

Chapter 31

Overview of Management Strategies and Instruments

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Abstract The rapidly increasing demand for marine space for different purposes, such as offshore wind farms, oil and gas exploitation, fishing, aquaculture, shipping and tourism and the cumulative impact of the various activities on the marine and coastal environment have led to a growing recognition of the need for sustainable management strategies and legal governance. There is a broad variety of regulatory tools and the choice of instruments depends on the nature of the activity concerned and its potential effects on the marine environment. Direct regulation of marine uses may encompass the setting of restrictions and prohibitions as well as the establishment of licensing and permitting requirements. Integrated policies and cross-sectoral planning and management approaches like marine spatial planning are required to deal with conflicting uses and cumulative effects. Monitoring, surveillance and reporting obligations are important tools to acquire information on the state of the marine environment and the effects of various activities upon it. Besides the more traditional forms of direct regulation, market-based instruments like environmental taxes, charges or eco-labelling may provide incentives to consumers and businesses for environmentally friendly behaviour. This chapter gives an overview of various management strategies and instruments and their application to human activities in the marine environment.

Keywords Command-and-control • Cross-sectoral planning instruments • Area-based management • Consumer information incentives

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31.1 Introduction

Many international conventions call upon States to adopt laws and regulations which regulate the exploitation of marine resources and other marine activities. The power to legislate in respect of a person, property or event (legislative or prescriptive jurisdiction, see Malanczuk 1997: 109) differs as regards the maritime zones under the United Nations Convention on the Law of the Sea (UNCLOS). While the sovereignty of a coastal State extends beyond its land territory and internal waters to the territorial sea, its regulatory competence in the EEZ and over the continental shelf is limited (see Chap. 29). It is confined to the matters expressly indicated in UNCLOS in respect of which sovereign rights or jurisdictional powers are granted to a coastal State (Hodgson et al. 2014: 14). The high seas and the deep seabed located beyond the limits of States' continental shelves are areas beyond national jurisdiction (ABNJ). There are a number of organisations at the international and regional level which are competent to regulate activities such as shipping, fishing, dumping and mining within ABNJ.¹

Environmental principles like the precautionary principle or the polluter pays principle may guide the choice of regulatory instruments as well as their application. The precautionary principle for instance requires preventive measures to be taken when there are reasonable grounds for concern that human activities may bring about hazards e.g. to human health or harm living resources and marine ecosystems even when there is a lack of scientific certainty (see Chap. 30).

This chapter first outlines the importance of environmental standards and their implementation through direct regulation, followed by a description of more complex multi- and cross-sectoral steering approaches as well as other planning tools and their application to marine issues. Then, instruments providing for the gathering of environmental information and public participation are addressed. The last section of the chapter gives examples for the application of economic and voluntary instruments in relation to marine environment protection.

31.2 Direct Regulation

International conventions may require States to adopt regulations which directly regulate certain marine activities. Frequently, the use of regulatory techniques like permitting requirements (see, e.g., Art. 210 UNCLOS as regards the prevention, reduction, and control of pollution by dumping), the setting of quotas (see, e.g., Art. 62 UNCLOS on the regulation of fishing in the EEZ) or the use of procedural instruments like environmental impact assessment is suggested or mandated. In

¹The enforcement of international legal regimes on the high seas is primarily the responsibility of the flag State whereas a special regime applies to deep-sea mining activities in the Area (see Kimball 2005: 6).

some cases, States directly work together in international organisations, such as the regional fisheries management organisations (RFMOs) or the International Seabed Authority, to regulate certain activities. Due to its prescriptive nature, direct regulation is often referred to as ‘command and control regulation’. Commands may be issued through a combination of licenses, prohibitions and standards, which are then controlled by monitoring, reporting and inspection regimes, as well as by negative sanctions such as threats of criminal and other forms of liability (Lee 2009: 83).

31.2.1 Standard-Setting

Regulation in the field of environmental law normally aims at the implementation of certain environmental standards. Source-related standards are set by reference to the source of pollution and may be further divided into emission standards, process standards and product standards.

