

International Max Planck Research School for Maritime Affairs  
at the University of Hamburg

Markus J. Kachel

# Particularly Sensitive Sea Areas

The IMO's Role  
in Protecting Vulnerable Marine Areas

 Springer

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Vulnerable Marine Areas

 Springer

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## Preface and Acknowledgements

The idea of this study emanated from one of many lively discussions I had during my time as a student on the LL.M. programme at University College London. In the aftermath of the disastrous *Prestige* sinking off the French Atlantic coast in November 2002, I came across the legal questions posed by Particularly Sensitive Sea Areas. Prof. Malcolm Forster of UCL encouraged me to pursue my research and eventually supervised a study on the Western European PSSA. I am greatly indebted to him for stimulating and sustaining my interest in this subject matter.

When I considered starting a PhD study on the broader legal implications of the PSSA concept, Prof. Dr. Hans-Joachim Koch (University of Hamburg), my teacher and mentor for many years, supported my project and agreed to supervise it. I would like to express my sincerest appreciation to him. He not only aroused my interest in environmental law, but also taught me always to explore the subtleties of an issue. Being an assistant to him for some years was an indispensable prerequisite for conceptualising, drafting and finalising such a long study.

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Berlin, January 2008

Markus J. Kachel

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## Abbreviations

(Journal titles are highlighted in italics)

<i>AJIL</i>	<i>American Journal of International Law</i>
AB	WTO Appellate Body
AFS Convention	International Convention on the Control of Harmful Anti-Fouling Systems on Ships
AIS	Automatic Identification System
<i>ALR</i>	<i>Australian Law Reports</i>
APM	Associated Protective Measure
<i>ARIEL</i>	<i>Austrian Review of International and European Law</i>
ASL	Archipelagic Sea Lane
ASPA	Antarctic Specially Protected Area
ATBA	Area To Be Avoided
<i>ATS</i>	<i>Australian Treaty Series</i>
ATS	Antarctic Treaty System
BAnz.	Bundesanzeiger
BfN	Bundesamt für Naturschutz
BGBI.	Bundesgesetzblatt
<i>B. U. L. Rev.</i>	<i>Boston University Law Review</i>
BIMCO	The Baltic and International Maritime Council
BLG	IMO Sub-Committee on Bulk Liquids and Gases
BSH	Bundesamt für Seeschifffahrt und Hydrographie ( <i>German Federal Maritime and Hydrographic Agency</i> )
BSPA	Baltic Sea Protected Areas
BWC	International Convention for the Control and Management of Ships' Ballast Water and Sediments
<i>BYIL</i>	<i>British Yearbook of International Law</i>
C&SMWG	Colours and Symbols Maintenance Working Group of CHRIS
CaMPAM	Network of Wider Caribbean Marine Protected Areas Managers
CBD	Convention on Biological Diversity
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CDEM	Construction, Design, Equipment and Manning
CEP	Caribbean Environment Programme

CHRIS	IHO Committee on Hydrographic Requirements for Information Systems
CID	UN Centre for Industrial Development
CLOT	1969 Vienna Convention on the Law of Treaties
<i>CML Rev.</i>	<i>Common Market Law Review</i>
<i>Colo. J. Int'l Envtl. L. &amp; Pol'y</i>	<i>Colorado Journal of International Environmental Law and Policy</i>
COLREG	Convention on the International Regulations for Preventing Collisions at Sea
COP	Conference of the Parties
CSPCWG	Chart Standardization and Paper Chart Working Group of CHRIS
DE	IMO Sub-Committee on Ship Design and Equipment
DOALOS	UN Division on Ocean Affairs and Law of the Sea
DTI	UK Department of Trade and Industry
dwt	Dead Weight Tons
<i>E.L.Rev.</i>	<i>European Law Review</i>
EC	European Community
ECOSOC	UN Economic and Social Council
<i>ECR</i>	<i>European Court Reports</i>
EEA	European Environmental Agency
EEZ	Exclusive Economic Zone
<i>EJIL</i>	<i>European Journal of International Law</i>
<i>Environ. Sci. Technol.</i>	<i>Environmental Science &amp; Technology</i>
<i>EPIL</i>	<i>Encyclopaedia of Public International Law</i>
<i>EPL</i>	<i>Environmental Policy and Law</i>
<i>ESPR</i>	<i>Environmental Science and Pollution Research</i>
ESSA	Environmentally Sensitive Sea Area
EU	European Union
FAL	IMO Facilitation Committee
FAO	Food and Agriculture Organization
FoEI	Friends of the Earth International
FSI	IMO Sub-Committee on Flag State Implementation
GBR	Great Barrier Reef
<i>Geo. Int'l Envtl. L. Rev.</i>	<i>Georgetown International Environmental Law Review</i>
GESAMP	IMO/FAO/UNESCO/WMO/WHO/IAEA/UN/UNEP Joint Group of Experts on the Scientific Aspects of Marine Pollution
GPA	UNEP Global Programme of Action for the Protection of the Marine Environment from Land Based Activities
GPSR	General Provisions on Ships' Routing
<i>Harv. ILJ</i>	<i>Harvard International Law Journal</i>
HELCOM	Helsinki Commission



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HSMPA	High Seas Marine Protected Area
<i>I.C.J. Reports</i>	<i>Reports of Judgments, Advisory Opinions and Orders of the International Court of Justice</i>
IAEA	International Atomic Energy Agency
IBC Code	International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk
ICES	International Council for the Exploration of the Sea
ICJ	International Court of Justice
<i>ICLQ</i>	<i>International and Comparative Law Quarterly</i>
ICRAN	International Coral Reef Action Network
ICS	International Chamber of Shipping
IGC Code	International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk
IHB	International Hydrographic Bureau
IHO	International Hydrographic Organization
<i>IJECL</i>	<i>International Journal of Estuarine and Coastal Law</i>
<i>IJMCL</i>	<i>International Journal of Coastal and Marine Law</i>
ILA	International Law Association
<i>ILM</i>	<i>International Legal Materials</i>
ILO	International Labour Organization
<i>ILR</i>	<i>International Law Reports</i>
IMDG Code	International Maritime Dangerous Goods Code
IMO	International Maritime Organization
INF	Irradiated Nuclear Fuel
INF Code	International Code for the Safe Carriage of Packaged Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive Wastes on Board Ships
IOC	Intergovernmental Oceanographic Commission of UNESCO
IPCS	International Programme on Chemical Safety of the Inter-Organization Programme for the Sound Management of Chemicals (IOMC)
IPTA	International Parcel Tankers Association
ISA	International Seabed Authority
ISL	Institute of Shipping Economics and Logistics
ISPS Code	International Ship and Port Facility Security Code
ITLOS	International Tribunal of the Law of the Sea
<i>ITLOS Reports</i>	<i>Reports of Judgments, Advisory Opinions and Orders of the International Tribunal for the Law of the Sea</i>
ITOPF	International Tanker Owners Pollution Federation
IUCN	World Conservation Union
IWC	International Whaling Commission
<i>J. Mar. L. &amp; Com.</i>	<i>Journal of Maritime Law and Commerce</i>

<i>JEEPL</i>	<i>Journal of European Environmental and Planning Law</i>
<i>JEL</i>	<i>Journal of Environmental Law</i>
JPOI	Johannesburg Plan of Implementation
LDC	London Dumping Convention
LEG	IMO Legal Committee
<i>LOSB</i>	<i>Law of the Sea Bulletin</i>
MAB Programme	Man and the Biosphere Programme
MARPOL	1973 International Convention for the Prevention of Pollution from Ships, as amended by Protocol of 1978
MASH	WG on Marine Protected Areas, Species and Habitats of the OSPAR Commission's Biodiversity Committee
<i>Max Planck UNYB</i>	<i>Max Planck Yearbook of United Nations Law</i>
MCPAs	Marine and Coastal Protected Areas
MEHRA	Marine Environment High Relevance Area
MEPC	IMO Marine Environment Protection Committee
<i>Mich. L. Rev.</i>	<i>Michigan Law Review</i>
MOP	Meeting of the Parties (to a Protocol)
MOU	Memorandum of Understanding
MPA	Marine Protected Area
<i>MPB</i>	<i>Marine Pollution Bulletin</i>
MSC	IMO Marine Safety Committee
<i>N.Y.U. J. Int'l L. &amp; Pol.</i>	<i>New York University Journal of International Law and Policy</i>
NACA	Network of Aquaculture Centres in Asia-Pacific
NAV	IMO Sub-Committee on Navigation
NfS	Nachrichten für Seefahrer ( <i>German Notices for Mariners</i> )
NGO	Non-Governmental Organisation
<i>NILR</i>	<i>Netherlands International Law Review</i>
NO <sub>x</sub>	Nitrogen oxides
<i>NuR</i>	<i>Natur und Recht</i>
<i>NYIL</i>	<i>Netherlands Yearbook of International Law</i>
OCIMF	Oil Companies International Marine Forum
<i>ODIL</i>	<i>Ocean Development and International Law</i>
<i>OGLTR</i>	<i>Oil and Gas Law and Taxation Review</i>
OJ	Official Journal of the European Union
OPA	1990 US Oil Pollution Act
OSPAR Convention	Convention for the Protection of the Marine Environment of the North-East Atlantic
PAHs	Polycyclic Aromatic Hydrocarbons
PCA	Permanent Court of Arbitration
PCBs	Polychlorinated biphenyls
PCIJ	Permanent Court of International Justice

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PoI	Plan of Implementation of the WSSD
POPs	Persistent Organic Pollutants
PSSA	Particularly Sensitive Sea Area
PSU	Practical Salinity Units
PTS	Persistent toxic substances
RAC/SPA	Regional Activity Centre for Specially Protected Areas
<i>RECIEL</i>	<i>Review of European Community and International Environmental Law</i>
<i>RIAA</i>	<i>UN Reports of International Arbitral Awards – Recueil des Sentences Arbitrales</i>
s.v.	sub verbo
<i>San Diego L. Rev.</i>	<i>San Diego Law Review</i>
SBSTTA	Subsidiary Body on Scientific, Technical and Technological Advice
SCAR	Scientific Committee for Antarctic Research
Sec.	Section
SECA	SO <sub>x</sub> Emission Control Area
SIOCAM	UNDP Strategic Initiative for Ocean and Coastal Management
SOLAS	Convention for the Safety of Life at Sea
SO <sub>x</sub>	Sulphur oxides
SPAMI	Special Protected Area of Mediterranean Importance
SPAW Protocol	1990 Kingston Protocol Concerning Specially Protected Areas and Wildlife to the 1983 Cartagena Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region
SRS	Ship Reporting System
SRU	Rat von Sachverständigen für Umweltfragen ( <i>German Advisory Council on the Environment</i> )
<i>SSMR</i>	<i>Shipping Statistics and Market Review</i>
STAC	Scientific and Technical Advisory Committee to the Meeting of the Parties to the Kingston SPAW Protocol
STCW	International Convention on Standards of Training, Certification and Watchkeeping for Seafarers
TBT	Tributyl tin
TCC	IMO Technical Co-Operation Committee
TSS	Traffic Separation Scheme
<i>Tul J. Int'l &amp; Comp. L.</i>	<i>Tulane Journal of International and Comparative Law</i>
<i>U.B.C. L. Rev.</i>	<i>The University of British Columbia Law Review</i>
U.S.	Supreme Court Reporter
UN	United Nations

UNCED	1992 United Nations Conference on Environment and Development, Rio de Janeiro (Brazil)
UNCHE	1972 United Nations Conference on the Human Environment, Stockholm (Sweden)
UNCLOS	United Nations Convention on the Law of the Sea
UNCLOS III	Third United Nations Conference on the Law of the Sea, 1973-1982
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICPOLOS	United Nations Open-Ended Informal Consultative Process on Oceans and the Law of the Sea
UNIDO	United Nations Industrial Development Organization
<i>UNYB</i>	<i>Yearbook of the United Nations</i>
<i>VJIL</i>	<i>Virginia Journal of International Law</i>
VTS	Vessel Traffic Service
WBGU	Wissenschaftlicher Beirat der Bundesregierung Globale Umweltveränderungen ( <i>German Advisory Council on Global Change</i> )
WCMC	UNEP World Conservation Monitoring Centre
WP	Working Paper
WSSD	2002 World Summit on Sustainable Development, Johannesburg (South Africa)
WTO	World Tourism Organization
WWF	World Wildlife Fund for Nature
<i>Yb. Int'l Env Law</i>	<i>Yearbook of International Environmental Law</i>
<i>YJIL</i>	<i>Yale Journal of International Law</i>
<i>ZaöRV</i>	<i>Zeitschrift für ausländisches öffentliches Recht und Rechtsvergleichung</i> (Heidelberg Journal of International Law)
<i>ZfU</i>	<i>Zeitschrift für Umweltpolitik &amp; Umweltrecht</i>
<i>ZUR</i>	<i>Zeitschrift für Umweltrecht</i>

## Introduction

Even though environmental awareness is continuously increasing, the environment is still at risk. The loss of biological diversity, or biodiversity, of species and habitats, as well as genetic diversity has not yet come to a halt; quite on the contrary, virtually all aspects of biodiversity are in steep decline.<sup>1</sup> Biodiversity loss is irreversible and probably the most serious threat to life on earth. Many floral and faunal species are disappearing at an unprecedented rate: for instance, 12 per cent of bird species are threatened with extinction, as well as 23 per cent of mammals and 32 per cent of amphibians.<sup>2</sup> The decline of biodiversity in the oceans is even worse. Despite a lack of comprehensive data<sup>3</sup>, it is widely accepted that an increasing number of marine species is threatened with extinction.<sup>4</sup> The main reasons for these developments are persistent pollution of the world's oceans and an escalating destruction of marine habitats.

### I. Global Shipping and the Marine Environment

Among the many uses of the oceans, shipping is one of the most longstanding and arguably the economically most important. Vessels do, however, also cause considerable stress to the marine environment, even in areas where vessel traffic is less intense. The contribution of international shipping to marine biodiversity loss consists of three different elements: accidental pollution, operational pollution and the physical destruction of habitats. These factors have long been identified. Therefore, Agenda 21, the most comprehensive statement on international environmental policy embraced by the 1992 UN Conference on Environment and

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<sup>1</sup> Michel Loreau and Alfred Oteng-Yeboah, "Biodiversity without Representation", 442 *Nature* (2006), pp. 245-246. This recent article contains an urgent call, co-signed by 19 leading international scientists, to give adequate weight to biodiversity in both private and public decision-making. The international community is urged to establish immediately an advisory panel on biodiversity protection.

<sup>2</sup> Jonathan E.M. Baillie, Craig Hilton-Taylor and Simon N. Stuart, *2004 IUCN Red List of Threatened Species: A Global Species Assessment* (Gland Cambridge: IUCN Publication 2004), p. 7. The editors acknowledge that some numbers only represent gross estimates.

<sup>3</sup> At the Third World Conservation Congress in 2004, IUCN announced the commencement of a *Global Marine Species Assessment* covering 20,000 species, to be finished within five years.

<sup>4</sup> Jonathan E.M. Baillie, Craig Hilton-Taylor and Simon N. Stuart, *supra*, note 2, p. 66 et seqq.

Development, has called on states to, *inter alia*, monitor marine pollution from ships and promote the use and application of ships' routing measures.<sup>5</sup>

It is an undisputed fact that the majority of marine pollutants originate from land-based sources rather than from vessels. However, this observation must not be misused as a justification to refrain from protective action; mitigating the negative impacts of international shipping on marine biodiversity must remain a paradigm of international policy.

Within the framework of international ocean governance, it is mainly the International Maritime Organization (IMO), a UN specialised agency based in London, which is entrusted with developing global rules and standards to govern international shipping. Through the IMO, the international community has adopted a plethora of instruments on subjects such as discharge regulation, ships' routing, the handling of hazardous cargoes and the recycling of ships. Given the broad array of existing environment-related rules, the primary concern has shifted from developing rules to actually achieving their implementation.

## II. Particularly Sensitive Sea Areas and the International Maritime Organization

As scientists increasingly realised that source-focused environmental protection rules should at best be complemented by spatial rules for specific vulnerable areas, IMO commenced to pursue the adoption of a respective instrument. It took over a decade to develop "Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas", which were finally adopted in 1991.<sup>6</sup> Their adoption was greatly appreciated by the international community. In Agenda 21, Chapter 17 on the protection of the marine environment there is a recommendation to states to strengthen the instrument further by "[assessing] the state of pollution caused by ships in particularly sensitive sea areas identified by IMO and to take action to implement applicable measures, where necessary, within such areas to ensure compliance with generally accepted international regulations."<sup>7</sup>

In addition, Agenda 21 calls on states to "identify marine ecosystems exhibiting high levels of biodiversity and productivity and other critical habitat areas and provide necessary limitations on use in these areas, through, *inter alia*, designation of protected areas."<sup>8</sup> Both states and the IMO are urged to "take action to ensure respect of areas designated by coastal States, within their exclusive economic zones, consistent with international law, in order to protect and preserve rare or

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<sup>5</sup> Para. 17.30(a)(iii) and (vii). Agenda 21 is reproduced in Nicholas A. Robinson (ed.), *Agenda 21 & The UNCED Proceedings*, Vol. IV (New York London Rome: Oceana Publications 1993), pp. 1-636.

<sup>6</sup> The first set of guidelines was adopted in 1991. The most recent version is to be found in Res. A.982(24), *Revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas*, adopted on 1 December 2005. The PSSA Guidelines are reproduced in the annex to this treatise.

<sup>7</sup> Para. 17.30(a)(iv).

<sup>8</sup> Para. 17.85.

fragile ecosystems, such as coral reefs and mangroves.”<sup>9</sup> Particularly Sensitive Sea Areas, or PSSAs, have received great attention in IMO’s work, especially within its Marine Environment Protection Committee (MEPC). The Secretary-General of IMO, Mr. Efthimios E. *Mitropoulos*, at the 24<sup>th</sup> session of the IMO Assembly in November 2005, remarked “that the designation of PSSAs was an important component of the policy of the Organization in its effort to protect the marine environment.”<sup>10</sup>

The PSSA Guidelines, which were essentially a result of an inter-agency process, have become a subject of contentious discussions within IMO over the last three years. Debates were triggered by an increasing number of designated areas. Several states felt that designations were to disguise the political desires of coastal states to exert more influence over foreign vessels in waters under their jurisdiction. Thus, few scholars have attached attention to the PSSA concept and its legal implications. Many questions are still to be addressed. With regard to the PSSA concept, it has been observed that “[a]lthough the IMO accepts that the provisions of the LOS Convention set the legal framework within which the organization has to carry out its work, not all concepts which are employed by the IMO may fit perfectly within this framework.”<sup>11</sup> Differing views have been voiced with respect to the impact of PSSAs on marine environmental governance. Taking a positive view, *Merialdi* has stated that “the establishment of a PSSA could represent a remedy for the limits set by international law regarding the application by coastal States of anti-pollution standards which have not received general acceptance.”<sup>12</sup> On a more sceptical note, *Molenaar* has contended: “It seems that coastal States gain little in acquiring a PSSA identification, except perhaps for some ill-defined recognition of the area’s special character.”<sup>13</sup>

### III. Aims of this treatise

First of all, this treatise aims to take stock of developments within IMO that contribute to the growing body of international marine environmental law designed to protect highly vulnerable marine ecosystems and habitats of endangered marine species. It is thus essential to broadly examine what the PSSA concept is all about; whether, and if so, how and to what extent it is distinct in international

<sup>9</sup> Para. 17.30(a)(v).

<sup>10</sup> A 24/SR.6, *Summary Record of the Sixth Plenary Meeting*, 23 November 2005, p. 9.

<sup>11</sup> David Freestone and Alex G. Oude Elferink, “Flexibility and Innovation in the Law of the Sea – Will the LOS Convention Amendment Procedure ever be used?”, in A.G. Oude Elferink (ed.), *Stability and Change in the Law of the Sea: The Role of the LOS Convention* (Leiden Boston: Martinus Nijhoff Publishers 2005), pp. 169-221, at 215.

<sup>12</sup> Angelo Merialdi, “Legal Restraints on Navigation in Marine Specially Protected Areas”, in T. Scovazzi (ed.), *Marine Specially Protected Areas* (The Hague Boston London: Kluwer Law International 1999), pp. 29-43, at 37.

<sup>13</sup> Erik Jaap Molenaar, *Coastal State Jurisdiction over Vessel-Source Pollution* (The Hague Boston London : Kluwer Law International 1998), p. 443.

law. Given that other regimes in global and regional international law exist that aim to protect specific marine areas, their relationship with PSSAs should be dealt with, in particular with a view to identifying possible synergy effects.

Further issues to be addressed include the means that can be deployed to protect a PSSA from shipping activities or types of ships that are potentially dangerous. To that end, I shall refer to restraints set by international law for protective measures applied to foreign vessels by coastal states. It should be explored if PSSA status is a prerequisite for extended jurisdictional competencies of coastal states to enhance the protective level of an area. A related and very challenging question concerns the applicability of the PSSA concept on the high seas, which is characterised by the absence of coastal states' jurisdiction.

#### **IV. Synopsis**

This treatise is organised in four parts, consisting of 11 chapters in total. Part 1 (Chapters 1 and 2) is designed to sketch out the problems that IMO wishes to address by designating PSSAs. The main features of the oceans and their various uses are at the centre of Chapter 1. Chapter 2 should emphasise how the marine environment is under stress; it thus describes sources and types of pollutants in general, as well as the contribution of shipping to these developments in particular. Part 2 (Chapter 3, 4, and 5) focuses on the means by which the specific protection of marine areas is achieved, as well as the legal framework for their implementation. On the basis of scientific considerations relating to specifically protected marine areas (Chapter 3), I shall examine the rules and principles in international law that are relevant for the implementation of instruments that seek to transpose scientific postulates into the legal realm (Chapter 4). Furthermore, Chapter 5 contains an account of multilateral regimes that allow for the designation of specially protected areas; illustrating existing regimes is crucial for a later examination of the PSSA concept's peculiarities. Part 3 (Chapters 6, 7 and 8) specifically addresses PSSAs as IMO's key instrument in protecting vulnerable marine areas. In order to gain basic understanding of the work of IMO and its legal basis, Chapter 6 explores the marine environment protection activities of IMO within the structure of international institutions. Chapter 7 is devoted to an introduction to the development of the PSSA concept, as well as to its application within IMO, including procedural requirements. More specifically, Chapter 8 examines associated protective measures (APMs) that could be employed in PSSAs. It also gives an overview of all PSSAs designated to date. Finally, Part 4 (Chapters 9, 10 and 11) seeks to assess and analyse the PSSA concept. In comparison with other multilateral protection regimes, Chapter 9 is designed to investigate if the PSSA regime is a valuable instrument that may either complement or substitute other schemes. Subsequently, Chapter 10 examines the legal quality of the PSSA Guidelines and their impact on coastal state jurisdiction in environmental matters over foreign vessels. It also seeks to scrutinise whether and how PSSAs could be implemented on the high seas. Ultimately, Chapter 11 explores the perspectives for future developments of the PSSA concept.



## **Part 1: The Marine Environment: Oceans under Threat**

As an introduction to an analysis of an instrument which is designed to protect the marine environment, it is crucial to explore the main characteristics of the subject of protection – the world’s oceans – as well as the threats it faces. Consequently, the first part of this treatise, which is subdivided into two chapters, carefully examines the relevant properties of the oceans and the major human activities in marine areas. Because most human activities, not least international shipping, generate adverse effects for the marine environment, it also introduces the main sources of pollution and major groups of pollutants.

### **Chapter 1: The Oceans – Utilisation and Conflicts**

The first chapter is largely divided into two sections. The first will introduce the marine eco-system so that the main characteristics of the subject of protection are clear. As the world’s oceans are by no means untouched areas, the second section shall shed some light on the various human activities that make use of the sea.

#### **I. The Marine Environment: Subject and Purpose of Protection**

The importance of environmental protection today is a widely accepted postulate. Issues only raised by a minority until two or three decades ago have now evolved into a mainstream position. This observation does not only apply generally. With regard to the scope of this book, it can be said that there is no disagreement over aiming – as a priority – for the preservation and protection of the marine environment. However, as will be shown in subsequent chapters, the consent as to “if” should not lead anyone to believe that there is consent as to “how” to achieve adequate protection. It is no mere conjecture to attribute the differences to the different stakes involved and to different perceptions of sound protection.

Nevertheless, I consider it necessary – not least in order to put the analysis of the PSSA concept into context – to take a swift look at what marine environment protection means. Therefore, the first part of this chapter is dedicated to the object of protection: the sea in general. What constitutes the sea? And what are its unique features that render it so important? Since ecosystems consist of both non-living

(abiotic) components and biotic components, I shall look at the physical and chemical features of the oceans, as well as their biological features and functions.

### **1. Oceans and seas – main physical and chemical properties**

Generally, it can be noted that 71 per cent of the Earth's surface is covered with water. That equals a volume of 1370 million cubic kilometres and amounts to a total mass of about  $1.4 \times 10^{21}$  kg (approx. 0.023 % of the Earth's total mass).<sup>1</sup> The world's oceans may be differentiated into open oceans<sup>2</sup>, semi-enclosed seas and enclosed seas<sup>3</sup>, all of which have different characteristics.<sup>4</sup>

Nevertheless, as virtually all waters are – to a varying extent – interconnected, they boast similarities with respect to their water composition. Oceanic water is a complex solution. Many solid substances, not only sodium chloride and other dissolved ions, are dissolved or suspended in sea water.<sup>5</sup> Substances included in oceanic water are usually divided into five categories: main elements, dissolved gases, biogenic substances, trace elements and organic substances.<sup>6</sup> Eleven main chemical elements are to be found in seawater, including chloride, sodium, sulphate and magnesium, accounting for more than 99 per cent of all dissolved ions in seawater.<sup>7</sup> Dissolved gases are nitrogen, oxygen, carbon dioxide, argon and hydrogen sulphide, which mainly derive from the atmosphere, from biochemical or geochemical processes, such as degassing of the mantle into the Earth's crust.<sup>8</sup>

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<sup>1</sup> For further details, see Joachim Marcinek and Erhard Rosenkranz, *Das Wasser der Erde – Eine geographische Meeres- und Gewässerkunde*, Second Ed. (Gotha: Justus Perthes Verlag 1996), p. 15 and p. 30 et seq., as well as Frank J. Millero, *Chemical Oceanography*, Third Ed. (Boca Raton London New York: Taylor & Francis 2006), p. 2 et seqq.

<sup>2</sup> The global body of salt water is usually divided into five main bodies: the Pacific Ocean, the Atlantic Ocean, the Indian Ocean, the Southern Ocean and the Arctic Ocean. The name “Southern Ocean” was officially sanctioned by the International Hydrographic Organisation (IHO) in 2000 but is still disputed.

<sup>3</sup> For a list of seas, divided by oceans, see the information available from <[http://en.wikipedia.org/wiki/Sea#List\\_of\\_seas.2C\\_divided\\_by\\_ocean](http://en.wikipedia.org/wiki/Sea#List_of_seas.2C_divided_by_ocean)>; (accessed on 30 September 2006).

<sup>4</sup> Cf. Michael J. Kennish, *Practical Handbook of Marine Science*, Third Ed. (Boca Raton et al.: CRC Press 2001) p. 14 et seqq. A very informative table about the different European seas is to be found in BfN, *Biodiversität und Tourismus – Konflikte und Lösungsansätze an den Küsten der Weltmeere* (Berlin Heidelberg: Springer 1997) p. 83 et seqq.

<sup>5</sup> A detailed list of seawater components is to be found in Günter Dietrich et. al, *Allgemeine Meereskunde*, Third Ed. (Berlin Stuttgart: Gebrüder Bornträger 1975), p. 88. See also Frank J. Millero, *supra*, note 1, p. 62.

<sup>6</sup> UN-Oceans, “Chemical Structure and Main Physical Properties of Water”, available from <<http://www.oceansatlas.org/unatlas/about/physicalandchemicalproperties/background/seemore2.html>>; (accessed on 30 September 2006), p. 1. Michael J. Kennish, *supra*, note 4, p. 45, subdivides seawater components into four phases: dissolved solutes, colloids, solids, and gases.

<sup>7</sup> Frank J. Millero, *supra*, note 1, p. 59 et seqq.

<sup>8</sup> UN-Oceans, *supra*, note 6, p. 1.

