use mitigation measures that do not require compliance monitoring, and there should be a duty to release live birds that have been caught if they are still alive.

9.4.2 Technical measures

The IPOA-Seabirds also contains suggested technical measures to be taken to minimize bycatch. Some technical installations and devices are available that reduce the incidental mortality of seabirds. Regulations may require such equipment to be used in order for the sink rate of baits to be increased, the line to be set below the water, birds to be scared, or bait to be cast.

Summary

The IPOA-Seabirds provides for the following issues to be implemented in national legislation:

- Identification of general principles for reducing the incidental catch of seabirds in longline fisheries (Article 10).
- Inclusion of a power to the relevant authority to establish regulations to reduce the incidental catch of seabirds in longline fisheries (Article 12).

- Establishment of operational measures (Technical Note on Some Optional Technical and Operational Measures for Reducing the Incidental Catch of Seabirds in Longline Fisheries, Section III, Articles 1–5).
- Establishment of technical measures (Technical Note on Some Optional Technical and Operational Measures for Reducing the Incidental Catch of Seabirds in Longline Fisheries, Section II, Articles 1–10).

9.5 Guidelines to Reduce Sea Turtle Mortality in Fishing Operations

The Guidelines to Reduce Sea Turtle Mortality in Fishing Operations were adopted by COFI in 2005 in response to growing concern regarding the status of sea turtles and their interactions with fishing operations. The guidelines are voluntary and they apply to any areas where interactions between sea turtles and fisheries may occur, including in areas beyond national jurisdiction where many species of sea turtles are found, particularly during migrations. Given the possibility for sea turtles to get caught in midwater trawls or ensnared on longlines, the guidelines may be relevant for certain deep-sea fisheries.

The guidelines call for assessment and monitoring of sea turtle bycatch or incidental catch and mortality in fishing operations. The data collected through this exercise should be used to design particular measures to minimize sea turtle mortality as a result of entanglement with fishing gear. States may also impose a duty to report any incidental catch of sea turtles, as well as a duty to utilize certain fishing gear that is designed to minimize such bycatch. The guidelines include specific recommendations for gear in relation to coastal trawls, purse seine fisheries and longline fisheries. Furthermore, the guidelines recommend that states take measures to require the carriage of the necessary equipment for appropriate release of bycaught or incidentally caught sea turtles and a duty to take all possible measures to release sea turtles that have been caught in this way.

Summary

The following issues should be implemented in national legislation:

- An obligation to report sea turtles that are bycaught or incidentally caught during fishing operations (Annex I, Article 1(E)).
- An obligation to carry equipment for appropriate release of bycaught or incidentally caught sea turtles and a duty to take all possible measures to release sea turtles that have been caught in this way (Annex I, Article 1(A)).
- A duty to utilize fishing gear that minimizes bycatch or incidental catch of turtles (Annex I, Article 1).

10. REGIONAL ENVIRONMENTAL INSTRUMENTS RELEVANT TO DEEP-SEA FISHING AND ITS IMPACT ON MARINE BIOLOGICAL DIVERSITY BEYOND NATIONAL JURISDICTION

Many environmental issues have an impact at a regional level and therefore states within a particular region have pursued cooperation for the protection and preservation of the

marine environment. Such regional cooperation is explicitly encouraged by the UNCLOS,[102] and regional groupings have implemented these provisions by establishing regional seas bodies, either as an independent institution or under the auspices of the United Nations Environment Programme (UNEP) Regional Seas Programme. Such bodies are both a forum for exchanging information concerning environmental impacts, as well as a forum through which to agree on common rules for the protection of the marine environment. Regional seas bodies have been established by treaties in relation to the North-East Atlantic, the Baltic, the Mediterranean, West African seas, East African seas, the Wider Caribbean, the Red Sea and the Gulf of Aden, the Persian Gulf, the Black Sea, the Pacific, the South-East Pacific, the North-East Pacific, and the Caspian Sea. A treaty regime also applies to the Antarctic, although the special characteristics of this region mean that it has many differences from the other regional seas treaties.[103] Furthermore, non-binding arrangements have been put in place for the Arctic, the North-West Pacific, the Sargasso Sea and South Asian seas.

