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## LAW OF THE SEA

Protection and preservation of the marine environmentReport of the Secretary-General

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## I. INTRODUCTION

1. This report is submitted to the General Assembly in response to its resolution 43/18 of 1 November 1968, in which the Assembly, expressing deep concern at the current state of the marine environment, requested the Secretary-General to prepare for the Assembly at its forty-fourth session a special report on recent developments related to the protection and preservation of the marine environment in the light of the relevant provisions of the United Nations Convention on the Law of the Sea. 1/

2. The report consists of five sections. Section I gives an overview of the Convention as embodying a global framework of new environmental law, a mechanism for accommodating ocean uses and interests, a system for environmentally sound and sustainable development, an instrument promoting the development and transfer of marine science and marine technology within the context of the protection and preservation of the marine environment, and a model for the evolution of international environmental law. Section II presents an analytical summary of those provisions of the Convention which relate to the protection and preservation of the marine environment. Section III contains a survey of multilateral treaties relevant to the provisions of the Convention in order to assess the extent to which those provisions have already been reflected or developed in the instruments adopted at the global and regional levels. Section IV contains an assessment of the current state of the marine environment. On the basis of the survey and assessments made in sections III and IV, an attempt is made in section V to identify major areas on which future actions should be focused.

3. A list of all major multilateral treaties that are relevant to the protection and preservation of the marine environment, with annotations as to their current status, is annexed to the report.

## II. THE SIGNIFICANCE OF THE UNITED NATIONS CONVENTION ON THE LAW OF THE SEA TO THE PROTECTION AND PRESERVATION OF THE MARINE ENVIRONMENT

### A. A global legal framework for the marine environment

4. The United Nations Convention on the Law of the Sea ("the Convention") has, as one of its primary objectives, the establishment of a legal order designed to facilitate international communication and to promote the peaceful uses of the seas and oceans, the equitable and efficient utilisation of their resources, the conservation of their living resources and the protection and preservation of the marine environment. The Convention devotes an entire Part - Part XII, consisting of 46 articles - to the protection and preservation of the marine environment. In addition, several other articles contain provisions relating to the subject. The emphasis the Convention places on protecting and preserving the marine environment throws into relief the primordial importance, increasingly recognised, of the ocean in maintaining the global ecological balance and in controlling and moderating the world climate, including the impact of the "greenhouse" effect.

5. A fair evaluation of the provisions in Part XII and other articles of the Convention must emphasize the point that they are not merely a restatement of existing conventional law or practice but are constitutional in character<sup>8</sup> they are the first comprehensive statement of international law on the issue. The provisions illustrate a trend towards the protection and preservation of the marine environment through regulation based upon an all embracing and integrated conception of the ocean as an exhaustible and finite resource and of ocean usage as a resource management question.

6. The provisions of the Convention on the protection and preservation of the marine environment also illustrate a shift in regulatory practice. Part XII is the first attempt at a legislative response to the problem of marine pollution. It is the first comprehensive codification of the principles on marine pollution articulated at the 1972 United Nations Conference on the Human Environment <sup>2/</sup> (the Stockholm Conference). Despite the fact that the Convention imposes extensive obligations on States and on competent international organizations (including those international organizations which may become parties to the Convention), consensus on those provisions was achieved at a comparatively early stage in the negotiations of the Convention. This is indicative of the unanimous concern of the world community about the problem of marine pollution and the common resolve to find the required solutions.

7. Part XII and the associated provisions in the Convention are important in the general development of international law because they comprise the first such attempt to develop a comprehensive framework of international law in response to the deterioration of and threats to the marine environment. More importantly, however, and reflective of the nature of its subject-matter, Part XII is expressly designed to operate as an "umbrella" for further global, regional and national actions. In addition to its traditional "norm-setting" function, Part XII expressly recognised and, indeed, mandated regional approaches. For example, section 2 of that Part is entitled "Global and regional co-operation" and directs States to co-operate on a global and, as appropriate, on a regional basis, "taking into account characteristic regional features" (see art. 19<sup>1</sup> of the Convention).

8. It is important to reiterate that not all provisions relating to marine Pollution are found in Part XII of the Convention. This fact reflects the close relationship among the different parts of the Convention. It also reflects the reality of, and the regulatory problem posed by, marine pollution, and the extent to which the problem affects or is affected by almost every other issue of ocean use dealt with in the Convention, for example, freedom of navigation, the conservation, management and exploitation of resources, the right of passage of vessels and the overflight of aircraft, marine scientific research, and the monitoring of the risks and effects of pollution of the marine environment.

#### B. A mechanism for accommodating ocean uses and interests

9. The need to reconcile competing interests is recognised in the preamble to the Convention, which states that "the problems of ocean space are closely interrelated and need to be considered as a whole". The Convention itself endeavours to

reconcile global or community needs with the demands **of** national sovereignty and jurisdiction. It **is** in this **sense** that the Convention as a whole has struck **an** important balance between the protection **of** the marine **environment** and use of the ocean **and its resources**. In particular, the Convention has sought to accommodate both the need **to** protect the marine environment and the necessity to preserve the **freedom of navigation**. It is therefore important that the issue relating to the protection and preservation of the marine environment should not be dealt with in isolation from other aspects of the law of the sea if the balance achieved is to be maintained.

### C. A system for sustainable development

10. One of the primary objectives **of** the Convention is, as stated above, the **establishment** of a legal order designed to promote the equitable **and** efficient **utilization** of the resources of the ocean and, in particular, the conservation of the living resources. By providing for the rational exploitation and sound **conservation** of the living and non-living resources of the sea, the Convention attempts not only to protect marine **ecosystems** from damaging activities and harm, it also attempts to incorporate a **system of** exploitation that would contribute to sustainable development - development that **meets** the needs **of** the present without compromising the ability **of** future generations to **meet** their own needs. 3/

11. The Convention accords the highest priority to the proper conservation and management of living resources not only in maritime areas **under** the **national** jurisdiction of States but also in maritime areas beyond national jurisdiction. **Thus**, in the exclusive economic zone and on the high seas, States are under an obligation to take conservation measures designed to maintain or restore the living resources at levels ensuring the maximum sustainable yield, as qualified by relevant environmental and economic factors.

12. With respect to the resources of the deep sea-bed area beyond the limits **of** national jurisdiction, development must be carried out "in such a manner as to foster healthy development of the world economy and balanced growth **of** international trade, and to promote international co-operation for the over-all development **of** all countries, especially developing countries" (art. 150). The Convention also requires such development to be conducted with a view to ensuring orderly and rational management **of** the resources and in accordance with sound principles of conservation and the avoidance of unnecessary waste.

13. The Convention further provides for the regulation of deep sea-bed mining activities to ensure effective protection for the marine environment from harmful **effects**, such as interference with its ecological balance and damage to its flora and fauna.

D . An instrument promoting the development and transfer of marine science and marine technology

14. There is a growing recognition of the need **for** assisting developing countries in acquiring scientific and technological capabilities to deal with environmental problems. The Convention lays emphasis on the need to promote **and provide** technical assistance **in maritime matters** to developing States. States **are** urged to promote, directly or through international **organizations**, the development of the marine scientific and technical capacity of States, particularly developing States, with regard to, **inter alia**, the protection and preservation of the marine environment (see art. 202). States are also expected to provide **assistance**, especially to developing countries, for the **minimisation of the effects of major pollution incidents, and for making environmental assessments**. Thus, the Convention fully **recognizes** the important role of the transfer **of** technology in the fight **against** pollution, especially pollution of the marine environment, and highlights the intimate link between the protection of the marine environment and economic development.

E. A model for the evolution of international environmental law

15. The Convention contains several new or emerging principles and concepts **for** better addressing expanding problems of global **environment**. In this sense, the relevant provisions of the Convention constitute a **most advanced set of international rules** in the field of environmental protection. The Convention therefore is likely to serve as a model or a foundation on which international law on various aspects of environment **will be** developed. It is already becoming apparent that the provisions of the Convention are providing guidance on the fundamental rules **relating to** State obligations to protect and preserve **their own and the wider environment**.

16. For **example**, the Convention has laid down the duty of States not only to protect the **marine** environment but also to prevent the spreading of pollution beyond their own **boundaries**. This principle of preventing transboundary effects of pollution is of great **significance** also **for** the development of law **for** land areas, **particularly** in relation to pollution from or through the atmosphere.

17. The principles regarding environmental impact assessment and monitoring, provided **for** in section 4 **of** Part XII, are another example. These are increasingly adopted in the contexts other than the marine environment for dealing with local and transboundary **movement** of pollutants and injuries caused by them. They **are** also being recognised as an important means of ensuring environmentally sustainable development.

18. Another innovation with important potentiality **for** the environment is the new approach to the conservation of associated and dependent species in the exclusive economic zone and the high seas. The Convention **has** adopted for this purpose the **ecosystem** standard and the **system** of protecting habitat particularly for depleted, threatened or endangered species. These unique principles could contribute to the development of further concepts for the effective protection of the environment, for example, the protection of marine biodiversity.

19. The provision relating to marine protected areas (art. 211, para. 6) is yet another example of the concepts of growing importance and potential application in wider contexts. The concept has been adopted in various ocean areas and is being further developed by the International Maritime Organisation, the United Nations Environment Programme and the International Oceanographic Commission, among others. Such areas may be used for purposes of species and habitat protection as well as for scientific research and monitoring projects.

20. Reference should be made to the unique dispute settlement procedure, including its mandatory conciliation procedures, which is of great potential value in other areas of environmental protection.

### III. THE PROTECTION AND PRESERVATION OF THE MARINE ENVIRONMENT UNDER THE UNITED NATIONS CONVENTION ON THE LAW OF THE SEA

#### A. Historical background

21. Various multilateral instruments dealing with specific aspects of marine pollution were adopted before the Committee on the Peaceful Uses of the Sea-Bed and the Ocean Floor beyond the Limits of National Jurisdiction (Sea-Bed Committee) started the preparatory work for the Third United Nations Conference on the Law of the Sea in 1971. These instruments included the Convention on the High Seas <sup>4/</sup> (arts. 24 and 25) and the Convention on the Continental Shelf <sup>5/</sup> (art. 5, para. 7), which were adopted by the first United Nations Conference on the Law of the Sea in 1958, as well as global and regional conventions regulating, *inter alia*, vessel-source pollution, dumping at sea, intervention in case of maritime casualty and civil liability for vessel-source pollution.

22. These instruments constituted an important background for the work of the Sea-Bed Committee. All of them, however, covered only certain specific types of pollutants and/or specific sources of pollution. No attempt had been made to deal with the problem of protecting the marine environment in a comprehensive manner until the Stockholm Conference.

23. The Declaration of the United Nations Conference on the Human Environment, <sup>6/</sup> adopted at the Stockholm Conference, contains 26 principles, three of which - principles 7, 21 and 22 - are of particular relevance to the marine environment. In addition, the Conference adopted 109 recommendations for action at the international level for the protection of human environment, including nine recommendations concerning marine pollution. It was recommended that Governments collectively endorse the objectives and the 23 principles regarding marine pollution drafted by the Intergovernmental Working Group on Marine Pollution "as guiding concepts for the Conference on the Law of the Sea" (recommendation 92). It was further recommended that Governments take note of three additional draft principles discussed at the second session of the Intergovernmental Working Group and refer them to the Conference.