Biogenic substances, i.e. inorganic substances consumed by water plants, comprise nitrogen, phosphorus and silicon. As they are an essential part of the life and food cycle of the oceans their amount depends primarily on the occurrence of biological processes. Trace elements, such as cobalt, copper, iron and manganese have various sources – both anthropogenic (river influx, harbours) and natural (deep-sea hydrothermal vents).<sup>9</sup> Although trace elements exist at very low concentrations, they play a critical role in sustaining the life processes of marine organisms. Yet they may be toxic at high concentrations.<sup>10</sup> Finally, organic substances, including carbohydrates, amino acids and proteins, mostly derive from primary production of marine phytoplankton and their greatest concentrations thus occur in the surface layer of the oceans.<sup>11</sup>

As regards the concentration of dissolved constituents in seawater, the composition is usually described by the salinity *S*, which is defined in terms of electrical conductivity and quoted in units of ‰ or “practical salinity units” (psu).<sup>12</sup> The mean salinity of the world’s oceans and seas is 34.7‰. It is lower in coastal areas with high river run-off and higher at tropical latitudes, where evaporation is greater than at other latitudes.<sup>13</sup>

The mean temperature of the world’s oceans, which is 3.5°C, must be differentiated from the mean surface temperature, which is 17.5°C.<sup>14</sup> Whereas temperatures in waters of the deep zone below 2,000 m (that makes up about 75 per cent of the oceans) remain at a constant level of between 0 and 4°C, temperatures in the upper zone change due to varying surface conditions. It is this so-called active layer reaching down to 200 to 400 m, in which most hydrological, biological, and other processes occur.<sup>15</sup> The temperature decreases down to a depth of about 1,800 to 2,000 m (so-called thermocline), below which the deep zone begins.<sup>16</sup>

## 2. Functions of the Oceanic Ecosystem

The world’s oceans are the most important sustainer of life on earth. They constitute a gigantic wildlife habitat, supply food for livestock and humans, and

<sup>9</sup> G.A. Cutter, “Metalloids and Oxyanions”, in J.H. Steele, K.K. Turekian, and S.A. Thorpe (eds.), *Encyclopedia of Ocean Sciences* (San Diego et al: Academic Press 2001), Vol. 3, pp. 1737-1745, at 1737 et seqq.

<sup>10</sup> Aldo Viarengo, “Biochemical Effects of Trace Metals”, 16 *MPB* (1985), pp. 153-158.

<sup>11</sup> Günter Dietrich et al, *supra*, note 5, p. 91 et seqq.

<sup>12</sup> Michael J. Kennish, *supra*, note 4, p. 59.

<sup>13</sup> UN-Oceans, *supra*, note 6, p. 3. For a contour map of the global surface salinity field, see G. Lagerloef, “Satellite Measurement of Salinity”, in J.H. Steele, K.K. Turekian, and S.A. Thorpe (eds.), *supra*, note 9, Vol. 5, pp. 2511-2516, at 2512, Table 1.

<sup>14</sup> Michael J. Kennish, *supra*, note 4, p. 167 et seq.

<sup>15</sup> E.g. oxygen enters seawater as a result of photosynthesis in phytoplankton. See further M. Tomczak, “Upper Ocean Mean Horizontal Structure”, in J.H. Steele, K.K. Turekian, and S.A. Thorpe (eds.), *supra*, note 9, Vol. 6, pp. 3083-3093, at 3087 et seq.

<sup>16</sup> Cf. W.J. Emery, “Water Types and Water Masses”, in J.H. Steele, K.K. Turekian, and S.A. Thorpe (eds.), *supra*, note 9, Vol. 6, pp. 3179-3187, at 3181 et seqq.

– last but not least – act as a buffer for the planet’s climate cycle. These essential functions shall be looked at in a bit more detail in the following section.

### **a) Habitat for Flora and Fauna**

Obviously, the oceans and seas are home to an abundance of plants, mammals, seabirds, fish, crustaceans, invertebrates and many other organisms. 140 different species of marine mammals occupy these habitats, more than 20,000 species of pelagic fish, around 5,000 species of larger zooplankton and almost 1,000,000 benthic species.<sup>17</sup> The marine environment is usually divided into benthos (bottom) and the pelagic environment (water column). The latter may further be subdivided into neritic (inshore) and oceanic zones.<sup>18</sup> To get a broad idea of the flora and fauna of the oceans, the major constituents of benthic and pelagic environments shall be introduced below. In addition, crucial habitat functions shall be illustrated by recourse to distinct characteristics of coastal areas and the deep sea, as these zones will feature prominently in the legal analysis in later parts of this treatise.

#### **aa) Benthos**

Benthos is defined as the assemblage of plants or animals that live in association with the seafloor. The benthic environment is usually divided up into different benthic zones, distinguished by depth: the supralittoral zone (above the high-water mark), the littoral and sublittoral zone (0 to 200 m), the bathyal zone (continental slope down to 3,000 m), the abyssal zone (from 3,000 to 6,000 m), and the hadal zone, extending downwards from 6000 m.<sup>19</sup>

Benthic communities are broadly divided into benthos of hard-bottom substrates and benthos of sediments. Hard-bottom substrate exists where the sea bed is not covered by soft sediments due to a specific surface structure, e.g. rocky shores or cliff slopes, or due to strong currents that constantly wash away sediments.<sup>20</sup> With respect to benthic animals (zoobenthos), two different groups can be found in both types of environment: the epifauna, encompassing all animals living on or attached to the surface of the sea floor, and the infauna, comprising all animals that live within the substratum.<sup>21</sup> Generally, the number of epifaunal species by far exceeds the number of infaunal species; infaunal species dominate, however, in sediment benthic communities.<sup>22</sup> Examples of epifaunal animals are

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<sup>17</sup> Carol M. Lalli and Timothy R. Parsons, *Biological Oceanography: An Introduction*, Second Ed. (Oxford: Butterworth-Heinemann 1997), p. 76, at 147 et seqq., and 177.

<sup>18</sup> *Ibid.*, p. 3, figure 1.1.

<sup>19</sup> Carol M. Lalli and Timothy R. Parsons, *supra*, note 17, p. 176 et seq.; P.F. Kingston, “Benthic Organisms Overview”, in J.H. Steele, K.K. Turekian, and S.A. Thorpe (eds.), *supra*, note 9, Vol. 1, pp. 286-295, at 287. A percentage representation of each depth zone can be found in Figure 1 of the latter source.

<sup>20</sup> Ulrich Sommer, *Biologische Meereskunde*, Second Ed. (Berlin et al: Springer 2005), p. 229 et seqq.; Michael J. Kennish, *supra*, note 4, p. 450.

<sup>21</sup> P.F. Kingston, *supra*, note 19, p. 288.

<sup>22</sup> Carol M. Lalli and Timothy R. Parsons, *supra*, note 17, p. 180.

corals, mussels and sponges; infaunal animals include crustaceans, clams, worms and other invertebrates.<sup>23</sup> Most zoobenthic infaunal species (95 to 99 per cent) are located within 5 cm of the sediment surface.<sup>24</sup>

Benthic plants (phytobenthos) are classified according to their size: macrophytes are large, visible plants, the most common of which are seagrasses and algae; microphytes are microscopic plants that can be extremely abundant even in deeper zones.<sup>25</sup> In contrast, the former typically grow in shallow waters, as they need a certain amount of light to grow. Yet, depending on the efficiency to capture blue-green light that does not penetrate very far, some macrophytes, such as red algae, may also be abundant in deeper water.<sup>26</sup> By and large, the vast majority of benthic organisms live in habitats in depths of 0 to 200 m.

### bb) Pelagic Environment

The pelagic environment comprises *plankton*, a generic term used for organisms that are passively transported by ocean currents, and *nekton*, which is the sum of all pelagic organisms capable of actively swimming through the water independent of water movements.<sup>27</sup> According to their biological classification, the different categories of plankton are labelled as either phytoplankton (plants), zooplankton (animals), bacterioplankton (bacteria) or mykoplankton (fungi).<sup>28</sup> Flora and fauna making up plankton vary tremendously with respect to size; while there exist numerous unicellular organisms, some jellyfish species span several metres. In contrast to plankton, nekton merely encompasses animals. Fish form the largest fraction of nektonic organisms; others include crustaceans, marine reptiles and marine mammals.<sup>29</sup> It should be noted, however, that some species, at least at a young age, although classified as nekton may not have enough power to make their way against strong currents. The distinction between plankton and nekton is thus blurred in some instances.

Interaction between plankton and nekton is vital for marine ecosystems. As part of the oceans' food network, plankton provides a major food source for pelagic fish and marine mammals. At the end of these digestion processes, egesta are released into the sea, and later – as dissolved organic matter – used by bacterioplankton as a source of carbon. These bacteria are consumed by unicellular animals, which in turn are eaten by larger zooplankton – closing this so-called microbial loop.<sup>30</sup> As carbon dioxide is needed for photosynthesis processes in

<sup>23</sup> *Ibid.*, p. 180 et seq. An overview of major taxonomic groups is given in Table 7.1 on p. 183.

<sup>24</sup> P.F. Kingston, *supra*, note 19, p. 291.

<sup>25</sup> Ulrich Sommer, *supra*, note 20, p. 232 et seqq.

<sup>26</sup> Carol M. Lalli and Timothy R. Parsons, *supra*, note 17, p. 179 et seq.

<sup>27</sup> Ulrich Sommer, *supra*, note 20, p. 134.

<sup>28</sup> *Ibid.*, p. 133.

<sup>29</sup> Carol M. Lalli and Timothy R. Parsons, *supra*, note 17, p. 146 et seqq.

<sup>30</sup> H.W. Ducklow, "Bacterioplankton", in J.H. Steele, K.K. Turekian, and S.A. Thorpe (eds.), *supra*, note 9, Vol. 1, pp. 217-224, at 222 et seq. For a schematic illustration, see Carol M. Lalli and Timothy R. Parsons, *supra*, note 17, p. 121, Figure 5.7.

phytoplankton as part of the food network, this creates a link with the Earth's climate system, which will be addressed, *infra*, in Section I.2.b).

### cc) Example: Coastal Areas

Coastal areas comprise a wide range of highly productive ecosystems, such as beaches, mangroves, salt marshes, mud flats, swamps, coral reefs and river estuaries, all of which primarily consist of benthic communities. Their crucial habitat functions for the majority of marine life shall be exemplified by looking at the first three.

Sandy beaches, which make up about 75 per cent of the world's ice-free shores<sup>31</sup>, are seemingly devoid of life, because tidal action creates conditions best met by infaunal organisms that are very small.<sup>32</sup> Although physical conditions are often unstable due to varying water movement, sand guarantees low temperature and salinity fluctuations and may act as a protective cover against intense solar radiation. Most epifaunal animals, such as polychaetes, crabs and clams, have adapted to the specific conditions, inasmuch as they are highly mobile and able to burrow into the sand.<sup>33</sup> In addition, since food supply may be scarce, most fauna are "opportunistic feeders and able to maximize the resource."<sup>34</sup> It should not be forgotten that sandy shores in tropical latitudes are the principal nesting site for eggs of most marine turtle species.

Mangroves are very common along the coastlines in tropical and subtropical latitudes. The term mangrove is used for a group of plants in the intertidal zone but also defines a habitat type that is characteristic of places in which mangrove plants dominate.<sup>35</sup> Mangrove plants are shrubs or trees that have developed specific adaptations to survive in or adjacent to the intertidal zone.<sup>36</sup> Their common features are salt tolerance and an ecological restriction to tidal swamps. Moreover, mangrove plants have both aerial and shallow roots in order to allow the plants to obtain oxygen from the atmosphere, since the substrate is usually poor in oxygen.<sup>37</sup> Even though mangrove forests are able to cope with salt, they have to rely on freshwater input from time to time. Three ecologically different zoning patterns may be distinguished: the above-tide forest, the intertidal swamp and a subtidal zone, each of which is inhabited by distinct fauna and flora.<sup>38</sup> The forest is populated by terrestrial species, such as birds, snails and insects. With respect to the intertidal swamp, diverse local microhabitats make it difficult to

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<sup>31</sup> See A.C. Brown, "Sandy Beaches, Biology of", in J.H. Steele, K.K. Turekian, and S.A. Thorpe (eds.), *supra*, note 9, Vol. 5, pp. 2496-2504, at 2496.

<sup>32</sup> Carol M. Lalli and Timothy R. Parsons, *supra*, note 17, p. 205 et seq.

<sup>33</sup> Cf. A.C. Brown, *supra*, note 31, p. 2501 et seq. While hard-bodied animals mostly dig themselves in, soft-bodied invertebrates use foot or head as an anchor for burrowing.

<sup>34</sup> *Ibid.*, p. 2502.

<sup>35</sup> M.D. Spalding, "Mangroves", in J.H. Steele, K.K. Turekian, and S.A. Thorpe (eds.), *supra*, note 9, Vol. 3, pp. 1533-1542, at 1533 et seq.

<sup>36</sup> For a list of (core) mangrove species, see M.D. Spalding, *supra*, note 35, p. 1534.

<sup>37</sup> Carol M. Lalli and Timothy R. Parsons, *supra*, note 17, p. 223.

<sup>38</sup> See Carol M. Lalli and Timothy R. Parsons, *supra*, note 17, p. 224 et seq.

give a general description of predominant biodiversity patterns. Barnacles and oysters usually represent the bulk of epifauna, while it is also home to crabs, snails, worms and sea cucumbers.<sup>39</sup> Red and green algae can be abundant. The faunal and floral characteristics of the subtidal zone are also highly diverse. Mangrove roots support a biodiversity-rich community of algae, sponges, tunicates, anemones, hydroids and bryozoans; they furthermore serve as a nursery ground for an abundance of species of juvenile fish, shrimps, lobsters and crabs.<sup>40</sup> Adults represent the basis for local fisheries. Finally, it should be mentioned that mangroves generally are vital for protecting coastlines from erosion and wind damage, as well as for accumulating sediment that provides habitats for many epifaunal and infaunal species.

Salt marshes are mud flats above mean sea level vegetated by higher plants.<sup>41</sup> Similar to mangroves, salt-marsh systems have aerial storage of plant biomass and provide habitat for both terrestrial and marine species; they are also resistant to erosion. However, they are more common in temperate and cold regions of the world. Salinity varies considerably, depending on the strength of the tides, the duration of flooding, rain and river influx.<sup>42</sup> The duration of flooding also controls the level of oxygen in the sediment, which is a precondition for the species of higher plant that dominate in a particular marsh. Faunal elements include crabs, worms and snails living in or on the sediment, but also fish are important in regularly flooded marshes.<sup>43</sup> Salt marshes possess crucial ecological functions, as they “produce animals and plants, provide nursery areas for marine fishes, modify nutrient cycles, degrade organic chemicals, immobilise elements with their sediments and modify wave action on adjacent uplands.”<sup>44</sup> However, marshes are very prone to damage by human modifications, especially diking.

As has become apparent, coastal areas – this observation is not confined to those looked at in more detail above<sup>45</sup> – are both productive and fragile ecosystems that are very sensitive even to natural changes of their predominant ecological conditions. Human-induced changes, such as urban development or the discharge of polluting substances, are an even greater challenge for these areas to cope with. It is thus not a premature conclusion to note that coastal areas merit particular attention in all efforts to protect and preserve the marine environment.

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<sup>39</sup> *Ibid.*

<sup>40</sup> *Ibid.*, p. 225.

<sup>41</sup> J.M. Teal, “Salt Marshes and Mud Flats”, in J.H. Steele, K.K. Turekian, and S.A. Thorpe (eds.), *supra*, note 9, Vol. 5, pp. 2490-2495, at 2491 et seq.

<sup>42</sup> *Ibid.*

<sup>43</sup> For a concise overview of flora and fauna in salt marshes and mud flats, see *ibid.*, p. 2492.

<sup>44</sup> *Ibid.*, p. 2493.

<sup>45</sup> For a recent account of threats to fragile coral reef ecosystems, see Wiebke Rögener, “Untergang unter Wasser”, *Süddeutsche Zeitung*, No. 122, 26 September 2006, p. 18.

**dd) Example: Deep Sea**

The majority of both benthic and pelagic environments are located in the bathyal, abyssal and hadal zones. Compared with the bathyal and sublittoral zones, relatively little is known about deeper areas of the sea. High costs are the chief limiting factor for deep-sea research. Still, even basic observations show that faunal and floral composition is very diverse and particular sites, such as sea mounts or hydrothermal vents, may host fascinating benthic communities.<sup>46</sup>

The deeper pelagic parts of the sea are completely dark (apart from certain instances of bioluminescence), since sunlight is only detectable to depths of 1,250 m.<sup>47</sup> Available food for pelagic fauna decreases with increasing depth, because it is derived from photosynthesis in the active surface layer; many organisms in the deep sea thus feed on detritus.<sup>48</sup> Fish cease to be the dominant component of the nektonic biomass below 2,500 to 2,700 m for physiological reasons.<sup>49</sup> As well as shrimps, they have not been collected from depths of more than 7,500 m, although scientists have observed some species even below 10,000 m.<sup>50</sup> The benthos is typically characterised by large plains of soft sediments, although small parts of hard substrate habitat exist.<sup>51</sup> While the total number of macrobenthos faunal species may decrease in areas below 3,000 m, the opposite is true for faunal species of microbenthos and meiobenthos: small burrowing polychaetes make up more than 50 per cent of the macrofauna in soft-sediment deep-sea benthos; meiofauna in these areas is dominated by nematodes.<sup>52</sup> Rather unusual benthic communities are to be found on sea mounts and around so-called hydrothermal vents.

Sea mounts are of volcanic origin and break up the landscape of abyssal plains.<sup>53</sup> Usually, their hard substrate and a relatively high flow of water supports a different set of species than in other parts of the deep sea. For instance, epifaunal suspension feeders that obtain food by filtering particles out of the surrounding water (e.g. sea anemones, mussels) flourish on these hard substrates, in contrast to deep-sea soft-bottom sedimentary areas, where their abundance is usually low. As most of them are passive feeders, relying on external water currents to convey

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<sup>46</sup> An informative overview of deep sea flora and fauna was given by the CBD Executive Secretariat on the occasion of the first meeting of the ad hoc open-ended WG on protected areas, cf. UNEP/CBD/WG-PA/1/INF/1, *Scientific Information on Biodiversity in Marine Areas Beyond the Limits of National Jurisdiction*, 17 May 2005.

<sup>47</sup> Martin V. Angel, "The Pelagic Environment of the Open Ocean", in P.A. Tyler (ed.), *Ecosystems of the Deep Oceans* (Amsterdam et al: Elsevier 2003), pp. 39-79, at 39.

<sup>48</sup> Cf. J.D.M. Gordon, "Deep-Sea Fishes", in J.H. Steele, K.K. Turekian, and S.A. Thorpe (eds.), *supra*, note 9, Vol. 2, pp. 687-693, at 690.

<sup>49</sup> Martin V. Angel, *supra*, note 47, p. 59 et seqq.

<sup>50</sup> Carol M. Lalli and Timothy R. Parsons, *supra*, note 17, p. 229.

<sup>51</sup> *Ibid.*, p. 226.

<sup>52</sup> *Ibid.*, p. 227 et seq.

<sup>53</sup> P.V.R. Snelgrove and J.F. Grassle, "Deep-Sea Fauna", in J.H. Steele, K.K. Turekian, and S.A. Thorpe (eds.), *supra*, note 9, Vol. 2, pp. 676-687, at 678 et seq.; Ulrich Sommer, *supra*, note 20, p. 261 et seq.



food to feeding appendages, they only survive in environments with a fast and stable water flow.<sup>54</sup>

Hydrothermal vents and cold sweeps create environments that are entirely maintained by geothermal rather than solar energy.<sup>55</sup> Their predominant feature are fluids of up to 400°C with a large proportion of hydrogen sulphide (H<sub>2</sub>S) that are released either through cracks in the sea floor or emerge as plumes from chimney-like vents (“black smoker”). H<sub>2</sub>S, a reduced compound, is utilised by sulphur-oxidising bacteria, which thereby represent the primary producers of the food chain in this particular ecosystem; chemosynthesis instead of photosynthesis thus is the basis for life around the vents.<sup>56</sup> Hydrothermal vent systems support a unique biomass of large organisms, in particular when compared with surrounding deep-sea environments. Since hydrothermal vents were first discovered in the vicinity of the Galapagos archipelago in the 1970s, more than 500 new species, some of them large macrofauna (e.g. tube-dwelling worms up to 1.5 m long and clams that reach a length of 30 to 40 cm), have been discovered there and around similar sites in other oceans.<sup>57</sup> Because vents were discovered at a depth of 2,000 m and below, they have changed the perception of deep-sea ecology considerably.

To sum up, the deep sea boasts a high species diversity while the biomass is low; it features patchily distributed and distinct microhabitats.<sup>58</sup> It has been observed that most species found in the hadal zone below 6,000 m are endemic to it.<sup>59</sup> Complementing this observation, estimates say that many benthic deep-sea species have not yet been discovered and that their total numbers may exceed 1,000,000. If the protection of biological diversity is a true priority on the global agenda, then the deep sea is undoubtedly an important subject of protection.

### **b) Buffer within the Climate System**

The climate system ensures that there is enough oxygen to sustain life on earth. Very broadly, oxygen that is consumed by respiration turns into carbon dioxide. Together with carbon dioxide that is created by both natural processes and fossil-fuel combustion, it is converted to oxygen again through photosynthesis processes in plants and trees. However, the so-called carbon cycle must not be reduced to respiration, fossil-fuel burning and photosynthesis. It is used to describe inter-

<sup>54</sup> Carol M. Lalli and Timothy R. Parsons, *supra*, note 17, p. 230.

<sup>55</sup> Verena Tunnicliffe, S. Kim Juniper and Myriam Sibuet, “Reducing Environments of the Deep-Sea Floor”, in P.A. Tyler (ed.), *supra*, note 47, pp. 81-110.

<sup>56</sup> For an explanation of the biochemical processes, see Ulrich Sommer, *supra*, note 20, p. 262. These bacteria may form symbioses within specialised faunal hosts.

<sup>57</sup> Around 95 per cent of the animals around vent sites were previously unknown, cf. Carol M. Lalli and Timothy R. Parsons, *supra*, note 17, p. 239. See further R.A. Lutz, “Hydrothermal Vent Biota”, in J.H. Steele, K.K. Turekian, and S.A. Thorpe (eds.), *supra*, note 9, Vol. 2, pp. 1217-1227. Nevertheless, as the degree of sulphur oxide is toxic for most species, biodiversity at vent sites is quite low.

<sup>58</sup> Carol T. Stuart, Michael A. Rex and Ron J. Jetter, “Large-Scale Spatial and Temporal Patterns of Deep-Sea Benthic Species Diversity”, in P.A. Tyler (ed.), *supra*, note 47, pp. 295-311, at 296 et seqq.

<sup>59</sup> *Ibid.*, table 8.1.

actions between four major Earth reservoirs of carbon: the atmosphere, lithosphere, biosphere and hydrosphere.<sup>60</sup> In the end, the amount of carbon dioxide in the atmosphere is vital, not least because of problems associated with global warming due to increasing amounts of carbon dioxide in the atmosphere, known as the “greenhouse gas effect.”

Because the hydrosphere is part of the carbon cycle and because it is able to remove “anthropogenic” carbon dioxide from the atmosphere, the oceans’ functions in the global climate system are crucial. It is believed that more CO<sub>2</sub> is absorbed by the sea than is lost to the atmosphere.<sup>61</sup> Most CO<sub>2</sub> enters the oceanic sphere by photosynthesis of the phytoplankton, which is consumed by zooplankton and nekton. CO<sub>2</sub> is reproduced by respiration and mineralization processes. It may be removed from the carbon cycle by dead organic materials, such as skeletons, that sink to the ground. It has been observed that the majority of CO<sub>2</sub> of anthropogenic origin is eventually stored in the deep waters of the oceans, although the exact quantity is unknown.<sup>62</sup> Whether it is possible to enhance the natural capability of the oceans to store CO<sub>2</sub> by injecting dissolved CO<sub>2</sub> directly into the deep sea is currently being investigated and may be part of a future strategy to mitigate the effects of anthropogenic greenhouse gas production.<sup>63</sup>

Another aspect directly relates to the Earth’s climate. The sea ice of the Polar regions, in particular, “mediates transfers of heat, fresh water and salt water between the oceans and the atmosphere.”<sup>64</sup> Surface and deep-sea currents furthermore distribute heat and water around the world and thus influence temperature and precipitation patterns of all continents and climate zones. If strong currents change because of human-induced modifications, it may thus entail severe climatic impacts for large areas.

### **c) Food Repository**

In describing the prevailing conditions of certain coastal area types above, I have already touched on the importance of the sea as a food repository. Probably billions of people inhabiting the world’s coasts, especially in developing countries, rely on local fishery activities to ensure food security. These activities should not be understood to be limited to catching fish but also encompass catching shrimps, crabs and other crustaceans, as well as harvesting mussels, oysters and shellfish. Human consumption exceeds 100 million tonnes of fish in total, which equals a

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<sup>60</sup> For an instructive figure, see C.A. Carlson et al, “Carbon Cycle”, in J.H. Steele, K.K. Turekian, and S.A. Thorpe (eds.), *supra*, note 9, Vol. 1, pp. 390-400, at 391.

<sup>61</sup> Carol M. Lalli and Timothy R. Parsons, *supra*, note 17, p. 142.

<sup>62</sup> Cf. IOC, “Climate Change”, available from <<http://ioc.unesco.org/iocweb/climateChange.php>>; (accessed 30 September 2006) and C.A. Carlson et al, *supra*, note 60, p. 391 et seq.

<sup>63</sup> See IOC, “Ocean Storage”, available from <<http://ioc.unesco.org/iocweb/co2panel/CaptureStorageOcean.htm>>; (accessed on 30 September 2006).

<sup>64</sup> IOC, *supra*, note 62, para. 2.

per capita edible fish supply of 16.3 kg.<sup>65</sup> The value of this catch amounts to almost US\$ 80 billion.<sup>66</sup>

Although about 80 per cent of global fish stocks are located within the 200 nautical mile zone, over which states may exercise jurisdiction with respect to fisheries<sup>67</sup>, high-sea fisheries, too, have developed into a flourishing industry within the last three decades. Large-scale fishing in these areas has resulted in extensive overfishing and left many fish stocks exhausted.<sup>68</sup> The decrease in traditional stocks, such as cod and herring, have given rise to deep-sea fishing below 400 m, which already yields similar problems.<sup>69</sup> However, fish and other marine animals will arguably continue to be a major source of food for human beings. During the last few years, the share of fish proteins in global animal protein supply has remained stable at around 16 per cent.<sup>70</sup> It is thus important to protect the marine environment in order to ensure sound conditions for fish to breed, mature and dwell within their natural habitats.

#### d) Intrinsic Value

Describing the functions of the sea alluded to above has revealed the importance of the oceanic ecosystem for all life forms on Earth. Yet this approach may inadequately limit our awareness and may contribute to overlooking another important dimension, the value of the sea detached from a value duly expressed in numbers and economic factors. In other words, it does not seem worthwhile maintaining the biological, chemical and hydrological functions of the world's oceans without preserving the beauty, uniqueness and vibrancy of many marine areas.

While I do not attempt to explore this philosophical question, my intention is to highlight the strong influence that the sea has on people's well-being and on the development of cultural values. The oceans have always been fascinating, as they both separated and united human beings; they have shaped today's culture and cultural values to an enormous extent. "Onomatopoeitic to the highest degree"<sup>71</sup>, the sea has inspired numerous musicians and composers, but of course other artists as well – poets, painters, sculptors – were profoundly susceptible to the mysteries the oceans bear. Their work in turn evoked repercussions among their audiences,

<sup>65</sup> Cf. FAO, *The State of World Fisheries and Aquaculture 2004 – Part 1: World Review of Fisheries and Aquaculture* (2004), available from <ftp://ftp.fao.org/docrep/fao/007/y5600e/y5600e01.pdf>; (accessed on 30 September 2006), p. 3. Moreover, 32.2 million tonnes are used for non-food products such as oil or fishmeal.

<sup>66</sup> *Ibid.*, p. 7.

<sup>67</sup> See, *infra*, Sec. III.2.b) of Chapter 4.