The principal purpose of these regional bodies is to coordinate measures for the protection and preservation of the marine environment. Most agreements are concerned primarily with the reduction and control of marine pollution, although many of the treaties also make an explicit mention of the protection of ecosystems or the conservation of biological diversity, e.g. 1981 Abidjan Convention (West African seas); 1983 Cartagena Convention (Wider Caribbean); 1986 Noumea Convention (the Pacific); 1992 OSPAR Convention (North-East Atlantic); 1992 Helsinki Convention (the Baltic); 1995 Barcelona Convention (the Mediterranean); 2002 Antigua Convention (North-East Pacific); 2003 Tehran Convention (the Caspian); 2010 Nairobi Convention (East African seas). Indeed, the UNEP Regional Seas Programme has highlighted the importance of increasing attention on measures to protect and restore marine ecosystems and marine biodiversity in accordance with the ecosystem approach in its Regional Seas Strategic Directions document for 2013–2016.[104] This document is collectively agreed by all regional seas bodies, and it is intended to guide them in implementing their mandates in the relevant period.

The majority of the regional seas arrangements are, however, principally focused on waters within national jurisdiction, which limits their relevance for this document. Only three of the regional seas instruments are applicable to areas beyond national jurisdiction, namely in the North-East Atlantic,[105] the Mediterranean[106] and the Pacific.[107] It is states within the North-East Atlantic and the Mediterranean regions that have been the most active in adopting regional measures for the protection of marine biological diversity beyond national jurisdiction, and these regions will be considered in more detail below as a potential example for other regional seas bodies. Indeed, some other treaty bodies have recently identified the need to improve regional cooperation for the protection of the marine

[102] UNCLOS. Article 197.

[103] 1959 Antarctic Treaty (402 UNTS 71). Concluded 1 December 1959. Entered into force 23 June 1961; Protocol on Environmental Protection. Concluded 4 October 1991. Entered into force 14 January 1998. See also 1980 Convention on the Conservation of Antarctic Marine Living Resources (1329 UNTS 47), Article 1. Concluded 20 May 1980. Entered into Force 11 August 1983. See the discussion above.

[104] *Regional Seas Strategic Directions 2013–2016*. Document UNEP(DEPI) RS.15/WP.RS (2013) 3-4.

[105] 1992 Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention) (2354 UNTS 67), Article 1(a). Concluded 22 September 1992. Entered into force 25 March 1998.

[106] 1976 Convention for the Protection of the Mediterranean Sea Against Pollution (1102 UNTS 27), Article 1(1). Concluded 16 February 1976. Entered into force 12 February 1978.

[107] 1986 Convention for the Protection of the Natural Resources and Environment of the South Pacific Region. Concluded 25 November 1986. Entered into force 22 August 1990.

environment in areas beyond national jurisdiction,[108] although their lack of a mandate could be a limiting factor on their ability to take measures in this regard.[109]

10.1 Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention)[110]

The OSPAR Convention applies to the maritime area defined under Article 1 of the Convention, including particular areas of high seas in the North-East Atlantic and Arctic Oceans. Article 2 of the Convention imposes a general obligation on contracting parties to, *inter alia*, take all possible steps to protect the maritime area against the adverse effects of human activities, and Annex V requires parties more specifically to "take the necessary measures to protect and conserve the ecosystems and the biological diversity of the maritime area and to restore, where practicable, marine areas which have been adversely affected". The OSPAR Commission is charged with drawing up plans and programmes for this purpose. In furtherance of this provision, the Commission has adopted a biological diversity and ecosystem strategy and the parties have agreed on a list of threatened or declining species and habitats (OSPAR Agreement 2008/6). The Commission has also adopted a series of recommendations to support the achievement of the overall objectives of Annex V. The recommendations are not binding, but parties are nevertheless expected to report to the Commission on the measures that they have taken to comply with recommendations.