24. Principles 7, 21 and 22 of the Stockholm Declaration refer, *inter alia*, to the duty of States to prevent marine pollution, their responsibility to ensure that

their activities do not cause damage to the marine environment outside their jurisdiction, and the duty to co-operate to develop further the international law regarding liability and compensation for victims of pollution. The 23 principles regarding marine pollution (see document A/CONF.48/14/Rev.1 and Corr.1) confirm the duty of every State to protect and preserve the marine environment, and they set forth general directives addressed to States to take various actions for the assessment and control of marine pollution.

25. The Stockholm documents were brought to the attention of the Sea-Bed Committee at its summer session of 1972. They had an immediate and direct impact on the work of the Committee and, in particular, its Sub-Committee III, which was responsible for preparing draft articles on the protection and preservation of the marine environment for the Conference on the Law of the Sea. Using the Stockholm documents as a basis of its work, the Committee embarked on a long process, subsequently taken over by the Conference, of drafting a global and general framework for the protection of the marine environment as part of the 1982 Convention.

#### B. Definition of pollution of the marine environment

26. "Pollution of the marine environment" is defined in article 1, paragraph 4, of the Convention as follows:

"the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to the living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities".

Article 1, paragraph 5, also defines a particular polluting activity, "dumping", to cover only "deliberate disposal of wastes or other matter" and "deliberate disposal from vessels, aircraft, platforms or other man-made structures at sea". It does not include (a) the disposal of wastes or other **matters** incidental to or derived from the natural operations of vessels or (b) placement of matter for a purpose other than the mere disposal thereof.

#### C. Obligations of States

27. The fundamental obligation of States in relation to the world's marine environment is stated in article 192, which is the first of the 46 articles constituting Part XII of the Convention: "States have the obligation to protect and preserve the marine environment."

28. Article 193 sets this general obligation to the right of States to exploit natural resources: "States have the sovereign right to exploit their natural resources pursuant to their environmental policies and in accordance with their duty to protect and preserve the marine environment." This article reflects the

integration of the national economic interests of States with their obligation to respect the global interest in the protection and preservation of the marine environment.

29. In addition to their status as conventional obligations binding on States parties to the Convention, articles 192 and 193 are generally regarded as statements of customary international law on the extent of the environmental responsibility of States towards the oceans. The mandatory language used in the two provisions reflects the importance placed upon the issue by the international community : a State breaching its obligation to protect and preserve the marine environment would be in breach of international law.

30. The general obligation to protect and preserve the marine environment, set out in article 192, is given specific content in articles 194 and 196, which elaborate the scope of the regulated subject: pollution of the marine environment.. The regime established under Part XII is expressly concerned with all sources of pollution of the marine environment and States are directed to take all measures necessary "to prevent, reduce and control pollution of the marine environment from any source" (art. 194, para. 1). Although all States bear the same degree of responsibility, economic and infrastructural differences between States are also recognized in article 194. States are required to take all necessary measures using "the best practicable means at their disposal and in accordance with their capabilities" (*ibid.*). Such measures are set out in articles 194 and 196. The list is not exclusive and the measures have as their goal minimisation rather than elimination of pollution. Article 194 identifies the following main sources of marine pollution:

- (a) The release of toxic, harmful or noxious substances from land-based sources, from or through the atmosphere or by dumping;
- (b) Pollution from vessels;
- (c) Pollution from installations and devices used in exploration and exploitation of the natural resources of the sea-bed and subsoil;
- (d) Pollution from other installations and devices operating in the marine environment .

31. The Convention imposes on States the duty to take measures to combat pollution resulting from the use of technologies and, more importantly in terms of the definition of pollution, it also includes as a polluting activity the introduction, intentional or accidental, into the marine environment of new or alien species that may cause significant and harmful changes thereto (art. 196). It also includes effect-oriented measures in case of protection of "rare or fragile ecosystems", and threats to "the habitat of depleted, threatened or endangered species or other forms of marine life" (art. 194, para. 5).

32. In carrying out their obligations States must refrain from "unjustifiable interference with activities carried out by other States" exercising the rights provided for under the Convention (*ibid.*, para. 4). The obligation to refrain from

"unjustifiable interference" incorporates into the Part XII régime the provisions scattered throughout the 1982 Convention regarding jurisdiction and ocean use activities in particular zones. For example, the enforcement of regulations of coastal States in regard to pollution in the territorial sea is subject to the right of innocent passage (art. 211, pare. 4). As well as restricting State action in relation to vessel-source pollution, provisions outside Part XII, at the same time, reinforce obligations and duties found in Part XII.

33. Article 195 provides that States must not respond to the problem of marine pollution by transferring, directly or indirectly, damage or hazards from one area to another or by transforming one form of pollution into another.

34. In terms of fundamental obligations, article 197 is second only to article 192, in the Part XII régime. Article 197 states:

"States shall co-operate on a global basis and, as appropriate, on a regional basis, directly or through competent international organisations, in formulating and elaborating international rules, standards and recommended practices and procedures consistent with this Convention, for the protection and preservation of the marine environment, taking into account characteristic regional features."

The obligation to co-operate includes notifying affected States of actual or imminent danger to the marine environment, contingency planning for dealing with such dangers, research, study and exchange of information and data in order to provide scientific criteria for the development of rules, standards, procedures and practices to reduce, prevent and control pollution (arts. 198-201).

35. The obligations to provide scientific and technical assistance to developing States (arts. 202-203) and to monitor, assess and publish reports on environmental risks of activities under State control that may cause substantial pollution or significant and harmful changes to the marine environment (arts. 204-206) can also be seen as an aspect of the obligation to co-operate. For the purpose of combating pollution, international organizations especially are urged to grant preferential treatment to developing countries in the allocation of funds and technical assistance and in the utilization of their specialized services.

36. As a third fundamental obligation, the Convention requires States to establish or endeavour to establish global and regional rules, standards and recommended practices and procedures to prevent, reduce and control pollution from various sources. States are directed for such purposes to act especially through competent international organizations or diplomatic conferences. They are furthermore required to re-examine from time to time such rules, standards and recommended practices and procedures (arts. 207, 208, 209, 210, 211 and 212).

37. International rules and standards play a major role in the pollution control system contained in the Convention. The objective is to ensure that States implement the rules and standards adopted at the global or regional level, thus providing more uniform legislation and at the same time safeguarding important uses of the ocean such as navigation. The third fundamental obligation of States is

therefore to implement international rules and standards. One of the main objectives of section 5 of Part XII is to define the relationship between the international rules and standards and national legislation standard8 with respect to the various sources of pollution.

38. The following six sources of marine pollution are dealt with specifically: (a) land-based sources; (b) sea-bed activities subject to national jurisdiction; (c) activities in the "Area"; (d) dumping; (e) vessel source; and (f) pollution from or through the atmosphere. It is important to consider briefly each of the sources referred to in section 5. Since the provisions in section 6, "Enforcement", refer directly to the section 5 provisions and can be seen as an integral part of it, these will also be considered,

### 1. Land-based sources of pollution

39. While States are bound by the general obligation8 described above, article 207 gives them a certain degree of discretion with respect to the implementation of international rules and standards. In adopting laws and regulations to prevent, reduce and control marine pollution from land-based sources they are required to take account of internationally agreed rules, standard8 and recommended practices and procedures. This is in deference to the sovereignty that a State exercises over the territory where such land-based pollution may arise. States are urged to harmonise their policies at the appropriate regional level. States are also urged to establish global and regional rules to combat pollution from land-based sources, taking into account characteristic regional features, the economic capacity of developing States and their need for economic development. Such rules and policies should be "designed to minimize, to the fullest extent possible, the release of toxic, harmful or noxious substances, especially those which are persistent, into the marine environment" (art. 207, para. 5). It may be noted that under article 213 States are required to enforce laws and regulations adopted in accordance with article 207 and also take legislative measures to implement applicable international rules and standards,

### 2. Sea-bed activities subject to national jurisdiction

40. Under article 208 States are obliged to take legislative action and other necessary measures regarding pollution from sea-bed activities subject to national jurisdiction and from artificial islands, installations and structures in the exclusive economic zone and on the continental shelf. Unlike article 207, a minimum standard for these responses is set in that they shall be no less effective than international rules. This is potentially a higher standard of obligation in that it goes beyond compatibility and demands effectiveness. Under article 214 States are required to enforce laws and regulations adopted in accordance with article 208 and to take legislative measures to implement applicable international rules and standards. Article 208 also includes the obligation to endeavour to harmonize policies with other States at the appropriate regional level. Unlike article 207 there is no allowance made for the economic aspirations and capacities of developing States.

41. It may be noted that in accordance with articles 60 and 80, the removal of any installation or structure in the exclusive economic zone or on the continental shelf shall have due regard to, among other things, the protection of the marine environment.

### 3. Activities in the Area

42. Under article 145 of the Convention, the International Sea-Bed Authority is to adopt rules, regulations and procedures to ensure effective protection of the marine environment from the harmful effects arising from the exploration and exploitation of the sea-bed and ocean floor and subsoil thereof beyond the limits of national jurisdiction ("the Area"). Special attention has to be paid to the deleterious effects arising from such activities as drilling, dredging, excavation, disposal of waste, construction and operation or maintenance of installations, pipelines and other devices related to such activities. The Authority is also to adopt rules, regulations and procedures for the protection and conservation of the natural resources of the Area and the prevention of damage to the flora and fauna of the marine environment,

43. Under article 209, States are obliged to adopt laws and regulations to protect the marine environment from activities in the Area undertaken by vessels, installations and structures under their jurisdiction. Such laws and regulations must be no less effective than the rules established at the international level. (See also annex III, art. 21, para. 3, of the Convention,)

44. The Convention further provides in article 150 that activities in the Area shall be carried out with a view to ensuring rational management of the resources and in accordance with sound principles of conservation and the avoidance of unnecessary waste.

### 4. Dumping

45. Article 210 deals with dumping, which, as pointed out earlier, is defined in article 1 of the 1982 Convention. There is the standard obligation to adopt laws and regulations and to take measures necessary to prevent, reduce and control pollution from dumping. Dumping within the territorial sea and the exclusive economic zone or onto the continental shelf is to be carried out only with the express prior approval of the coastal State. A minimum standard for national legislation is also set in that legislation and measures are to be no less effective than the global rules and standards. Aside from requiring enforcement of laws and regulations adopted in accordance with the Convention and international rules established through a competent international organisation or diplomatic conference, article 216 assigns the enforcement obligation not only to the flag State with regard to vessels flying its flag or vessels or aircraft of its registry but also to the affected coastal State and the State in which the waste was loaded,

### 5. Vessel-source pollution

46. The regulation of pollution from vessels has been a matter of international concern for many years, which is reflected both in the consistency and the detail of the provisions on the matter. The provisions of the Convention strike a crucial balance between the rights of coastal States to protect and preserve their off-shore environment and the freedom of navigation of foreign vessels in areas under jurisdiction of the coastal State. In relation to standard setting States are obliged first to establish, through a competent international organisation or diplomatic conference, international rules regulating vessel-source pollution (art. 211, para. 1). Here international rules and standards enjoy pride of place. States are obliged to adopt laws applicable to their national vessels that are to have at least the same effect as that of generally accepted international rules and standards (art. 211, para. 2).