<sup>68</sup> FAO, *Review of the State of World Marine Fishery Resources* (Rome: FAO 2005), p. 10 et seqq.

<sup>69</sup> Cf. Odd Aksel Bergstad, John D. M. Gordon, and Philip Large, "Is the time running out for deep sea fish?", available from <http://www.ices.dk/marineworld/deepseafish.asp>; (accessed on 30 September 2006).

<sup>70</sup> FAO, *supra*, note 65, p. 3.

<sup>71</sup> Elisabeth Mann Borgese, *The Oceanic Circle* (Tokio New York Paris: United Nations University Press 1998), p. 50 et seqq.

challenging perceptions of the sea. Moreover, marine areas are an important refuge for seeking recreation and recovery. Amenities in coastal areas, such as lagoons and marshes, may prove to be most refreshing for body and soul.

One may argue that preserving the intrinsic value of the sea will inevitably lead to preserving its functional value. Of course, hardly anyone is fascinated by eroded coasts and marine areas devoid of life. However, the critical issue is that the protection of the environment must not be reduced to protecting something that we as human beings have to protect for *our* own good. It is especially true for the marine environment that it must be protected for *its own* good!

## II. Conflicting Uses of the Oceans

Apart from sustaining life on earth, oceans – on a more practical note – also constitute a medium which is used by the world’s people for numerous purposes. Mankind has always used the sea, long before people were able to understand oceanographic and geographical subtleties and biological-physical interactions.<sup>72</sup> From early on, fish have been caught as a prime food source for coastal communities. Later, after ships had become large enough to carry goods, trade was conducted by using vessels. Over the course of the last century, various new uses emerged: mining and tourism, aquaculture and energy production. In addition, the intensity of both traditional and new uses of the sea grew extraordinarily. It is apparent that the current situation has departed tremendously from what it was two or three hundred years ago. New situations often bring new problems; and the means that need to be developed to tackle them require sound understanding of the nature of the problems.

Since PSSAs are designed to abate vessel-source environmental degradation, the second part of this chapter is to shed some light on the context in which shipping takes place in today’s world. It is arguably the most important use of the oceans. However, it cannot be seen uncoupled from other uses of the sea, because different human activities – especially in cramped parts of the world’s oceans – often compete and sometimes conflict. Numerous uses may be identified, including fisheries and aquaculture, recreation, tourism, transportation, telecommunication, anthropogenic coastal development, offshore mining, military activities, scientific research, dumping of waste and disposal of waste from the land.<sup>73</sup> The following section shall identify and describe the major human activities at sea.

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<sup>72</sup> Cf. Richard Gwynn, *The Way of the Sea – the Use and Abuse of the Oceans* (Green Books Bideford 1987). Such an approach treats land as “origin” and the sea as the “unknown” that humans started to explore and exploit. Elisabeth Mann Borgese, *supra*, note 71, p. 4 argues in favour of changing perspectives: life started in the sea and invaded the land.

<sup>73</sup> Co-management of multiple uses of marine areas is exemplarily described by Bela H. Buck, Gesche Krause and Harald Rosenthal, “Extensive Open Ocean Aquaculture Development within Wind Farms in Germany: the Prospect of Offshore Co-Management and Legal Constraints”, 47 *Ocean & Coastal Management* (2004), pp. 95-122, at 97 et seqq.

## 1. Shipping

Carriage of goods (and people) by sea is a traditional and arguably the most important use of the sea.<sup>74</sup> Shipping today is common in all parts of the world apart from those waters permanently covered with ice. At the beginning of 2006<sup>75</sup>, the total world merchant fleet stood at 41,110 ships with a tonnage of 944.5 million dwt. Compared with the figures for 2005, tonnage increased by 6.4 per cent. This reflects the highest growth rate for many years. Three major sectors can be identified. Capacity of the tanker fleet carrying oil, oil products, chemicals and gas amounted to 387.7 million dwt, which is a share of 41.1 per cent. Bulk carriers contributed 36.2 per cent (341.7 million dwt) to the world merchant fleet. Capacity of the container fleet accounts for 11.8 per cent (111.7 mill dwt). Despite its long tradition, shipping is a flourishing and seminal industry. During 2005, orders from the world's shipyards increased by 16 per cent. Outstanding orders in total have now reached an all-time high: 4,787 vessels with 236 million dwt.

Shipping is also a fairly dangerous business. In 2004, 592 persons – both crew members and passengers – were reported killed or missing.<sup>76</sup> The loss of ships due to accidents amounted to 0.56 million dwt. While losses for owners and charterers are mostly covered by insurance, adverse environmental impacts caused by groundings or spillages are more difficult to mitigate. A simple reference must suffice here. Threats to the marine environment by international shipping by both accidents and operational activities will be dealt with in the next chapter.

## 2. Tourism

Tourism can be understood as “the activities of persons travelling to and/or staying in places outside of their usual environment for leisure, business or other purposes”<sup>77</sup>, either individually or in a group. Tourism activities have grown rapidly in recent decades and are expected to increase further.<sup>78</sup> Europe has the biggest share of world tourism, although the share of the East Asian/Pacific area and Africa is consistently increasing.<sup>79</sup> As has been noted with respect to Europe – and it may also be true for other parts of the world – coastal and marine areas have

<sup>74</sup> For an outline of the development of shipping, see Richard Woodman, *The History of the Ship – The Story of Seafaring from the Earliest Times to the Present Day* (London: Conway Maritime Press 1997), p. 9 et seqq.

<sup>75</sup> Data for this section is taken from ISL, “ISL Market Analysis 2006 – World Merchant Fleet Development”, 50 *SSMR* (January/February 2006). Excerpt available from <[http://www.isl.org/products\\_services/publications/pdf/COMM\\_1-2-2006-short.pdf](http://www.isl.org/products_services/publications/pdf/COMM_1-2-2006-short.pdf)>; (accessed 10 April 2006). The statistics include ships of 300 gross tonnage and more.

<sup>76</sup> Information on maritime casualties are taken from ISL, “World Shipbuilding and Maritime Casualties”, 49 *SSMR* (August/September 2005), pp. 1-5, at 5.

<sup>77</sup> UNEP/CBD/WS-Tourism/3, *Overview of Tourism and Biodiversity Issues, and Appropriate Management Approaches*, 30 April 2001, para. 61.

<sup>78</sup> World Tourism Organization, *Compendium on Tourism Statistics – 2005 Edition (Data 1998-2003)*, (Madrid: WTO Publications 2005), p. 25 et seqq.

<sup>79</sup> BfN, *supra*, note 4, p. 31 et seq.

proven to be especially attractive for tourists.<sup>80</sup> The types of activities that occur most frequently in these areas are surfing, yachting and boating; scuba diving and underwater fishing – especially in coral reefs; motorised boating; angling and collection of mussels and other molluscs; as well as wildlife observation.<sup>81</sup>

Tourism has long been considered to have only a very limited impact on the (marine) environment. Today, it has become clear that tourism, too, puts pressure on natural resources in various ways. Tourism sites and their infrastructure require the use of land which may have indirect impacts on the marine prolongation of the coastal zone.<sup>82</sup> Furthermore, tourists' activities not only exploit water resources but also lead to increased discharges of polluted water into rivers and oceans.<sup>83</sup> Some forms of tourism even have a direct impact on the marine environment, especially on marine wildlife: yachting and boating, in particular, have the potential to disturb wild species and alter or destroy habitats.<sup>84</sup>

In response to a request by the UN General Assembly<sup>85</sup>, expert groups, under the auspices of the CBD Secretariat and various other international institutions, have started to elaborate guidelines on sustainable tourism.<sup>86</sup> These models aim to reconcile economic benefits with ecological and cultural values. If applied, they have the potential to lower the environmental impacts of tourism.<sup>87</sup> However, tourism as a *use* of the sea still occurs and competes with other uses.

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<sup>80</sup> European Commission, *Towards Quality Coastal Tourism* (2000), available from <[http://europa.eu.int/comm/enterprise/services/tourism/tourism-publications/documents/iqm\\_coastal\\_en.pdf](http://europa.eu.int/comm/enterprise/services/tourism/tourism-publications/documents/iqm_coastal_en.pdf)>; (accessed on 30 September 2006).

<sup>81</sup> BfN, *supra*, note 4, p. 45.

<sup>82</sup> OSPAR Commission, *Background Document on Tourism* (2003), available from <[http://www.ospar.org/documents/dbase/publications/p00184\\_Background%20document%20on%20tourism.pdf](http://www.ospar.org/documents/dbase/publications/p00184_Background%20document%20on%20tourism.pdf)>; (accessed 30 September 2006), p. 8 et seq. With respect to the German Wadden Sea, cf. Christiane Gätje, "Tourismus und Erholung im Wattenmeer", in J.L. Lozán et al (eds.), *Warnsignale aus Nordsee und Wattenmeer* (Hamburg: Wissenschaftliche Auswertungen 2003), pp. 117-121, at 119 et seq.

<sup>83</sup> OSPAR Commission, *supra*, note 82, p. 9 et seq.

<sup>84</sup> *Ibid.*

<sup>85</sup> A/Res/S-19/2, *Programme for the further Implementation of Agenda 21*, 19 September 1997, para. 70. An important preceding event was the World Conference on Sustainable Tourism, Lanzarote, 1995.

<sup>86</sup> See e.g. The Plan of Action on Sustainable Tourism (PASTA) developed by UN Economic and Social Commission for Asia and the Pacific, available from <<http://www.unescap.org/ttdw/index.asp?MenuName=Pasta>> (accessed 30 September 2006). Furthermore, the endeavours made by the World Tourism Organisation, information available from <[http://www.world-tourism.org/frameset/frame\\_sustainable.html](http://www.world-tourism.org/frameset/frame_sustainable.html)> (accessed 14 April 2005). Regional developments include efforts by the Caribbean Environment Programme (CEP); cf. CEP, *Improving Training and Public Awareness on Caribbean Coastal Tourism*, available from <<http://www.cep.unep.org/issues/panos.PDF>>; (accessed on 30 September 2006).

<sup>87</sup> See generally Hansruedi Müller, *Tourismus und Ökologie – Wechselwirkungen und Handlungsfelder*, Second Ed. (München Wien: R. Oldenbourg Verlag 2003) p. 247.

### 3. Off-shore Mining

At first sight, mining in marine areas may seem odd, as the term evokes the image of miners working underground. But offshore mining is a generic term which encompasses several flourishing industries exploiting natural resources under the waterline, most of which use cutting-edge technologies. The main mining activities include extraction of marine sediments, drilling for oil and gas, and deep-sea minerals exploitation.

The most basic form of offshore mining is the extraction of marine sediment, typically conducted in the form of dredging. Marine sediments mostly contain sand and gravel, which are primarily used for the production of cement and concrete.<sup>88</sup> Modern dredging is carried out by purpose-built ships, in water depths of up to almost 100 m; typical trailing suction dredgers can carry more than 15,000 m<sup>3</sup>.<sup>89</sup> Historically, drilling and production of oil and gas occurred only in shallow waters. Within the last few decades, scientific and technical developments have made it possible to set up installations designed to drill in depths of almost 3,000 m.<sup>90</sup> Offshore oil and gas production has become the world's biggest marine industry, generating massive revenues.

Offshore mining was long thought to be limited to the exploitation of sand/gravel and conventional hydrocarbon resources. In the 1960s, scientists started to recognise the potential value of non-hydrocarbon resources – mineral deposits, in particular, but gas hydrates, too.<sup>91</sup> Building on promising scientific results, engineers started to develop technologies to lift these minerals. As most of the minerals appear to be concentrated in extraordinary environments<sup>92</sup>, there are still a lot of myths about their real value.<sup>93</sup> However, the exploitation of these re-

<sup>88</sup> ICES Working Group on the Effects of Extraction of Marine Sediments on the Marine Ecosystem, *Effects of Extraction of Marine Sediments on the Marine Ecosystem*, ICES Cooperative Research Report No. 247 (Copenhagen: ICES Publishing 2001), p. 12 et seq.

<sup>89</sup> *Ibid.*, p. 7.

<sup>90</sup> For an overview of deep-sea drilling possibilities, see Paul L. Kelly, "Deepwater Resources: The Expanding Frontier", in M.H. Nordquist, J.N. Moore and T.H. Heidar (eds.), *Legal and Scientific Aspects of Continental Shelf Limits* (Leiden Boston: Martinus Nijhoff Publishers 2004), pp. 413-419, at 413 et seq. For recent developments, see Gerald Traufetter, "Jackpot unterm Meeresgrund", *Der Spiegel*, No. 37, 11 September 2006; available from <<http://www.spiegel.de/spiegel/0,1518,436939,00.html>>; (accessed on 30 September 2006).

<sup>91</sup> For the different mineral compounds, see F.C.F. Earney, *Marine Mineral Resources* (Routledge: London New York 1990) p. 71 et seqq. For gas hydrates (or clathrates), see information provided by <<http://www.gashydrate.de>>; (accessed on 30 September 2006) and R. Matsumoto, "Methane Hydrates", in J.H. Steele, K.K. Turekian, and S.A. Thorpe (eds.), *supra*, note 9, Vol. 3, pp. 1745-1757.

<sup>92</sup> For instance, polymetallic sulphide deposits are located around hydrothermal vents; cf. Lindsay Parson, "Non-Hydrocarbon Resources", in M.H. Nordquist, J.N. Moore and T.H. Heidar (eds.), *supra*, note 90, pp. 423-429, at 427.

<sup>93</sup> The introduction of rather odd names for some of the minerals found, such as "ferromanganese nodules", contributed to firing people's imagination about what could

sources is no longer fiction but fast becoming reality, even though the revenues can not yet be compared with those from oil and gas drilling.

#### **4. Fishing and Exploitation of other Living Marine Resources**

Probably the most traditional use of the sea is fishing by using vessels. In the last century, due to excessive overfishing of existing wild stocks, large-scale fish farming, so-called aquaculture or mariculture, has also become very popular, because it has proved to be technically feasible and economically attractive. Both aspects will be dealt with here. Since I have already touched upon fisheries in Section I.2.c) of this chapter, I will only add some important information.

Global fisheries comprise small-scale fishing by local and indigenous communities in coastal areas, as well as industrialised high-sea and long-distance fishing by the fleets of developed and some developing countries, first and foremost Chile and China. The world's fleet of large marine fishing vessels encompasses about 24,000 vessels, which equals 15.6 million gross tonnage.<sup>94</sup> With the average age of the fleet increasing, concerns have been expressed over the safety of vessels and crew.<sup>95</sup> Fishery as a use of the oceans does not only have impacts in terms of the numbers and activities of fishing vessels but also in terms of the fishing gear used. Most importantly, high-sea drift nets, gill nets that drift with currents, sometimes exceed several kilometres in length and thus occupy large areas.<sup>96</sup> Despite a 1992 global moratorium on large-scale drift nets (exceeding 2.5 km in length) that was designed to abate adverse effects on non-targeted marine mammals<sup>97</sup>, the use of drift nets is still common in most parts of the world.<sup>98</sup>

Aquaculture is the cultivation of fish or shellfish in some form of confinement in fresh or marine water, with mariculture being its specific marine subset. Aquaculture production is very ancient, but has grown rapidly in recent years; the bulk of pens for maricultured fish and shellfish, which make up about 30 per cent of the world's total supply of fish, are located in the coastal waters of developing

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possibly be found at the bottom of the sea. The reality was harder: in some places, commercial exploitation was suspended because pilot mining tests could not successfully demonstrate sufficient economic advantages; see Peter M. Herzig, "Seafloor Massive Sulfide Deposits and Hydrothermal Systems", in M.H. Nordquist, J.N. Moore and T.H. Heidar (eds.), *supra*, note 90, pp. 431-456, at 442 et seqq.

<sup>94</sup> FAO, *supra*, note 65, p. 24.

<sup>95</sup> In some developing countries, fishing fleets have an average age of over 30 years; *ibid.*, p. 25.

<sup>96</sup> Otto Gabriel et al, *Fish Catching Methods of the World*, Fourth Ed. (Oxford: Blackwell Publishing 2005), p. 279 et seq.

<sup>97</sup> See A/Res/46/215, *Large-scale pelagic drift-net fishing and its impact on the living marine resources of the world's oceans and seas*, 20 December 1991, para. 3.

<sup>98</sup> The EU introduced a ban on all drift nets in 1992: see Nina Wolff, *Fisheries and the Environment – Public International and European Community Law Aspects* (Baden-Baden: Nomos Verlagsgesellschaft 2002), p. 157 et seq.



countries.<sup>99</sup> Yet, compared to their economic revenues, mariculture installations cover only a small share of the world's coastal and open-water areas.<sup>100</sup>

### 5. Energy Production

Recent decades have witnessed the advent of new technologies to overcome dependence on non-renewable resources for energy production, such as coal and oil. Marine energy production has an important role to play in this development, since it became apparent that natural forces such as currents, winds, tides and waves could be used to propel turbines to produce electricity.

Off-shore wind energy plants are the easiest to run, as the basic techniques have already been tested and used on land. Technical challenges are confined to anchoring the plant in the sea bed. Tidal energy plants and wave energy plants, in contrast, are specifically designed to use oceanic forces. The practical application of these techniques has so far not gone beyond the status of pilot projects at a few experimental sites. Several different methods are currently being tested.<sup>101</sup> Wave-power devices, mostly floating on the water, may be used at the shoreline, off-shore and in deep waters.<sup>102</sup> Tidal energy plants usually attempt to capture energy from tidal currents.<sup>103</sup> At high tide, the water is trapped by a barrage, creating a tidal lagoon. If the water level outside the lagoon falls, the water is released and the difference in height is used to drive turbines. Tidal power plants are thus only used in coastal areas with a high tidal range.<sup>104</sup> It is estimated that less than 3 per cent of ocean areas are suitable for tidal power generation.<sup>105</sup>

Coastal areas of developed countries, in particular, are increasingly used as locations for marine energy plants, in particular wind-energy farms. For instance, after the German federal government in 2002 had created a legal basis for issuing

<sup>99</sup> FAO, *supra*, note 65, p. 18.

<sup>100</sup> However, conflicts with other uses may occur in some areas without proper planning mechanisms in place, see, e.g., FAO/NACA, *Report on a Regional Study and Workshop on the Environmental Assessment and Management of Aquaculture Development* (Bangkok: NACA Environment and Aquaculture Development Series 1995), No. 1, Annex II-4, para. 2.

<sup>101</sup> Cf. information available from <[http://en.wikipedia.org/wiki/Tidal\\_power](http://en.wikipedia.org/wiki/Tidal_power)> and <[http://en.wikipedia.org/wiki/Wave\\_power](http://en.wikipedia.org/wiki/Wave_power)>; (both accessed on 30 September 2006).

<sup>102</sup> For instance, the planned 30 MW *Pelamis wavefarm* off Portugal will occupy 1 km<sup>2</sup> of ocean. Cf. <<http://www.oceanpd.com/Pelamis/default.html>>; (accessed on 30 September 2006). Tidal power potential in general is enormous: see information available from <<http://www.bwea.com/marine/resource.html>>; (accessed on 30 September 2006).

<sup>103</sup> P.L. Fraenkel, "Power from Marine Currents", *Journal of Power and Energy* (2002), Vol. 216, pp. 1-14.

<sup>104</sup> It is currently being contemplated to construct a barrage power station 16 km long in the Severn Estuary (UK), see DTI, *The Severn Barrage – Definition Study for a New Appraisal of the Project* (January 2002), available from <<http://www.dti.gov.uk/files/file15363.pdf>>; (accessed on 30 September 2006). Obviously, ships would have to navigate through locks.

<sup>105</sup> For details, see A. Clive Baker, *Tidal Power* (London: Peter Peregrinus 1991), p. 195 et seqq.

permits for wind-energy installations in the EEZ of the North and the Baltic Sea, the competent agency (Federal Maritime and Hydrographic Agency – *BSH*) was faced with an enormous number of applications. Concerns were expressed that Germany’s EEZ and territorial sea would be filled with wind-energy plants with just a few spots and some sea lanes kept free for nature protection purposes and shipping respectively.<sup>106</sup> As of today, in the German EEZ of the North Sea 10 wind farms have been approved with a total number of 697 wind-energy plants.<sup>107</sup> It is widely accepted that wind farms constitute a danger for shipping and that accidents may have severe consequences.<sup>108</sup>

It is not difficult to predict that the use of marine energy production will increase, as it is part of a solution to become independent of conventional non-renewable energy sources that are finite and, indeed, will be exhausted in probably fewer than one hundred years. Furthermore, using renewable forms of energy does not emit any CO<sub>2</sub> and thus does not contribute to the greenhouse-gas effect driving global climate change. Proliferation of their use and further investment in technical development can be expected. With less marine space available, navigation for ships will become even more complex.

### III. Concluding Remarks

It has become apparent throughout this chapter that the oceans are a vital source of life on the planet Earth. They host a plethora of both floral and faunal species, some of which, in particular deep-sea species, still need to be properly identified and described. Oceans play a pivotal role in maintaining the climatic cycle and in providing food for billions of people all over the world. In the light of these observations, the need for continuous protection is patently obvious. Nevertheless, the world’s oceans are under threat. An ever more diversified range of uses today competes for limited marine space, including activities such as mining and energy production that were once largely confined to terrestrial areas. Shipping is still the most important use in both economic and ecological terms. Human activities are leaving their marks on the oceans, with the pollution of seawater and degradation of marine habitats being the most obvious. These threats to the marine environment, in particular the contribution of international shipping, will be looked at thoroughly in the next chapter.

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<sup>106</sup> SRU, *Windenergienutzung auf See, Stellungnahme vom April 2003*, available from <[http://www.umweltrat.de/03stellung/download03/stellung/Stellung\\_Windenergie\\_April2003.pdf](http://www.umweltrat.de/03stellung/download03/stellung/Stellung_Windenergie_April2003.pdf)>; (accessed on 30 September 2006), p. 1 et seq. A detailed account of the manifold utilisations of the German Bight is given by Bela H. Buck, Gesche Krause and Harald Rosenthal, *supra*, note 73, p. 97 et seqq.

<sup>107</sup> See BSH, “Windparks” (2006), available from <<http://www.bsh.de/de/Meeresnutzung/Wirtschaft/Windparks/index.jsp>>; (accessed on 30 September 2006).

<sup>108</sup> Cf. Edmund Brandt and Karsten Runge, *Kumulative und grenzüberschreitende Umweltwirkungen im Zusammenhang mit Offshore-Windparks* (Baden-Baden: Nomos Verlagsgesellschaft 2002), p. 73.

## Chapter 2: Threats to the Marine Environment: Pollution and Physical Damage

The oceans have always been subject to human activities. To a varying extent, these activities have adverse impacts on the state of the marine environment. Detrimental environmental effects depend upon the nature of human interference with nature. Two types may broadly be distinguished: pollution and physical destruction.

As far as threats to the marine environment are concerned, pollution is by far the more significant. It therefore forms the main focus of this chapter. Its internationally recognised definition for the marine sector was developed by GESAMP and reads: "Introduction of man, directly or indirectly, of substances or energy into the marine environment (including estuaries) resulting in such deleterious effects as harm to living resources, hazard to human health, hindrance to marine activities including fishing, impairment of quality for use of sea-water, and reduction of amenities."<sup>109</sup> In contrast to this very comprehensive definition, physical damage merely comprises those cases in which a marine habitat is destroyed or degraded by direct impact. They are essentially limited to damage by groundings of ships, anchorage or construction works. Consequently, habitat destruction will only be addressed in relation to environmental threats from shipping.

In dealing with threats to the marine environment, I shall first give a brief overview of the main sources of pollution. Subsequently, I will turn to the major substances that may cause pollution. With respect to the scope of this treatise, in the third part of this chapter, I will pay special attention to threats to the marine environment posed by international shipping, i.e. operational and accidental pollution, as well as habitat destruction.

### I. Sources of Pollution

Three sources of pollution may broadly be distinguished, namely coastal sources, including river influx, atmospheric deposition and offshore inputs.

Coastal sources are either point sources or diffuse sources. Point sources include direct outfall through pipes discharging contaminated water from coastal industry, sewage discharges and development sites.<sup>110</sup> Contrary to site-specific discharges, diffuse sources result from broad-scale activities, e.g. agriculture and forestry, and are mostly associated with leakage of nutrients into groundwater, which are later transported into the sea.<sup>111</sup> Both point and diffuse sources may also

<sup>109</sup> See GESAMP, *Impact of Oil and Related Chemicals and Wastes on the Marine Environment*, GESAMP Report and Studies No. 50 (London: IMO Publication 1993), p. iii.

<sup>110</sup> Robert B. Clark, *Marine Pollution*, Fifth Ed. (Oxford: OUP 2001), p. 5 et seq.; GESAMP, *Protecting the Oceans from Land-Based Activities*, GESAMP Report and Studies No. 71 (Nairobi: UNEP Publication 2001), p. 17.

<sup>111</sup> GESAMP, *supra*, note 110, p. 17.

be located far away from the coast, in the upper reaches of a river, where contaminants are introduced into the watercourse.<sup>112</sup> Via their estuaries, they carry possibly large quantities of contaminants into the sea. Finally, coastal urban areas still represent significant sources of pollution. In many parts of the world, especially in developing countries, municipal waste and sewage are still discharged into the sea without receiving proper treatment.

Only air emissions from planes are true atmospheric sources of marine pollution. However, they share certain features with pollutants that originally stem from either land-based or offshore activities: all of them are possibly distributed over large areas depending on prevailing winds and weather conditions. With respect to pollutants that are deposited through the atmosphere, two broad distinctions may be drawn. First, materials stay for either a short time or a long time in the atmosphere. In the case of the former, they are mostly deposited close to their sources; in the case of the latter, they are widely distributed on a regional or even a global scale.<sup>113</sup> Secondly, substances usually enter the sea in rain – in contrast, particulate matter may also just fall out.<sup>114</sup> It has been noted that it is very difficult to estimate precisely how atmospheric deposition contributes to the pollution of the marine environment. Nevertheless, it is widely accepted that their contribution is very large.<sup>115</sup> In particular, atmospheric deposition is the most likely way into the marine environment for POPs, many of which are volatile and considered to be highly toxic.<sup>116</sup> Furthermore, a topical concern is the increasing input of nutrients, such as nitrogen, into usually nitrogen-poor areas of the open oceans through atmospheric deposition, which will have marked impacts on the extent of biological production and the composition of species.<sup>117</sup>

Offshore marine pollution mainly emanates from vessel-source pollution. Although vessels contribute to the pollution of the marine environment in a variety of ways, the share of their overall contribution is not very large – about 10 per cent.<sup>118</sup> A brief note suffices here; details will be given in the third part of this chapter. Other offshore sources include offshore industrial activities, such as oil extraction and the extraction of mineral resources.

## II. Types of Pollutants

Marine pollution must remain an elusive idea without reference to the major substances that actually cause pollution. Many noxious or hazardous substances

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<sup>112</sup> Robert B. Clark, *supra*, note 110, p. 6.

<sup>113</sup> GESAMP, *supra*, note 110, p. 17.

<sup>114</sup> Robert B. Clark, *supra*, note 110, p. 7.

<sup>115</sup> *Ibid.*

<sup>116</sup> GESAMP, *supra*, note 110, *loc.cit.* See further Sec. II.2. of this chapter.

<sup>117</sup> GESAMP, *A Sea of Troubles*, GESAMP Report and Studies No. 70 (Nairobi: UNEP Publication 2001), p. 18; and GESAMP, *supra*, note 110, p. 51 et seq.

<sup>118</sup> Land-based activities account for roughly 80 per cent of released pollutants; cf. UN Doc. A/60/63, *Oceans and the Law of the Sea – Report to the 60<sup>th</sup> session of the General Assembly*, 4 March 2005, para. 104.

find their way into the sea from the above-mentioned sources. In the following section, I shall highlight their main chemical properties and elucidate how these substances harm the environment. The account is limited to those substances considered to be environmentally and toxicologically most significant, namely hydrocarbon compounds, persistent toxic substances, heavy metals, radioactive materials and nutrients. It should be kept in mind that very few substances are added to the sea in a chemically pure state, but most are part of complex liquid or gaseous solutions.