Specific recommendations have been adopted to protect particular species, some of which will be relevant for deep-sea fishing operations. In particular, recommendations have been adopted for the leafscale gulper shark (Recommendation 2014/4), gulper shark (Recommendation 2014/3), and orange roughy (Recommendation 2010/7). The OSPAR Convention explicitly precludes the Commission from taking measures concerning the management of fisheries, although some of the recommendations may still be relevant to the drafting of domestic legislation relating to fisheries. For instance, many of the recommendations call for the strengthening of data relating to bycatch and entanglements involving the relevant species.

Recommendations have also been adopted relating to particular habitats that may be affected by deep-sea fishing operations, such as seamounts (Recommendation 2014/9), carbonate mounds (Recommendation 2014/10), and hydrothermal vent fields (Recommendation 2014/11). All of these recommendations include an explicit reference to UNGA Resolution 64/72 and the Deep Sea Fisheries Guidelines and they are intended to make a contribution towards the achievement of the aims of those instruments. The recommendations themselves are general in nature and they are largely concerned with encouraging states to broaden the knowledge base concerning these ecosystems. However, the OSPAR Commission has also adopted decisions designating marine protected areas and associated recommendations on the management of such areas, including areas beyond national jurisdiction: Altair Seamount High Seas MPA (Decision 2010/3 and Recommendation 2010/14); Antialtair Seamount High Seas MPA (Decision 2010/4 and Recommendation 2010/15); Josephine Seamount High Seas MPA (Decision 2010/5 and Recommendation

[108] E.g. Decision CP.11/10 of the Parties to the Abidjan Convention (2014) and Decision CP8/10 of the Parties to the Nairobi Convention (2015).

[109] See e.g. Warner, R. 2016. Developing new regulatory paradigms for the conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction. *In* R. Warner & S. Kaye, eds. *Routledge handbook of maritime regulation and enforcement,* pp. 394–406, 400. Routledge; Wright, G., Rochette, J. & Druel, E. 2015. Marine protected areas in areas beyond national jurisdiction. *In* R. Rayfuse, ed. *Research Handbook on International Marine Environmental Law,* pp. 272–290, 284–285. Edward Elgar.

[110] 1992 Convention for the Protection of the Marine Environment of the North-East Atlantic (2354 UNTS 67). Concluded 22 September 1992. Entered into force 25 March 1998.

2010/16); Mid-Atlantic Ridge North of the Azores High Seas MPA (Decision 2010/6 and Recommendation 2010/17); and the Charlie Gibbs North High Seas MPA (Decision 2012/1 and Recommendation 2012/1). Each MPA is accompanied by recommendations as to management measures that should be taken by the parties. The recommendations set the general and specific management objectives for each MPA and they encourage states to identify activities and mitigating actions that promote the achievement of the conservation objectives. The recommendations also call on states to carry out environmental impact assessments and strategic environmental impact assessments for activities that may conflict with the conservation objectives of the MPAs. These recommendations may be relevant for states issuing licences for deep-sea fishing operations that may affect the designated areas.

Summary

The following issues should be implemented in national legislation:

- Establishment of a general obligation to protect maritime areas and related ecosystems.
- Requirement to strengthen data relating to bycatch and entanglements of listed species.
- Requirement to take appropriate measures to protect and manage designated MPAs.
- Requirements to carry out environmental impact assessments and strategic environmental impact assessments for activities that may conflict with the conservation objectives of MPAs.