47. Article 211, paragraph 3, makes provision for States to conclude co-operative arrangements harmonising their policies with respect to port entry requirements for the prevention, reduction and control of pollution. After having given due publicity to such requirements and having communicated them to the competent international organization, a State is entitled to take certain measures against ships navigating in its territorial sea. In particular the State is empowered to request information as to whether the ship is proceeding to a State of the same region, party to the co-operative arrangement and, if so, to indicate whether it complies with the port entry requirements of that State. It also states in this paragraph that the article is without prejudice to the continued exercise by a vessel of its right of innocent passage or to the application of article 25, paragraph 2.

46. The Convention contains important provisions for the protection of the marine environment from vessel-source pollution in the territorial sea of coastal States. Any act of wilful and serious pollution contrary to the Convention engaged in by a foreign ship will render its passage through the territorial sea non-innocent (art. 19, para. 2 (h)), since such an activity, *inter alia*, is considered to be prejudicial to the peace, good order or security of the coastal State. In addition, coastal States are empowered to adopt laws and regulations relating to innocent passage through the territorial sea, in respect of the preservation of the environment of the coastal State and the prevention, reduction and control of pollution (art. 21, para. 1 (f)). It may be noted that in article 23 foreign nuclear-powered ships and ships carrying nuclear and other inherently dangerous or noxious substances, in exercising the right of innocent passage, are required to carry documents and observe special precautionary measures established for such ships by international agreements. States bordering straits may adopt laws and regulations relating to transit passage in respect of the prevention, reduction and control of pollution, by giving effect to applicable international regulations regarding the discharge of oil, oily wastes and other noxious substances in the strait (art. 42, para. 1 (b)). Archipelagic States possess similar powers with respect to archipelagic sea lanes passage (art. 54).

49. In paragraph 6 (a) of article 211 it is stated that a coastal State may adopt "special mandatory measures for the prevention of pollution from vessels" in

certain **special areas** of its exclusive economic **zones** where this **is required for** recognised **technical reasons** in relation, inter alia, to certain oceanographical and ecological **conditions**. That paragraph also **provides that** coastal States may for **those areas** adopt laws and **regulations** implementing international rules and standards **made** applicable by the competent international **organization** for special areas. If the coastal State intends to enact additional laws and regulations for a special area, such laws and regulations "shall not require foreign vessels to observe design, construction, manning or equipment standards other than generally accepted international rules and standards<sup>2</sup>" (art. 211, para. 6 (c)) and must be agreed to by the competent international organisation.

50. The enforcement obligations regarding vessel-source **pollution** are set out **in** articles 217, 218, 219, 220 and 221. The **primary** obligation is placed on the flag State to ensure that vessels under its **jurisdiction**, by **virtue** of nationality, comply with applicable international rules **and** standards and with national legislation adopted in accordance with the Convention.

51. Under article 94 States shall, inter alia, take measures to ensure that the master, officers and crew of ships flying their flags observe the applicable international regulations concerning, among other things, the prevention, reduction and control of pollution.

52. The enforcement provisions also contain further obligations of co-operation designed to **ensure vessel** compliance with international standards. These obligations relate mainly **to** requests from other States to investigate suspected **violations**, to provide information or to assist in enforcement of pollution legislation by taking action, such as preventing vessels that are unseaworthy and threaten the marine environment from leaving their ports (see art. 219).

53. According to article 220, paragraph 3, a coastal State may require a vessel navigating in the exclusive economic **zone** or **in** its territorial sea to give information **regarding its identity** and port of registry, its last and next port of call where **there** are clear grounds for believing that the vessel has violated the pollution laws and regulations of the coastal State. Under paragraph 5 of the **same** article, a State may make a physical inspection of a vessel where there are clear grounds for believing that that vessel, navigating in the exclusive economic zone or in **its** territorial **sea**, has contravened that State's pollution laws and regulations. When there is clear objective evidence that the vessel navigating in the exclusive economic **zone** has violated the pollution laws and regulations of the coastal State resulting in major damage or the threat of major **damage**, the coastal State may, according to paragraph 6, detain the vessel and institute proceedings against it.

54. Port States have an important role to play in the control of vessel-source pollution. A port State may under article 218, paragraph 1, investigate a vessel within its port or at an off-shore terminal and, where the evidence warrants, institute proceedings in respect of any discharge in waters that are beyond the sovereignty and jurisdiction of that State. However, under paragraph 2 of that article, port States may not institute proceedings for any discharge **in** waters falling under the sovereignty and jurisdiction **of** another State unless requested by

that State, the flag State or a State damaged or threatened by the discharge. A port State can, according to paragraph 3, institute proceedings if the discharge violation has caused or is likely to cause pollution in its internal waters, territorial sea or exclusive economic zone.

#### 6. Ice-covered areas

55. Article 234 provides special protection for ice-covered areas within the limits of the exclusive economic zone of coastal States. Coastal States may adopt and enforce their laws and regulations for the prevention, reduction and control of pollution from vessels in ice-covered areas within the limits of the exclusive economic zone under specific conditions. These laws and regulations may be adopted "where particularly severe climatic conditions and the presence of ice covering such areas for most of the year create obstructions or exceptional hazards to navigation, and pollution of the marine environment could cause major harm to or irreversible disturbance of the ecological balance" (art. 234). These laws must be non-discriminatory and shall have due regard to navigation and the protection and preservation of the marine environment and must be based on the best available scientific evidence.

#### 7. Pollution from or through the atmosphere

56. Article 212 requires States to adopt legislation regulating pollution of the marine environment from or through the atmosphere, applicable to the air space under their sovereignty and to their vessels and aircraft and to take other measures as may be necessary. States are required to "take into account internationally agreed rules . . . and the safety of air navigation" (art. 212, para. 1) when developing their response. This formula recognises the principle of sovereignty (see also art. 207). The other obligation is, again, one of co-operation: States are required to endeavour to establish global and regional rules. Article 222 requires States to enforce laws and regulations adopted in accordance with article 212.

#### 8 . Marine scientific research

57. The Convention, in enumerating the principles for the conduct of marine scientific research, makes a special reference in article 240 to the obligation to comply with the regulations for the protection and preservation of the marine environment, adopted in conformity with the Convention. States are also required in article 242, paragraph 2, to provide, as appropriate, other States with a reasonable opportunity to obtain information necessary to prevent and control damage to the marine environment.

substances in the straits. Article 233 thus prohibits any discharge in straits from ships of harmful or toxic substances.

**E. Responsibility and liability**

63. On the question of responsibility and liability, the Convention reiterates a general principle of international law: "States are responsible for the fulfilment of their international obligations concerning the protection and preservation of the marine environment. They shall be liable in accordance with international law" (art. 235, **para. 1**). National legal **systems** of States must provide recourse for prompt and adequate compensation or other relief in respect of damage caused by pollution of the marine environment by natural or juridical persons under their jurisdiction (art. 235, **para. 2**).

64. The Convention lays particular emphasis on the need to develop international law relating to responsibility and liability for damage caused by pollution of the marine environment. States are required to co-operate not only in the implementation of existing law but also in the further development of international law relating, inter alia, to criteria and procedures for the determination of liability, the **assessment** of damage, the payment of compensation and the settlement of related disputes. Where appropriate, criteria and procedures for payment of adequate compensation, such as compulsory insurance or compensation funds, should also be developed.

**F. Sovereign immunity**

65. Article 236 provides that the provisions of the Convention regarding the protection and preservation of the marine environment do not apply to warships, naval auxiliary and other vessels or aircraft owned or operated by a State and used, for the **time** being, only on government non-commercial service. However, States must ensure that such vessels or aircraft owned or operated by it act in a manner consistent, so far as is reasonable and practical, with the Convention.

66. It should be noted that, under article 31, with respect to the territorial sea the flag State shall bear international responsibility for any loss or damage to the coastal State resulting from the failure of a warship or other government ship operated for non-commercial purposes to comply with the laws and regulations of the coastal State relating to innocent passage. Under article 42, the flag State of a ship or the State of registry of an aircraft entitled to sovereign immunity shall also bear international responsibility for any loss or damage resulting from the contravention by such ships or aircraft of laws and regulations of States bordering straits relating to transit passage.

**G. Conservation of the living resources**

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67. The Convention contains several articles on the conservation of the marine living resources, particularly with respect to the rights and duties of States in the exclusive economic zone and the high seas.

68. In the exclusive economic zone, while the coastal State has "sovereign rights" for the purpose of conserving and managing living resources (art. 56, **para. 1 (a)**), it is obligated to ensure "through proper conservation and management measures that the maintenance of the living resources . . . is not endangered by over-exploitation" (art. 61, **para. 2**):

69. In the exercise of that sovereign right, the coastal State may, under article 73, paragraph 1, take such measures as may be necessary to ensure compliance with the laws and regulations adopted in conformity with the Convention.

70. Under article 117, all States have the **duty** to take, or to co-operate with other States in taking, such measures with respect to their nationals as **may** be necessary for the conservation of the living resources of the high seas. According to article 118, States whose nationals exploit identical or different resources in the same area must enter into negotiations with a view to taking the measures necessary for their conservation. The conservation measures to be taken by States in the exclusive economic zone and the **high** seas must be designed to maintain or restore populations of harvested species at levels that can produce the maximum sustainable yield, as qualified by relevant environmental and economic factors (see arts. 61, **para. 3**, and 119, **para. 1 (a)**).

71. Furthermore, the measures taken by States in accordance with Part XII of the Convention must include those necessary to protect and preserve more fragile **ecosystems** and the habitat of depleted, threatened or endangered species and other forms of marine life (art. 194, **para. 5**).

#### H. Settlement of disputes

72. The Convention provides for the submission of certain disputes relating specifically to the protection and preservation of the marine environment to compulsory dispute-settlement procedures. Such disputes arise when a coastal State contravenes "international rules and standards for the protection and preservation of the marine environment which are applicable to the coastal State and which have been established by the Convention or through a competent international organization or diplomatic conference" (art. 297, para.. 1 **(c)**). Subject to Part XV of the Convention, any party to a dispute concerning the interpretation or application of the articles of the Convention relating, inter alia, to the protection and preservation of the marine environment **may** submit the dispute to the special arbitral procedure provided for in Annex VIII of the Convention.

73. Under article 290, a court or tribunal that considers that prima facie it has jurisdiction over a dispute under Part XI or Part XV **may** prescribe appropriate provisional measures to preserve the respective rights of the parties to the dispute or to prevent serious harm to the marine environment, pending the final decision.

### I. Relationship with other conventions

74. Article 237 establishes the relationship between Part XII of the Convention and other conventions on the protection and preservation of the marine environment. It states that the provisions of Part XII shall be without prejudice to the specific obligations assumed by States under existing or future conventions or agreements relating to the protection and preservation of the marine environment. These obligations shall, however, be carried out in a manner consistent with the general principles and objectives of the Convention. It should be noted that article 311 of the Convention define6 in more general terms the relationship between the Convention and other international agreements.