It should also be noted that most of the polluting substances occur naturally in the marine environment. Contamination, i.e. elevated concentrations of substances in flora or fauna, may only be labelled pollution if human-induced, because “a pollutant is a resource out of place.”<sup>119</sup> Pollution, furthermore, requires substances to have a measurable adverse effect on the population of a certain species.<sup>120</sup>

### 1. Hydrocarbon Compounds

By far the most familiar hydrocarbon compounds are petroleum hydrocarbons, commonly referred to as oil. These hydrocarbons are grouped into four chemical classes: alkanes, naphthenes, aromatics and alkenes.<sup>121</sup> Crude oil, which constitutes the original form of oil before it is refined to yield, e.g. petrol, contains a complex mixture of these classes. Sulphur, nitrogen, oxygen and vanadium compounds may also be present; these and other compounds comprise up to 25% of crude oil.<sup>122</sup> Released into the sea, it usually floats, although parts may eventually sink, as certain fractions evaporate over time.<sup>123</sup> All components of crude oil are, at varying rates, degradable by bacteria.<sup>124</sup> Numerous contributory sources can be identified; it may be discharged into the sea by vessels either accidentally or willingly, or leaked from offshore oil platforms or on-shore refineries.<sup>125</sup> The refined products of crude oil share some of crude oil’s features but are unique

<sup>119</sup> GESAMP, *supra*, note 110, p. 20

<sup>120</sup> Robert B. Clark, *supra*, note 110, p. 8. It is interesting to note that while most pollutants stem from industrial activities, recent research results have shown that pollution already occurred in the pre-industrial era, cf. Heike K. Lotze, “Ecological History of the Wadden Sea: 2000 years of Human-induced Change in a Unique Coastal Ecosystem”, 30 *Wadden Sea Newsletter* (2004), No. 1, pp. 22-23. More information available from <<http://www.hmapcoml.org/Default.asp?ID=209>>; (accessed on 30 September 2006).

<sup>121</sup> Cf. Jerzy W. Doerffer, *Oil Spill Response in the Marine Environment* (Oxford et al: Pergamon Press 1992), p. 9 et seqq.; Michael J. Kennish, *supra*, note 4, p. 83.

<sup>122</sup> GESAMP, *supra*, note 109, p. 19 et seqq. Alkenes are gaseous at room temperature and are relatively rare in crude oil, but common in many refined products.

<sup>123</sup> James W. Nybakken and Mark D. Bertness, *Marine Biology – an Environmental Approach*, Sixth Ed. (San Francisco: Benjamin Cummings 2005), p. 476.

<sup>124</sup> Robert B. Clark, *supra*, note 110, p. 74.

<sup>125</sup> See table 4.1 in Robert B. Clark, *supra*, note 110, p. 65.

inasmuch as they have well-defined, predictable characteristics and tend to be less toxic. Petroleum products include gasoline, kerosene, diesel fuel and fuel oils.<sup>126</sup>

The environmental impacts of oil comprise physical and chemical alterations, as well as the toxication of marine habitats. Adverse physical effects, in particular in the aftermath of large spills, mainly concern smothering of floral and faunal organisms.<sup>127</sup> As far as phytoplankton are concerned, this effect reduces the light available for photosynthesis processes. With respect to larger animals, birds get coated and their feathers lose their waterproofing qualities; causing them to sink and drown. Marine mammals are not particularly at risk, though sea otters' furs function in a similar way to the plumage of a seabird, making them equally vulnerable to floating oil.<sup>128</sup> With respect to chemical effects and the toxication of marine organisms, much depends on the crude oil's composition, as it may contain benzene, toluene, xylene and polycyclic aromatic hydrocarbons (see below), all of which are highly toxic. These substances tend to bioaccumulate in fish and shellfish, as well as in sediments, posing a long-time threat to benthic organisms.<sup>129</sup> Oil can yield immediate lethal effects for flora and fauna which are trapped, smothered and suffocated, because it soon interferes with cellular processes. So-called sublethal effects may have an impact on organisms in the days and weeks after a spill, as toxic constituents of the oil impair the ability of the organisms to obtain food, to move or to reproduce.<sup>130</sup>

Hydrocarbon compounds further embrace substances labelled as *polycyclic aromatic hydrocarbons* (PAHs), many of which are potential carcinogens, mutagens and teratogens (causing abnormalities in embryos).<sup>131</sup> Because of their low solubility and hydrophobic nature, PAHs are often deposited in marine sediments, where they tend to be persistent and may accumulate to high concentrations.<sup>132</sup> Finally, among the most persistent and toxic hydrocarbon compounds are *halogenated hydrocarbons* that contain halogens, such as chlorine, bromine, fluorine and iodine.<sup>133</sup> Many substances in these two categories have been included in a category called persistent toxic substances, which shares major features with non-hydrocarbon compounds and will thus be addressed separately in the next section.

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<sup>126</sup> IMO, *Manual on Oil Pollution – Section IV, Combating Oil Spills* (London: IMO Publication 2005), p. 6.

<sup>127</sup> For a detailed account of different coastal habitat types, such as salt marshes and coral reefs, see Jerzy W. Doerffer, *supra*, note 121, p. 67 et seqq.

<sup>128</sup> Robert B. Clark, *supra*, note 110, p. 89; Jerzy W. Doerffer, *supra*, note 121, p. 58 et seqq.

<sup>129</sup> Michael J. Kennish, *supra*, note 4, p. 86.

<sup>130</sup> *Ibid.*; and GESAMP, *supra*, note 109, p. 75 et seq.

<sup>131</sup> Michael J. Kennish, *supra*, note 4, p. 141 et seqq.

<sup>132</sup> Licia Guzzella and Adolfo de Paolis, "Polycyclic Aromatic Hydrocarbons in Sediments of the Adriatic Sea", 28 *MPB* (1994), pp. 159-165, at 159.

<sup>133</sup> Michael J. Kennish, *supra*, note 4, p. 177 et seqq.; Robert B. Clark, *supra*, note 110, p. 126 et seqq.

## 2. Persistent Toxic Substances

The term “persistent toxic substances” (PTS) refers to a wide range of diverse substances that are mainly long-lived, noxious substances, but also less persistent substances that, because of their continuing use and dissemination, may give rise to chronic exposures over large temporal and spatial scales.<sup>134</sup> Prevalent chemicals include perfluorooctanyl sulfonates, used in the surface treatment of fabric, and brominated flame retardants, often integrated into components of electronic goods. While the production of some PTS has been banned, others continue to be used. Their existence in terrestrial, as well as aquatic ecosystems is thus widespread.<sup>135</sup>

Among substances classed as PTS, some organic compounds are particularly harmful and non-degradable. These are usually called persistent organic pollutants (POPs), referring to a group of substances that to varying extents resist photolytic, biological and chemical degradation. POPs are often halogenated or chlorinated and characterised by low water solubility and high lipid solubility, leading to their bioaccumulation in fatty tissues.<sup>136</sup> They are also semi-volatile, enabling long-range transport through the atmosphere. Most substances can be classified as halogenated hydrocarbons; however, metallic compounds may also have POP properties. Prominent examples include tributyl tin (TBT) and its derivatives, dibutyl tin and monobutyl tin, that are suspected of being endocrine disruptors.<sup>137</sup> POPs originate from anthropogenic sources, even though some organochlorines are known also to have natural sources. They are either pesticides or industrial chemicals that were once thought to possess significant societal benefits, or unintended by-products of combustion processes, such as dioxin.

The growing concern that these substances evoke is reflected by the fact that after lengthy negotiations, an international convention was signed in 2001 aiming at measures to eliminate or reduce the release of POPs into the environment.<sup>138</sup> Twelve substances (informally referred to as the “dirty dozen”) were subjected to

<sup>134</sup> GESAMP, *supra*, note 110, p. 21.

<sup>135</sup> For a very recent assessment of the spatial distribution of POPs on a worldwide basis, see Karla Pozo et al, “Toward a Global Network for Persistent Organic Pollutants in Air: Results from the GAPS Study”, *Environ. Sci. Technol.* (2006), ASAP Web Release Date: 28 June 2006, DOI: 10.1021/es060447t, 7 pages.

<sup>136</sup> IPCS, *Persistent Organic Pollutants – An Assessment Report*, December 1995, available from <<http://www.pops.int/documents/background/assessreport/en/ritterren.pdf>>; (accessed on 30 September 2006), p. 8 et seq.

<sup>137</sup> GESAMP, *supra*, note 110, p. 49. Simon Walmsley, *Tributyltin Pollution on a Global Scale, An Overview of Relevant and Recent Research: Impacts and Issues* (2006), reproduced in MEPC 55/Inf.4, *Evidence of the Continuing Global Impact of Organotin highlighting the Need to urgently ratify the AFS Convention*, 7 July 2006, annex. Even though most uses of organotin compounds have now been banned, they still represent a source of concern, cf. SRU, *Marine Environment Protection for the North and the Baltic Seas – Special Report* (Baden-Baden: Nomos-Verlagsgesellschaft 2004), p. 59 et seq. and p. 92.

<sup>138</sup> Adopted on 21 May 2001, in force as from 17 May 2004, 40 *ILM* (2001) 532; hereafter POPs Convention; further information available from the Convention’s official website <<http://www.pops.int>>; (accessed on 30 September 2006).

the strict rules of the POPs Convention, but the convention provides for a mechanism to add further chemicals to its regime.<sup>139</sup> The POPs Convention, expanding the usual definition, also applies to “pollutants [that] are transported, through air, water and migratory species, across international boundaries and deposited far from their place of release, where they accumulate in terrestrial and aquatic ecosystems.”<sup>140</sup>

### 3. Heavy Metals

Definitions of the term “heavy metals” differ.<sup>141</sup> Most often they are referred to as a group of metallic elements having atomic weights between 63.546 and 200.590 and specific gravities greater than 4.0; the term excludes alkali metals, alkaline earths, lanthanides and actinides.<sup>142</sup> Heavy metals are natural components of the Earth’s crust. Trace amounts of some of them, including cobalt, copper and zinc, are essential micronutrients maintaining critical metabolic functions, while excessive levels can have detrimental effects. In contrast, other heavy metals such as mercury, lead and cadmium have no known vital or beneficial effect on organisms, but may have severe adverse impacts.<sup>143</sup> Heavy metals generally share most of the features of persistent toxic substances, since they are non-degradable, they bioaccumulate and they produce acute or chronic toxic effects. Toxicity and adverse health effects vary widely depending on the type of metal: for instance, while some forms of mercury, even if absorbed in small doses, cause severe damage to the brain and the central nervous system, short-term exposure to nickel does not produce any effect while long-term exposure may cause skin irritation or liver damage.

The existence of heavy metals in the marine environment can be detected in all parts of the world, in particular in sedimentary habitats.<sup>144</sup> Most of the metals find

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<sup>139</sup> Chemicals currently covered by the 2001 POPs Convention are pesticides (aldrin, chlordane, DDT, dieldrin, endrin, heptachlor, mirex and toxaphene), industrial chemicals (hexachlorobenzene (also a pesticide) and polychlorinated biphenyls (PCBs)), and unintended by-products, i.e. polychlorinated dibenzo-p-dioxins (PCDDs) and heptachlor-polychlorinated dibenzo-furans (PCDFs). Details about these substances can be found in IPCS, *supra*, note 136, p. 18 et seqq.

<sup>140</sup> Cf. first recital of the POPs Convention; emphasis in italics added.

<sup>141</sup> Some even argue that the term should not be used for the classification of metals, e.g. John H. Duffus, “‘Heavy Metals’ – A Useless Term?”, 74 *Pure and Applied Chemistry* (2002), pp. 793-807, at 803 et seq.

<sup>142</sup> Michael J. Kennish, *supra*, note 4, p. 253. For an overview of definitions currently used, see John H. Duffus, *supra*, note 141, p. 796 et seqq.

<sup>143</sup> Aldo Viarengo, *supra*, note 10, pp. 153-158. For effects on individual organisms, see G.W. Bryan, “Pollution due to Heavy Metals and their Compounds”, in Otto Kinne (ed.), *Marine Ecology, Volume V, Part 3: Pollution and Protection of the Seas – Radioactive Materials, Heavy Metals and Oil* (Chichester: John Wiley & Sons 1984), pp. 1289-1431, at 1363 et seqq.

<sup>144</sup> Cf. SRU, *supra*, note 137, p. 49 et seqq and p. 87 et seqq.; A. Pastor et al, “Levels of Heavy Metals in Some Marine Organisms for the Western Mediterranean Area (Spain)”,



their way into the marine environment either through river influx or atmospheric deposition; direct discharges from industrial sources have decreased.<sup>145</sup> Yet they are still used in industrial processes, despite long-established bans on the most toxic compounds. Sedimentation of metals in heavily polluted areas such as estuaries and ports is a common phenomenon; spoil from regular dredging of shipping channels thus contains large amounts of contaminated material, which is later dumped at sea.<sup>146</sup>

#### 4. Radioactive Materials

Alpha, beta and gamma radiation (radioactivity) due to the emission of both particles and electromagnetic waves from unstable isotopes of some chemical elements is a common natural phenomenon. Thus, seawater is naturally radioactive; this so-called background radioactivity mainly stems from potassium-40, as well as from decay products of uranium and thorium.<sup>147</sup> Human activities, however, have led in some areas to a marked increase in radioactivity. Scientific developments in the last century have enabled humans to create unstable isotopes, whose instability is remedied by returning them to a stable state; during this process, radiation energy is emitted that can be utilised, for instance, to produce electricity or to fuel engines. Anthropogenic sources of marine radioactive pollution include discharges of cooling water from nuclear power plants and waste water from reprocessing plants, loss of radioactive cargo from ships, military weapons testing and dumping of solid nuclear waste<sup>148</sup> – even though the latter is by now largely prohibited by the London Dumping Convention.<sup>149</sup>

Threats to humans and the environment very much depend on the activity, the biodistribution and the half-life of the radioisotope.<sup>150</sup> Chronic exposure to elevated levels of radioactivity is generally considered to contribute to different forms of cancer and other diseases, as well as to genetic disorder.<sup>151</sup> However,

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28 *MPB* (1994), pp. 50-53; E. Helmers et al, “Temporal and Spatial Variations of Lead Concentrations in Atlantic Surface Waters”, 21 *MPB* (1990), pp. 515-518.

<sup>145</sup> Robert B. Clark, *supra*, note 110, p. 99 et seq. The atmospheric input pathway is more important for open ocean areas; heavy metal pollution in coastal areas originates mainly from riverine inflow, see SRU, *supra*, note 137, p. 54.

<sup>146</sup> Robert B. Clark, *supra*, note 110, p. 101.

<sup>147</sup> For a complete list of radionuclides occurring in the oceans naturally, cf. *ibid.*, table 7.1, p. 154.

<sup>148</sup> OSPAR Commission, *Quality Status Report 2000* (London: OSPAR Commission 2000), p. 97.

<sup>149</sup> Adopted on 29 December 1972, in force as from 30 August 1975, 1046 *UNTS* 120; hereafter LDC. There is currently a binding moratorium on the dumping of nuclear waste for parties to the LDC, adopted by amendment of Annex I of the LDC in 1993. Cf. Louise de la Fayette, “The London Convention 1972: Preparing for the Future” 13 *IJMCL* (1998), pp. 515-536, at 528.

<sup>150</sup> For a detailed account of the effects of radioactivity on marine organisms, see D.S. Woodhead, “Contamination due to Radioactive Materials”, in Otto Kinne (ed.), *supra*, note 143, pp. 1111-1287, at 1201.

<sup>151</sup> Robert B. Clark, *supra*, note 110, p. 169 et seq.

lethal damage is difficult to detect in short-term tests, as actual damage does not usually occur immediately after exposure. Likewise, sublethal genetic damage may only be detected in following generations.

The most significant inputs of radioactive materials into the marine environment originate from nuclear industry activities and the dumping of radioactive waste.<sup>152</sup> Infamous examples include radioactive waste-water discharges from the reprocessing plant in Sellafield (UK) and the dumping of spent nuclear fuel from warships in Russian waters. With respect to the former, the radioactivity of effluents, in particular in the 1970s and early 1980s, was very high.<sup>153</sup> It is estimated that continued releases of waste water have accumulated in sediments in the Irish Sea and now amount to a total of 200 kg of plutonium alone.<sup>154</sup> As far as the latter is concerned, by 1992 the total volume of low radioactive waste dumped into five designated areas in the Barents Sea was 192,700 m<sup>3</sup>, which had a total radioactivity of 12,171 Ci.<sup>155</sup>

## 5. Nutrients

Although in a strict sense not as toxic as the pollutants discussed above, nutrients can have severely damaging effects on the marine environment. Inputs of high levels of nitrogen and phosphorus compounds, in particular, often result in “eutrophication”. This term denotes a process that significantly changes growth conditions for phytoplankton.<sup>156</sup> Nutrients in high concentrations, depending on the physical and chemical properties of the marine area affected, may lead to excessive growth of algae (“algae bloom”) and phytoplankton.<sup>157</sup> As a consequence, oxygen concentration decreases, while concentrations of hydrogen sulphides increase. Many aquatic organisms have low resistance against hydrogen sulphides and may therefore just die off. Compounding this problem, dead algae floats on the surface and thus covers the water, making it difficult for sunlight to penetrate into the sea. Consequently, in addition to oxygen shortage, phyto-

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<sup>152</sup> Even though impacts of radioactive contamination are mostly restricted to a regional level, contaminated materials may be transported over long distances by marine currents. Cf. Hartmut Nies et al, *Transportmechanismen radioaktiver Substanzen im Arktischen Ozean – Numerische und experimentelle Studien am Beispiel der Barents- und Karasee* (1999), available from <<http://www.bsh.de/de/Meeresdaten/Beobachtungen/Radioaktivitaet/Kara-See/karasee.pdf>>; (accessed on 30 September 2006), p. 28 et seq.

<sup>153</sup> Figures of discharges from the Sellafield reprocessing plant are to be found in Robert B. Clark, *supra*, note 110, figure 7.4, p. 159.

<sup>154</sup> OSPAR Commission, *Quality Status Report 2000, Region III – Celtic Seas* (London: OSPAR Commission 2000), p. 66.

<sup>155</sup> See Hilary Anderson, “Russia: Spent Fuel and Radioactive Waste” (April 2001), available from <<http://www.nti.org/db/nisprofs/russia/naval/waste/wasteovr.htm>>; (accessed on 30 September 2006).

<sup>156</sup> See, generally, GESAMP, *supra*, note 117, p. 8 et seq.

<sup>157</sup> SRU, *supra*, note 137, p. 66.

plankton also lacks adequate amounts of light energy to maintain photosynthesis processes.<sup>158</sup>

Nutrients are mainly used as fertilisers in agriculture. Applied on fields, they drain away and are eventually carried into the sea by rivers. Therefore, estuaries and coastal areas are the prime sites in which eutrophication effects may occur due to high concentrations of nutrients. Areas where the exchange of water masses is low are equally vulnerable. Serious deterioration, for instance, has been observed in the Adriatic Sea over the last twenty years, especially in areas near the Po estuary. It carries about 100,000 tonnes/year of inorganic nitrogen and about 6,000 tonnes/year of inorganic phosphorus; total inputs from Italian sources into the northern Adriatic Sea amount to 270,000 and 24,000 tonnes/year respectively.<sup>159</sup>

### III. Shipping-Related Threats to the Marine Environment

As has been seen above, a wide range of different substances may pollute the marine environment. Many of these pollutants are released by vessels – either operationally or accidentally. It is the purpose of this section to give some insights into the distinct pattern of vessel-source pollution in order to make possible an adequate examination of the existing response and prevention mechanism in the legal sphere and the creation of a new one. In addition, the potential of ships to have a physical impact on habitats and animals shall be highlighted.

#### 1. Operational Pollution

Operational pollution denotes the phenomenon that vessel-source marine pollution is not confined to accidents. In fact, the majority of pollutants are released while the ship is on voyage rather than accidentally.<sup>160</sup> In this respect, activities include the chronic discharge of sewage, tank residues, bunker oils and garbage, as well as the exchange of ballast water, emissions from vessels' engines and pollution due to anti-fouling paints on ships' hulls.

The discharge of sewage is a ubiquitous problem and may cause severe bacteriological pollution, harming local fisheries and aquaculture and – in some areas – leading to an excess of nutrients.<sup>161</sup> Discharge of solid debris (e.g. disused packaging) is an even more serious concern, particularly in the coastal areas of

<sup>158</sup> GESAMP, *supra*, note 117, p. 8.

<sup>159</sup> GESAMP, *supra*, note 110, p. 24 et seq.

<sup>160</sup> Thomas Höfer, "Marine Transport of Bulk Liquids and Cargoes Spilt", 5 *ESPR* (1998), pp. 97-104, at 101 et seqq.; Volker Brenk, "Verschmutzung der Nord- und Ostsee durch die Seeschifffahrt", in J.L. Lozán et al (eds.), *Warnsignale aus Nordsee und Wattenmeer* (Hamburg: Wissenschaftliche Auswertungen 2003), pp. 107-113.

<sup>161</sup> MEPC 46/6/1, *Additional Protection for Particularly Sensitive Sea Areas*, 19 January 2001, Annex, para. 1.1.5.

developing countries.<sup>162</sup> While the majority of sources (60 to 80 per cent) are land-based, the main offshore sources are fishing vessels and cruise ships.<sup>163</sup> A large number of species is known to be seriously harmed and killed by plastic debris; marine animals are mostly affected through entanglement in and ingestion of plastic litter, some of which contains PCBs.<sup>164</sup> Observations indicate that marine litter proliferation is increasing despite efforts in various international fora.<sup>165</sup> Reasons include a constant lack of onshore disposal facilities and weak implementation and enforcement of existing legal instruments. Tank residues are also likely to be discharged into the sea. Many oil tankers clean their tanks or unload contaminated ballast water whilst at sea. Although environmental standards for these operations are quite strict, especially in MARPOL special areas,<sup>166</sup> compliance rates are very low in some areas of the world.<sup>167</sup> Non-compliance is largely driven by economic motivation: environmentally-friendly washing of tanks in ports with adequate reception facilities involves costs that some shipowners are keen to avoid. Furthermore, some problems result from lost bunker oil. It is kept warm in the tanks of vessels and, if discharged into the sea, forms tar balls that are extremely resistant to physical and biological degradation.<sup>168</sup> All coasts near major shipping lanes have a serious problem with tar balls, although the problem is said to have decreased in the last two decades.<sup>169</sup> Finally, pollution also occurs during terminal operations, when oil is being loaded or discharged.<sup>170</sup>

Problems of a different kind concern the discharging of ballast water. The uptake of ballast water is a traditional way of ensuring that a ship is perfectly balanced and stable even when unloaded. It is taken on board in one place and discharged back into the sea in another place, possibly thousand of miles away

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<sup>162</sup> See, generally, information disseminated by the *Global Marine Litter Information Gateway*, maintained by UNEP and IMO, available from <<http://marine-litter.gpa.unep.org>>; (accessed on 30 September 2006).

<sup>163</sup> UN Doc. A/60/63, *supra*, note 118, para. 239 et seq.; Oceana, “Contamination by Cruise Ships”, available from <<http://oceana.org/index.php?id=791>>; (accessed on 30 September 2006).

<sup>164</sup> José G.B. Derraik, “The Pollution of the Marine Environment by Plastic Debris: A Review”, 44 *MPB* (2002), pp. 842-852, at 842 et seqq.

<sup>165</sup> UN Doc. A/60/63, *supra*, note 118, para. 274 et seq.

<sup>166</sup> See, *infra*, Sec. I.1.a) of Chapter 5 on MARPOL standards.

<sup>167</sup> They are said to be particularly low in developing countries. However, many European ships also have a very bad compliance record. See Oceana, *The EU Fleet and Chronic Hydrocarbon Contamination of the Oceans* (2005), available from <[http://oceana.org/uploads/media/report\\_marpol\\_eu\\_chronic\\_hydrocarbon\\_contamination.pdf](http://oceana.org/uploads/media/report_marpol_eu_chronic_hydrocarbon_contamination.pdf)>; (accessed on 30 September 2006), p. 16.

<sup>168</sup> Thomas Höfer, *supra*, note 160, p. 102.

<sup>169</sup> GESAMP, *supra*, note 109, p. 27 et seqq. Bunker oil is extremely ropy and much more toxic than, for instance, petrol for cars; cf. Hans Schuh, “Schwefel Ahoi!”, *Die Zeit (Wissen Supplement)*, No. 35, 24 August 2006.

<sup>170</sup> *Ibid.*, p. 25.

from its place of intake.<sup>171</sup> This process, known as ballasting, was long thought to be environmentally innocent. However, increased understanding of intra-ecosystem dependencies has revealed that organisms living in the ballast water could prove to be harmful for the particular ecosystem they are discharged into, because of their potential to alter, *inter alia*, prevailing predator-prey relationships or structures of micro-organism communities. While discharge of ballast water has not yet been prohibited completely, regulatory efforts have been made to manage its handling and treatment adequately.<sup>172</sup>

The ship's hull is also likely to be a source of chronic pollution. Marine organisms, such as molluscs and algae, tend to grow on ships' hulls, which can cause a reduction in speed of 3 to 10 per cent.<sup>173</sup> As a consequence, hulls have long been coated with anti-fouling paint containing TBT, which acts as a biocide. TBT is extremely lethal to all sorts of plankton and has further sublethal effects, including reduced growth of oysters and mussels, as well as imposex.<sup>174</sup> The International Maritime Organization (IMO) instigated research into anti-fouling systems in 1989 and, as a result, IMO member states adopted the International Convention on the Control of Harmful Anti-Fouling Systems on Ships in 2001.<sup>175</sup> Research has revealed that restrictions on the use of toxic anti-fouling agents have led to a decrease in TBT concentrations and a recovery of species affected by imposex.<sup>176</sup>

Similar to road transport, ships have always emitted certain noxious substances, since they were equipped with petrol engines: sulphur oxide, nitrogen oxide, certain ozone-depleting substances and greenhouse gases, most notably CO<sub>2</sub>.<sup>177</sup> Increasing vessel traffic has raised awareness of a need to develop cleaner and more efficient engines. A crucial issue, for concentrations of sulphurous and nitrous

<sup>171</sup> An instructive overview is given by the Global Ballast Water Management Programme, "The Problem", available from <<http://globallast.imo.org/index.asp?page=problem.htm&menu=true>>; (accessed on 30 September 2006).

<sup>172</sup> Michael Tsimplis, "Alien Species Stay Home: The International Convention for the Control and Management of Ships Ballast Water and Sediments 2004", 19 *IJMC* (2004), pp. 411-482, at 415 et seqq.

<sup>173</sup> Thomas Höfer, "Environmental and Health Effects Resulting from Marine Bulk Liquid Transport", 5 *ESPR* (1998), pp. 231-237, at 234.

<sup>174</sup> Robert B. Clark, *supra*, note 110, p. 145 et seqq. and Simon Walmsley, *supra*, note 137, p. 16 et seq. "Imposex" effects, i.e. the development of male primary sexual characteristics in females has been observed in some species of whelk and gastropod.

<sup>175</sup> Adopted on 5 October 2001, not yet in force; text reproduced in IMO, *Anti-Fouling Systems* (London: IMO Publication 2005). Hereafter AFS Convention.

<sup>176</sup> Thomas Höfer, *supra*, note 173, *loc.cit.*; Simon Walmsley, *supra*, note 137, p. 12 et seqq.

<sup>177</sup> See information available from IMO, *Prevention of Air Pollution from Ships*, available from <[http://www.imo.org/Environment/mainframe.asp?topic\\_id=1068](http://www.imo.org/Environment/mainframe.asp?topic_id=1068)>; (accessed on 30 September 2006). Shipping's CO<sub>2</sub> emissions amount to 7 per cent within the transport sector, which equals 2 per cent of overall CO<sub>2</sub> emissions; cf. ISL, *Nutzung der Hohen See als Transportweg – Möglichkeiten zur Erhebung von Entgelten*, Externe Expertise für das WBGU-Sondergutachten "Entgelte für die Nutzung globaler Gemeinschaftsgüter" (2002), available from <[http://www.wbgu.de/wbgu\\_sn2002\\_ex01.pdf](http://www.wbgu.de/wbgu_sn2002_ex01.pdf)>; (accessed on 30 September 2006), p. 39.

oxides in particular, is the fuel quality.<sup>178</sup> Yet the use of low-grade bunker oil is still widespread. Regulations relating to fuel quality introduced under the auspices of the IMO have recently entered into force.<sup>179</sup> However, corresponding instruments have only been ratified by a few countries yet. Air emissions from ships are thus likely to increase.<sup>180</sup>

## **2. Accidental Pollution**

Polluting substances are released accidentally due to collisions, contacts with external objects, groundings, explosions, cargo-transfer failures, sinking or loss of cargo. Ships often carry large quantities of cargo that is toxic or otherwise hazardous. The most evident examples are oil tankers, which – if involved in an accident – may spill thousands of tonnes of crude oil. Yet, oil is just one type of cargo that is dangerous for the marine environment. IMO, in its efforts to enhance the safety of marine transport, has listed about 800 pollutants in Part 3 of the International Maritime Dangerous Goods (IMDG) Code.<sup>181</sup> The adverse effects of accidental spills of these substances range from mere reduction of amenities to severe hazards to human health and deterioration of marine habitats.