Process standards may determine the requirements to be met by the design and construction of an installation or relate to requirements on the operation of an installation (see e.g. Art. 194 (3) (c) and (d) UNCLOS as regards the prevention of pollution from installations; see also Sands and Peel 2012: 157). They also may relate to the course of activities like e.g. the so-called ‘technical measures’ under the EU Common Fisheries Policy establishing conditions for the use and structure of fishing gear and restrictions on access to fishing areas (see Regulation (EU) No 1380/2013, Arts. 4 (1) (20) and 7 (2)). Many multilateral environmental agreements require the application of ‘best available techniques’ (1992 OSPAR Convention, Art. 2 (3) (b) and Appendix 1) or ‘best available technology’ (1992 Helsinki Convention, Art. 3 (3) and Annex II) and ‘best environmental practice’ (1992 OSPAR Convention, Art. 2 (3) (b) and Appendix 1; 1992 Helsinki Convention, Art. 3 (3) and Annex II).

Emission standards, sometimes referred to as ‘emission limit values’, specify the levels, concentration or mass of substance of pollutants. An example is MARPOL 73/78 which, in order to prevent and minimize pollution from ships, limits, the discharge of oil (Annex I) and noxious substances (Annex II) and sets limits on sulphur oxide and nitrogen oxide emissions from ship exhausts (Annex VI). Product standards relate to the qualities of a certain product, e.g. its physical or chemical composition, the technical performance or the handling and packaging.

In contrast to the aforementioned source-related standards, environmental quality standards focus on the quality of the protected target. They may prescribe the maximum allowable level of a certain pollutant in a particular medium (such as soil, air or water) which must not be exceeded but may also relate to the quality of the environment as such. Under the Marine Strategy Framework Directive ‘good environmental status’ (GES) is to be determined according to certain qualitative descrip-

tors (see Annex I MSFD), nonetheless GES is an imprecise standard which needs further elaboration.²

Standards may be implemented through direct regulation but as well may be established by voluntary agreements (like e.g. the FAO Code of Conduct for Responsible Fisheries) or be set by private institutions (see Sect. 31.5). Depending on the nature and design of the underlying instrument, standards may be binding or non-binding, they may serve as an objective or guideline or provide binding threshold values. Different types of standards are not exclusive to each other, e.g. an emission standard will often be set in order to achieve an environmental quality standard (Bell et al. 2013: 243).

31.2.2 *Restrictions and Prohibitions*

A prohibition may be imposed if an impairment of the environment by a certain activity must be strictly avoided and its permissibility shall therefore not depend upon an individual decision of the administration (see Kloepfer et al. 2004: 271). For instance, as the dumping of wastes and the discharge of oil and other harmful substances by ships have been recognized as being among the main sources of marine pollution, several international and regional agreements ban or severely restrict those activities. The Protocol on Environmental Protection to the Antarctic Treaty designates Antarctica as a natural reserve devoted to peace and science and prohibits any activity relating to mineral resources other than scientific research (Arts. 2 and 7 Environment Protocol). Environmental instruments restricting hazardous products, processes or activities often use easily-amendable lists appended to the regulation to name the controlled substances or activities (Kiss and Shelton 2004: 232), see e.g. the Annexes to the London Convention and its 1996 Protocol.³

Taking or trade restrictions are regulatory techniques which are frequently used in order to prevent over-exploitation of natural resources. Taking, e.g., may be restricted by fixing fishing quotas. The regular setting of total allowable catches (TACs), i.e. catch limits expressed in tonnes or numbers, still is a core management instrument of the EU Common Fisheries Policy (Salomon et al. 2014: 77).⁴ Taking restrictions also may apply to non-living marine resources in international commons areas such as the deep sea-bed (see Art. 133 et seq. UNCLOS). The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

²Commission Decision 2010/477/EU on criteria and methodological standards on good environmental status of marine waters contains a number of criteria and associated indicators for assessing GES, in relation to the descriptors laid down in Annex I MSFD.

³Annex I of the London Convention contains a 'black list' of hazardous substances which may not be dumped whereas its Annex II sets out a 'grey list' of other identified materials for which dumping requires a special permit. The 1996 London Protocol takes the opposite approach and prohibits all dumping, except for possibly acceptable wastes on the so-called 'reverse list'.

⁴With the new Basic Regulation, TACs have to be fixed in line with the management target of maximum sustainable yield (MSY), see Art. 2 (2) Basic Regulation.

provides an example for trade restrictions: Depending upon their conservation status, different trade restrictions apply to specimens of species listed⁵ ranging from trade with permits or certificates to almost complete trade prohibition.