### IV. RELATED GLOBAL AND REGIONAL INSTRUMENTS

75. During the process of elaborating the various provisions of the United Nations Convention on the Law of the Sea, and after its adoption, some earlier treaties addressing protection of the marine environment were amended or updated, and a greater number of treaties were concluded both at the global and regional levels outside the Conference. Bodies within the United Nations system, in particular the International Maritime Organisation (IMO) and the United Nations Environment Programme (UNEP), have undertaken major efforts in that regard. A number of representative6 and experts from Government6 and international organizations participated in both the Conference and other forums, and there was naturally an interaction between the work of the Conference and the negotiations taking place in those forums.

76. This section provide6 an indication as to how the provision6 of the Convention, particularly those of its Part XII, relate to other global and regional instruments in order to identify any important gaps to be filled and areas where further development may be encouraged. A list of all relevant global and regional instruments is annexed to the present report.

77. Several regional conventions of a general nature have been adopted. Particula mention should be made of a series of framework conventions adopted under the Regional Seas Programme of the United Nations Environment Programme (UNEP): 1976 Convention for the Protection of the Mediterranean Sea against Pollution (Barcelona Convention); 1/ 1978 Kuwait Regional Convention for Co-operation on the Protection of the Marine Environment from Pollution (Kuwait Convention); 1981 Convention for Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region (Abidjan Convention); 1981 Convention for the Protection of the Marine Environment and Coastal Area of the South-East Pacific (Lima Convention); 1982 Regional Convention for the Conservation of the Red Sea and Gulf of Aden Environment (Jiddah Convention); 1983 Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (Cartagena Convention); 1985 Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region (Nairobi Convention); and 1986 Convention for the Protection and Development of Natural Resources and Environment of the South Pacific Region (Noumea Convention). In addition, the Baltic Sea States adopted in 1974 a comprehensive Convention on

the Protection **of** the Marine Environment of the Baltic Sea Area (Helsinki Convention). **8/** Other regional conventions<sup>6</sup> of a general nature but with limited scope include : 1969 Agreement **for** Co-operation in Dealing with Pollution of the North Sea by Oil (1969 Bonn Agreement); **9/** 1971 Agreement between Denmark, Finland, Norway and Sweden concerning Co-operation in Measures to Deal with Pollution of the Sea by Oil (Copenhagen Agreement); **10/** and 1983 Agreement **for** Co-operation in Dealing with Pollution of the North Sea by Oil and Other Harmful Substances (1983 Bonn Agreement).

78. With regard to the specific duty not to transfer damage or hazards resulting from pollution from one area to another or to transform one type **of** pollution into another, provided **for** in article 195 of the Convention, several regional conventions contain an article or paragraph referring to such duty. **11/**

79. The principles expressed in articles 198 and 199 obligating States to notify other States of imminent or actual damage to the marine environment and to promote and develop contingency plans for responding to such incidents were already contained in the 1969 Bonn **Agreement** (arts. 5, 6, **para.** 4, and 7) and **in** the 1974 Helsinki Convention (art. 11 and annex VI). Several other regional agreements **have** protocols or separate agreement<sup>6</sup> concerning co-operation in cases of emergency.

80. With respect to marine pollution from land-based sources, no global convention has been adopted for that purpose, but three regional agreements<sup>6</sup> have been concluded specifically dealing with land-based pollution: 1974 Convention for the Prevention of Marine Pollution from Land-based **Sources** (Paris Convention), **12/** **as** amended by its 1986 Protocol; 1980 Protocol (to the Barcelona Convention) for the Protection of the Mediterranean Sea against Pollution **from** Land-based Sources; **13/** and 1983 Protocol (to the Lima Convention) for the Protection of the South-East Pacific against Pollution **from** Land-based **Sources**.

81. In addition, several other regional conventions impose a general obligation on States parties to take all appropriate measures to prevent, reduce and control pollution from land-based sources. **14/**

82. On pollution from sea-bed activities subject to national jurisdiction, article **208**, paragraph 5, contains a similar obligation to that in article 207, **b/** it goes further **by** stating that "States . . . shall establish global and regional rules, standards and recommended practices and procedures". No such global rules have yet been established, but a regional agreement was recently concluded specifically **on** the subject, that is, the 1989 Protocol (to the Kuwait Convention concerning Marine Pollution Resulting from Exploration and Exploitation of the Continental Shelf. Moreover, several regional instruments dealing generally with pollution or with measures to be taken in cases of oil spills apply to pollution arising from or in connection with sea-bed activities subject to national jurisdiction, as well as from artificial islands, installations and structures; under national jurisdiction. **15/** Several other instruments of a general nature also contain typical provisions imposing the duty upon States parties to take all appropriate measures to protect, reduce and control such pollution. **16/**

03. A set of guidelines was adopted in 1982 by UNEP for offshore mining and drilling activities within the limits of national jurisdiction (see

**UNEP/GC.9/5/Add.5**, annex III). In its **resolution 37/217** of 20 December 1982, the General Assembly recommended that **Governments consider** them when formulating national legislation or drafting international agreements.

84. It should be noted that a unique convention - the Convention on the Regulation of Antarctic Mineral Resources Activities - was adopted in June 1988 and is applicable to the sea-bed and subsoil of offshore areas adjacent to Antarctica up to the deep sea-bed, defined as the sea-bed beyond the geographic extent of the Continental Shelf. This Convention prohibits mineral resource activities until it is judged, based on an assessment of their possible impact on the Antarctic environment and on dependent and associated ecosystems, that they would not cause significant environmental damage. The operators are also obliged to take necessary and timely response action in cases of potential environmental disasters.

85. Regarding pollution from activities in the sea-bed area beyond the limits of national jurisdiction, for which international rules, regulations and procedures are to be established in accordance with article 209, paragraph 1, of the Convention, the Preparatory Commission for the International Sea-Bed Authority and for the International Tribunal for the Law of the Sea is drafting regulations for the prevention, reduction and control of pollution of the marine environment arising from such activities as part of the mining code. These regulations will establish standards for the protection and preservation of the marine environment as a consequence of deep sea-bed mining.

86. Several multilateral conventions were concluded both before and after the conclusion of the Conference with regard to pollution by dumping. The first of these instruments was the Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft (Oslo Dumping Convention) **17/** adopted in February 1972 by 12 European States on the Atlantic coast. This paved the way for the adoption towards the end of 1972 of a global convention, the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Dumping Convention). **18/** In 1976, the Barcelona Convention parties adopted the Protocol for the Prevention of Pollution of the Mediterranean Sea by Dumping from Ships and Aircraft. **19/** Similarly, in 1986, the Noumea Convention parties adopted the Protocol for the Prevention of Pollution of the South Pacific Region by Dumping.

07. In addition, several regional conventions contain provisions obligating parties to prohibit dumping or to take all appropriate measures to prevent, reduce and control such pollution. **20/**

88. With regard to the removal of offshore installations and structures, whose deliberate disposal at sea is considered dumping for the purposes of the Convention, the IMO Sub-Committee on Safety of Navigation has finalized the draft Guidelines and Standards for the Removal of Offshore Installations and Structures on the Continental Shelf and in the Exclusive Economic Zone. The draft is to be submitted to the 1989 IMO Assembly for final adoption.

89. A number of conventions relevant to vessel-source pollution have been adopted at global and regional levels. They can be grouped into three categories.

90. First, several conventions deal with prevention of maritime casualties. The most important global conventions are: 1960 International Regulations for Preventing Collisions at Sea 1972 Convention on the International Regulations for Preventing Collisions at Sea ~~21~~/ 1977 Torremolinos International Convention for the Safety of Fishing Vessels; 1978 International Convention on Standards of Training, Certification and Watchkeeping for Seafarers and 1974 International Convention for the Safety of Life at Sea (SOLAS Convention) ~~22~~/ and its 1978 and 1988 Protocols; and the 1989 International Convention on Salvage. At the regional level, the Lima Convention contains a provision (art. 4 (b)) relevant to this question. In addition, the maritime authorities of 14 European States adopted in 1982 a Memorandum of Understanding on Port State Control in implementing agreements on maritime safety and protection of the marine environment, the text of which is reproduced in International Legal Materials, volume 21 (1982), page 1.

91. Secondly, a number of instruments provide for measures that States may or must take in the face of grave or imminent danger to their coastline or related interest from oil pollution. The 1969 International Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties ~~23~~/ allows parties to take such measures as may be necessary to prevent, mitigate or eliminate such danger under certain circumstances. The 1973 International Convention for the Prevention of Pollution from Ships (MARPOL 1973/1978) ~~24~~/ (art. 8 and Protocol I) imposes the duty to report on pollution incidents. At the regional level, most of the conventions under the UNEP Regional Seas Programme and their protocols relating to co-operation in cases of emergency involving marine pollution contain provisions regarding prompt notification. Similar provisions are also contained in the 1969 Bonn Agreement, article 5; the Copenhagen Convention, articles 1 and 2; the Helsinki Convention, article 11 and annex VI; and the 1983 Bonn Agreement, article 5.

92. Thirdly, certain conventions deal with operational discharge of oil and other pollutant<sup>6</sup> from vessels. The 1954 International Convention for the Pollution of the Sea by Oil, ~~25~~/ with its amendments of 1962 and 1969, prohibits intentional discharge of oil by certain ships. The 1954 Convention has been superseded by the more comprehensive MARPOL 1973/1978.

93. No multilateral convention has been adopted specifically on the subject of marine pollution from or through the atmosphere. However, prior to the Convention on the Law of the Sea, an important agreement regarding radioactive contamination had been concluded, i.e., the 1963 Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water, ~~26~~/ Several regional instruments, including those on land-based source pollution, are also applicable to air-borne pollution of the marine environment. These are the 1974 Convention on the Protection of the Environment between Denmark, Finland, Norway and Sweden (Stockholm Convention), the Paris Convention as amended by its 1986 Protocol, the 1980 Protocol (to the Barcelona Convention) for the Protection of the Mediterranean Sea against Pollution from Land-based Sources, the 1979 Convention on Long-Range Transboundary Air Pollution and the 1983 Protocol (to the Lima Convention) for the Protection of the South-East Pacific against Pollution from Land-based Sources. Moreover, several other regional conventions contain provisions dealing with air-borne pollution of the marine environment. ~~27~~/

94. Article 235 on responsibility and liability has been drafted taking into consideration, inter alia, principle 22 of the Stockholm Declaration and several existing multilateral conventions relating to liability and compensation for pollution damage. Certain new protocols to some of these conventions were adopted before the conclusion of the Third United Nations Conference on the Law of the Sea. The relevant global instruments are: 1957 International Convention relating to the Limitation of the Liability of Owners of Sea-Going Ships, with its 1979 protocol; 1962 Brussels Convention on the Liability of Operators of Nuclear Ships; 1969 International Convention on Civil Liability for Oil Pollution Damage, 28/ with its 1976 and 1984 protocols; 1971 International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 29/ with its 1976 and 1984 protocols; 1971 Convention relating to Civil Liability in the Field of Maritime Carriage of Nuclear Material; 1976 Convention on Limitation of Liability for Maritime Claims; and 1977 Convention on Civil Liability for Oil Pollution Damage Resulting from Exploration for and Exploitation of Seabed Mineral Resources.

95. The Convention on the Regulation of Antarctic Mineral Resource Activities of 1988 contains detailed rules regarding the liability of States and other entities that undertake mineral resource activities. Moreover, it envisages a separate protocol to be elaborated containing further rules and procedures with respect to the provisions on liability.