The polluting effects of oil in the marine environment have been described in the previous section. Ecological impacts of accidental oil spills are distinct and most critical, since they usually involve an enormous amount of oil released at the same time. Typically, spilled oil spreads over the surface of the water, forming a thin film. Since large spills in the open ocean will often just burn off or disappear without detectable impact, tanker accidents are most disastrous close to land. The oil coats marine mammals and birds at sea as well as the shallow sub-tidal and intertidal ecosystems close to the shore.<sup>182</sup> Once the oil has drifted ashore, it poses a great danger to highly vulnerable ecosystems such as fixed vegetation, estuaries and oyster and mussel beds.<sup>183</sup> Areas affected by a spill may suffer from it for many years, even when they appear to have completely recovered. If enough oil penetrates the sediments, hydrocarbons alter the long-ranging trends of community structure, particularly with respect to micro-algae and worms.<sup>184</sup> Unfortunately, some of the most serious consequences of a spill do not result from the oil itself, but from the detergents and other highly toxic chemical substances used to disperse the oil in the water during the subsequent clean-up.<sup>185</sup>

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<sup>178</sup> Bunker oil contains up to 27,000 parts per million (ppm) of sulphur compared with ten (10!) ppm in petrol for cars. See Hans Schuh, *supra*, note 169.

<sup>179</sup> For an overview of MARPOL Annex VI standards and more stringent regulations in SO<sub>x</sub> Emissions Control Areas, see, *infra*, Sec. I.1.a) and I.1.b) of Chapter 5.

<sup>180</sup> HELCOM, *Airborne Nitrogen Loads to the Baltic Sea* (Helsinki: HELCOM Publication 2005), p. 17.

<sup>181</sup> Reproduced in IMO, *IMDG Code* (London: IMO Publication 2004), p. 24 et seqq.

<sup>182</sup> See *supra*, Sec. II.1. of this chapter.

<sup>183</sup> James W. Nybakken and Mark D. Bertness, *supra*, note 123, p. 477.

<sup>184</sup> *Ibid.*; and Robert B. Clark, *supra*, note 110, p. 83.

<sup>185</sup> Thomas Höfer, *supra*, note 160, p. 100 et seq.; GESAMP, *supra*, note 109, p. 84 et seqq.

Even though oil-tanker accidents usually receive broad public attention, accidents of chemical tankers lead to probably equally damaging consequences. The most likely hazardous results include:<sup>186</sup> fire, explosion, outflow of toxic substances, reaction with air, water or between incompatible chemicals and nuclear radiation. Several major accidents involving chemical tankers are observed every year.<sup>187</sup> Apparently, not all ships carry dangerous cargoes. Nevertheless, an accident can have devastating pollution effects. Today, bunkers of large cargo ships, storing engine fuel, have a greater capacity than cargo tanks of small oil tankers.<sup>188</sup> In this respect, heavy fuel oil is of greatest concern. Used as a fuel by some vessels, it can pose unusual problems, since its density is higher than that of water (which may cause it to sink) and its high pour point and viscosity lowers its tendency to spread out and disperse.<sup>189</sup>

### 3. Damage to Habitats and Animals

Even without causing pollution of the marine environment, ships can harm oceanic habitats and wildlife by direct physical impact. Physical impacts on habitats are caused by anchors and grounding of ships. Coral reefs are particularly at risk from groundings or anchoring. With respect to the latter, damage is caused either by the direct impact of anchors or from the dragging and swinging of large anchor cables and chains. As the chain and anchor of a large ship can weigh up to 5 tonnes, these activities may destroy living coral heads and create gouges and scars that destabilise the reef structure.<sup>190</sup> For instance, in the coral-reef banks in the Tortugas Ecological Reserve and the Tortugas Bank (United States), an anchor scar that covers an area exceeding 50,000 m<sup>2</sup> has been found, while two other sites bear evidence of anchor damage involving areas greater than 2,500 m<sup>2</sup>. In addition, there are hundreds of coral colonies that are abraded, fractured and toppled, apparently from the dragging of anchors or anchor cables and chains.<sup>191</sup> Coral formations take thousands of years to build, thus reefs may never recover from anchor damage.<sup>192</sup> Yet, damage by anchors is not confined to coral-reef

<sup>186</sup> IMO, *Manual on Chemical Pollution – Problem Assessment and Response Arrangements* (London: IMO Publication 1999), p. 28 et seq.

<sup>187</sup> For examples of accidents involving ships carrying hazardous chemicals, see IMO, *supra*, note 186, p. 2.

<sup>188</sup> Hans Schuh, *supra*, note 169.

<sup>189</sup> IMO, *supra*, note 126, p. 173 et seqq.

<sup>190</sup> Laretta Burke and Jonathan Maidens, *Reefs at Risk in the Caribbean* (Washington, D.C.: World Resources Institute 2004), p. 29; Caroline S. Rogers and Jim Beets, “Degradation of marine ecosystems and decline of fishery resources in marine protected areas in the US Virgin Islands”, 28 *Environmental Conservation* (2001), pp. 312-322, at 316.

<sup>191</sup> NAV 47/3/1, *No anchoring areas in the Tortugas Ecological Reserve and the Tortugas Bank in the Florida Keys*, 15 February 2001, para. 10.

<sup>192</sup> Caroline S. Rogers and Virginia H. Garrison, “Ten years after the crime: lasting effects of damage from a cruise ship anchor on a coral reef in St John, US Virgin Islands”, 69 *Bulletin of Marine Science* (2001), pp. 793–803, at 795 et seqq. For a recent account of

habitats, as research on anchoring effects on seagrass communities has shown.<sup>193</sup> Grounding can cause similar damages to sensitive habitats, in particular coral reefs and other shallow areas. It may also result in long-term impacts, if the wreck, following the initial grounding, shifts.<sup>194</sup>

Direct physical harm to marine mammals is either caused by collisions with the ship itself or with the ship's propellers; ship strikes are a major cause of the deaths of large marine mammals such as whales.<sup>195</sup> Injuries comprise severed tailstocks and blunt trauma.<sup>196</sup> An infamous example is the Northern Right Whale, whose population is increasingly affected by ship strikes.<sup>197</sup> In 1999, the US established two protected areas where vessels are required to report to an onshore station when entering one of the areas.<sup>198</sup> Mariners are informed of locations where right whales have recently been sighted. However, in spite of efforts in some marine areas, lethal collisions generally still constitute a major threat to marine animals.<sup>199</sup>

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threats to coral reef ecosystems, see Wiebke Rögener, "Untergang unter Wasser", *Süddeutsche Zeitung*, No. 122, 26 September 2006, p. 18.

<sup>193</sup> Patrice Francour, Anne Ganteaume, and Maxime Poulain, "Effects of Boat Anchoring in *Posidonia Oceanica* Seagrass Beds in the Port-Cros National Park (North-Western Mediterranean Sea)", 9 *Aquatic Conservation: Marine and Freshwater Ecosystems* (1999), pp. 391-400, at 395 et seqq.

<sup>194</sup> MEPC 46/6/1, *supra*, note 161, para. 1.1.13.

<sup>195</sup> An overview is provided by Aleria S. Jensen and Gregory K. Silber, *Large Whale Ship Strike Database*. U.S. Department of Commerce, NOAA Technical Memorandum, NMFS-OPR-25, 2003, available from <<http://www.nero.noaa.gov/shipstrike/news/shipstrike03.pdf>>; (accessed on 30 September 2006). Note that this database provides a minimum count of strikes as most go undetected.

<sup>196</sup> Leslie I. Ward-Geiger et al, "Characterization of Ship Traffic in Right Whale Critical Habitat", 33 *Coastal Management* (2005), pp. 263-278, at 266. A further problem is underwater noise, that can cause damage to mammal's auditory systems and makes it more difficult for them to detect approaching vessels: see Ship Strikes Working Group of the IWC, *First Progress Report to the Conservation Committee*, May 2006, available from <[http://www.iwcoffice.org/\\_documents/commission/IWC58docs/58-CC3.pdf](http://www.iwcoffice.org/_documents/commission/IWC58docs/58-CC3.pdf)>; (accessed on 30 September 2006), p. 2.

<sup>197</sup> Information on this issue was also submitted for discussion to various bodies of the IMO. See, for instance, NAV 45/Inf.3, *Ship Strikes of Endangered North Atlantic Right Whales in the Waters of Eastern Canada*, 13 July 1999.

<sup>198</sup> Leslie I. Ward-Geiger et al, *supra*, note 196, p. 266 et seqq.

<sup>199</sup> Cf. Ship Strikes Working Group of the IWC, *supra*, note 196, p. 4 et seqq.



## **Part 2: Instruments to Protect Specific Marine Areas**

The PSSA concept, as we shall see later, is an instrument that relies on the designation of a clearly defined marine area, for which it provides for the establishment of protective measures addressing threats posed by international shipping. Several decades ago, individual states and the international community as a whole started to realise that certain marine areas are more vulnerable to environmental threats or more important for maintaining the oceans' habitat functions than others and thus require a higher level of protection. The second part of my treatise attempts to elucidate the rationale and the requirements for spatial regulations, as well as the relevant international legal framework governing and limiting the establishment of protected areas in the seas. In addition, I will give an account of existing regimes allowing for the creation of specially protected marine zones. Observations to be made in this part will prove to be a necessary prerequisite for analysing and assessing the PSSA concept in the final part of this treatise.

### **Chapter 3: Protection of Specific Marine Areas**

This chapter introduces marine protected areas (MPAs) as a means to counter threats to the marine environment. As has been seen in the previous chapter, the ecological state of the oceans is in constant danger. It is my intention to explore in what way the establishment of protected areas contributes to marine environment protection. In so doing, I will first give a rough overview of MPA concepts in order to elucidate the historical developments and the underlying scientific rationale. In a second section, I will look into how MPAs are established, i.e. what criteria they have to meet, what their objectives are and how protection can actually be achieved.

#### **I. Introduction to the Concept of Marine Protected Areas**

*Marine Protected Area* (MPA) is an all-encompassing term whose definition is not standardised between states. Several different categories exist, labelled by around 80 different terms.<sup>1</sup> However, on a general level, they exhibit similar features, which will be set out in the following section.

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<sup>1</sup> J.L. Baker, *Guide to Marine Protected Areas* (Adelaide: Government of South Australia Publication 2000), p. 7 et seq.

### **1. Historical Development and Basic Definitions**

The first MPA was already designated in 1935: the Fort Jeffers National Monument (Florida/USA), which is at least partially marine.<sup>2</sup> At about the same time, protected areas in the Baltic Sea were extended to include coastal waters in order to foster protection of the terrestrial reserves that either covered islands or mainland coastal zones.<sup>3</sup> These first steps signify the application of the so-called terrestrial approach, which only considered marine areas worth protecting where they possessed importance for the adjacent land under protection. Later, scientific research underscored the necessity to shift to an aquatic approach, recognising the inherent ecological value of marine areas.<sup>4</sup> About 4,000 MPAs are recorded today by the UNEP World Conservation Monitoring Centre (WCMC).<sup>5</sup> They are protected by domestic and/or international law supporting a wide array of objectives and share problems related to the absence of visible boundaries and different jurisdictional competences in the oceans.

The roots of contemporary definitions of MPAs can be traced back to definitions of protected areas in general, the most common of which was adopted by the Fourth World Congress on National Parks and Protected Areas of the International Union for the Conservation of Nature (IUCN) in 1992: “An area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means.”<sup>6</sup>

Probably the first definition of MPAs was developed by the Fourth World Wilderness Conference in 1987 and adopted by the IUCN at its 17th General Assembly in 1988. It reads: “Any area of intertidal or subtidal terrain, together with its overlying water and associated flora and fauna, historical and cultural features, which has been reserved by law or other effective means to protect part

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<sup>2</sup> Gerard Peet and Susan Gubbay, “Marine Protected Areas in the North Sea”, 5 *IJECL* (1990), pp. 241-251, at 242. These historic developments are also mentioned in the introductory note to the original PSSA Guidelines; cf. Res. A.720(17), *Guidelines for the Designation of Special Areas and the Identification of Particularly Sensitive Sea Areas*, adopted on 6 November 1991, para. 1.1.

<sup>3</sup> Cf. Gerold Janssen, *Die rechtlichen Möglichkeiten der Einrichtung von Meeresschutzgebieten in der Ostsee – unter besonderer Berücksichtigung des deutschen und schwedischen Naturschutzrechts* (Baden-Baden: Nomos-Verlagsgesellschaft 2002), p. 38.

<sup>4</sup> However, even today many MPAs exist as mere extensions of terrestrial protected areas, see Tundi Spring Agardy, *Marine Protected Areas and Ocean Conservation* (Georgetown and San Diego: R.G. Landes Company and Academic Press 1997), p. 105. Differences between terrestrial and marine protected areas are highlighted by Mark H. Carr et al, “Comparing Marine and Terrestrial Ecosystems: Implications for the Design of Coastal Marine Reserves”, 13 *Ecological Applications* (2003) pp. S90-S107, at S91 et seqq.

<sup>5</sup> IUCN, *Benefits beyond Boundaries, Proceedings of the Vth IUCN World Parks Congress* (Gland Cambridge: IUCN Publication 2005), p. 119.

<sup>6</sup> Cf. Barbara Lausche, *IUCN Environmental Policy and Law Paper: Guidelines for Protected Areas Legislation* (Gland: IUCN 1994), p. 7.

or all of the enclosed environment.”<sup>7</sup> Based on that, the Conference of the Parties to the 1992 Convention on Biological Diversity (CBD) expanded the definition for the sake of implementing the CBD to include “any defined area within [...] the marine environment, together with its overlaying waters and associated flora, fauna and historical and cultural features, which has been reserved by legislation or other effective means, including custom, with the effect that its marine and/or coastal biodiversity enjoys a higher level of protection than its surroundings.”<sup>8</sup>

## 2. Underlying Rationale

Generally, the designation of protected areas was triggered by the observation that the best way to protect sensitive habitats is not by just individually regulating specific sources of pollution, but by enacting sets of abstract rules to prohibit, control and coordinate all uses that may possibly occur in an area.<sup>9</sup>

Current approaches to the protection of specific sites reflect developments in the science of nature protection, for which usually four major phases are distinguished.<sup>10</sup> The *first phase* was characterised by the attempt to protect natural scenery and beautiful landscapes. Protection efforts were driven by visual attraction rather than scientific assessment. In the *second phase*, the protection of certain valuable sites and rare and impressive species gained in importance. In the legal sphere, this development was mirrored by the adoption of the 1940 Washington Convention on Nature Protection and Wild-Life Preservation in the Western Hemisphere and the 1950 Paris Convention for the Protection of Birds. Meanwhile, it became apparent that human activities contributed to the continuing extermination of floral and faunal species. Scientific research focused on how to put an end to this momentum. Developments in *phase three* were based on the insight that endangered species are best protected by protection of their habitats. A consequence of these scientific findings was the adoption of treaties such as the 1971 Ramsar Convention on Wetlands of International Importance, which aims at the protection of important wetlands, especially as waterfowl habitats. Central to the *fourth phase* was the growing recognition that the protection of whole func-

<sup>7</sup> IUCN General Assembly Resolution 17.38, *Protection of the Coastal and Marine Environment*, adopted 9 February 1988, para 2b.

<sup>8</sup> CBD COP 7 by adopting Decision VII/5, *Marine and Coastal Biological Diversity*, 19 February 2004, approved the definition developed by the Ad Hoc Technical Expert Group on Marine and Coastal Protected Areas, cf. Decision VII/5, para. 10 referring to the respective report in note 11.

<sup>9</sup> Tundi Spring Agardy, *supra*, note 4, p. 81 et seqq.; Secretariat of the CBD, *Technical Advice on the Establishment and Management of a National System of Marine and Coastal Protected Areas*, CBD Technical Series No. 13 (Montreal: CBD Publication 2004), p. 9 et seqq.

<sup>10</sup> Cf. Table 2 in Annette Ballschmidt-Boog, *Rechtliche Vorgaben und Defizite beim Schutz der Küstenökosysteme der Ostsee* (Baden-Baden: Nomos-Verlagsgesellschaft 2000), p. 350.

tional ecosystems is a necessary prerequisite for sound nature protection.<sup>11</sup> This holistic scientific postulate aimed at protecting biological processes and found its way in several legal documents, including the Convention on Biological Diversity, Agenda 21 (especially Chapters 12, 13, 15, and 17) and, albeit to a lesser extent, the UN Convention on the Law of the Sea (Article 194(5)).

Since the term ecosystem is thus critical to the understanding of modern approaches to MPAs, it should be looked at briefly. Ecosystems are commonly defined as "holistic inter-effective systems of living organisms and their abiotic environment that are open but to some extent capable of self-regulation."<sup>12</sup> Organisms in an ecosystem are "working together to survive."<sup>13</sup> Apparently, this stands in stark contrast to perceptions that organisms are in deadly competition with one another for evolutionary survival. Parties to the Convention on Biological Diversity have carried out some efforts to flesh out and operationalise the definition given by Article 2 of the Convention.<sup>14</sup> In a decision of the sixth COP, they clarified that the Convention's definition "does not specify any particular spatial unit or scale, in contrast to the Convention definition of 'habitat'. Thus, the term 'ecosystem' [...] can refer to any functioning unit at any scale. Indeed, the scale of analysis and action should be determined by the problem being addressed."<sup>15</sup> Depending on the subject matter, the marine environment is both an ecosystem in itself, as well as a complex network of ecosystems. Whereas terrestrial ecosystems may be easy to define (e.g. a forest), boundaries in the oceans are more subtle, defined "by temperature, currents, depth, stratification and salinity."<sup>16</sup>

Practical application of the term has created the so-called "ecosystem approach", which has today become an inherent part of international environmental governance.<sup>17</sup> Its rationale is based on the recognition that it is necessary for the

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<sup>11</sup> The term "ecosystem" was introduced as early as 1935; cf. Arthur G. Tansley, "The Use and Abuse of Vegetational Concepts and Terms" 16 *Ecology* (1935), pp. 205-221. However, it did not dominate the scientific debate before the late 1960s.

<sup>12</sup> Annette Ballschmidt-Boog, *supra*, note 10, p. 40. See further Eugene P. Odum, *Ökologie, Grundlagen – Standorte – Anwendung*, Third Ed. (Stuttgart and New York: Georg Thieme Verlag 1999), p. 7 et seqq.

<sup>13</sup> Patricia Birnie and Alan Boyle, *International Law and the Environment*, Second Ed. (Oxford: OUP 2002), p. 547.

<sup>14</sup> Article 2 reads: "'Ecosystem' means a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit".

<sup>15</sup> CBD Decision V/6, *Ecosystem Approach*, adopted at Nairobi, 15-26 May 2000, available from <<http://www.biodiv.org/decisions/default.aspx?m=COP-05&id=7148&lg=0>>; (accessed on 30 September 2006), annex A, para 3.

<sup>16</sup> Dan Laffoley et al, *The Ecosystem Approach – Coherent Actions for Marine and Coastal Environments, A Report to the UK Government* (Peterborough: English Nature 2004), p. 7.

<sup>17</sup> See Volkmar Hartje, Axel Klaphake and Rainer Schliep, *The International Debate on the Ecosystem Approach* (Bonn-Bad Godesberg: BfN-Skripten 2003), p. 9 et seqq. The seventh meeting of UNICPOLOS in 2006 extensively discussed the impacts of an ecosystem approach to ocean conservation, see A/61/156, *Report on the Work of the*

successful management of biological resources to understand fully the relationships among and between its biological and physical elements.<sup>18</sup> Somewhat deviating from its ecology-centred origin, the ecosystem approach is mostly understood as a way of ensuring an integrated management of land, water and living resources, while reflecting the fact that humans are an integral part of many ecosystems.<sup>19</sup> In its aforementioned decision, CBD COP 6 noted that “ecosystem processes are often non-linear, and the outcome of such processes often shows time-lags. The result is discontinuities, leading to surprise and uncertainty.”<sup>20</sup> What follows from that is that “[m]anagement must be adaptive in order to be able to respond to such uncertainties and contain elements of ‘learning-by-doing’ or research feedback.”<sup>21</sup> Principles elaborated for the ecosystem approach further develop its integrative character in two ways. First, it is stated that conservation objectives are strongly connected to economic considerations, thus promoting the management of activities rather than their prohibition. Secondly, in applying an ecosystem approach, emphasis should be placed on the cooperation of all stakeholders and institutional actors in an area, as well as on the parallel implementation of all conceivable measures.<sup>22</sup> It should be noted here that issues of uncertainty of biological interdependencies and integration of economic and environmental concerns link the ecosystem approach with two important international legal principles, namely the principle of precautionary action and the principle of sustainable development, which will be looked at in more detail in the following chapter.<sup>23</sup>

The coordination of institutional activities to overcome sectoral responsibilities is probably the main issue in operationalising the ecosystem approach.<sup>24</sup> With

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*United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea at its Seventh Meeting*, 17 July 2006, para. 20 et seqq.

<sup>18</sup> IOC, “Fisheries and Ecosystems”, 2005, available from <<http://ioc.unesco.org/iocweb/ecosystems.php>>; (accessed on 30 September 2006).

<sup>19</sup> Cf. First Joint Ministerial Meeting of the Helsinki and OSPAR Commissions, *Towards an Ecosystem Approach to the Management of Human Activities*, Bremen, 25-26 June 2003, available from <<http://www.helcom.fi/stc/files/BremenDocs/JointEcosystemApproach.pdf>>; (accessed on 30 September 2006), para. 4 et seq.

<sup>20</sup> CBD Decision V/6, *supra*, note 15, Annex A, para. 4.

<sup>21</sup> *Ibid.*

<sup>22</sup> See *ibid.*, para. 5: “The ecosystem approach does not preclude other management and conservation approaches, such as biosphere reserves, protected areas, and single-species conservation programmes, as well as other approaches carried out under existing national policy and legislative frameworks, but could, rather, integrate all these approaches and other methodologies to deal with complex situations. There is no single way to implement the ecosystem approach, as it depends on local, provincial, national, regional or global conditions. Indeed, there are many ways in which ecosystem approaches may be used as the framework for delivering the objectives of the Convention in practice”.

<sup>23</sup> See Sec. II.5. and II.3. of Chapter 4. With respect to sustainable development, this view is shared by Dan Laffoley et al, *supra*, note 16, p. 11 et seq.

<sup>24</sup> Moira L. McConnell, “Inter-Agency Collaboration or Inter-Agency Competition – A Challenge for the UN System”, in A. Kirchner (ed.), *International Marine Environ-*

respect to the seas, many international organisations have emphasised the need for continued collaboration of the different actors involved in ocean management. The Food and Agriculture Organization (FAO), for instance, has urged “relevant technical and financial international organizations and FAO to cooperate in providing States with access to technical advice and information about effective management regimes”;<sup>25</sup> the Helsinki and Oskar Commissions in a joint statement endorsed “collaboration among the various management authorities in the North East Atlantic and in the Baltic Sea Area in implementing [an ecosystem] approach;”<sup>26</sup> and the IOC called for the alignment of objectives of local, national and regional fishery policies.<sup>27</sup>

In the light of these observations, it is understandable why the CBD has embodied a combined approach to protect both marine and coastal areas. The ad hoc CBD Technical Expert Group on Marine and Coastal Protected Areas phrased the definition of MPAs, referred to above, to include coastal areas as well.<sup>28</sup> In exemplifying its wording, it held that sensitive “[a]reas within the marine environment include permanent shallow marine waters; sea bays; straits; lagoons; estuaries; subtidal aquatic beds (kelp beds, seagrass beds; tropical marine meadows); coral reefs; intertidal muds; sand or salt flats and marshes; deep-water coral reefs; deep-water vents; and open ocean habitats.” This focus on the combined protection of coastal and marine areas must not be regarded as a move back to a terrestrial approach. Quite on the contrary, it is informed by the ecosystem approach reflecting the interdependencies of marine and coastal areas. It emphasises the need to protect coastal areas in order to ensure clean oceans, not *vice versa*, as there is “strong connectivity between marine and terrestrial processes, particularly in relation to movement of water, sediments, seabirds and all other organisms that use both environments.”<sup>29</sup> In subsequent chapters, it will be seen whether the PSSA concept also echoes the prerequisites of the ecosystem approach.

## II. Establishing Marine Protected Areas

After having explored the basic rationale for MPAs, I shall now proceed to examine the crucial prerequisites for their implementation.

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*mental Law – Institutions, Implementation and Innovations* (The Hague New York London: Kluwer Law International 2003), pp. 69-91, at 75 et seqq.

<sup>25</sup> FAO C 2001/INF/25, *Reykjavik Declaration on Responsible Fisheries in the Marine Ecosystem*, Rome, 2-13 November 2001, para. 9.

<sup>26</sup> First Joint Ministerial Meeting of the Helsinki and OSPAR Commissions, *supra*, note 19, para. 15 lit. a.

<sup>27</sup> IOC, *supra*, note 18.

<sup>28</sup> According to UNEP/CBD/SBSTTA/8/9/ADD1, *Summary Report of the Ad Hoc Technical Expert Group on Marine and Coastal Protected Areas*, 27 November 2002, para. 21 and note 1, the definition applies to both marine and coastal protected areas.

<sup>29</sup> Secretariat of the CBD, *supra*, note 9, p. 20.

### 1. Location, Size and Scientific Criteria

Even when there is consensus that MPAs should be used as a tool to protect vulnerable ecosystems, understanding must be reached on whether particular areas qualify as MPAs. In this respect, two questions are essential. First, what are the criteria that areas have to meet in order to be eligible for designation? Second, what is the most suitable size to protect all critical processes within the identified area?

With respect to criteria for the designation of MPAs, it should be noted that specific requirements of the various existing legal frameworks will be addressed in Chapter 5. A brief account of scientific results suffices here. Probably the most striking observation is that there is no consensus with respect to scientific criteria for the selection and establishment of MPAs.<sup>30</sup> Decisive factors to that end include differing goals for MPAs, different characteristics in biogeographic regions and different socio-political perceptions of MPAs.

Nevertheless, IUCN has elaborated a basic set of criteria which are designed to assist states in selecting MPAs.<sup>31</sup> It differentiates between various biogeographic and ecological criteria and further incorporates criteria relating to naturalness, economic, social and scientific importance, as well as international or national significance.<sup>32</sup> Conscious of the fact that the designation of MPAs is influenced by societal decisions, it furthermore includes a category dedicated to practicability and feasibility. Biogeographic criteria consist of “the presence of rare biogeographic qualities or representative of a biogeographic type or types” and “the existence of unique or unusual geographical features”, while ecological criteria include, *inter alia*, “ecological processes or life-support systems (e.g. as a source for larvae for downstream areas)”; “integrity, or the degree to which the area, either alone or in association with other protected areas, encompasses a complete ecosystem”; “the variety of habitats”; and “the degree of genetic diversity within species”. As is obvious, these criteria are not more than vague guidelines that national or international bodies need to give concrete form to and tailor for their particular context.<sup>33</sup> Specific criteria for the selection of MPA need to be agreed upon with a view to the purpose, objective and protection standards of the particular instrument.

<sup>30</sup> J.L. Baker, *supra*, note 1, p. 57 et seq.

<sup>31</sup> Graeme Kelleher, *Guidelines for Marine Protected Areas* (Gland and Cambridge: IUCN 1999), p. 41.

<sup>32</sup> These resemble factors that are used by other institutions: see summary by Callum M. Roberts et al, “Ecological Criteria for Evaluating Candidate Sites for Marine Reserves” 13 *Ecological Applications* (2003) pp. S199-S215, at S200.