31.2.3 Licensing and Permitting

Licensing or permitting requirements⁶ allow applying environmental standards and policies to individual situations. Requiring prior government authorization is one of the most widely used techniques to prevent environmental harm, not only to control industrial emissions but also various other kinds of activities.⁷ This serves to exercise anticipatory control, making sure that an activity is only carried out if certain requirements or conditions are met (Bell et al. 2013: 237). Permission or consent may be granted with a permanent or temporary character, the latter being adapted more easily to changing circumstances or new scientific knowledge. If an activity starts without permission or if the permission is contravened the relevant laws normally impose administrative or criminal sanctions.

31.3 Strategies, Plans and Programmes

Conflicts between environmental objectives and user interests as well as conflicting uses and the cumulative effects of various activities on the marine environment cannot be solved by sector-by-sector approaches alone (see Chap. 49). Marine spatial planning as well as other cross-sectoral planning instruments provide comprehensive management tools. A marine protected area is a (multi-sectoral) planning tool specifically focusing on the conservation of biodiversity. Area-based management instruments are also applied in sector-specific regulations for activities like shipping or fishing, e.g. no-take areas, no-go areas.

⁵ Among the species listed in the appendices of the convention are marine species or groups of species like cetaceans (whales, dolphins and porpoises), sea turtles and corals.

⁶ Bell, McGillivray and Pedersen (2013, p. 236) hint at the fact that different pieces of legislation use different words (permission, authorization, consent or license) but essentially mean the same thing.

⁷ See e.g. Art. 210 (5) UNCLOS requiring express prior approval of the coastal State as regards dumping within the territorial sea, the EEZ or onto the continental shelf; Arts. III-VI CITES requiring different kinds of export permits for species listed; Arts. 2 and 6 Seeanlagenverordnung [SeeAnlV] (Marine Facilities Ordinance) making the construction of installations in the German EEZ for commercial purposes subject to approval by the Maritime and Hydrographic Agency (BSH).

31.3.1 Integrated Maritime Policies: The Marine Strategy Framework Directive

Like the USA, Canada, Japan or Norway the EU has come to recognize the need to apply an inter-sector and crosscutting approach to governance of maritime affairs since the intensive development of sea-based activities poses a challenge to sustainable development and use of the sea resources (European Commission 2008: 4 with further references). The Marine Strategy Framework Directive (Directive 2008/56/EC, MSFD) constitutes the environmental pillar of the European integrated maritime policy. It aims to establish a framework within which the necessary measures shall be taken to achieve or maintain good environmental status (GES) in the marine environment (Art. 1 (1) MSFD). Member States are required, in respect of each marine region or subregion concerned, to develop and implement marine strategies for their marine waters which must apply an ecosystem-based approach to the management of human activities (Arts. 1 (2), (3) and 5 MSFD).

To deal with existing knowledge gaps the MSFD obliges Member States to carry out an initial assessment of the current environmental status of the waters concerned (Arts. 5 (2) (a) (i) and 8 MSFD). They are required to determine a set of characteristics for GES on the basis of the qualitative descriptors set out in Annex I MSFD (Arts. 5 (2) (a) (ii) and 9 MSFD). They also have to establish a comprehensive set of environmental targets and associated indicators for their marine waters to guide towards achieving GES in the marine environment (Arts. 5 (2) (a) (iii) and 10 MSFD). The MSFD indicates characteristics, pressures and impacts to be taken into account but the specification of targets as well as the development of assessment criteria is left to the implementation process (see Annex III and IV MSFD, see also Markus et al. 2011: 88). The same applies to the measures to be taken in order to achieve or maintain GES, which are to be identified by Member States and to be integrated into a programme of measures (Art. 13 MSFD).⁸ The MSFD provides that the programme of measures shall include spatial protection measures, contributing to coherent and representative networks of marine protected areas (Art. 13 (4) MSFD), and thus stresses the importance of MPAs for the protection of marine biodiversity. Implementing measures have to be reported to and assessed by the European Commission (Arts. 9(2), 10(2), 11(3), 12, 13 (9), 16, 20 and 21 MSFD).