96. A regional convention was concluded dealing with liability in the field of nuclear energy. This is the 1960 Convention on Third-Party Liability in the Field of Nuclear Energy, supplemented by its 1963 Supplementary Convention, its 1964 Additional Protocol and its 1982 Protocol. In addition, most of the conventions under the UNEP Regional Seas Programme contain provisions regarding co-operation for the adoption of appropriate rules in the field of liability and compensation for damage resulting from marine pollution. 30/

97. Finally, mention should be made of the 1989 Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and Their Disposal, which also covers marine areas or airspace within which a State exercises administrative and regulatory responsibility in accordance with international law, as well as the area south of 60° south latitude.

## V. STATE OF THE WORLD'S OCEANS 31/

98. The brief assessment given in this section is based primarily on the work of the Joint Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP), jointly sponsored by IMO, the Food and Agriculture Organization of the United Nations (FAO), the United Nations Educational, Scientific and Cultural Organization (UNESCO), the World Meteorological Organization (WMO), the World Health Organization (WHO), the International Atomic Energy Agency (IAEA), UNEP and the United Nations. GESAMP is preparing a review of the state of the marine environment, 32/ which will be the most up-to-date and authoritative assessment of the current status and recent trends in global marine pollution.

99. The overall conclusion of GESAMP as to the current state of the marine environment is quite clear. The **major causes** of concern on a global basis are coastal development and the attendant destruction of habitats, eutrophication, microbial contamination of seafood, fouling of the seas by litter, continued build-up of chlorinated hydrocarbons, especially in the tropics and sub-tropics, and accumulation of tar balls. The relative seriousness of each problem will naturally differ around the world, although there is no **region** that is not experiencing **most** if not all of these problems.

100. At the same time, several encouraging trends are also apparent, demonstrating perhaps that economic growth and environmental quality can be achieved simultaneously. **Apparent** reductions in marine inputs of petroleum and of certain pesticides and other chlorinated hydrocarbons have been achieved over the past decade through enhanced **controls** and growing co-operation among States. Similarly, in part through strengthened controls, concerns about trace metals have been eased. There is also extensive attention to public health problems and some progress has been made towards international co-ordination and standard setting,

101. Open ocean areas are less affected by marine pollution, since the vast bulk of contaminants are land-generated, with only a small proportion spreading beyond coastal waters. Along sea lanes, oil slicks and litter are common, but they are of minor consequence to organisms living in open-ocean waters.

102. Since the major sources of marine pollution are discharges of untreated or poorly-treated sewage and industrial effluents and nutrient and sediment run-off from agricultural and development activities (with some increasing evidence of the importance of atmospheric transport for some polluting substances 23/), the real problems are to be found in the much more vulnerable and resource-rich coastal zone, particularly where there are river inputs, urban and/or industrial concentrations and agricultural activity. Generally, the most severe effects are on coastal waters that are poorly flushed by the open sea, evidence of which may be seen in the loss of irreplaceable habitats, and the widespread destruction of beaches, coral reefs and wetlands, including mangroves, as well as in the increasing erosion of shorelines. Since the trend towards higher coastal populations and more intensive coastal development can only be expected to continue, if not escalate, coastal pollution problems will escalate at the same time, unless greater control is exercised over inputs into coastal waters and unless physical planning, both inland and on the coast is strengthened.

103. The most serious issue is contamination by nutrients, such as nitrates and phosphates, the two major sources of which are sewage disposal and agricultural run-off from fertilizer-treated fields and from stock raising. The problem is growing: areas of eutrophication appear to be expanding (depriving marine life of oxygen), as are the frequency and scale of unusual plankton blooms and excessive sea-weed growth. There is a growing suspicion, moreover, that there may be a causal link between nutrient pollution and "natural" blooms causing seafood toxicity, for example, red tides and ciguatera poisoning. Effective control of nutrient inputs could involve large investments in treatment plants and in sludge and fluent disposal, as well as changes in agricultural practices.

104. The main problem posed to public health is microbial contamination of seafood, particularly shellfish. Toxic ~~and~~ microbiological **agents have** not so far affected exploitable living **resources** on a wide scale, but **some stocks**, especially of shellfish ~~in~~ limited areas, have been declared unfit for human consumption. Microbial contamination of sea water is also responsible for widespread outbreaks of gastro-intestinal diseases at ill-protected and crowded beaches ~~and is~~ a suspected cause of respiratory, ear and skin infections among bathers.

105. A problem **only** relatively recently **recognised** is the haphazard disposal of litter, particularly plastic material, which may cause harm to marine animals through ingestion or entanglement.

106. Siltation of coastal areas from coastal **development** and erosion is now **recognized as a form of marine** pollution, posing particularly serious threats to coral reefs. Without improved management of activities that generate sediment run-off, the problem can be expected to **increase** with the growth in coastal populations ~~and~~ development.

107. Of continuing **concern** are the very **broad** and complex group of synthetic organic compounds, primarily ~~the~~ halogenated hydrocarbons, which include the chlorinated hydrocarbons. While there is as yet no hard evidence of particularly harmful effects at current levels, such substances are so persistent that they **become** essentially permanent additions to the environment. While there has been a definite decrease in input levels of chlorinated hydrocarbons in those northern temperate **areas where** restrictions on the use of DDT ~~and~~ other chemicals have long been enforced, levels may be rising in tropical and sub-tropical areas with the expanding use **of** chlorinated pesticides. Also belonging to this group of substances is the anti-fouling agent TBT (used **in** marine paints). **Its** environmental hazard has been recently recognised and action has begun to restrict and control its use.

108. Dramatic improvements have been made in controlling oil pollution in the past decade owing to the regulation of ship discharges under MARPOL 1973/1976. The main global impact now is due to tar balls that, although generally harmless to marine organisms, are fouling beaches with major economic consequences **in** tourist areas. Accidental spills are relatively isolated geographically so that, aside from tar balls, transient effects in the vicinity of accidents and more chronic conditions **in localized sites in** some parts of the world, petroleum pollution does not now represent a severe threat to marine habitats and organisms. However, since accidental spills cannot be totally avoided, contingency planning and effective response action are essential.

109. Trace elements of metals such as mercury, lead and cadmium are now of less concern, except where high levels occur near contamination sources. Their discharge, however, should be continuously monitored to ensure compliance **with** current acceptable limits.

110. While public **fears** of marine radioactive **contamination** remain strong, artificial radionuclides added by man (**from nuclear testing**, effluent and past ocean dumping) to the levels naturally occurring in **sea** water have had only

insignificant effects on marine life and on man. Planned **discharges** of radioactive effluents are rightly regulated and the amount currently released is **decreasing**. The maximum annual doses to the **critical** human population through marine sources from **dumping** at sea are several orders of magnitude lower than the generally accepted public health dose limit, so that the present and future risk to individuals is extremely small. There is, however, reason for concern over the potential for accidents involving nuclear armaments at sea, nuclear submarines and ships carrying nuclear materials.

111. The global yield of fisheries has continued to increase in the past decade, but a combination of overfishing and stock fluctuations due to natural events has led to the decline of certain fisheries and to greater instability in others. Modern technology, including the increasing use of indiscriminate fishing methods, has had a profound effect on both fish **harvesting** and living resource management and conservation. Fish can now be harvested to the limits of their sustainable yield with a relatively **small fleet** of well-equipped vessels. These developments have created a growing number of fish-stock management and environmental problems, particularly in high seas, and are a matter of growing concern to a number of coastal States.

112. Most of the world's fishery resources lie in offshore areas **landward** of the outer limits of continental shelves. These stocks **are** being heavily fished, and in many cases are exploited at levels beyond those which are economically optimal. While few, if any, of these species are threatened with extinction, relatively little is known about the effects of exploitation on the genetic diversity within exploited species and hence on the long-term adaptability of these species to intensive harvesting and environmental changes.

113. The most serious threats to the long-term sustainability of marine living resources occur in the near-shore coastal areas, where contaminants and other effects of man's activities on land often exacerbate the impacts of intensive harvesting. The many marine species whose life-history includes periods in brackish or fresh water, especially among the youngest stages, are particularly vulnerable to the current deterioration of near-shore habitats and their associated ecosystems, such as mangroves. Certain methods of harvesting living resources, such as the use of explosives and bottom-trawling, damage sensitive ecosystems such as coral reefs and sea-grass beds, putting an additional strain on the ability of the living communities to sustain optimal levels of exploitation by man. Mariculture activities, while augmenting the production of the species cultured, have serious impacts on natural marine habitats where improperly sited.

114. GESAMP has stressed that long-term problems must also be **recognized**, particularly the possibility of subtle effects of persistent low levels of contaminants and the consequences of the changes in the "greenhouse" gases that are expected to produce a **rise in** sea level, an increase in the flux of ultra-violet radiation and a change in climate patterns with unknown effects on marine ecosystems. It may be noted that, in addition to its ongoing work on assessment of harmful substances and the various forms of marine pollution, GESAMP is to embark on the work of **synthesizing** current pollution control/prevention mechanisms, identifying those components and interrelationships which are best suited to

harmonised implementation and which allow for achievement of sustainable use and protection **of** the marine environment. At the same time, the Group will proceed with the large task of identifying possible common, global and science-based strategies for the protection and management of the marine environment, with special attention to emerging global environmental problems, such as climate change.

## VI. AREAS FOR POSSIBLE FURTHER ACTION

115. The preceding survey of relevant multilateral instruments shows that the international community and various regional groups of States have made a great deal of effort to protect and preserve the marine environment. These actions often confirmed or further developed the principles and provisions of the Convention, as was indeed the objective **of** the Convention. The instruments adopted, together with those which precede the Convention texts, now constitute an impressive body of international rules and standards in the field of the protection and preservation of the marine environment under the overall umbrella of the Convention provisions.

116. Despite such achievements, however, the survey equally shows that, given the current state of the oceans as described above, several areas remain in which further community action is desirable, including, in particular, regulation of land-based and atmospheric pollution, co-operation to deal with oil spill disasters, expansion of regional co-operation, regulation of pollution by dumping, the regulation of pollution from sea-bed activities, the question of responsibility and liability, enforcement of existing rules and wider adherence to existing instruments.

117. In this connection, it should be stressed that the Convention gives important roles to various competent international organisations in assisting States in taking further measures to prevent, reduce and control pollution of the marine environment. As they have done in the past, these international organizations are expected to continue strengthening their activities as they face new challenges in their efforts to protect and preserve the marine environment.

### A. Regulation of land-based sources of pollution

116. Although the most serious sources of marine pollution are land based, no global agreement has been concluded on the subject. The problems of land-based pollution may be more easily addressed at a regional level. Indeed some regions have already taken measures to combat land-based pollution, including the drafting of specific protocols. There is a need for further action of this kind. In addition, consideration could be given to the adoption of global regulations and standards to achieve the required legal order under the Convention.

1.19. In this connection, mention should be made of the Montreal Guidelines for the Protection of the Marine Environment against Pollution from Land-based Sources, <sup>34/</sup> which was drafted by UNEP in 1985 in order to assist Governments in the process of developing appropriate bilateral and multilateral agreements and national legislation. The Guidelines represent the first attempt to address the

subject at the global level, and suggestions have been made that the Guidelines could be a basis for drafting a new global convention on the subject.