10.2 Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention)[111]

The Barcelona Convention applies to all waters within the Mediterranean, between the Straits of Gibraltar and the Straits of Dardanelles (Article 1(1)). As not all states within the Mediterranean have claimed the full extent of their maritime entitlements, some of these waters are high seas. Parties to the Barcelona Convention are under a general obligation to, *inter alia*, "protect and enhance the marine environment" (Article 4(1)), and to "take all appropriate measures to protect and preserve biological diversity, rare or fragile ecosystems, as well as species of wild fauna and flora which are rare, depleted, threatened or endangered and their habitats" (Article 10). The parties to the Barcelona Convention have also adopted a Strategic Action Programme for the Conservation of Biological Diversity in the Mediterranean Region, and they have concluded a further protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean. Under the protocol, states are under a broad range of obligations relating to the conservation of marine biological diversity, both individually and collectively. Among other measures, the parties have established a list of endangered or threatened species, and a list of species whose exploitation must be regulated (Article 12). The parties must take measures to protect these species, including measures to prohibit or regulate the taking, possession, killing or trade of such species (Article 11). The parties must also cooperate to protect areas listed as Specially Protected Areas of Mediterranean Importance (Article 8).

The protocol is supplemented by a series of action plans, programmes of action, and guidelines relating to particular species, including turtles, cartilaginous fish, seabirds, monk seals and cetaceans. Such instruments are not legally binding, but the meeting of the contracting parties has requested that states take measures to implement them. To the extent that these species interact with fishing operations, parties should take them into account in developing their

[111] 1976 Convention for the Protection of the Mediterranean Sea Against Pollution (1102 UNTS 27). Concluded 16 February 1976. Entered into force 12 February 1978.

national legislation on deep-sea fishing. In particular, states could include provisions in their national legislation regulating the use of fishing gear to avoid adverse impacts on marine species, obligations to report incidental capture of species, and obligations to require fishing vessels to attempt to release specimens if they are accidentally caught.

Mediterranean states have also adopted an Action Plan for the Conservation of Habitats and Species associated with seamounts, underwater caves and canyons, aphotic hard beds and chemosynthetic phenomena in the Mediterranean Sea. The Action Plan requires the parties to identify endangered or threatened "dark populations" and grant them the status of protected species under Article 11 of the protocol. It also calls for regulations on the environmental impact assessment to be strengthened in order to make assessing impacts on dark populations compulsory.

Summary

The following issues should be implemented in national legislation:

- Establishment of a general obligation to protect maritime areas and related ecosystems.
- Provision for the regulation of listed endangered or threatened species, including measures to prohibit or regulate the taking, possession, killing or trade of such species.
- Regulation of the use of fishing gear.
- Requirement that parties cooperate in the protection and management of specially protected areas.
- Obligation to report incidental capture and for the prompt release of accidentally caught specimens.

11. OVERVIEW OF OVERLAPPING INTERNATIONAL OBLIGATIONS/GUIDELINES

In concluding the above analysis, this chapter describes the interlinkages and overlaps between the above international instruments and the key requirements or aspects of the instruments that should be reflected in national legislation. This in turn is the basis of a companion document, a stepwise guide to the implementation of international policy and legal instruments, which has been published separately.

General matters for national legislation

Objectives, principles and definitions

All international instruments discussed above provide an indication of the objectives, principles and definitions that should be included in national legislation to clarify the aim, scope and terms of reference of domestic measures of implementation. These include:

- Identification of objectives and general principles for conservation and management (UNCLOS, UNFSA, the Code, CBD, Deep-sea Fisheries Guidelines, IPOA-IUU and IPOA-Capacity).

- Definitions of key terms, including fish, fishing, fishing-related activities, port, fishing vessel, biodiversity, sustainable use, deep-sea fishing, IUU fishing (PSMA, Compliance Agreement, CBD, Deep-sea Fisheries Guidelines and IPOA-IUU).
- Register/record of fishing vessels.