<sup>33</sup> Still, these criteria very much resemble a list of factors in the *US Marine Protection, Research, and Sanctuaries Act*, as cited by Tullio Scovazzi, “Marine Specially Protected Areas under Domestic Legislation”, in T. Scovazzi (ed.), *Marine Specially Protected Areas* (The Hague Boston London: Kluwer Law International 1999), pp. 3-16, at 4. An attempt to operationalise the identification of sites eligible for inclusion in MPAs has been made by Mark A. Zacharias and Edward J. Gregr, “Sensitivity and Vulnerability in Marine Environments: an Approach to Identifying Vulnerable Marine Areas”, 19 *Conservation Biology* (2005), pp. 86-97.

As regards the size and the specific location of an MPA, it can be noted that in line with the ecosystem approach, the size of the MPA should be determined by the size of the area in which it is most appropriate to manage and control potentially harmful human activities.<sup>34</sup> It has been observed that, in principle, larger MPAs are more likely to be able to increase density, biomass, size and diversity of organisms in the area.<sup>35</sup> Moreover, different requirements for drawing MPA boundaries apply to coastal areas and pelagic areas in the open ocean.<sup>36</sup> Coastal protected areas resemble terrestrial protected areas inasmuch as geographical and biological features are fixed and predictable. That is also true of some pelagic MPAs protecting the ecosystems of static habitats, such as cold seeps. However, where MPAs are established to protect highly mobile marine vertebrates, their design needs to adapt to these characteristics. Hence, effective pelagic MPAs must be guided by a flexible approach which takes into account migration routes and other dynamic properties.<sup>37</sup> However, in practice few MPAs have been chosen only by recourse to rationally chosen objectives; often “the haphazard forces of opportunism have dominated.”<sup>38</sup>

It is today widely accepted that the most suitable way of protecting vulnerable ecosystems, at least from an ecological point of view, is to coordinate the designation of MPAs, so that MPAs form a network of protected areas – both on a regional as well as on a global scale. As far as MPA networks on a regional level are concerned, it has been observed that several small MPAs within an imperilled area are more effective than one single large MPA. This observation takes account of the fact that biota confined to islands of protection is inherently vulnerable.<sup>39</sup> Many species are migratory and do not rest in one place for their whole life. Furthermore, the viability of an ecosystem in one area may be dependent upon developments in other areas, where, for instance, spawning occurs.<sup>40</sup> Small MPAs thus benefit from being included in an MPA network. Employing networks of small protected areas instead of establishing a few large MPAs allows authorities on critical processes in core areas on which a wider region depends.

Adding a further dimension, on a global level, a network of MPAs is promoted to preserve the representativeness of species, habitats, as well as biogeographic regions.<sup>41</sup> IUCN’s General Assembly in 1988 adopted a resolution that spells out the main objectives of a “global representative system of marine protected areas”,

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<sup>34</sup> Dan Laffoley et al, *supra*, note 16, p. 7. J.L. Baker, *supra*, note 1, p. 67.

<sup>35</sup> Benjamin S. Halpern, “The Impact of Marine Reserves: Do Reserves Work and does Reserve Size Matter?”, 13 *Ecological Applications* (2003) pp. S117-S137, at S127 et seq.

<sup>36</sup> K. David Hyrenbach, Karin A. Forney, and Paul K. Dayton, “Marine Protected Areas and Ocean Basin Management”, 10 *Aquatic Conservation: Marine and Freshwater Ecosystems* (2000), pp. 437-458, at 439.

<sup>37</sup> *Ibid.*, p. 439 et seq. and 446 et seq.

<sup>38</sup> Callum M. Roberts and Julie P. Hawkins, *Fully Protected Marine Reserves: a Guide* (Washington: WWF Publication 2000) p. 52.

<sup>39</sup> Tundi Spring Agardy, *supra*, note 4, p. 91.

<sup>40</sup> Secretariat of the CBD, *supra*, note 9, p. 20.

<sup>41</sup> *Ibid.*, p. 24.



including the protection and management of substantial examples of marine and estuarine systems to maintain genetic diversity; the protection of rare or endangered species; the accommodation of a broad spectrum of human activities compatible with the primary goal in marine and estuarine settings with appropriate management regimes; and providing for research and training opportunities.<sup>42</sup> In contrast to MPA networks on a regional level, this approach is less informed by the need to reflect the interdependency of neighbouring ecosystems but rather by the desire to maintain a network of protected areas that mirror the Earth's diverse ecological zones. Selection criteria for MPA networks have been outlined generally by *Roberts et al.*<sup>43</sup> They identified representation criteria – biogeography and diversity of habitats – as a prerequisite for establishing MPA networks. These are accompanied by excluding criteria, screening criteria and modifying criteria. Factors that may exclude a site from being protected in an MPA network are a high level of human threats or natural threats. Subsequent screening processes determine the adequate size of MPAs (with a view to other MPAs within the network) and the distance between MPAs. Modifying criteria include further aspects that are important for establishing the specific network, such as the presence of species of special interest or ecosystem services for human needs.

## 2. Objectives

As has become apparent in the previous section, the selection criteria for MPAs are strongly linked to the objectives of a designation. While there is the overriding objective of all marine conservation efforts – the protection of critical ecological processes to sustain life-supporting functions of the oceans –, many sub-goals also have an impact on the concrete implementation of the MPA concept. Numerous objectives have been identified that shape the management approach towards the area. The most prominent are the maintenance of genetic and species diversity, the conservation of habitats, the promotion of research, and the promotion of recreation and tourism.<sup>44</sup> *Agardy* has grouped MPA goals into seven generic objectives, namely providing a sense of place that people can relate to; providing a testing ground for the management of marine resources; the empowerment of local communities; providing information about marine ecosystems; enabling the sustainable development of a resource or a set of resources; the conservation of species of special concern; and buffers against unforeseeable future management mistakes.<sup>45</sup>

The enumeration of these objectives indicates the broad array of purposes for which MPAs are used. They may be implemented either alternatively or

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<sup>42</sup> IUCN General Assembly Resolution 17.38, *supra*, note 7, para 2c.

<sup>43</sup> Callum M. Roberts et al, "Application of Ecological Criteria in Selecting Marine Reserves and Developing Reserve Networks", 13 *Ecological Applications* (2003) pp. S215-S228, at S217 et seqq.

<sup>44</sup> See Peter S. Jones, "A Review and Analysis of the Objectives of Marine Nature Reserves", 24 *Ocean and Coastal Management* (1994), pp. 149-178.

<sup>45</sup> Tundi Spring Agardy, *supra*, note 4, p. 89 et seqq.

cumulatively; which depends largely on the characteristics of the area in question. If it is a small area, the designation usually serves one specific purpose. Larger areas, in contrast, are often multiple-use areas that are designed to comfort management efforts aimed at reconciling conflicts between different human activities and conservation concerns. In virtually all MPAs, emphasis is placed on managing activities rather than on their prohibition. Still, the extent to what activities are regulated differs. While some areas are designated as biosphere reserves allowing for most human activities as long as they conform to certain sustainability requirements, other areas may be designated as areas where potentially harmful activities are completely excluded, resulting in, for instance, “no-take” areas for fishing vessels,<sup>46</sup> “areas to be avoided” for ships or prohibition of sea-bed mining.<sup>47</sup> The latter approach should not be understood as a contradiction of the management notion, but rather as a more radical way of reconciling conflicting concerns at one end of the spectrum of potential management means triggered by biological, geographical or other circumstances.

### **3. Administration and Management: Prerequisite for Success of MPAs**

To protect and preserve the marine environment effectively, MPAs have to have an administrative basis that provides a sound framework for management activities. Whatever means are deployed, MPA management is best done in administrative frameworks that allow for the coordinated control of all critical processes related to the use of marine resources and space.<sup>48</sup> While this may seem to be an obvious observation, in practice many countries maintain a complex network of responsibilities and competences allocated to different administrative levels. In particular, federal states have at least three administrative levels – municipal, state, federal – that have been assigned legislative and/or enforcement competences of importance for MPA management. In this context, in particular, the coordination and planning of conservation measures can be a difficult and time-consuming

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<sup>46</sup> The introduction of closed harvest refugia to conserve species threatened by over-exploitation has proved to be an effective means, see, e.g., Mattias Sköld, “Marine Protected Areas and Fisheries: Two Case Studies from Sweden”, in Jürgen Ritterhoff, Susan Gubbay and Catherine Zucco (eds.), *Marine Protected Areas and Fisheries* (Bonn-Bad Godesberg: BfN-Skripten 2004), pp. 91-94 and other contributions to this volume; and William J. Ballantine, “‘No-take’ marine reserve networks support fisheries”, in D.A.Hancock et al (eds.), *Developing and Sustaining World Fisheries Resources: The State and Management, 2nd World Fisheries Congress Proceedings* (Collingwood: CSIRO Publishing 1997), pp. 702-706.

<sup>47</sup> Secretariat of the CBD, *supra*, note 9, p. 11 et seq. These types of area are often referred to as “marine reserves”, although a coherent term does not exist; cf. Royal Commission on Environmental Pollution, *Turning the Tide: Addressing the Impact of Fisheries on the Marine Environment*, Twenty-Fifth Report (December 2004), available from <<http://www.rcep.org.uk/fisheries/Turningthetide.pdf>>; (accessed 30 September 2006), p. 184 et seqq.

<sup>48</sup> Tundi Spring Agardy, *supra*, note 4, p. 195.

effort. Some countries have thus created the possibility to concentrate competences in MPA authorities (e.g. Great Barrier Reef Marine Park Authority [GBRMPA]<sup>49</sup>). In some places, authorities have been set up as NGOs that are not directly controlled by the government; their special structure enables them to become deeply involved with local community matters and education.<sup>50</sup>

The purpose of management is to ensure that the objectives set for a particular MPA or for an MPA network are met. As has been noted, effective integrated management should address four issues, namely the determination and enforcement of sustainable use levels, based on scientifically sound data; the focus on critical components of the (eco-)system; the utilisation of some type of zoning approach to grant special attention to those areas within the MPA that are critical for the whole system; and the determination of whether specific measures implemented in the MPA have adverse effects outside the protected area or are able to promote environmental protection generally.<sup>51</sup> This entails gathering information to assess the achievement of the objectives and support management decisions.<sup>52</sup>

Of course, the most suitable way of achieving the MPA objectives will vary over time, depending on the particular circumstances in the area. While it is necessary to draw up and follow long-term management plans, it is also essential to review and revise these plans in order to adapt to changing problems and increased experience.<sup>53</sup> This process, informed by the adaptive management notion derived from ecosystem approach theories, is considered to be essential for the effective maintenance of the integrity of the area and of a sound balance of activities within the MPA and conservation needs.<sup>54</sup> A vital prerequisite for this process is regular monitoring and an evaluation of major aspects of an MPA, including patterns of use and possible conflicts between users, as well as changes in habitats or species population.<sup>55</sup> A further important issue relating to MPA management is whether, and if so, to what extent, local communities or stakeholders should become involved in management activities. It has been observed that MPAs that deploy community-based management approaches have the support of local stakeholders, in particular fishermen, and are thus both more cost-

<sup>49</sup> However, even the GBRMPA as a Commonwealth Authority shares competences with the Queensland Park and Wildlife Services in day-to-day management, as outlined in the so-called “Emerald Agreement” of 14 June 1979 between the Commonwealth of Australia and the State of Queensland, available from <[http://www.gbrmpa.gov.au/\\_\\_\\_data/assets/pdf\\_file/8191/File\\_04.pdf](http://www.gbrmpa.gov.au/___data/assets/pdf_file/8191/File_04.pdf)>; (accessed 30 September 2006).

<sup>50</sup> See Callum M. Roberts and Julie P. Hawkins, *supra*, note 38, p. 80 et seq.

<sup>51</sup> Tundi Spring Agardy, *supra*, note 4, p. 194 et seqq. These general considerations apply to both small MPAs and large multiple-use areas.

<sup>52</sup> Further critical elements of MPA management are enumerated by the Secretariat of the CBD, *supra*, note 9, p. 26.

<sup>53</sup> Graeme Kelleher, *supra*, note 31, p. 57 et seq.; Secretariat of the CBD, *supra*, note 9, p. 31.

<sup>54</sup> Cf. Volkmar Hartje, Axel Klaphake and Rainer Schliep, *supra*, note 17, p. 15 et seqq. Another aspect of adaptive management is the designation of MPAs to conduct *in situ* experiments to test hypotheses about the likely causes of changes in ecosystem structures or functions, see J.L. Baker, *supra*, note 1, p. 133 et seq.

<sup>55</sup> Secretariat of the CBD, *supra*, note 9, p. 30 et seq.

effective and successful in terms of conservation.<sup>56</sup> This approach is, however, only feasible in places with a small population and a limited number of outsiders using the area.<sup>57</sup>

Finally, I should briefly touch upon the issue of enforcement, which is a key element in implementing management objectives. While it is beyond doubt that enforcement is necessary and possible, questions with regard to protected areas generally revolve around the choice of measures. In contrast, the issue is completely different as regards the enforcement of shipping-related protection measures in MPAs. Not because of the nature of ships, but as a result of the nature of international shipping governance. Often ships navigating in or adjacent to MPAs are sailing under a foreign flag. As will become apparent throughout the ensuing chapters, enforcement by the coastal state in these cases is constrained by virtue of international law.

### III. Related Developments in International Environmental Policy

MPAs have been a controversially debated topic in the international arena for at least two decades. They have been affirmed as an important tool for marine environment protection in various international documents and political declarations, including Agenda 21, the Johannesburg Plan of Implementation and the final declaration of UNICPOLOS 2003. Agenda 21, agreed at the 1992 UNCED, stated that with respect to the high seas, it is necessary to “preserve habitats and other ecologically sensitive areas.”<sup>58</sup> Regarding areas under national jurisdiction, it was agreed that states should “identify marine ecosystems exhibiting high levels of biodiversity and productivity and other critical habitat areas and provide necessary limitations on the use in these areas, through, *inter alia*, designation of protected areas.”<sup>59</sup> The Plan of Implementation (PoI) adopted at the 2002 UN World Summit on Sustainable Development quite generally called for the implementation of Chapter 17 of Agenda 21 and, more specifically, urged states to give due regard to instruments “to develop and facilitate the use of diverse approaches and tools, including [...] the establishment of marine protected areas [...] and time/area closures for the protection of nursery grounds and periods, proper coastal land use and watershed planning and the integration of marine and coastal areas management into key sectors.”<sup>60</sup> The UN General Assembly repeatedly urged states to use tools for conserving and protecting vulnerable marine ecosystems and expressly

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<sup>56</sup> Callum M. Roberts and Julie P. Hawkins, *supra*, note 38, p. 80 et seq.; Secretariat of the CBD, *supra*, note 9, p. 34 et seqq.; Graeme Kelleher, *supra*, note 31, p. 20 et seqq.

<sup>57</sup> Callum M. Roberts and Julie P. Hawkins, *supra*, note 38, p. 80.

<sup>58</sup> Agenda 21, para. 17.46(f). The text is reproduced in Nicholas A. Robinson (ed.), *Agenda 21 & The UNCED Proceedings*, Vol. IV (New York London Rome: Oceana Publications 1993), pp. 1-636.

<sup>59</sup> *Ibid.*, para. 17.85.

<sup>60</sup> Plan of Implementation of the World Summit on Sustainable Development, available from <[http://www.un.org/esa/sustdev/documents/WSSD\\_POI\\_PD/English/WSSD\\_Plan\\_Impl.pdf](http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/WSSD_Plan_Impl.pdf)>; (accessed on 30 September 2006), para. 32(c).

referred to MPAs.<sup>61</sup> It also welcomed the work of intergovernmental bodies “in the assessment of scientific information on, and compilation of ecological criteria for the identification of, marine areas that require protection”<sup>62</sup> through, for instance, the establishment of marine protected areas.

Moreover, the importance of establishing MPA networks for the conservation of marine biodiversity has been recognised by several international institutions and fora.<sup>63</sup> A significant initiative was taken by the parties to the CBD that agreed to the “establishment and maintenance of marine and coastal protected areas that are effectively managed, ecologically based and contribute to a global network of marine and coastal protected areas, building upon national and regional systems, including a range of levels of protection.”<sup>64</sup> This network should be established by 2012 – parties to the CBD thereby endorsed a political aim introduced by the WSSD PoI.<sup>65</sup> The ad hoc Open-ended Working Group on biodiversity beyond areas of national jurisdiction, established by the UN GA, noticed that “the establishment of area-based management measures, including representative networks of marine protected areas and temporal and spatial closures for fisheries management [...] was identified by most delegations as a key tool to improve integrated conservation and sustainable use of marine biological diversity [...]”<sup>66</sup> In addition, it was held that “cooperation was necessary to further develop criteria for the identification of ecologically and biologically significant areas, the development of systems of marine protected areas and biogeographic classification systems.”<sup>67</sup> While these targets still have to be transposed into practical measures, different bodies have already started on a regional level to set up networks of MPAs. Examples include the Helsinki Commission, entrusted with the marine environment protection of the Baltic Sea, which, as early as 1994, initiated the establishment of a system of marine protected areas.<sup>68</sup> The OSPAR Commission for the Protection of the Marine Environment of the North-East Atlantic also promotes the establishment of an MPA network throughout its region. Contracting parties to the OSPAR Convention in 1998 began to develop an

<sup>61</sup> Cf. A/Res/60/30, *Oceans and the Law of the Sea*, 8 March 2006, para. 74.

<sup>62</sup> *Ibid.*, para. 75.

<sup>63</sup> For an overview of instruments providing for international networks of protected areas, see Cyrille de Klemm and Clare Shine, *Biological Diversity Conservation and the Law* (Gland Cambridge: IUCN 1993), p. 148 et seqq.

<sup>64</sup> CBD Decision VII/5, *supra*, note 8, para. 18.

<sup>65</sup> See, *supra*, note 60. This approach was also endorsed by IUCN WPC Rec. V.22, *Building a Global System of Marine and Coastal Protected Area Networks*, adopted 16 September 2003. However, there is a growing recognition that the target will be difficult to meet. UNEP WCMC has thus started several initiatives to accelerate the process, cf. information available from <<http://www.unep-wcmc.org>>; (accessed on 30 September 2006).

<sup>66</sup> A/61/65, *Report of the Ad Hoc Open-ended Informal Working Group to study issues relating to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction*, 20 March 2006, para. 59.

<sup>67</sup> *Ibid.*, para. 60.

<sup>68</sup> HELCOM Recommendation 15/5, *System of Coastal and Marine Baltic Sea Protected Areas*, adopted on 10 March 1994; see further, *infra*, Sec. II.3. of Chapter 5.

ecologically coherent network of well-managed MPAs and in 2003 agreed on corresponding selection criteria.<sup>69</sup> Furthermore, in a joint ministerial declaration, both bodies stated their desire to merge their MPA networks and that by 2006, it should be evaluated “whether the Baltic Sea Protected Areas and the components of the OSPAR Network of marine protected areas that have been identified by that date are sufficient to constitute the joint network, and take steps to identify and fill any gaps that are identified.”<sup>70</sup>

Besides the efforts of various international institutions and individual governments, one issue remains problematic. It concerns the establishment of MPAs beyond areas of national jurisdiction as outlined by UNCLOS. We will see in the following chapters that this controversial issue has sparked much debate and there is no consensus yet on how to protect biodiversity effectively on the high seas.<sup>71</sup>

From what has been said in this chapter, it is obvious that the protection of specific marine areas today plays a critical role in efforts to protect and preserve the marine environment. Although this protective approach is used in many places, the total expanse of designated sites is still to be substantially increased. Various political programmes aim to promote the proliferation of protected areas and further boost the effectiveness of protective regimes for existing areas, as well as for the establishment and maintenance of networks. While these initiatives appear to be extremely important, it should be noted that individual governments and the international community as a whole have to act within the confines set by domestic and, in particular, international law. This is true both for areas under national jurisdiction and for those on the high seas. Especially with regard to vessel traffic in or near protected sites, it remains to be seen to what extent coastal states are allowed to establish and enforce specially protected areas and corresponding protection measures.

## Chapter 4: Protection of Marine Areas in International Law – Basic Principles

This chapter should set out the broad international legal framework governing activities of the international community and of coastal states intended to protect the marine environment from vessel-source degradation. In the context of this treatise – and since Chapter 3 has already pointed to the importance of protecting certain vulnerable marine areas –, I shall place particular emphasis on the basic rules to which spatial marine regulations must conform or give effect if they are aimed to minimise environmental threats posed by vessels.

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<sup>69</sup> OSPAR Agreement 2003/17, *Guidelines for the Identification and Selection of Marine Protected Areas in the OSPAR Maritime Area*, 23-27 April 2003, para. 4 et seqq.

<sup>70</sup> Joint HELCOM/OSPAR Work Programme on Marine Protected Areas, adopted by First Joint Ministerial Meeting of the Helsinki and OSPAR Commissions, Bremen, 25-26 June 2003, available from <[http://www.helcom.fi/stc/files/BremenDocs/Joint\\_MPA\\_Work\\_Programme.pdf](http://www.helcom.fi/stc/files/BremenDocs/Joint_MPA_Work_Programme.pdf)>; (accessed on 30 September 2006), para. 2(g).

<sup>71</sup> See *infra* Sec. II.2.c) of Chapter 4 and Sec. III. of Chapter 10.

## I. Introduction: Acceptance in International Law versus Unilateral Measures

Generally, there are two different ways of protecting the marine environment by the rule of law. The first option is to obtain international acceptance for a protective measure – either through a domestic action sanctioned by international instruments or through an act of an international organisation that has been conferred competences with respect to the protection of specific areas. The second option is mere unilateral action based on domestic law.

As will be set out in this chapter, the first option should be favoured over the second, although action on the international level often requires more time and effort. Protection of the marine environment poses a unique problem: potentially dangerous activities in an area under a coastal state's jurisdiction may not only be carried out by nationals of the coastal state, as is the case on the terrestrial part, but also by foreign ships. However, jurisdiction over foreign vessels is restricted by international law in order to allow them to navigate freely to the furthest possible extent. By looking at the relevant rules, it will become clear that it is only by international law that states acquire the necessary competences to universally enforce measures ensuring protection of the marine environment in general and vulnerable marine areas in particular.<sup>72</sup>

The traditional understanding of what forms the body of international law was laid down in Art. 38(1) of the ICJ Statute<sup>73</sup> determining the sources of law the ICJ is allowed to apply in its judgments.<sup>74</sup> According to this provision, international law encompasses international conventions, international customary law, the “general principles of law recognized by civilised nations” and – as “subsidiary means for the determination of the rule of law” – judicial decisions and the teachings of the best scholars in the field of international law. For the purpose of exploring the international legal background of marine protected areas, it is sufficient, however, to make recourse to just two different categories: first, important legal principles of international marine environmental law<sup>75</sup>, most of which, as will be argued, have evolved into general principles of customary international law; secondly, the relevant rules laid down in the United Nations Convention on the Law of the Sea.<sup>76</sup> This treaty, in force since 1994, is a comprehensive instru-

<sup>72</sup> It chiefly has to do with the legal status of the sea, cf. *infra*, Sec. III.2. of this chapter.

<sup>73</sup> Statute of the International Court of Justice, Appendix C to the UN Charter, done at San Francisco, adopted on 26 June 1945, in force as from 24 October 1945, 1 *UNYB* (1946-47) 843.

<sup>74</sup> This prescription is generally accepted as an authoritative statement of the sources of international law, not only directed to the ICJ.

<sup>75</sup> It is important to note that *principles of international law* are different from *general principles* mentioned in Article 38(1)(c) of the ICJ Statute. Principles of international law do not emerge from domestic legal systems but arise directly in international law; cf. Ian Brownlie, *Principles of Public International Law*, Sixth ed. (Oxford: OUP 2003), pp. 18 et seq.

<sup>76</sup> Adopted on 10 December 1982, in force as from 16 November 1994, 21 *ILM* (1982) 1261, hereafter UNCLOS.

ment for ocean governance and many provisions reflect the current state of customary law of the sea. After ratification by the overwhelming majority of states, other treaties, including its various predecessors, are merely supplementary or subsidiary. Finally, note should be taken of the implications of the Convention on Biological Diversity<sup>77</sup>, which, *inter alia*, contains the obligation to ensure effective *in situ* protection of marine biodiversity.

## II. Relevant Principles of International Environmental Law and International Law of the Sea

Before looking at the various principles that contribute to shaping the regime of international marine environmental law, it is legitimate to give a brief account of what constitutes a principle and how it differs from a rule.

There has been quite a lot of debate on whether a distinction between rules and principles should be made with regard to their legal nature<sup>78</sup> or with respect to the degree of indeterminate content.<sup>79</sup> The former view held that rules are precise solutions for specific circumstances and principles only provide a general orientation, whereas the latter contended that principles allow for indeterminate action and may contain values, while rules require specific action.<sup>80</sup> Even today, consensus has not been reached and may probably never be reached owing to the very nature of principles: their variety of possible applications and the considerable difference in substance and scope.<sup>81</sup> In fact, disagreement is less important than it seems. As *De Sadeleer* has observed, the attempt to distinguish sharply between rules and principles denies “one of the main characteristics of post-modern law: the declaration of legal principles in public policy.”<sup>82</sup> Consequently, he argues that “the connection between [rules and principles] should be understood less in terms of opposition than of gradation”<sup>83</sup> while “the generality of principles implies that subsidiary principles, and following from that even more precise norms, make their use more concrete.”<sup>84</sup> In other words, the indeterminate content of principles needs transposition by either further legal acts or administrative acts, which would

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<sup>77</sup> Adopted on 5 June 1992, in force as from 29 December 1993, 31 *ILM* (1992) 818; hereafter CBD.

<sup>78</sup> The classic elaboration is set forth in Ronald Dworkin, *Taking Rights Seriously* (Cambridge: Harvard University Press 1977), pp. 24 et seqq.

<sup>79</sup> Cf., in a reply to earlier works of Dworkin, Joseph Raz, “Legal Principles and the Limits of the Law” 81 *The Yale Law Journal* (1972), pp. 823-854, at 834 et seqq.

<sup>80</sup> For a concise overview, see Nicolas de Sadeleer, *Environmental Principles – from Political Slogans to Legal Rules* (Oxford: OUP 2002), p. 307 et seq.

<sup>81</sup> See Cosima Erben, *Das Vorsorgegebot im Völkerrecht* (Berlin: Duncker & Humblot 2005), p. 46 et seq.

<sup>82</sup> Nicolas de Sadeleer, *supra*, note 80, p. 309.

<sup>83</sup> *Ibid.*, p. 310.

<sup>84</sup> *Ibid.*



both constitute rules, restraining the margin of interpretation to allow for the obligations to be precise.<sup>85</sup>

One further feature of principles that should be noted is that they do not entail a requirement of unconditional application.<sup>86</sup> They must be taken into account to the highest possible extent in order to optimise the enforcement of their underlying ideal. But as there is seldom just one principle in question, one principle may step back to make way for the application of another principle with competing content. Optimising ideals is about maximising interests to strike a fair balance, not about domination at all costs.<sup>87</sup>

In international law, as in the domestic or European legal system, principles have the potential to shape broadly formulated obligations. Where rules expressly prescribe conduct, principles incline decision-makers to follow a particular course of action by a rationale or considerations.<sup>88</sup> As *Verschuuren* thoughtfully noted, they may “function as a link between directly applicable and enforceable environmental legal obligations and the underlying ideal. These principles thus influence the formulation and application of concrete obligations, both in treaties and in case law.”<sup>89</sup> They may furthermore become relevant for the development of future international legal obligations, either within existing or new instruments.<sup>90</sup> It is therefore important to shed some light on the essence of the legal principles that may apply in defining the scope and substance of legal bases to establish MPAs in international law. One should not forget, however, that principles are only universally applicable to all states (apart from so-called *persistent objectors*) if they are part of the body of customary international law. Thus, the following section will also address the question of whether the respective principles can be said to have customary status. Very briefly, customary international law establishes binding obligations if two elements can be verified. It requires consistent state practice and this practice must be based on the state’s belief that it is obliged to do so by law (*opinio juris sive necessitatis*).<sup>91</sup>

<sup>85</sup> Similar Robert Alexy, *Theorie der Grundrechte* (Frankfurt am Main: Suhrkamp 1996), p. 79 et seqq.

<sup>86</sup> Cosima Erben, *supra*, note 81, p. 51.