31.3.2 Marine Spatial Planning

Spatial planning is an important tool for managing the development and use of land which aims to create a more rational organization of land uses and the linkages between them, to balance demands for development with the need to protect the environment, and to achieve social and economic objectives (UNECE 2008: 1). Despite the long tradition of spatial planning on land, its application to the marine

⁸ Annex VI MSFD indicates types of measures, e.g. input and output controls, control of spatial and temporal distribution of activities, economic incentives, communication and stakeholder involvement, that shall be taken into consideration.

environment still is a recent development (see Chap. 54). Marine spatial planning facilitates the implementation of the ecosystem-based approach and should take into account the various pressures on marine ecosystems and resources by human activities as well as land-sea interactions and climate change effects. An example is provided by directive 2014/89/EU which establishes a common framework for marine spatial planning in the EU. It aims to identify the utilisation of maritime space for different sea uses as well as to manage spatial uses and conflicts in marine areas.

Spatial plans can only address the spatial and temporal distribution of activities, thus they cannot replace other measures regulating the intensity of human activities (e.g. the setting of quotas in relation to fishing effort). The process of marine spatial planning is similar to land use planning in the terrestrial environment, the principal output being a comprehensive, multi-sectoral marine spatial plan or comprehensive development plan (Douvere and Ehler 2009: 78). For example, the German *Raumordnungsplan Nordsee* (Spatial Plan North Sea) contains provisions aimed at the coordination of uses and functions like shipping, the exploitation of resources, the laying of pipelines and submarine cables, scientific marine research, wind power production, fisheries and mariculture as well as the protection of the marine environment (regarding differences between territorial and marine spatial plans see Chap. 28).

31.3.3 *Marine Protected Areas*

Protected areas are a key instrument as regards the conservation and sustainable use of biodiversity (see Art. 8 CBD; see Chap. 46). The Aichi Biodiversity Targets, adopted by the international community in 2010, call for at least 10% of coastal and marine areas, especially those of particular ecological importance, to be conserved through effective systems of marine protected areas and other effective area-based conservation measures. There currently is no universally accepted definition for the term ‘marine protected area’ but a definition proposed by the International Union for Conservation of Nature (IUCN) is widely used (Hodgson et al. 2014: 42): “Any area of intertidal or sub-tidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment.”⁹ Most Multilateral Environmental Agreements designed to protect biodiversity, habitats or threatened species and all Regional Seas Conventions applying to European seas have developed mechanisms for the designation and management of MPAs as a means to achieve their objectives (Frank 2007: 331).¹⁰

⁹Resolution 17.38 of the IUCN General Assembly, 1988.

¹⁰See e.g. Art. 3(1)(b)(ii) of Annex V OSPAR Convention, OSPAR Recommendation 2003/3 on a Network of Marine Protected Areas; Art. 15 Helsinki Convention, HELCOM Recommendation 35/1 ‘System of Coastal and Marine Baltic Sea Protected Areas (HELCOM MPAs)’; as regards the high seas see paragraph 2 of General Assembly Resolution 69/292 of 6 July 2015 ‘Development of an international legally binding instrument under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction’.

In relation to other management instruments, MPAs may be qualified as planning tools (see Kloepper et al. 2004: 232): Protected areas should be integrated into the wider land- and seascape; ecological connectivity and the concept of ecological networks, including connectivity for migratory species, have to be taken into account (CBD 2011: 15). The latter is exemplified by the Habitats directive (Directive 92/43/EEC), establishing the EU-wide Natura 2000 ecological network of protected areas. A central element of MPAs is the management of human activities taking place in the area. Thus within an MPA certain activities, e.g. fisheries or mineral extraction, may be limited or entirely prohibited in order to meet specific conservation, habitat protection or ecosystem monitoring objectives.¹¹

Sector-specific management instruments providing for area-based restrictions, which are applied for activities like shipping or fishing, may directly or indirectly contribute to the protection of marine biodiversity. MARPOL e.g. provides for the designation of ‘Special Areas’ in which the adoption of special mandatory methods for the prevention of pollution is required.¹² Particularly Sensitive Sea Areas (PSSAs) are defined as areas that need special protection through action by IMO because of their significance for recognized ecological, socio-economic or scientific reasons and which may be vulnerable to damage by international shipping activities (IMO 2005). As regards fisheries management, time and area restrictions may serve to protect commercially used fish stocks by preventing overfishing and to ensure that fishing effort is commensurate with the productive capacity of the fishery resources and their sustainable utilization (Hall 2002: 51).