**B. Regulation of pollution from or through the atmosphere**

120. It is increasingly **recognized** that there is a great deal of interaction between the air and the water in the planetary environment. Atmospheric pollutants are transported as gases, aerosols and particulates, and are brought to the water surface by wet or dry depositions. In the latter case, while gaseous materials are brought by turbulent and molecular diffusion, small particles and aerosols are transferred to water surfaces by gravitational settling, turbulent and molecular diffusion and scavenging by spray.

121. Oceans, covering more than 70 per cent of the earth, ~~are~~ increasingly believed to have a major role in modulating the global general circulation and in dragging the climate response **to global warmings**. However, the exact **role** that they play in the prospect of global warming associated with the "greenhouse" effect and the exact degree of environmental **damage** caused by atmospheric pollutants are insufficiently known. Scientists are therefore focusing more attention to these **questions** and to other aspects of the air-seawater interface.

122. It is thus important that the international community prepare for taking appropriate **regulatory measures** for the prevention and control of the potentially **serious** threat to the marine environment, and indeed to the whole planet, which is caused by atmospheric pollutants.

123. It would also be useful to strengthen regional instruments in order to cope effectively with marine pollution from or through the atmosphere. As immediate **steps**, existing regional instruments would benefit from new technical annexes to be drafted with respect to such pollution. 35/

**C. International co-operation to deal with oil spill disasters**

124. Although the seriousness of accidental oil spills from vessels to the ocean environment is in general relatively limited, oil pollution disasters have often shown that the contingency measures taken by coastal States were not adequate to contain and alleviate the adverse effects of oil spills **on** the marine environment despite the existence of a series of regional agreements concluded for that purpose. In such disasters, particularly when they affect **more** than one coastal State, the States concerned and flag States should be ready to co-ordinate their **actions** and to facilitate co-operation with other States. Such co-operative undertakings would be especially desirable - even essential in **some cases** - when a disaster occurs in a region where efficient monitoring and clean-up **technologies** are not readily available.

125. It is therefore important to strengthen regional and global efforts in order to contain **more** effectively and alleviate the consequences of major oil spill

**disasters.** Technologies for monitoring and **for** cleaning up oil spills should be improved and **more** widely used.

D . Expansion of regional co-operation

126. Regional co-operation in the protection and preservation **of** the marine environment has increased in several regions. Such co-operative efforts are, however, not complete. In **some areas, such** as the Black Sea, the South Asian Seas, the North Pacific, the South West Atlantic, the Arctic Ocean, the South China Sea and the Sea of Japan, efforts have *not* yet led to concrete results. States in such areas are therefore encouraged to take further **measures with a view to** strengthening their co-operation within their respective regions or subregions. At the same time, those areas which have already established a **system of co-operation** should be encouraged to expand it into other fields with a view to strengthening their co-operation.

E. Regulation of pollution by dumping

127. The efforts of the international community to **combat** marine pollution by dumping, including incineration at sea, have achieved considerable progress, primarily through the London Dumping Convention and the consultative meetings of its parties. A common goal has been established by the meetings to eliminate dumping of all **hazardous wastes** posing an unacceptable **risk**, which can **be** achieved through the continuing reduction of hazardous wastes and stricter compliance with and better application of the **annexes** to the London Convention. However, with increasing pressure on the **sea as a source of resources** and energy and as a receptacle **for** wastes from all sources, a comprehensive waste **management strategy**, including co-operation at the international level, is becoming increasingly important. Such a strategy stressing progressive reduction of all wastes and the use **of** intrinsically less polluting technologies, **offers the** best prospect for minimizing the future need for waste disposal while at the same time identifying those disposal options which are environmentally **most** preferable.

128. It is also important to strengthen international co-operation at the scientific and technical levels **for** exploring alternative means of disposal of wastes (particularly recycling), the development and wider use of improved treatment techniques, and the application of non- or low-waste production processes. It would also be useful to prepare regional instruments dealing specifically with dumping modelled **on** the London Dumping Convention.

F. Regulation of pollution from sea-bed activities subject to national jurisdiction

129. Pollution resulting from sea-bed activities subject to national jurisdiction, particularly exploration **for** and exploitation of hydrocarbons, is relatively uniform in pattern in various regions of the world. The operations involved in such activities are also similar. It **may**, therefore, be useful to study the

possibility of establishing guidelines to prevent, reduce and control pollution from such operations. The 1982 UNEP general guidelines on offshore mining and drilling could be a basis for this purpose. Since there is only one regional agreement on this subject, efforts should also be made in other regions, in addition to the efforts at the global level.

#### G. Responsibility and liability for damage from pollution

130. It should be reiterated that the Convention itself emphasizes the need to develop the norms of international law dealing with responsibility and liability for damage caused by pollution of the marine environment. Further development of international law is required in matters such as the criteria and procedures for the determination of liability, the assessment of damage, the payment of compensation and the settlement of related disputes and the criteria and procedures for payment of adequate compensation, including compulsory insurance or compensation funds.

131. In this regard particular mention should be made in respect of the work of the International Law Commission which is currently considering the questions of State responsibility in general and of international liability for injurious consequences arising out of acts not prohibited by international law, as well as the question of liability with respect to non-navigational uses of international watercourses.

132. Some progress has been made in the field of civil liability and compensation for environmental damage. But treaties so far adopted are limited to the areas of maritime transport of oil and nuclear material, as well as pollution from sea-bed operations. No instruments have been prepared regarding other types of pollution, although IMO is currently working on a possible convention on liability and compensation for damage caused by the carriage of hazardous and noxious substances by sea. Moreover, even in the areas that have already been covered, questions still remain, in particular, about the adequacy of compensation funds and the difficulty of quantifying environmental damage by traditional legal methods. 36/

#### H. Enforcement of pollution laws

133. On the question of enforcement of laws and regulations for the protection and preservation of the marine environment, the Convention is noteworthy in that it imposes a duty to enforce them regarding all sources of pollution. Strengthened jurisdiction of coastal and port States in enforcement under the Convention, in particular, would certainly offer greater possibilities for the implementation of rules regarding vessel-source pollution. The Memorandum of Understanding on Port State Control among European States is an important development in this connection, particularly with its inspection and reporting procedure.

134. Problems remain, however, as to the adequacy of national capabilities in collecting necessary data and monitoring compliance with laws and regulations. Such problems could increase under the Convention with the considerable expansion of the areas of coastal State jurisdiction. Some efforts have been made by UNEP,

the Intergovernmental Oceanographic Commission, the International Atomic Energy Agency and **GESAMP** to improve such capabilities, but further strengthening of international co-operation in this field is urgently needed. There is also a need for adjusting or updating national legal systems in order to deal more effectively and efficiently with violations of environmental regulations. International co-operation and reciprocal arrangements between States for facilitating and expediting judicial procedures could also be strengthened.

### I , Wider adherence to existing instruments

135. As is clear from the data accompanying the list of relevant instruments in the annex, many of them, including the 1982 United Nations Convention on the Law of the Sea, have not entered into force owing to an insufficient number of ratifications or accessions. Many others, which are in force, have not been accepted by a majority of States. Some instruments have barely reached the minimum requirements to enter into force.

136. Thus, there is a need for more States to adhere to existing conventions and treaties. Particularly important is adherence to the United Nations Convention on the Law of the Sea, which the World Commission on Environment and Development called "**the most** significant initial action that nations can take in the interests of the oceans' threatened life-support system". 37/

### Notes

1/ Official Records of the Third United Nations Conference on the Law of the Sea, vol. XVII (United Nations publication, Sales No. E.84.V.3), document A/CONF.62/122.

2/ For the report of the United Nations Conference on the Human Environment, see United Nations publication, Sales No. E.73.II.A.14.

3/ This definition of sustainable development is found in the report of the World Commission on Environment and Development (A/42/427, annex, chap. 2, para. 1).

4/ United Nations, Treaty Series, vol. 450, No. 6465, p. 11.

5/ Ibid., v o l . 499, No. 7302, p. 311.

6/ Report of the United Nations Conference on the Human Environment, Stockholm, 5-16 June 1972 (United Nations publication, Sales No. E.73.II.A.14), chap. I.

7/ International Legal Materials, vol. 15, p. 290.

8/ ST/LEG/SER.B/18, pp. 518-547.

9/ United Nations, Treaty Series, vol. 704, No. 10099, p. 3

**Notes** (continued)

**10/ Ibid., v o l . 882,** No. 11793, p. 311.

**11/** These are the 1972 Oslo Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft, art. 3; the Helsinki Convention, art. 3 (2); the Paris Convention, art. 7; the Kuwait Convention, art. III (e); the Abidjan Convention, art. 4 (5); the Jiddah Convention, art. III (5); the Cartagena Convention, art. 4 (2); the Nairobi Convention, art. 4 (5); and the Noumea Convention, art. 5 (2).

**12/ ST/LEG/SER.B/18**, pp. 547-558.

**13/ International Legal Materials**, vol. 19, p. 869.

**14/** These are the Helsinki Convention, arts. 2 and 6 and annexes II and III; the Barcelona Convention, art. 8; the Kuwait Convention, art. VI; the Abidjan Convention, art. 7; the Lima Convention, arts. 3 (5) and 4 (a) (i); the Jiddah Convention, art. VI; the Cartagena Convention, art. 7; the Nairobi Convention, art. 7; and the Noumea Convention. art. 7.

**15/** These are the 1969 Bonn Agreement: the Copenhagen Agreement; the Stockholm Convention; 1978 Protocol (to the Kuwait Convention) concerning Regional Co-operation in Combating Pollution by Oil and Other Harmful Substances in Cases of Emergency; 1981 Agreement on Regional Co-operation *in* Combating Pollution of the South-East Pacific by Hydrocarbons and Other Harmful Substances in Cases of Emergency, and 1983 Supplementary Protocol *thereto*; 1982 Protocol (to the Jiddah Convention) concerning Regional Co-operation *in* Combating Pollution by Oil and Other Harmful Substances in Cases of Emergency; 1983 Protocol (to the Cartagena Convention) concerning Co-operation in Combating Oil Spills in the Wider Caribbean Region; 1983 Bonn Agreement; 1985 Protocol (to the Nairobi Convention) concerning Co-operation in Combating Marine Pollution in Cases of Emergency in the Eastern African Region; and 1986 Protocol (to the Noumea Convention) concerning Co-operation in Combating Pollution Emergencies in the South Pacific Region.

**16/** The relevant instruments and provisions are the Helsinki Convention, arts. 2 and 10; the Barcelona Convention, art. 7; the Kuwait Convention, art. VII; the Abidjan Convention, art. 8; the Lima Convention art. 4 (c); the Jiddah Convention, art. VII; the Cartagena Convention, art. 8; the Nairobi Convention, art. 8; 1985 Protocol (to the Nairobi Convention) concerning Protected Areas and Wild Fauna and Flora in the Eastern African Region, art. 10 (g); and the Noumea Convention, art. 8.