<sup>87</sup> Hans-Joachim Koch and Helmut Rübmann, *Juristische Begründungslehre* (München: C.H. Beck’sche Verlagsbuchhandlung 1982), p. 99.

<sup>88</sup> Lluís Paradell-Trius, “Principles of International Environmental Law: An Overview”, 9 *RECIEL* (2000), pp. 93-99, at 96.

<sup>89</sup> Jonathan Verschuuren, *Principles of Environmental Law* (Baden-Baden: Nomos Verlagsgesellschaft 2003), p. 107.

<sup>90</sup> Philippe Sands, “International Law in the Field of Sustainable Development: Emerging Legal Principles”, in W. Lang (ed.), *Sustainable Development and International Law* (London Dordrecht Boston: Graham&Trotman/Martinus Nijhoff 1995), pp. 53-66, at 57.

<sup>91</sup> See further Wolfgang Graf Vitzthum, “Begriff, Geschichte und Quellen des Völkerrechts”, in *Id.* (ed.), *Völkerrecht*, Second Ed. (Berlin New York: Walter de Gruyter 2001), para. 131 et seqq. For an account of recent debates revolving around the status of customary international law, cf. Jason A. Beckett, “Countering Uncertainty and Ending Up/Down Arguments: *Prolegomena* to a Response to NAIL”, 16 *EJIL* (2005), pp. 213-238, at 217 et seqq.

In the following section, I shall explore the content of five principles of international law which are the most relevant for combating vessel-source marine environment pollution. The first two, freedom of navigation and the principle of flag-state enforcement have arisen within the law of the sea and are traditionally recognised as shaping ocean governance. The latter three have more recently emerged in the field of international environmental law: the principles of sustainable development and of preventive action, as well as the precautionary principle.

### **1. Traditional Ocean Governance: Freedom of Navigation**

The principle of the freedom of navigation emerged centuries ago. Before the 17th century the sea was subdivided by firmly established claims of major maritime states over parts of the ocean.<sup>92</sup> The doctrine of an open sea (*mare liberum* as it was then called) was first broadly developed by the Dutch scholar *Hugo Grotius* in his treatise *Mare Liberum Seu de Jure quod Batavis Competit ad Indicana Commercium Dissertatio* of 1609.<sup>93</sup> He contended that any vessel should be free to navigate through the oceans without being impeded. No state should be allowed to subject parts of the sea to its sovereignty. Although his work was triggered by the political circumstances of his time<sup>94</sup>, his arguments chiefly made recourse to natural necessities, such as that man could not control the sea, which rendered claims to sovereignty over parts of the sea impermissible. Because of the fierce opposition by, in particular, Spanish and English scholars<sup>95</sup>, his arguments did not immediately become widely accepted. However, especially as a result of the growing importance of maritime trade, the advocates of the open seas ultimately prevailed.

It was not until the early 20<sup>th</sup> century that the concept was challenged, inasmuch as it became apparent that technological development and intensified vessel traffic posed questions that no-one previously had to bear in mind. Increasing over-fishing and marine pollution specifically gave rise to criticism.<sup>96</sup> In the 1950s, the international community began to discuss modifications of the predominant legal order governing the oceans, that eventually led to the establishment of the UNCLOS provisions providing for a number of limitations.<sup>97</sup> As will

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<sup>92</sup> An overview is to be found in Robert Jennings and Arthur Watts (eds.) *Oppenheim's International Law*, Ninth Ed., Vol. I, Parts 2 to 4 (Harlow: Longman 1992), para. 277.

<sup>93</sup> For a brief account of his work see Rüdiger Wolfrum, *Die Internationalisierung staatsfreier Räume* (Berlin et al: Springer 1984), p. 124 et seq.

<sup>94</sup> *Ibid.*

<sup>95</sup> Such as Gentilis' *Advocatio Hispanico* (1613) and John Seldon's *Mare Clausum Sive de Dominio Maris* (1618); cf. for more details Robert Jennings and Arthur Watts (eds.) *supra*, note 92, para. 278.

<sup>96</sup> Lawrence Juda, *International Law and Ocean Use Management – The Evolution of Ocean Governance* (London and New York: Routledge 1996), p. 17 et seqq. and p. 54 et seqq.

<sup>97</sup> Henrik Ringbom, *Environmental Protection and Shipping – Prescriptive Coastal Jurisdiction in the 1990's* (Oslo: Nordisk Institut for Sjøret 1996), p. 35. An apparent

be shown in subsequent parts of this chapter, these new rules do not reflect a substantive shift away from the recognition of freedom of navigation but rather the increasing importance that state actors attach to environmental principles that sometimes run counter to navigational freedom. Hence, even though in fact restricted in many ways, the principle of freedom of navigation is generally accepted as part of customary international law.<sup>98</sup>

## **2. Compliance with Standards: Principle of Flag-State Enforcement**

The principle of freedom of navigation implies the existence of a complementary principle: the principle of flag-state enforcement, which is concerned with the applicability and enforceability of laws related to vessels.<sup>99</sup> Where all-encompassing claims to sovereignty over the sea do not exist, the connecting factor for law enforcement is the flag of the vessel rather than territory. Thus, in theory at least, regardless of their whereabouts, all vessels are subject to the exclusive jurisdiction of the state whose flag they are flying.

This principle, as the counterpart of the freedom of navigation that is generally accepted as being part of customary international law<sup>100</sup>, is of particular importance on the high seas. By virtue of UNCLOS and several other multilateral treaties, it has, however, been subjected to numerous alterations for maritime zones over which coastal states are allowed to exert certain sovereign rights, as well as for ports where vessels call voluntarily. These limitations go very far, in particular where the prevention of marine pollution is concerned. Deviation from the principle is only possible through other instruments of international law constituting an application of a competing principle, such as the corresponding environmental principles introduced below, which are – to some extent – embodied in certain UNCLOS rules, also introduced below.<sup>101</sup> It should thus be indicated what was said at the beginning of this chapter: efficient protection of marine areas is best sought on the basis of international law.<sup>102</sup>

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limitation is the introduction of the EEZ regime for parts of the sea that used to be high seas; cf., *infra*, Sec. III.2.b).

<sup>98</sup> Cf. Doris König, *Durchsetzung internationaler Bestands- und Umweltschutzvorschriften auf Hoher See im Interesse der Staatengemeinschaft* (Berlin: Duncker & Humblot 1989), p. 55 et seqq.; Tullio Scovazzi, “Marine Protected Areas on the High Seas: Some Legal and Policy Considerations” 19 *IJMCL* (2004) pp. 1-17, at 7.

<sup>99</sup> See, generally, Doris König, *supra*, note 98, p. 65 et seqq.

<sup>100</sup> As reflected in art. 92 of UNCLOS. Robin R. Churchill and Vaughan Lowe, *The Law of the Sea*, Third Ed. (Manchester: Manchester University Press 1999), p. 205, called it “the most important means by which public order is maintained at sea”.

<sup>101</sup> See, *infra*, Sec. III.2 of this chapter.

<sup>102</sup> See, *supra*, Sec. I. of this chapter. This finding is corroborated by Art. 211(1) of UNCLOS that obliges states to ensure compliance by vessels flying their flag with applicable international rules and standards, established through the competent international organisation or diplomatic conference.

### 3. Principle of Sustainable Development

Although state practice has long since recognised the implications of sustainability in international relations<sup>103</sup>, the term “sustainable development” was only coined in 1980 by the IUCN<sup>104</sup> and taken up by the so-called *Brundtland Report* in 1987.<sup>105</sup> It describes sustainable development as “[d]evelopment that meets the needs of the present generation without compromising the ability of future generations to meet their own needs.” This expression has become a fundamental paradigm for international environmental policy. Nevertheless, despite continuous reference to the concept in international documents, there is still no generally accepted international legal definition of sustainable development. Previous efforts did not go beyond the exemplified enumeration of possible tools designed to contribute to sustainable development, such as the instruments set forth in the 1992 Rio Declaration.<sup>106</sup>

The concept of sustainable development is usually understood to contain four legal elements as sub-principles: the principle of intergenerational equity, the principle of sustainable use of natural resources, the principle of equitable use of natural resources and the principle of integration.<sup>107</sup> Intergenerational equity constitutes the basis for many treaties preserving particular natural resources and other environmental assets to conserve options for the quantity and quality of future use of resources.<sup>108</sup> Yet a serious difficulty which scholars have encountered is the valuation of future generations’ needs in order to take their interests into account.<sup>109</sup> The second aspect, the principle of sustainable use, is mainly focused on the adoption of standards governing the rate of use or exploitation. It has been applied in various contexts.<sup>110</sup> The principle of equitable

<sup>103</sup> Philippe Sands, *supra*, note 90, p. 58; Ulrich Beyerlin, *Umweltvölkerrecht* (München: C.H.Beck 2000), para. 10 et seqq.; Reinhard Steuer, “Paradigmen der Nachhaltigkeit”, 24 *ZfU* (2001), pp. 537-566, at 538.

<sup>104</sup> IUCN, *World Conservation Strategy* (Gland: IUCN Publication 1980), para. 1.

<sup>105</sup> World Commission on Environment and Development, *Our Common Future* (Oxford: OUP 1987) p. 43. On the origins of the sustainable development concept, see Marie-Claire Cordonier Segger and Ashfaq Khalfan, *Sustainable Development Law* (Oxford: OUP 2004), p. 15 et seqq.

<sup>106</sup> 31 *ILM* (1992) 876. Examples include internalisation of environmental costs (Principle 16) and environmental impact assessment (Principle 17).

<sup>107</sup> For an overview see Philippe Sands, *Principles of International Environmental Law*, Second Ed. (Cambridge: CUP 2003) p. 252 et seqq.

<sup>108</sup> See Patricia Birnie and Alan Boyle, *supra*, note 13, p. 89 et seqq.

<sup>109</sup> Cf. Vaughan Lowe, “Sustainable Development and Unsustainable Arguments”, in A. Boyle and D. Freestone (eds.), *International Law and Sustainable Development* (Oxford: OUP 1999), pp. 19-37, at 28. In response, Hans-Peter Weikard, *Wahlfreiheit für zukünftige Generationen* (Marburg: Metropolis-Verlag 1999), p. 132 ff., has argued that it would conform to intergenerational equity requirements if future generations still had the possibility to choose from different options which are equally acceptable though not necessarily the same as today. This would render the valuation of needs unnecessary.

<sup>110</sup> E.g., for the management of marine living resources (whales, tuna, fur seals) and non-marine resources (UN Framework Convention on Climate Change), as well as in

use concerns the fair allocation of natural resources like water and energy. It is often associated with the principle of intergenerational equity and the principle of common but differentiated responsibilities.<sup>111</sup>

Whereas these first three principles provide for the substantive aspects of the principle of sustainable development, the principle of integration – entailing the commitment to integrate environmental considerations into all areas of political decision-making – sets forth a strong procedural requirement to ensure sound implementation. Integration is usually illustrated by the co-ordination of three main pillars: environmental, economic and social aspects. The integration principle reflects the necessity to accommodate policies and institutions in the interconnected economic and ecological realities.<sup>112</sup> Its implications cannot be overestimated. It not only requires the collection and dissemination of environmental information (it apparently informed the development of the EIA notion) but, moreover, will lead to the inclusion of “green conditionality” in multilateral treaties, as well as domestic laws.<sup>113</sup> Integration is at the core of the concept as the ICJ famously acknowledged: the “need to reconcile economic development with the protection of the environment [...] is aptly expressed in the concept of sustainable development.”<sup>114</sup>

Nevertheless, the principle of integration also signifies the major weakness of the principle of sustainable development. As environmental considerations will increasingly be a general feature of decision-making, concerns have been uttered that the environmental rationale will be undermined by economic interests.<sup>115</sup> In addition, it is widely accepted that the principle of sustainable development entails a ‘right to development’ for developing countries.<sup>116</sup> It is unclear, to say the least, to what extent this can be exerted without risking the contradiction of ecological achievements.

These problems are not to be discussed here. What is important to note is that the existence of the principle of sustainable development is today commonly accepted. The underlying concerns are reflected in numerous legal instruments and political declarations.<sup>117</sup> Even with respect to ocean governance, its influence

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international economic law (e.g. 1989 Lomé Convention, Preamble of the 1994 WTO Agreement).

<sup>111</sup> For the latter, see Philippe Cullet, *Differential Treatment in International Environmental Law* (Hunts: Ashgate 2003), p. 57.

<sup>112</sup> Alexandre S. Timoshenko, “From Stockholm to Rio: The Institutionalisation of Sustainable Development”, in W. Lang (ed.), *supra*, note 90, pp. 143-160 at 146 et seq.

<sup>113</sup> Philippe Sands, *supra*, note 107, p. 263.

<sup>114</sup> *Case Concerning the Gabcikovo-Nagymaros Project (Hungary/Slovakia)*, ICJ, 25 September 1997, *I.C.J. Reports* 1997, pp. 3-81, para. 140.

<sup>115</sup> Maria Lee, *EU Environmental Law – Challenges, Change and Decision-Making* (Oxford Portland: Hart Publishing 2005), p. 79 et seq.

<sup>116</sup> Patricia Birnie and Alan Boyle, *supra*, note 13, p. 87.

<sup>117</sup> A prominent example is the 2001 EU Sustainable Development Strategy. However, as with other instruments, its implementation of the sustainability notion has given rise to criticism: see Ursula Prall, “The Sustainability Strategy of the European Union”, 3 *JEEPL* (2006), pp. 325-339, at 330 et seq.

is potentially far-reaching; in particular, because UNCLOS is said to have anticipated its main postulates.<sup>118</sup> However, there is considerable uncertainty as to whether it is part of customary international law. In order to qualify as customary law, a principle must first of all “be of a fundamentally norm-creating character.”<sup>119</sup> One of the characteristics that affirm a norm-creating character is the sufficient precision of a principle. Hence, the question of custom cannot be differentiated from the question of whether the alleged customary principle has a precise scope.<sup>120</sup> “Very considerable, and still unresolved, controversies as to the exact meaning and scope of this notion”<sup>121</sup> would render it impossible to attribute customary status to a legal principle.

Most commentators agree that the principle of sustainable development is still, at best, vague and difficult to define.<sup>122</sup> It has been said to be merely a convenient umbrella grouping congruent norms without providing sufficient normative or judicable content.<sup>123</sup> And as has been mentioned earlier in this section, there are also some inherent problems that remain to be solved. It is therefore hard to see that the principle of sustainable development can be regarded as being part of the body of customary international law.<sup>124</sup>

This does not, however, deprive the principle of any meaning. As a general policy goal it may be adopted by states in multilateral treaties and employed through international organisations<sup>125</sup>, which indeed is nowadays usual practice. It may also be an element of the process of judicial reasoning and court practice shows that international courts have little hesitation in employing the principle. For instance, parts of the ICJ’s judgment on the *Gabcikovo-Nagymaros* dispute

<sup>118</sup> Alexander Yankov, “The Concept of Protection and Sustainable Development of the Marine Environment”, 18 *Ocean Yearbook* (2004), pp. 267-283, at 272 et seqq.

<sup>119</sup> *North Sea Continental Shelf Cases (Federal Republic of Germany/Denmark; Federal Republic of Germany/The Netherlands)*, ICJ, 20 February 1969, *I.C.J. Reports* 1969, pp. 3-54, para. 72; Astrid Epiney and Martin Scheyli, *Umweltvölkerrecht* (Bern: Stämpfli 2000) p. 39, refer to a “minimal normative density” [own translation] for a norm to be norm-creating.

<sup>120</sup> Alexander Proelß, *Meeresschutz im Völker- und Europarecht – Das Beispiel des Nordostatlantiks* (Berlin: Duncker & Humblot 2004), p. 81 and literature cited there.

<sup>121</sup> *North Sea Continental Shelf Cases*, *supra*, note 119, para. 72.

<sup>122</sup> Vaughan Lowe, *supra*, note 109, pp. 19-37, at 24 et seq.; Patricia Birnie and Alan Boyle, *supra*, note 13, p. 95 et seqq.; Astrid Epiney and Martin Scheyli, *supra*, note 119, p. 84.

<sup>123</sup> Vaughan Lowe, *supra*, note 109, *loc.cit.*

<sup>124</sup> Whether some of the sub-principles have attained customary status has been discussed elsewhere: see Philippe Sands, *supra*, note 107, p. 256 et seqq. Matthias Buck and Roda Verheyen, “Umweltvölkerrecht”, in H.-J. Koch (ed.), *Umweltrecht* (Neuwied Kriftel: Luchterhand 2002), pp. 1-39, para. 32 et seq., perceive sustainable development as “emerging customary international law”.

<sup>125</sup> Günther Handl, “Environmental Security and Global Change: The Challenge to International Law”, 1 *Yb. Int’l Env Law* (1990) pp. 3-33, at 26 et seq. In a similar vein, Astrid Epiney and Martin Scheyli, *supra*, note 119, *loc.cit.*, consider sustainable development to be a *principle of customary international law* rather than customary international law.

appear to be informed by the principle, even though the court mentioned it only once in quite a general manner.<sup>126</sup> Furthermore, the WTO Appellate Body in the *Shrimp Turtle Case* made reference to the principle – included only in the WTO Agreement’s preamble, not in the operational part – for the interpretation of Article XX(g) GATT 1947.<sup>127</sup>

In a nutshell, although not customary international law *strictu sensu*, given its omnipresence and general acceptance, sustainable development is of great influence on the development of international environmental law and is thus also a guiding principle for ocean governance, in particular as far as the protection of vulnerable marine areas is concerned.

#### 4. Principle of Preventive Action

A further principle of international environmental law is the principle of preventive action, which contains the duty to prevent, reduce and control environmental harm. The principle has its origins in the renowned award in the *Trail Smelter Arbitration* of 1938, concerned with pollution occurring in US territory caused by a Canadian smelter, in which the arbitrators elaborated the obligation of states not to cause harm to the environment of other states. The Tribunal held: “[...] no state has the right to use or permit the use of territory in such a manner as to cause injury by fumes in or to the territory of another or of the properties of persons therein, when the case is of serious consequence and the injury is established by clear and convincing evidence.”<sup>128</sup> The United States prevailed in its argument and was allowed to claim compensation from Canada. However, it should be noted that, meanwhile, the principle has evolved to include not only *ex post* measures remedying environmental harm but also – and more important – *ex ante* measures addressing activities based on an assessment of their harmful potential.

It is today generally accepted among states that such an obligation to control and, if necessary, prohibit activities exists. The principle of preventive action is the underlying rationale for all treaties aiming at environmental protection. It made its first important appearance in Principle 21 of the 1972 Stockholm Declaration, where it was linked to states’ sovereignty to exploit their own natural resources.<sup>129</sup> It was reaffirmed in 1992 through Principle 2 of the Rio Decla-

<sup>126</sup> See *Case concerning the Gabčíkovo-Nagymaros Project*, ICJ, *supra*, note 114, para. 140: “This need to reconcile economic development with protection of the environment is aptly expressed in the concept of sustainable development.” The judgment was thus criticised in Judge Weeramantry’s *Separate Opinion* for not going far enough: see *I.C.J. Reports* 1997, pp. 88-119, at 92 et seqq.

<sup>127</sup> *United States – Import Prohibition of Certain Shrimp and Shrimp Products*, DS58/AB/R, adopted on 12 October 1998, para. 129 et seqq.

<sup>128</sup> *Trail Smelter Case (United States v. Canada)*, 16 April 1938 and 11 March 1941, text reproduced in Philippe Sands, Richard G. Tarasofsky, and Mary Weiss, *Documents in International Environmental Law* (Manchester New York: Manchester University Press 1994), pp. 91-105, at 91.

<sup>129</sup> It reads: “States have [...] the sovereign right to exploit their own resources pursuant to their environmental policies, and the responsibility to ensure that activities within their

ration.<sup>130</sup> In its first case concerned with concrete environmental law in 1995, the ICJ used the opportunity to acknowledge the principle's status: "The existence of the general obligation of states to ensure that activities within their jurisdiction and control respect the environment of other states or of areas beyond national control is now part of the corpus of international law relating to the environment."<sup>131</sup>

It goes without saying that the principle is also relevant for the protection of the marine environment. All conventions in this field, such as the MARPOL Convention or the London Dumping Convention, rely on its rationale. At the most general level, Article 194(1) and (2) of UNCLOS, in laying down customary international law, expresses it in the following way: "States shall take [...] all measures consistent with this Convention that are necessary to prevent, reduce and control pollution of the marine environment [...] [and] shall take measures necessary to ensure that activities under their jurisdiction or control are so conducted as not to cause damage by pollution to other states and their environment." It is apparent that the principle of preventive action is fundamental to the protection of imperilled marine ecosystems and to the implementation of corresponding protective measures.

### **5. Precautionary Principle**

As has been shown in the previous section, international law requires states to take action to protect the environment if there is evidence that a specific activity is harmful. In most cases, states have to rely on scientific research to establish the necessary evidence. This poses a critical question: at what level of scientific certainty does this obligation arise? Especially when it comes to cutting-edge technologies, determining the precise impacts on human health and the environment may still be subject to further investigation, even though the potential or supposed harm is enormous. This problem is reflected in the precautionary principle, which seeks to contribute to the development of tools responding to a "risk." Risk is a notion usually defined as a product of two factors: the magnitude and the probability of harm<sup>132</sup> – it thus treats a low probability of possibly disastrous harm and a high probability of less harm in a similar way. The principles of prevention and precaution are essentially two sides of the same coin. They both oblige states

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jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction." Cf. UN Doc. A/Conf.48/14 and Corr.1, *Report of the United Nations Conference on the Human Environment, Stockholm*, 16 June 1972, 11 *ILM* (1972) 1416.

<sup>130</sup> UN Doc. A/CONF.151/26/Rev.1, *Report of the UN Conference on Environment and Development, Rio de Janeiro*, 3-14 June 1992, 31 *ILM* (1992) 876. The slight changes in the wording do not significantly alter the existing responsibilities of states; cf. Patricia Birnie and Alan Boyle, *supra*, note 13, p. 110; and Philippe Sands, *supra*, note 107, p. 236.

<sup>131</sup> *Legality of the Threat or Use of Nuclear Weapons Advisory Opinion*, ICJ, 8 July 1996, *I.C.J. Reports* (1996), pp. 226-267, para. 29.

<sup>132</sup> Arno Scherzberg, "Risikomanagement vor der WTO", 16 *ZUR* (2005), pp. 1-8, at 3; Nicolas de Sadeleer, *supra*, note 80, p. 150 et seqq.



to protect the environment by permitting harmful activities based on an *ex ante* assessment, whereby differing on the level of scientific (un)certainty that triggers sovereign intervention.<sup>133</sup>

The precautionary principle is of very recent nature. It began to appear in multilateral instruments in the mid-1980s and its core is still evolving.<sup>134</sup> In the international arena, its legal meaning is highly contentious.<sup>135</sup> It generally states that “[w]here there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.”<sup>136</sup> An important implication of the precautionary principle is a shift of the burden of proof, according to which a person or entity that wishes to carry out an activity is required to prove that it will not cause harm to the environment.<sup>137</sup> The first treaty referring to precautionary measures was the 1985 Vienna Convention for the Protection of the Ozone Layer.<sup>138</sup> Subsequently, other treaties embraced the idea that precautionary measures (and their underlying rationale) are justified on certain grounds, e.g. the 1992 Watercourse Convention,<sup>139</sup> the 1992 OSPAR Convention,<sup>140</sup> the 1995 Straddling Stocks Agreement<sup>141</sup> and the 1992 Maastricht Treaty.<sup>142</sup>

The application of the principle by international courts and tribunals is not too homogenous. The ICJ, in particular, had been reluctant to approve the existence of the precautionary principle as a guiding principle in international law. Despite the

<sup>133</sup> For problems associated with finding thresholds for the degree of uncertainty, see Simon Marr, *The Precautionary Principle in the Law of the Sea* (The Hague: Martinus Nijhoff Publishers 2003), p. 25 et seqq.

<sup>134</sup> The principle is said to have its roots in the German *Vorsorgeprinzip* introduced in the 1976 Clean Air Act (*Bundesimmissionsschutzgesetz*), cf. Arie Trouwborst, *Evolution and Status of the Precautionary Principle in International Law* (The Hague/London New York: Kluwer Law International 2002), p. 16 et seq.

<sup>135</sup> Some states tend to refer to it as precautionary *approach*, reflecting the fear that a legal principle might entail unconfined legal obligations when applied in practice.

<sup>136</sup> Wording taken from the commonly cited formulation used in *Principle 15 of the Rio Declaration*.

<sup>137</sup> Philippe Sands, *supra*, note 107, p. 273.

<sup>138</sup> 26 *ILM* (1985) 1529. The fifth recital of the Preamble reads: “Mindful also of the precautionary measures for the protection of the ozone layer which have already been taken at the national and international levels”.

<sup>139</sup> Convention on the Protection and Use of Transboundary Watercourses and International Lakes, 17 March 1992, in force as from 6 October 1996, 31 *ILM* (1992) 1312; Article 2(5).

<sup>140</sup> Convention for the Protection of the Marine Environment of the North-East Atlantic, 22 September 1992, in force as from 25 March 1998, 32 *ILM* (1993) 1068; Article 2(2).

<sup>141</sup> Agreement on the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, 4 December 1995, in force as from 11 December 2001, 34 *ILM* (1995) 1542; Article 5(c) and 6, as well as Annex II.

<sup>142</sup> Treaty on European Union, 17 February 1992, in force as from 1 November 1993, 31 *ILM* (1992) 247, amending Article 130r(2) (now Article 174(2)) of the Treaty Establishing the European Community.

reference to it in the parties' pleadings, it was neither mentioned in the *Threat or Use of Nuclear Weapons Advisory Opinion* nor in the *Gabcikovo-Nagymaros Case*.<sup>143</sup> The International Tribunal for the Law of the Sea (ITLOS) took a different approach in that it implicitly addressed the principle in the *Southern Bluefin Tuna Cases*.<sup>144</sup> In its order it maintained that the parties should "act with prudence and caution to ensure that effective conservation measures are taken."<sup>145</sup> It ruled that although it could not conclusively assess the scientific evidence presented by the parties, "measures should be taken as a matter of urgency [...] to avert further deterioration of the southern bluefin tuna stock."<sup>146</sup> In essence, this was the plain application of a precautionary approach, especially as the judgment had the consequence of a *de facto* moratorium for Japan's contentious fishing activities.<sup>147</sup> The rationale was also relied upon in ITLOS' order concerning provisional measures in the *MOX Plant Case*.<sup>148</sup> The WTO Appellate Body in the *Beef Hormones Case* recognised that the status of the principle in international law was the subject of continued debate and that it was regarded by some as having crystallised into a general principle of customary international law.<sup>149</sup>

What is obvious is that the existence of the precautionary principle receives broad support within the international community. No single state would object to the importance of proactively responding to potentially harmful activities. Nevertheless, what still remains open is the level at which scientific evidence is sufficient to override arguments for postponing measures or at which measures might even be required as a matter of international law. In fact, it can well be argued that such a precise definition will never be developed and that applying the precautionary principle will always entail the determination of the decisive factors on a case-by-case basis. Furthermore, it is arguably true that there exist different cultural perceptions of "risk" that make it virtually impossible to develop uniform responses to the existence of a risk, apart, of course, from conducting further research.<sup>150</sup>

<sup>143</sup> Philippe Sands, *supra*, note 107, p. 273 et seq.

<sup>144</sup> *Southern Bluefin Tuna Cases (New Zealand v. Japan; Australia v. Japan), Provisional Measures*, ITLOS, Order of 27 August 1999, 38 *ILM* (1999) 1624.

<sup>145</sup> *Ibid.*, para. 77.

<sup>146</sup> *Ibid.*, para. 80.

<sup>147</sup> David Freestone, "Caution or Precaution: 'A Rose by any Other Name...?'" 10 *Yb. Int'l Env Law* (1999) pp. 25-32, at 29; Simon Marr, "The Southern Bluefin Tuna Cases: The Precautionary Approach and Conservation and Management of Fish Resources", 11 *EJIL* (2000) pp. 815-831, at 827. See also *Separate Opinion* of Judge Tulio Treves, para. 8: "[...] the requirement of urgency is satisfied only in the light of such precautionary approach. I regret that this is not stated explicitly in the Order".