31.4 Environmental Information and Public Participation

Information on the state of the environment and on activities which have adverse or damaging effects is considered to be a prerequisite to effective national and international environmental management, protection and co-operation (Sands 2003: 826; Chap. 28). In order to collect reliable information, many legislative acts establish monitoring, surveillance and reporting obligations.¹³ According to the OSPAR Convention (Annex IV, Art. 1), monitoring may encompass the repeated measurement of the quality of the marine environment and each of its compartments, activities or natural and anthropogenic inputs which may affect the quality of the marine environment and the effects of such activities and inputs. Monitoring serves to

¹¹ See e.g. Council Regulation (EC) No 602/2004 as regards the protection of deepwater coral reefs from the effects of trawling in an area northwest of Scotland.

¹² See IMO Assembly Resolution A.927(22), Guidelines for the Designation of Special Areas under MARPOL 73/78 and Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas (Nov. 29, 2001).

¹³ See e.g. Art. 204 UNCLOS; Art. 5 (l) Straddling Fish Stocks Agreement; Art. 7 CBD; Annex IV Art. 1 OSPAR Convention; Arts. 11, 17 Habitats Directive (Directive 92/43/EEC); as regards national laws see e.g. Art. 6 of the German Bundesnaturschutzgesetz [BNatSchG] (Federal Nature Conservation Act).

identify patterns and trends as regards the state of the environment. It also may be undertaken for the purposes of ensuring compliance with the relevant legal regime or for research purposes.

The availability of and access to environmental information¹⁴ ensures the participation of citizens in national decision-making processes. Requirements for public participation in various categories of environmental decision-making are set out by the UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention).¹⁵ Public participation can improve the quality of decisions by promoting the disclosure of relevant information to participants in the environmental decision-making process; it also can increase the acceptance of decisions (Kloepfer et al. 2004: 252). Access to justice can improve implementation through allowing judicial enforcement by actors which otherwise often would not have standing according to national law.

Environmental assessment is a procedure that ensures that the environmental implications of decisions are taken into account before the decisions are made. It contributes to the integration of environmental considerations into decision-making processes at an early stage. Environmental assessment may be undertaken for individual projects, such as a pipeline, offshore wind farm or the extraction of crude oil or natural gas (then called ‘environmental impact assessment’ (EIA)), or for plans and programmes, e.g. marine spatial plans (then called ‘strategic environmental assessment’ (SEA)). A large number of binding and non-binding instruments now provide for EIA¹⁶ or SEA.¹⁷ Environmental assessment describes a process, the assessment being concluded by a written statement which is supposed to guide the decision-making by providing information on environmental impacts of the activity (Sands 2003: 799 et seq.). Instruments like the Espoo Convention and Protocol or the EU directives also provide for public participation in government decision-making.

¹⁴According to Art. 2 (3) Aarhus Convention, the term ‘environmental information’ encompasses information on the state of elements of the environment, such as air and atmosphere, water, soil, land, landscape and natural sites, biological diversity and its components, including genetically modified organisms, and the interaction among these elements and a broad range of activities or measures (such as administrative measures, environmental agreements, policies, legislation, plans and programmes).

¹⁵The first international instrument to create a right of access to environmental information was Council Directive 90/313/EEC (see Sands 2003, p. 854); the 1992 OSPAR Convention in Art. 9 provides for access to information.

¹⁶See e.g. Principle 17 of the Rio Declaration, Art. 206 UNCLOS, the Espoo Convention and Directive 2011/92/EU.

¹⁷See e.g. the 2003 Protocol on Strategic Environmental Assessment to the Espoo Convention or Directive 2001/42/EC of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment.

31.5 Economic and Voluntary Instruments

Economic instruments like taxes, subsidies, tradeable permits, consumer information incentives or civil liability primarily aim to influence the motivation of the addressee¹⁸; they are considered indirect behavioural steering approaches (Kloepfer and Winter 1996: 47). Taxes and charges are classic economic instruments, the rationale behind them being that they may create an economic disincentive to environmentally damaging behaviour. In the context of marine environment protection, product taxes or charges can serve to discourage the consumption of products that frequently end up as marine litter, such as disposable plastic bags. The same applies to deposit refund systems, e.g. for bottles (Newmann et al. 2015: 377, 381). Whereas tax revenues are added to the general public budget, charge revenues are used to specifically finance environmental measures (Sands 2003: 161).