**17/ ST/LEG/SER.B/16**, pp. 457-463.

**18/ United Nations, Treaty Series**. vol. 1046, No. 15749, p. 120.

**19/ International Legal Materials**, vol. 15, p. 300.

**Notes** (continued)

**20/** These are the Helsinki Convention, arts. 2, 9 and annexes V and VI; the Barcelona Convention, art. 5; the Kuwait Convention, art. v; the Abidjan Convention, art. 6; the Lima Convention, art. 4 (a) (iii); the Jiddah Convention, art. v; the Cartagena Convention, art. 6; the Nairobi Convention, art. 6, and its Protocol concerning Protected Areas and Wild Fauna and Flora in the Eastern African Region, art. 10 (b); and the Noumea Convention, art. 10.

**21/** United Nations, Treaty Series, vol. 1050, No. 15824, p. 16.

**22/** International Legal Materials, p.

**23/** Ibid., p.

**24/** ST/LEG/SER.B/18, pp. 457-517.

**25/** Treaty Series, p.

**26/** Ibid., p. 43.

**27/**  
8;  
(ii);

**28/** ST/LEG/SER.B/16,

**29/** ST/LEG/SER.B/18,

**30/**  
art. XIII;  
15;  
15;

**31/** A oceans by relevant United Nations bodies has also been called for by the group of seven major industrialized democracies in its summit economic declaration on 16 July 1989.

**32/** To be published as GESAMP Reports and Studies No. 39. The last such review was done 10 years ago, and since then the scientific literature on marine pollution has increased by at least 50 per cent; analytical techniques have been improved; ocean measuring systems have been greatly advanced (from satellites, drifting and moored buoys, as well as ships); techniques for process control and pollution abatement have been further developed; and new international and national rules and regulations have been introduced. Inevitably, some changes in environmental priorities have occurred.

**Notes (continued)**

**33/** Studies are **being** conducted by **GESAMP** and **WMO** members, **as well as under the UNEP Regional Seas Programme**, on such questions as the interchange of pollutants **between the atmosphere and** the oceans, air-borne pollution of the marine environment and pollutant **modification of atmosphere and ocean processes** and **climate**. A comprehensive study in this *area* has been published as a **GESAMP** report entitled "**Atmospheric input of trace species to the world ocean**". The study indicates that atmospheric input **dominates riverine** input for many dissolved **trace** metals and **for most synthetic organic** species. **Atmospheric input accounts for 90 per cent or more of the combined atmospheric plus riverine input to the global ocean**. Atmospheric input of nitrogen compounds **dominates** that from rivers **as well**.

**34/** UNEP publication - **Environmental Law Guidelines and Principles No. 7**. Reproduced in Annual Review of Ocean Affairs, vols. I and II (1985-1987), pp. 655-674.

**35/** **WMO has been** developing such a technical **annex to** be attached to the Protocol **for the Protection of** the Mediterranean Sea against Pollution from Land-based Sources.

**36/** It should be noted that an **IMO ad hoc** group **of** legal experts on dumping has been **considering the development of procedures for the assessment of liability concerning damage to the environment by dumping at sea**. The London Dumping Convention **Inter-governmental Panel of Experts on Radioactive Waste Disposal at Sea** is expected to study possible procedures **for establishing liability and indemnification for loss or damage caused by the dumping of radioactive waste**.

**37/** See **A/42/427, annex, chap. 10, para. 55.**

ANNEX

Multilateral treaties relating to the protection and  
preservation of the marine environment

(status as at 1 July 1989)

I. GLOBAL INSTRUMENTS

1. International **Convention** for the **Prevention** of Pollution of the Sea by oil, London, 12 May 1954. Entry into **force** 26 July 1956. Number of **parties**: 70. **a/**

Amendment **s I**

1962 Amendments. Entry into force 18 May 1967 (articles I to X, XVI and XVIII, and Annexes A and E to the Convention) and 28 June 1967 (article XIV).

1969 Amendments, Entry **into force**: 20 January 1976.

1971 (Great Barrier Reef Amendment). Not yet in **force** (28 acceptances deposited - 48 acceptances are required for entry **into force**).

1971 (Tanks) Amendment. Not yet in **force** (27 **acceptances** deposited - 48 acceptances are required for entry **into force**).

2. International Convention relating to the Limitation of the Liability of Owners of Sea-going Ships, Brussels, 10 October 1957. Entry into force! 31 May 1968, Number of parties: 25. **b/**

- 2.1 Protocol **emending** the International Convention relating to the Limitation of the Liability **of Owners** of Sea-going Ships, London, 21 December 1979. Entry into force 6 October 1984. Number of parties : 6.

3. The Antarctic Treaty, Washington D.C., 1 December 1959. Entry into force! 23 June 1961. Number of parties: 39.

4. International Regulations for Preventing Collisions at Sea, Lonclon, 17 June 1960. Entry into **force**: 1 September 1965. Number of **acceptances**: 72. **c/**

5. Convention on the Liability of Operators of Nuclear Ships, Brussels, 25 May 1962. Not yet in force.

6. Treaty Banning Nuclear-Weapon Tests in the Atmosphere, in Outer Space and Under Water, Moscow, 5 August 1963. Entry into force: 10 October 1963. Number of parties: 114.

7. International Convention on Load **Lines**, London. 5 April 1966. Entry into **force**: 21 July 1968. Number of **parties**: 114.

**Amendments :**

1971 Amendment. Not yet in force (48 acceptances deposited - 76 acceptances are required for entry into force).

1975 Amendment. Not yet *in* force (43 acceptances deposited - 76 acceptances are required for entry into force).

1979 Amendment. Not yet in force (40 acceptances deposited - 76 acceptances are required **for** entry into force),

1983 Amendment. Not yet in force (42 acceptances deposited - 76 acceptances are required for entry into force).

- 7.1 Protocol **of** 1988 relating to the International Convention on Load Lines of 5 April 1966, London, 11 November 1988. Not yet in force.

8. International Convention on Civil Liability for Oil **Pollution** Damage, Brussels, 29 November 1969. Entry into **force**: 19 June 1975. Number of parties; 62 (plus 3 on provisional status).

- 8.1 Protocol to the International Convention on Civil Liability for Oil Pollution Damage, London, 19 November 1976. Entry into **force**: 8 April 1981. Number of parties : 27 (plus 1 on provisional **status**),

- 6.2 Protocol to amend the International Convention on Civil Liability for Oil Pollution Damage, London, 25 May 1984. Not yet in **force** (13 **signatories**; 3 ratifications and 2 **accessions** deposited - 10 ratifications/accessions are required for entry into **force**).

9. International Convention relating to Intervention **on** the High Seas in Cases **of** Oil Pollution Casualties, Brussels, 29 November 1969. Entry into force: 6 May 1975. Number **of** parties: 54.

- 9.1 Protocol Relating to Intervention on the High Seas in Cases of Pollution by Substances Other than Oil, London, 2 November 1973. Entry into force: 30 March 1983. Number of parties: 23.

10. Special Trade Passenger Ships Agreement, London, 6 October 1971. Entry **into** farce: 2 January 1974. Number **of** parties: 13.

11. Convention relating to Civil Liability in the Field of Maritime **Carriage** of Nuclear Material, Brussels, 17 December 1971. Entry into force: 15 July 1975, Number of parties: 11.

12. International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, Brussels, 18 December 1971. Entry into force : 16 October 1978. Number of parties: 40.
- 12.1 Protocol to the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, London, 19 November 1976. Not yet in force (3 signatories; 3 ratifications, 10 accessions and 1 acceptance deposited representing approximately two thirds of the total quantity of contributing oil required for entry into force).
- 12.2 Protocol to Amend the International Convention on the Establishment of an International Fund for Compensation of Oil Pollution Damage, London, 25 May 1984. Not yet in force (12 signatories; 1 ratification and 1 approval deposited - 8 ratifications/accessions are required for entry into force).
13. Convention for the Conservation of Antarctic Seals, London, 11 February 1972. Entry into force: 11 March 1978. Number of parties: 13.
14. Convention on the International Regulations for Preventing Collisions at Sea, London, 20 October 1972. Entry into force: 15 July 1977. Number of parties : 102 (plus 2 on provisional status).

**Amendments:**

1981 Amendment. Entry into force: 1 June 1983.

1987 Amendment. Entry into force: 19 November 1989.

15. International Convention for Safe Containers, Geneva, 2 December 1972. Entry into force: 6 September 1977. Number of parties : 48.

**Amendments :**

1981 Amendments. Entry into force: 1 December 1981.

1983 Amendments. Entry into force: 1 January 1984.

16. Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, London, Mexico City, Moscow and Washington D.C., 29 December 1972. Entry into force: 30 August 1975. Number of parties: 63.

**Amendments :**

1978 (Disputes) Amendments to the Convention. Not yet in force (12 acceptances deposited - 42 acceptances are required for entry into force).

1978 (Incineration) Amendments to the Annex. Entry into force: 11 March 1979 (for all parties to the Convention, except for Federal Republic of Germany and New Zealand).

1980 Amendments to the Annexes. Entry into force: 1 March 1981 (for all parties to the Convention, except for Japan and Federal Republic of Germany).

17. **Protocol on Space Requirements for Special Trade Passenger Ships**, London, 13 July 1973. Entry into force: 2 June 1977. Number of parties: 12.
18. International Convention for the Prevention of Pollution from Ships, London, 2 November 1973 (as modified by the Protocol of 1978 relating thereto).
- 18.1 Protocol relating to the International Convention for the Prevention of Pollution from Ships, London, 17 February 1978. The Protocol entered into force on 2 October 1983; Annex I on 2 October 1983; Annex II on 6 April 1987; and Annex V on 31 December 1988. Number of parties: 54 (36 States accepted Optional Annex III; 3% states accepted Optional Annex IV; and 38 States accepted Optional Annex V).

**Amendments:**

1984 Amendments. Entry into force: 7 January 1986.

1985 (Protocol I) Amendments. Entry into force: 6 April 1987.

1987 (Annex I) Amendments. Entry into force: 1 April 1989.

19. Convention on the Conservation of Antarctic Marine Living Resources, Canberra, 20 May 1980. Entry into force: 7 April 1982. Number of parties: 23.
20. International Convention for the Safety of Life at Sea, London, 1 November 1974. Entry into force: 25 May 1980. Number of parties: 104.

**Amendments:**

1981 Amendments. Entry into force: 1 September 1984.

1983 Amendments. Entry into force: 1 July 1986.

1987 (International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code)) Amendment. Entry into force: 30 October 1988.

1988 (April roll-on/roll-off) Amendments. Entry into force: 22 October 1989.

1988 (October roll-on/roll-off) Amendment. Not yet in force (shall enter into force on 29 April 1990).

1968 (Global Maritime Distress and Safety System) Amendment. Not yet in force (shall enter into force on 1 February 1990).

- 20.1 Protocol of 1978 relating to the International Convention ~~for~~ the Safety of Life at Sea, 1974, London, 17 February 1976. Entry into force: 1 May 1981. Number of parties: 69.

**Amendments :**

1981 Amendment. Entry into force: 1 September 1984.

1988 (Global Maritime Distress and Safety System) Amendments. Not yet in force (shall enter into force on 1 February 1990).