Registration of fishing vessels

The obligation to establish a record or register of fishing vessels authorized to fish on the highs seas is found in a number of legally binding instruments, as well as in some of the non-binding instruments adopted at the international level. The purpose of such a record or register is to provide key information about a vessel that flies the flag of the registering state, thereby facilitating enforcement action by the flag state or other relevant states. These instruments cover:

- Establishment and maintenance of a record of fishing vessels authorized to fish on the high seas (UNCLOS, UNFSA, Compliance Agreement, the Code, Deep-sea Fisheries Guidelines, IPOA-IUU, IPOA-Capacity, CCAMLR, GFCM, NAFO, NEAFC, NPFC, SEAFO and SPRFMO).
- Prohibition of flagging identified IUU vessels, except under special circumstances (IPOA-IUU, UNGA resolutions, CCAMLR, GFCM, NAFO, NEAFC, SEAFO and SPRFMO).
- Licences and authorizations.

Authorization of fishing vesseles

The obligation to require authorization for vessels fishing on the high seas is contained in many legally binding and non-binding instruments adopted at the international level. The purpose of an authorization scheme is to allow the flag state to control what activities are carried out by vessels flying its flag. Conditions for authorizations serve to comply with a number of specific international obligations and recommendations related to catch and/or effort limitations, selective gear, and area- and species-based management, etc. These instruments cover:

- Requirement of mandatory authorizations for fishing vessels operating on the high seas (UNCLOS, UNFSA, Compliance Agreement, the Code, IPOA-IUU, UNGA resolutions, Flag State Guidelines, CCAMLR, GFCM, NAFO, NEAFC, NPFC, SEAFO, SIOFA and SPRFMO). Requirements to establish catch and/or effort limitations (Deep-sea Fisheries Guidelines, Bycatch Guidelines, CCAMLR, NAFO, NEAFC, NPFC, SEAFO and SPRFMO).
- Regulation of design and use of fishing gear (the Code, Deep-sea Fisheries Guidelines, UNGA resolutions, CCAMLR, GFCM, NAFO, NEAFC, SEAFO, SIOFA, SPRFMO and Barcelona Convention).
- Requirements for area-based management and conservation, including closing high seas areas for its vessels (UNCLOS, CBD, Deep-sea Fisheries Guidelines, UNGA resolutions, CCAMLR, GFCM, NAFO, NEAFC, NPFC, SEAFO, SPRFMO, OSPAR and Barcelona Convention). Establishment of deep-sea fishing protocols such as VME thresholds, indicator species and move-on rules (Deep-sea Fisheries Guidelines, UNGA resolutions, CCAMLR, NAFO, NEAFC, SEAFO and SPRFMO).
- Establishment of regulations to reduce bycatch (CCAMLR, CMS, ACAP, ACCOBAMS, ASCOBANS, IPOA-Seabirds, Guidelines to Reduce Sea Turtle Mortality, OSPAR, Barcelona Convention and Bycatch Guidelines).

- Establishment of market and trade regulations (Deep-sea Fisheries Guidelines, UNGA resolutions, CCAMLR and CITES).
- Requirements for the protection of VMEs, such as deep-sea fishing protocols, VME thresholds, indicator species, move-on rules, etc. (UNGA resolutions, Deep-sea Fisheries Guidelines, CCAMLR, NAFO, NEAFC, NPFC, SEAFO and SPRFMO).
- Requirements for protected species, subject to specific and limited exceptions (CBD, CITES, CMS, ACCOBAMS, ASCOBANS, Barcelona Convention, IPOA-Sharks and IPOA-Seabirds).
- Introduction of transshipment regulations/authorizations (UNFSA, IPOA-IUU, UNGA resolutions, CCAMLR, NAFO, NEAFC and SEAFO).
- Data collection and reporting.

Collection of data

Many international instruments require states to collect data relating to the operation of fisheries. Reporting is important because it allows flag states to detect violations, and it also permits the collection of information that can be used when determining catch limits and other fisheries measures. Several international instruments require information to be reported by fishing vessels. Many environmental instruments also call for particular information to be reported concerning the impact of fishing on marine biological diversity and ecosystems; this includes:

- Requirement of specified information on fishing operations, including vessel position, catch of target and non-target species, including through logbooks and VMS (UNCLOS, UNFSA, Compliance Agreement, the Code, IPOA-IUU, Deep-sea Fisheries Guidelines, Flag State Guidelines, Bycatch Guidelines, CCAMLR, GFCM, NAFO, NEAFC, SEAFO and SPRFMO).