Another marked-based instrument are tradeable permits, e.g. individual transferable fishing concessions and quotas. Individual transferable (or ‘tradeable’) quotas (ITQs) are set in relation to a total allowable catch and may serve to eliminate overcapacity of fishing fleets and to improve economic results of the fishing industry. Countries like Australia or New Zealand apply the instrument of ITQs.¹⁹ As regards the EU, Art. 21 of Regulation (EU) No 1380/2013 provides that Member States may establish a system of transferable fishing concessions, but other than originally proposed by the Commission the establishment of such a system is not made mandatory (see Salomon et al. 2014: 81).

Consumer information incentives such as the labels awarded by the Marine Stewardship Council (MSC) and Friend of the Sea (FOS), may promote sustainable fishing practices. Eco-labelling and certification provide competitive advantages for companies in terms of more secure supply relationships based on certification, consolidation of position in existing markets, and of new niche markets for environmentally friendly products. (FAO 2010: 134). The Code of Conduct for Responsible Fisheries of the FAO is a voluntary agreement which was adopted by more than 170 members of the FAO. Together with related instruments it forms the basis for private standard setting like the eco-labelling initiative of the MSC (see Friedrich 2013: 359).²⁰

In order to deter harmful activities and to remedy environmental damage, civil liability for hazardous activities and compensation for damage together with related insurance obligations may be established. Several conventions provide for liability

¹⁸ See Annex VI (6) MSFD, according to which economic incentives make it the economic interest of those using the marine ecosystems to act in ways which help to achieve the good environmental status objective.

¹⁹ See the OECD database on instruments used for environmental policy and natural resources management, <http://www2.oecd.org/econinst/queries/Default.aspx>.

²⁰ Another example for a voluntary agreement is the ‘Freiwillige Vereinbarung zum Schutz von Schweinswalen und tauchenden Meeressäugern’ (voluntary agreement for the conservation of harbour porpoises and sea ducks) between German fishery associations and the Ministry of Energy transition, Agriculture, Environment and Rural Areas Schleswig-Holstein (MELUR) of 17.12.2013.

and compensation for damage by oil pollution or the carriage of hazardous and noxious substances (see Kiss and Shelton 2004: 286 et seq.) The system is based on the 1969 Convention on Civil Liability for Oil Pollution Damage, which was replaced by its 1992 Protocol and which establishes ship owner's liability and requires ships to maintain insurance in respect of oil pollution damage.²¹ As regards the Antarctic, Annex VI to the Environment Protocol on 'Liability Arising from Environmental Emergencies' covers environmental emergencies which relate to scientific research programmes, tourism and other governmental and non-governmental activities in the Antarctic Treaty area (see Art. 1; Annex VI did not enter into force yet).²²

Economic incentives, market-based instruments as well as information requirements and voluntary tools allow to engage stakeholders at different levels and can be important complements to direct regulation. Voluntary approaches can be used to establish norms which go further than existing law, but they cannot replace international and domestic law and its enforcement (Friedrich 2013: 366).

31.6 Conclusion

At international, European and national level a broad variety of management strategies and instruments exists which can be used to protect the marine environment. The regulatory techniques to be applied basically are the same as in terrestrial environment protection, though sometimes their application to marine issues still is under development. Standards are essential for the functioning of environmental legislation, being used as a guideline or providing binding threshold values or environmental quality objectives. The application of economic and voluntary instruments contributes to marine environment protection. Nonetheless, setting enforceable legal rules, be it substantive environmental standards or procedural requirements, is fundamental to environmental law. Efficient environmental management as well requires sufficient information which also should be made available to the public and non-governmental organizations to allow for their participation in decision-making processes. As coastal States only enjoy sovereignty or sovereign rights over the maritime zones in the waters adjacent to their coasts, international regulation and possibly administration need to be further developed in order to be able to apply adequate instruments in relation to areas beyond national jurisdiction.

²¹ It is complemented by the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (FUND) of 1971, also amended in 1992.

²² In contrast to civil liability systems, the European [Directive 2004/35/EC](#) on environmental liability with regard to the prevention and remedying of environmental damage takes an administrative approach, i.e. it is based on the powers and duties of public authorities, and also covers damage to 'the environment in itself' (i.e. damage is not limited to clean-up costs and loss of profit).

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