- 20.2 Protocol of 1988 relating to the International Convention for the Safety of Life at Sea, London, 11 November 1988. Not yet in force.
21. Convention on Limitation of Liability for Maritime Claims, London, 19 November 1976. Entry into force: 1 December 1986. Number of parties: 16.
22. Torremolinos International Convention for the Safety of Fishing Vessels, Torremolinos, 2 April 1977. Not yet in force (6 signatories; 2 ratifications, 12 accessions and 1 approval deposited - ratifications/accessions of 15 States, the aggregate of whose fleets of fishing vessels constitutes not less than 50 per cent by number of the world's fleet of fishing vessels of 24 metres in length and over, are required for entry into force).
23. International Convention in Standards of Training, Certification and Watchkeeping for Seafarers, London, 7 July 1978. Entry into force: 28 April 1984. Number of parties: 69.
24. United Nations Convention on the Law of the Sea, Montego Bay, 10 December 1982. Not yet in force (159 signatories; 40 ratifications deposited - 60 ratifications/accessions are required for entry into force).
25. United Nations Convention on Conditions for Registration of Ships, Geneva, 7 February 1986. Not yet in force (13 signatories; 3 ratifications and 3 accessions deposited - ratifications/accessions of 40 States, the combined tonnage of which amounts to at least 25 per cent of world tonnage, are required for entry into force).
26. Convention on Early Notification of a Nuclear Accident, Vienna, 26 September 1986. Entry into force: 27 October 1986. Number of parties: 37.
27. Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency, Vienna, 26 September 1986. Entry into force: 26 February 1987. Number of parties: 32.
28. Convention on the Regulation of Antarctic Mineral Resource Activities, Wellington, 2 June 1988. Not yet in force (open for signature until 25 November 1989).

29. **Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, Basel, 22 March 1989**, Not yet in force (open for signature until 22 March 1990).
30. **International Convention on Salvage, London, 28 April 1989**. Not yet in force (open for signature until 30 June 1990).

## II, REGIONAL INSTRUMENTS

1. **Convention on Third-Party Liability in the Field of Nuclear Energy, Paris, 29 July 1960** (as amended by Additional Protocol of 28 January 1964). Entry into force: 1 April 1968. Number of parties: 10. Region: metropolitan territories of members of the Organisation for European Economic Co-operation and Development.
  - 1.1 **Protocol amending the Convention on Third-Party Liability in the Field of Nuclear Energy of 20 July 1960, Paris, 16 November 1982**. Entry into force: 7 October 1988. Number of parties: 11.
2. **Supplementary Convention to the Paris Convention on Third-Party Liability in the Field of Nuclear Energy of 29 July 1960 (as amended by Additional Protocol of 28 January 1964), Brussels, 31 January 1963**. Entry into force: 4 December 1974. Number of parties: 10. Region: metropolitan territories of members of the Organisation for European Economic Co-operation and Development.
3. **Agreement for Co-operation in dealing with Pollution of the North Sea by Oil, Bonn, 9 June 1969**. Entry into force: 9 August 1969. Number of parties: 6. Region: North Sea.
4. **Convention on the Conservation of the Living Resources of the South-East Atlantic, Rome, 23 October 1969**. Entry into force: 24 October 1971. Number of parties: 18. Region: South-East Atlantic.
5. **Agreement between Denmark, Finland, Norway and Sweden concerning Co-operation in Measures to Deal with Pollution of the Sea by Oil, Copenhagen, 16 September 1971**. Entry into force: 16 October 1971. Number of parties: 4. Region: Baltic Sea.
6. **Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft, Oslo, 15 February 1972**. Entry into force: 7 April 1974. Number of parties: 13. Region: Atlantic and Arctic Oceans north of latitude 36° N, east of longitude 42° W and west of longitude 51° E, excluding the Mediterranean and Baltic seas.
  - 6.1 **Protocol amending the Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft, Oslo, 2 March 1983**. Not yet in force. d/
7. **Agreement on Conservation of Polar Bears, Oslo, 15 November 1973**. Entry into force: 26 May 1976. Number of parties: 5. Region: Arctic.

8. **Convention on the Protection of the Environment between Denmark, Finland, Norway and Sweden**, Stockholm, 19 February 1974. **Entry into force:** 5 October 1976. Number of parties, 4. **Region: Nordic area.**
9. Convention on the Protection of the Marine Environment of the Baltic Sea Area, Helsinki, 22 March 1974. **Entry into force:** 3 May 1980. Number of parties 7. **Region: Baltic Sea.**
10. **Convention for the Prevention of Marine Pollution from Land-based Sources**, Paris, 4 June 1974. **Entry into force:** 6 May 1978. **Number of parties!** 13. **Region:** Atlantic and Arctic Oceans north of latitude 36° N, east of longitude 42° W and west of longitude 51° E, excluding the Mediterranean and Baltic seas area.
- 10.1 Protocol to the Convention for the Prevention of Marine Pollution from Land-based Sources, Paris, 26 March 1986. Not yet in **force** (5 contracting States - ratification by all parties to the Convention on 26 March 1986 is required for entry into **force**).
11. Convention for the Protection of the Mediterranean Sea against Pollution, Barcelona, 16 February 1976. **Entry into force:** 12 February 1978. **Number of parties;** 18. **Region:** Mediterranean Sea.
- 11.1 Protocol concerning Co-operation in Combating Pollution of the Mediterranean Sea by Oil and Other Harmful Substances in Cases of Emergency, Barcelona, 16 February 1976. **Entry into force:** 12 February 1978. Number of parties! 18.
- 11.2 Protocol for the Prevention of Pollution of the Mediterranean Sea by Dumping from Ships and Aircraft, Barcelona, 16 February 1976. **Entry into force:** 16 February 1978. **Number of parties:** 18.
- 11.3 Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources, Athens, 17 May 1980. **Entry into force:** 17 June 1983. **Number of parties!** 11.
- 11.4 Protocol concerning Mediterranean Specially Protected Areas, Geneva, 3 April 1982. **Entry into force:** 23 March 1986. **Number of parties:** 9.
12. Convention on Conservation of Nature in the South Pacific, Apia, 12 June 1976. Not yet in *force*. **Region:** South Pacific.
13. Convention on Civil Liability for Oil Pollution Damage Resulting from Exploration for and Exploitation of Seabed Mineral Resources, London, 1 May 1977. Not yet in *force* (6 signatories; no ratifications - 4 ratifications/accessions are required for entry into *force*). **Region:** North Sea, Baltic Sea and Atlantic Ocean north of latitude 36° N.

14. Kuwait Regional Convention for Co-operation on the Protection of the Marine Environment from Pollution, Kuwait, 24 April 1978. Entry into force: 1 July 1979. Number of parties: 8. Region: Persian Gulf and Gulf of Oman.
- 14.1 Protocol concerning Regional Co-operation in Combating Pollution by Oil and Other Harmful Substances in Cases of Emergency, Kuwait, 24 April 1978. Entry into force: 1 July 1979. Number of parties: 8.
- 14.2 Protocol concerning Marine Pollution Resulting from Exploration and Exploitation of the Continental Shelf, Kuwait, 29 March 1989. Not yet in force (**5** ratifications/accessions are required for entry into force).
15. Convention on Long-Range Transboundary Air Pollution, Geneva, 13 November 1979. Entry into force: 16 March 1983. Number of parties: 32. Region: Member States of the Economic Commission for Europe.
16. Convention for Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region, Abidjan, 23 March 1981. Entry into force: 5 August 1984. Number of parties: 7. Region: West and Central African region from Mauritania to Namibia.
- 16.1 Protocol concerning Co-operation in Combating Pollution in Cases of Emergency, Abidjan, 23 March 1981. Entry into force: 5 August 1984. Number of parties: 7.
17. Convention for the Protection of the Marine Environment and Coastal Area of the South-East Pacific, Lima, 12 November 1981. Entry into force: **19 May 1986**. Number of parties: 5. Region: South-East Pacific.
18. Agreement on Regional Co-operation in Combating Pollution of the South-East Pacific by Hydrocarbons and Other Harmful Substances in Cases of Emergency, Lima, 12 November 1981. Entry into force: 14 July 1986. Number of parties: 4. Region: South-East Pacific.
- 18.1 Protocol for the Protection of the South-East Pacific Against Pollution from Land-based Sources, **Quito**, 22 July 1983. Entry into force: 23 September 1986. Number of parties: 4.
- 18.2 Supplementary Protocol to the Agreement on Regional Co-operation in Combating Pollution of the South-East Pacific by Hydrocarbons and Other Harmful Substances in Cases of Emergency, Quito, 22 July 1983. Entry into force: **20 May 1987**. Number of parties: 5.
19. Regional Convention for the Conservation of the Red Sea and Gulf of **Aden** Environment, Jiddah, 14 February 1982. Entry into force: 20 August 1985. Number of parties: 4. Region: Red Sea and Gulf of **Aden**.
- 19.1 Protocol Concerning Regional Co-operation in Combating Pollution by Oil and Other Harmful Substances in Cases of Emergency, Jiddah, 14 February 1982. Entry into force: 20 August 1985. Number of parties: 4.

20. Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region, Cartagena, 24 March 1983. Entry into force: 11 October 1986. Number of parties: 15. Region : Wider Caribbean.
- 20.1 Protocol concerning Co-operation in Combating Oil Spills in the Wider Caribbean Region, Cartagena, 24 March 1983. Entry into force: 11 October 1986. Number of parties: 15.
21. Agreement for Co-operation in Dealing with Pollution of the North Sea by Oil and Other Harmful Substances, Bonn, 13 September 1983. Not yet in **force**. Region: North Sea.
22. Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region, Nairobi, 21 June 1985. Not yet in force (10 signatories: 6 ratifications/accessions are required for entry into force). Region: Eastern African region.
  - 22.1 Protocol concerning Protected Areas and Wild Fauna and Flora in the Eastern African Region, Nairobi, 21 June 1985. Not yet in force (10 signatories; 6 ratifications/accessions are required for entry into force).
  - 22.2 Protocol concerning Co-operation in Combating Marine Pollution in Cases of Emergency in the Eastern African Region, Nairobi, 21 June 1985. Not yet in force (10 signatories) & ratifications/accessions are required for entry into **force**).
23. Convention for the Protection and Development of Natural Resources and Environment of the South Pacific Region, Noumea, 25 November 1986. Not yet in force (27 signatories; 10 ratifications/accessions are required for entry into force). Region : South Pacific.
  - 23.1 Protocol for the Prevention of Pollution of the South Pacific Region by Dumping, Noumea, 25 November 1986. Not yet in force (27 signatories; 5 ratifications/accessions are required for entry into force),
  - 23.2 Protocol concerning Co-operation in Combating Pollution Emergencies in the South Pacific Region, Nournea, 25 November 1986. Not yet in force (27 **signatories**; 5 ratifications/accessions are required for entry into force).

Notes

a/ This Convention has been superseded, with effect from 2 October 1983, by the 1978 Protocol relating to the 1973 International Convention for the Prevention of Pollution from Ships, as between the States parties thereto.

b/ This Convention has been superseded, with effect from 1 December 1986, by the 1976 Convention on Limitation of Liability for Maritime Claims, as between the Skates parties thereto.

**Notes (continued)**

**g/** These Regulations have been superseded, with effect from 15 July 1977, by the Regulations annexed to the 1972 Convention on the International Regulations for Preventing Collisions at Sea, as between the States parties thereto.

**d/** Subsequent to the preparation of the **list** in this annex, the Protocol entered **into** force on 1 September 1989, with 13 **States** as parties.