Impact assessment

The obligation to carry out impact assessments in a precautionary manner and in line with an ecosystem approach is set out in a number of legally binding instruments, as well as in some of the non-binding instruments adopted at the international level. Impact assessments can also serve to ensure that relevant biodiversity-related concerns are fully factored into decision-making related to any activities with the potential to cause substantial pollution of or significant and harmful changes in areas beyond national jurisdiction. An impact assessment may further help in the identification of relevant stakeholders and their concerns. The instruments relating to impact assessment include.

- Requirements for environmental impact assessments (UNCLOS, CBD, UNGA resolutions, CMS, ACAP, ACCOBAMS, ASCOBANS, OSPAR, CCAMLR, NAFO, NEAFC, NPFC, SEAFO and SPRFMO).
- Establishment of a monitoring, control, surveillance, and enforcement system, including sanctions and a legal and administrative mechanism to identify serious violations (UNCLOS, UNFSA, Compliance Agreement, the Code, Flag State Guidelines, IPOA-IUU, UNGA resolutions, CCAMLR, NAFO, NEAFC, SEAFO, MARPOL and CITES).
- Establishment of VMS requirements (UNFSA, UNGA resolutions, IPOA-IUU, CCAMLR, GFCM, NAFO, NEAFC, NPFC, SEAFO, SIOFA and SPRFMO).
- Power to require on-board observer coverage (IPOA-IUU, UNGA resolutions, CCAMLR, NAFO, NEAFC, NPFC, SEAFO and SPRFMO).
- Requirement for port state measures (UNFSA, PSMA, IPOA-IUU, the Code, UNGA resolutions, Deep-sea Fisheries Guidelines, CCAMLR, GFCM, NAFO, NEAFC, SEAFO and SIOFA.

- Inclusion of a power to take actions against stateless vessels (IPOA-IUU).
- Power to target IUU vessels: denial of port entry, refusal to grant them their flag, prohibition against import, etc. (CCAMLR, GFCM, NAFO, NEAFC, SEAFO and SPRFMO).
- Requirement that in the case of a serious violation the vessel in question does not engage in high seas fishing until any outstanding sanctions have been complied with, and requirement to apply sanctions that are adequate in severity to be effective in securing compliance and deprive offenders of the benefits accruing from their illegal activities (UNFSA, the Code, Compliance Agreement, IPOA-IUU, Flag State Guidelines and CITES).

12. CONCLUSION

The analysis shows that both impact and conservation issues in the management of deep-sea fishing are clearly recognised in over 19 international instruments and eight regional conventions that pertain to management of living resources in the deep sea areas beyond national jurisdiction. This is further reinforced through explicit directions to implement an ecosystem-based approach, which includes taking a precautionary approach in management actions. In addition, there is widespread recognition of the need to collect information to control fishing activity; improve understanding of deep sea resources, biodiversity and ecosystems; and to undertake impact assessments before new resources or areas are exploited.

The release of this report will be followed by a training program tailored to the needs of individual countries, to be implemented under the auspices of the ABNJ Deep Seas Project. This will include the development of a stepwise guide and other training material that will assist countries to better integrate their international obligations into national laws and policies.

Orange roughy photographed from a net mounted camera in waters 900 m deep. Courtesy of the Commonwealth Scientific and Industrial Research Organisation, Australia and Sealord Group New Zealand.

The purpose of this document is to identify the range of instruments that are relevant to deep-sea fishing and its impacts on marine biological diversity in areas beyond national jurisdiction, with a view to providing advice to states on what steps may be necessary to implement these instruments at the national level. The document is specifically targeted to government officials who wish to familiarize themselves with the international instruments related to deep-sea fishing and its impacts on marine biological diversity in areas beyond national jurisdiction, as of January 2017.

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