<sup>148</sup> *The MOX Plant Case (Ireland v. United Kingdom), Provisional Measures*, ITLOS, Order of 3 December 2001, 41 *ILM* (2002) 405, para 84: "[...] in the view of the tribunal, prudence and caution require that Ireland and the United Kingdom cooperate in exchanging information concerning risks or effects of the operation of the MOX plant and in devising ways to deal with them, as appropriate".

<sup>149</sup> *EU Measures Concerning Meat and Meat Products*, WTO Appellate Body, WT/DS26/AB/R, WT/DS48/AB/R, adopted on 13 February 1998, para. 123.

<sup>150</sup> Arno Scherzberg, *supra*, note 132, p. 5.

What can be drawn from the aforementioned judgments, as well as from recent case law of the European Courts, appears to support this reasoning. In the *Beef Hormones Case*, the WTO Appellate Body relied on Article 3.3 and 5.1 of the SPS Agreement to conclude that the precautionary principle obliges states to have sound risk management systems in place.<sup>151</sup> The judgment of the European Court of First Instance in the *Pfizer* case shows a similar approach, as it contends that precautionary measures may only be introduced after presenting at least enough scientific evidence to carry out a risk assessment so that the risk can be subsequently managed.<sup>152</sup>

To sum up, in applying the precautionary principle, states need to have in place a procedure to identify risks and to develop response strategies to address the identified risks in order to transform “a state of confusing ignorance [...] into a state of a checkable risk assessment with underlying uncertainty factors.”<sup>153</sup> Uncertainties should be taken into account in decision-making – not ignored as a disturbing factor. The precautionary principle has now received widespread support, which has led many scholars to argue that it has crystallised into a principle of customary international law.<sup>154</sup> Although it must be recognised that there is no consensus with respect to that question (yet), it should be noted that scientific uncertainty has ceased to be an argument for inaction. To what extent international marine environmental law, and rules on PSSAs in particular, take into account the precautionary principle will be examined in the ensuing chapters.

### III. United Nations Convention on the Law of the Sea

As said above, UNCLOS constitutes the main regime for the use and the protection of the world’s oceans. It was negotiated over more than a decade, concluded in 1982 and is now widely accepted as reflecting customary international law. It not only merges its predecessors, the 1958 Geneva Conventions<sup>155</sup>, which

<sup>151</sup> *EU Measures Concerning Meat and Meat Products*, *supra*, note 149, para 175 et seqq. For an intense discussion of the scientific risk assessment system laid down in the SPS Agreement, see David Winickoff et al., “Adjudicating the GM Food Wars: Science, Risk, and Democracy in World Trade Law”, 30 *YJIL* (2005), pp. 81-123, at 107 et seqq.

<sup>152</sup> Case T-13/99, *Pfizer*, [2004] ECR II-3305. For an analysis, see Caoimhin MacMaolain, “Using the Precautionary Principle to Protect Human Health”, 28 *E.L.Rev.* (2003), pp. 723-734, who also reviews earlier attempts of the Court of First Instance to address the issue of precaution (e.g., *NFU* and *Bergaderm* cases) and holds that although it did not mention the phrase “precautionary principle”, it implicitly upheld a precautionary approach behind the guise of arguments concerning legislative competence.

<sup>153</sup> Udo di Fabio, as cited and translated by Simon Marr, *supra*, note 133, p. 24.

<sup>154</sup> Simon Marr, *supra*, note 133, p. 202 et seqq.; Cosima Erben, *supra*, note 81, p. 245 et seqq.; Philippe Sands, *supra*, note 107, p. 279.

<sup>155</sup> Convention on the Territorial Sea and the Contiguous Zone, adopted on 29 April 1958, entry into force on 10 September 1964, 516 *UNTS* 205; Convention on the High Seas, entry into force on 30 September 1962, 450 *UNTS* 11; Convention on Fishing and Conservation of the Living Resources of the High Seas, entry into force on 20 March 1966, 559 *UNTS* 285; Convention on the Continental Shelf, entry into force on 10 June

dealt with selected points of the law<sup>156</sup>, but establishes a coherent system addressing all relevant legal issues. The main focus of its rules is on shipping in a wide sense. However, UNCLOS also deals with issues such as marine scientific research, sea-bed mining and the settlement of disputes. Its regulatory approach ties in with the introduction of maritime zones, which I will dwell upon in the following section.

One of the unique features of UNCLOS is its Part XII, which is designed to contribute to the “protection and preservation of the marine environment.” It resembles a “mini-convention” within UNCLOS, as it is composed of general provisions, rules containing detailed obligations and procedural provisions. These interesting characteristics may be traced back to the drafting of Part XII, which was largely done separately from the negotiation of other parts of the Convention.<sup>157</sup> The UNCLOS rules on the protection of the marine environment are chiefly based on two considerations set out in the Preamble. The states were “[c]onscious that the problems of ocean space are closely interrelated and need to be considered as a whole.”<sup>158</sup> It was their express aim to establish “with due regard for the sovereignty of all States, a legal order for the seas and oceans which will [...] promote the peaceful uses of the seas and oceans, the equitable and efficient utilization of their resources, the conservation of their living resources, and the study, protection and preservation of the marine environment.”<sup>159</sup>

Part XII sets forth obligations of states to adopt laws and regulations to protect the marine environment which must conform to internationally agreed rules and standards. It furthermore determines the circumstances in which states are allowed to go beyond the general framework and it provides for the appropriate enforcement measures. In the following section, I shall set out the overall structure of Part XII, especially the protective regimes in the different maritime zones, and specific rules concerned with marine protected areas. Subsequently, I shall attend to the so-called rules of references by which regulations outside UNCLOS are incorporated in its regulatory regime.

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1964, 499 *UNTS* 311, Optional Protocol of Signature concerning the Compulsory Settlement of Disputes arising from the Law of the Sea Conventions, entry into force on 30 September 1962, 450 *UNTS* 169.

<sup>156</sup> Protection of the marine environment was mentioned in the High Seas Convention (Articles 24 and 25), albeit limited to the prevention of pollution by the discharge of oil or from the dumping of radioactive waste.

<sup>157</sup> For an account of the drafting history of Part XII, see Myron H. Nordquist, Satya N. Nandan and Shabtai Rosenne, *United Nations Convention on the Law of the Sea 1982, A Commentary*, Vol. IV (Dordrecht: Martinus Nijhoff Publishers 1991), para. XII.1 et seqq.

<sup>158</sup> Third recital.

<sup>159</sup> Fourth recital.

### 1. Basic Rules for the Protection of the Marine Environment

To begin with, it is striking that UNCLOS, neither in Part XII nor elsewhere in its text, includes an express definition of “marine environment”;<sup>160</sup> in fact, there is none in any multilateral treaty regime to date.<sup>161</sup> An indirect definition can be found in Article II(4) of the Intervention Convention<sup>162</sup> that determines the interests of individual states. However, it transcends a mere anthropocentric approach to marine environment protection.<sup>163</sup> The only comprehensive definition of marine environment has thus far been developed by the International Seabed Authority (ISA) in Regulation 1 of the 2000 Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area,<sup>164</sup> which was widely praised as being sophisticated and complex.<sup>165</sup> It defines the marine environment as including “the physical, chemical, geological and biological components, conditions and factors which interact and determine the productivity of, state, condition, and quality of the marine ecosystem, the waters of the seas and oceans and the airspace above those waters, as well as the seabed and ocean floor and subsoil thereof.” For the purpose of the following account, we may reasonably refer to this definition, as it seems to be consistent with the UNCLOS approach and other relevant instruments.

The first section of Part XII is entitled “General Provisions”. Indeed, Articles 192 to 196 transpose the main environmental principles into the law of the sea context. Together with Articles 197 and 237, they provide the framework for the overall regime in which the other provisions of Part XII are applied, which are of a rather technical nature and mainly deal with matters of legislative and enforcement competences.

Article 192, codifying a general obligation of states “to protect and preserve the marine environment”, resembles the second part of Principle 21 of the Stockholm Declaration that laid down “the responsibility to ensure that activities within their

<sup>160</sup> Article 145 on the protection of the marine environment merely lists some examples of what may be included by the term.

<sup>161</sup> Louise de la Fayette, “New Approaches for Addressing Damage to the Marine Environment”, 20 *IJMCL* (2005), pp. 167-224, at 170. Only little guidance can be obtained from the definition of “ecosystem” in Article 2 of the Convention on Biological Diversity.

<sup>162</sup> International Convention on the Intervention on the High Seas in cases of Pollution Casualties, adopted on 29 November 1969, in force as from 6 May 1975, 970 *UNTS* 211.

<sup>163</sup> Gerhard Hafner, “Meeresumwelt, Meeresforschung und Technologietransfer”, in W. Graf Vitzthum (ed.), *Handbuch des Seerechts* (München: C.H. Beck 2006), pp. 347-460, para. 29.

<sup>164</sup> These Regulations were adopted by the ISA Assembly on 13 July 2000. Text available from <[http://www.isa.org.jm/en/documents/OFFICIAL\\_DOCUMENTS/DOC\\_2000/ISBA\\_6\\_A\\_18\\_E.pdf](http://www.isa.org.jm/en/documents/OFFICIAL_DOCUMENTS/DOC_2000/ISBA_6_A_18_E.pdf)>; (accessed on 30 September 2006).

<sup>165</sup> See Louise de la Fayette, *supra*, note 161, p. 201; Ling Zhu, “Do we need a Global Organization for the Protection of the Marine Environment?”, in P. Ehlers and R. Lagoni (eds.), *International Maritime Organisations and their Contribution towards a Sustainable Marine Development* (Münster: LIT-Verlag 2006), pp. 157-180, at 159 et seq.

jurisdiction or control do not cause damage to the environment of other States or of areas beyond national jurisdiction.” It is, however, important to note that Article 192 represents a major shift in that it subordinates the sovereign right of states to exploit their natural resources referred to in Article 193.<sup>166</sup> By virtue of Article 194, it is furthermore substantially amplified, first to cover all sources of marine pollution and secondly, to define the environment as including “rare and fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life.” The obligation is not confined to protection of the marine environment. It includes its preservation, which appears to require proactive measures aimed at maintaining or improving the condition of the marine environment.<sup>167</sup> As is apparent, the obligation to protect and preserve the environment does not apply only to states’ territory but also to areas beyond national jurisdiction. At the same time, the scope of the obligation is broadened to encompass not only the environment of *other states* but rather the marine environment as a whole. Shaped in this way, general obligations in Articles 192 and 193 are said to be “a forerunner of the integrated approach of interdependence between environmental protection and sustainable development advanced by UNCED in 1992.”<sup>168</sup> They are also generally regarded as being part of the body of customary international law.<sup>169</sup>

The broad obligation to protect and preserve the marine environment is specified in Article 194, where it is split up into three main themes, namely the prevention, the reduction and the control of pollution of the marine environment, thereby introducing a concept of due diligence.<sup>170</sup> Pursuant to Paragraph 1, states are under the obligation both to take “all measures [...] that are necessary” and, moreover, to “endeavour to harmonize their policies in this connection.”<sup>171</sup> In elaborating on the latter, subsequent provisions of Part XII contain harmonisation rules requiring states to establish, through the competent international organisation or general diplomatic conferences, international rules and standards to prevent, reduce and control pollution of the marine environment.<sup>172</sup> “Pollution”, mentioned here for the first time in this part of UNCLOS, is defined in Article 1(4) as “the

<sup>166</sup> According to this provision, natural resources are to be exploited “in accordance with [the states’] duty to protect and preserve the marine environment.” Cf. Patricia Birnie and Alan Boyle, *supra*, note 13, p. 352.

<sup>167</sup> Myron H. Nordquist, Satya N. Nandan and Shabtai Rosenne, *supra*, note 157, para. 192.9.

<sup>168</sup> Alexander Yankov, “The Law of the Sea Convention and Agenda 21: Marine Environmental Implications”, in A. Boyle and D. Freestone (eds.), *supra*, note 109, pp. 271-295, at 274. Similar Alexander Proelß, *supra*, note 120, p. 75.

<sup>169</sup> Alexander Proelß, *supra*, note 120, p. 79, argues that Article 192 has also a legal effect *erga omnes*, which would prohibit a persistent objection against its content.

<sup>170</sup> See Patricia Birnie and Alan Boyle, *supra*, note 13, p. 352 et seq. for a critical account of the concept’s implementation by Part XII.

<sup>171</sup> Art. 194(1).

<sup>172</sup> E.g., Art. 211(1) with respect to pollution from vessels. See further *infra*, Sec. III.4 of this chapter. Also Markus J. Kachel, “Competencies of International Maritime Organisations to establish Rules and Standards”, in P. Ehlers and R. Lagoni (eds.), *supra*, note 165, p. 37 et seqq.

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 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 of sea water and reduction of amenities.” Which measures are necessary is not indicated by Article 194. Still, it contains two important qualifications. The expression “individually or jointly as appropriate” seems “to imply that the decision does not rest exclusively with the coastal State or other States concerned.”<sup>173</sup> The fact that measures have to be taken “in accordance with [States’] capabilities” grants some leeway to developing countries, that may otherwise have to shoulder too heavy a burden when implementing the obligation to prevent, reduce and control pollution of the marine environment. More generally, as Article 195 expressly states, the measures have to be carried out in a manner “so as not to transfer, directly or indirectly, damage or hazards from one area to another or transform one type of pollution into another.”

Despite the fact that UNCLOS is a rather voluminous convention, it is often depicted as a framework or “umbrella” convention, as it contains only a few concrete rules and must be made concrete by other multilateral instruments, both on a global and on a regional level.<sup>174</sup> Article 197 is reflective of this character in that it obliges states to “co-operate on a global basis and, as appropriate, on a regional basis, directly or through international organizations, 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 [...]” This obligation, in its general form often referred to as the principle of cooperation, has been relied upon in the *MOX Plant Case Provisional Measures Order* by the ITLOS, by which Ireland and the United Kingdom were required to “cooperate in exchanging information concerning risks or effects of the operation of the MOX plant and in devising ways to deal with them.”<sup>175</sup> A specific regulation for the cooperation of states bordering enclosed or semi-enclosed seas is to be found in Article 123.<sup>176</sup>

Although Part XII of UNCLOS consists of some 45 articles, the protection of the marine environment is not spelled out in every detail. States may thus contemplate engaging in further treaties. Indeed, the last article of Part XII, Article 237 envisages such activities “concluded in furtherance of the general principles set forth in this Convention.” Read in conjunction with Article 311, these provisions govern the relationship of UNCLOS with other treaties on law of the sea matters – regarding the right to conclude further agreements, they impose limits

<sup>173</sup> Myron H. Nordquist, Satya N. Nandan and Shabtai Rosenne, *supra*, note 157, para 194.10(b).

<sup>174</sup> Art. 311(3).

<sup>175</sup> *The MOX Plant Case*, *supra*, note 148, para. 84. See further *Case concerning Land Reclamation by Singapore in and around the Straits of Johor (Malaysia v. Singapore)*, *Provisional Measures*, ITLOS, 8 October 2003, 7 *ITLOS Reports* (2003), para. 92.

<sup>176</sup> Note, however, that it is not peculiar to the law of the sea. See, for instance, the ICJ judgment in the *Gabcikovo-Nagymaros case*, *supra*, note 114, at para. 143 et seqq.

on, and preserve the freedom of, states at the same time.<sup>177</sup> Details on their requirements will be given below. Finally, of similar importance are various provisions in Part XII that refer to internationally agreed rules and standards for the harmonisation of environmental protection regimes. As will be shown below, these so-called rules of reference are potentially powerful provisions in that they give binding force to various legal instruments established through the IMO.

## **2. Maritime Zones as Determinants of the Protective Regime**

In determining the concrete leeway of states in protecting the marine environment by establishing marine protected areas, one has, to a large extent, to focus on the geographical location of the area. This is due to the fact that UNCLOS has established different maritime zones, in which the balance between the freedom of navigation and the coastal state's right to protect the environment is struck differently.

The point from which the zones are measured is the so-called baseline.<sup>178</sup> Landward of the baseline are internal waters under the unconstrained jurisdiction of the coastal state.<sup>179</sup> On the seaward side, three zones can principally be distinguished. The territorial sea has a breadth of twelve nautical miles (nm) with a so-called contiguous zone of another twelve miles. It is followed by the so-called Exclusive Economic Zone (EEZ) extending to 200 nm. Beyond the EEZ lie the high seas. Besides, two special regimes are recognised by UNCLOS: straits used for international navigation and archipelagic waters.

In the following part, I shall set out to what extent states are allowed to legislate with effect to third-state users of the respective zone and how their laws can be enforced. Reasons of space do not permit more than a rough overview, which nevertheless suffices the purpose of this chapter. It should be borne in mind that the maritime zones can rarely be claimed to a full extent. Adjacent states and states situated opposite one another may have overlapping maritime areas – a problem that has increased since claims to maritime areas exceed the traditional breadth of the territorial sea of 3 nm. Two or more states usually enter into agreements fixing the boundaries of zones under their control.<sup>180</sup> Nevertheless,

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<sup>177</sup> Alan Boyle, "Globalism and Regionalism in the Protection of the Marine Environment", in D. Vidas (ed.), *Protecting the Polar Marine Environment* (Cambridge: CUP 2000), pp. 19-33, at 21.

<sup>178</sup> Pursuant to Art. 5 of UNCLOS, "the normal baseline for measuring the breadth of the territorial sea is the low-water line along the coast as marked on large-scale charts officially recognised by the coastal State." Apparently, special geographical features of the coast often make it difficult to determine the baseline. On special rules in these cases, see Robin R. Churchill and Vaughan Lowe, *supra*, note 100, p. 33 et seqq.

<sup>179</sup> See Vladimir D. Degan, "Internal Waters", XVII *NYIL* (1986) pp. 3-44, p. 10 et seqq.

<sup>180</sup> E.g. The agreement between the Kingdom of Denmark and the Federal Republic of Germany concerning the delimitation, in the coastal regions, of the continental shelf of the North Sea of 9 June 1965, available from <<http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/TREATIES/DNK-DEU1965CS.PDF>>; (accessed on 30 September 2005).



through much of history, the delimitation of maritime boundaries has been a matter of controversy.<sup>181</sup> These problems are beyond the subject of this work and so the following account should give an overview of the legal framework for each zone without prejudice to other states' claims to the same zone. With respect to the scope of PSSAs – protection from dangers posed by international shipping – special attention will be given to the competences of coastal states in prescribing legal requirements for vessels.

### a) Territorial Sea

As Article 2 of UNCLOS states, “the sovereignty of a coastal State extends, beyond its land territory and internal waters and, in case of an archipelagic State, its archipelagic waters, to an adjacent belt of sea, described as the territorial sea.” The breadth of the territorial sea has been a hotly debated issue over centuries. These disputes have been settled to a large extent; it is today commonly accepted that the territorial sea must not exceed 12 nm and this is reflected in the respective UNCLOS provision.<sup>182</sup>

Although the territorial sea is part of state territory, as far as vessels are concerned, the principle of freedom of navigation affects the concrete legislative and enforcement jurisdiction of coastal states to a great extent. Article 2(3) stipulates that sovereignty “is exercised subject to this Convention and to other rules of international law.” It is thus obvious that states cannot give unconstrained effect to their legislation. To protect the freedom of navigation, the law of the sea has long since recognised the institute of innocent passage, which the coastal state must not hamper.<sup>183</sup> Pursuant to Article 17 of UNCLOS, it is enjoyed by “ships of all States, whether coastal or land-locked.” The meaning of innocent passage is codified in Article 19(1) as passage that is not prejudicial to the peace, good order or security of the coastal state. Paragraph 2 contains a list of specified activities indicative of a non-innocent passage.

Article 21(1) allows the coastal state to “adopt laws and regulations [...] relating to innocent passage through the territorial sea, in respect of all or any of the following.” The list includes the safety of navigation and the regulation of maritime traffic; the conservation of the living resources of the sea; and “the preservation of the environment of the coastal State and the prevention, reduction and control of pollution thereof.” Whether the enumeration is meant to be

<sup>181</sup> See, for instance, *North Sea Continental Shelf Cases*, ICJ, *supra*, note 119; *Case Concerning the Continental Shelf (Tunisia/Libya)*, ICJ, 24 February 1982, *I.C.J. Reports* 1985, pp. 19-94; *Case Concerning Maritime Delimitation in the Area Between Greenland and Jan Mayen (Denmark v. Norway)*, ICJ, 14 June 1993, *I.C.J. Reports* 1993, pp. 38-82; and, *Case concerning Land Reclamation by Singapore in and around the Straits of Johor (Malaysia v. Singapore)*, *Provisional Measures*, ITLOS, *supra*, note 175.

<sup>182</sup> Art. 3.

<sup>183</sup> See Art. 24(1), which also qualifies this duty by an obvious addition: “except in accordance with this Convention”.

exhaustive is not beyond any doubt.<sup>184</sup> An important restriction of the coastal state's legislative competence is contained in Paragraph 2, according to which "[s]uch laws and regulations shall not apply to the design, construction, manning or equipment of foreign ships unless they are giving effect to generally accepted international rules and standards."<sup>185</sup> This reservation can be explained by recourse to Paragraph 4, that requires foreign ships, when exercising innocent passage, to comply with all laws and regulations the coastal state has enacted in compliance with Paragraphs 1 and 2. It would be virtually impossible for ships to adjust to different design, construction, manning and equipment standards while on a voyage. Regulations must furthermore be duly publicised<sup>186</sup> and must be non-discriminatory.

Furthermore, foreign ships need to adjust to sea lanes and traffic separation schemes the coastal state is allowed to designate,<sup>187</sup> as well as abide by "all generally accepted international regulations relating to the prevention of collisions at sea."<sup>188</sup> The most important example with respect to the latter is the 1972 Collisions Regulations Convention,<sup>189</sup> which, in particular, provides for more detailed rules on traffic separation schemes.<sup>190</sup> It is apparent that all the relevant provisions in COLREG as well as in the 1974 Convention for the Safety of Life at Sea<sup>191</sup> and also, to a lesser extent, Article 22(3) of UNCLOS recognise the essential role of the IMO as the competent international organisation for the establishment of ships' routeing measures. This observation may prove crucial in the latter assessment of the PSSA regime.

### b) Exclusive Economic Zone

The exclusive economic zone (EEZ) is "an area beyond and adjacent to the territorial sea,"<sup>192</sup> within which coastal states enjoy sovereign rights over their natural resources while other states enjoy, in particular, the freedom of navigation and overflight and the laying of submarine cables and pipelines. Apparently, this constellation is susceptible to disputes as to whose right should prevail when

<sup>184</sup> Robin R. Churchill and Vaughan Lowe, *supra*, note 100, p. 95.

<sup>185</sup> According to Robin R. Churchill and Vaughan Lowe, *supra*, note 100, p. 94, this limitation of legislative competences – which, at least in theory, coastal states previously enjoyed unconstrained – is novel and emerged due to the fact that the UNCLOS regime was intended to balance carefully coastal and flag-state interests.

<sup>186</sup> Art. 21(3).

<sup>187</sup> Art. 22(1) and (2).

<sup>188</sup> Art. 21(4).

<sup>189</sup> Convention on the International Regulations for Preventing Collisions at Sea, adopted on 20 October 1972, in force as from 15 July 1977; reproduced in IMO, *COLREG – Consolidated Edition 2003* (London: IMO Publication 2003); hereafter COLREG.

<sup>190</sup> See rule 10 of COLREG and, in more detail, *infra*, in Sec. II.1.a) of Chapter 8.

<sup>191</sup> Adopted on 1 November 1974, in force as from 25 May 1980, 1184 *UNTS* 2; amended by Protocol of 17 February 1978, entry into force on 1 May 1981; text reproduced in IMO, *SOLAS – Consolidated Edition* (London: IMO Publication 2004); hereafter SOLAS.

<sup>192</sup> Art. 55 of UNCLOS.

activities of the coastal state conflict with other states' vessels navigating through the area. To this end, UNCLOS attempts to provide for a legal framework that reconciles these conflicts.

The EEZ notion emerged during preparations for UNCLOS III and originated in the resource-oriented claims of developing countries in Africa and Latin America, which wanted to gain control over the natural resources off their coast, that were to a large extent exploited by developed countries' long-distance fishing fleets.<sup>193</sup> The outcome of UNCLOS was a compromise between developing countries claiming a 200 nm territorial sea and some developed states rejecting the idea of an EEZ as a whole.<sup>194</sup> The breadth of 200 nm does not have any geographical justification: the first ever resource-oriented claim to an area beyond the territorial sea was a fishing-protection zone, established by Chile in 1947 to protect its whaling industry<sup>195</sup>, extended to 200 nm.<sup>196</sup> The breadth was arbitrarily chosen by the government. Subsequent claims of Latin American and other states followed the line of the Chilean claim;<sup>197</sup> indeed, none of those extended its initial limit. During UNCLOS III it was decided to base the limits of the EEZ on the broadest existing claims.

The EEZ regime is of high practical relevance for ocean governance. While 36 per cent of the sea is covered by its regime<sup>198</sup>, it contains 80 to 90 per cent of exploitable fish stocks, the overwhelming majority of submarine oil deposits and even a good share of mineral resources.<sup>199</sup> At the very beginning of Part V, Article 55 of UNCLOS sets out clearly that the EEZ is a specific legal regime, "under which the rights and jurisdiction of the coastal State and the rights and freedoms of other States are governed by the relevant provisions of this Convention." As

<sup>193</sup> Robert B. Krueger and Myron H. Nordquist, "The Evolution of the 200-Mile Exclusive Economic Zone: State Practice in the Pacific Basin", 19 *VJIL* (1979), pp. 321-400, at 326 et seqq.

<sup>194</sup> Robin R. Churchill and Vaughan Lowe, *supra*, note 100, p. 161.

<sup>195</sup> Presidential Declaration Concerning Continental Shelf, adopted on 23 July 1947, cf. *UN Legislative Series – Laws and Regulations on the Regime of the High Seas*, Vol. 1 (1951), p. 6 et seqq. Article 2 reads: "The Government of Chile confirms and proclaims its national sovereignty over the seas adjacent to its coasts whatever may be their depths, and within those limits necessary in order to reserve, protect, preserve and exploit the natural resources of whatever nature found on, within and below the said seas [...]." And Article 3 proclaims: "[...] Protection and control is hereby declared immediately over all the seas contained within the perimeter formed by the coast and the mathematical parallel projected into the sea at a distance of 200 nautical miles from the coasts of Chilean territory." Notably, the first recital of the declaration referred to the 1945 Truman Declaration claiming sovereignty over 200 nm of the USA's continental shelf.

<sup>196</sup> Ann L. Hollick, "The Origins of 200-Mile Offshore Zones", 71 *AJIL* (1977), pp. 494-500, at 497 et seqq.

<sup>197</sup> *Ibid.*, p. 499.

<sup>198</sup> Provided that all states would claim a 200-nm EEZ.

<sup>199</sup> Robin R. Churchill and Vaughan Lowe, *supra*, note 100, p. 162.

regards environmental matters, by virtue of Article 56(1) lit. (b)<sup>200</sup>, Part V is linked to Part XII inasmuch as the latter contains the specific implementation of the environmental regime of the EEZ. Hence, Articles 55 and 56 do not vest states with a general competence to establish “a 200-mile pollution-control zone.”<sup>201</sup> The relevant provisions of Part XII, at least as far as vessel-based pollution is concerned, are Articles 211 and 220, providing for legislative and enforcement jurisdiction respectively.

As noted earlier, in the territorial sea, coastal states may prescribe their own environmental laws as long as they do not hamper innocent passage. The approach of UNCLOS with respect to the EEZ is much stricter. Pursuant to Article 211(5), states may only “adopt laws and regulations for the prevention, reduction and control of pollution from vessels conforming to and giving effect to generally accepted international rules and standards established through the competent international organization or general diplomatic conference.” Yet the general importance of this provision should not be underestimated. As I shall set out in more detail below<sup>202</sup>, the reference to *generally accepted international rules and standards established through the competent international organization* vests important rights with the IMO to progressively develop UNCLOS’ environmental regime. In addition, Paragraph 6 of Article 211 contains special rules, both substantive and procedural, for the establishment of areas that need to be protected by “special mandatory measures for the prevention of pollution from vessels” (UNCLOS special areas). This provision can be invoked where international rules and standards are inadequate in meeting the special circumstances of the area and the need for special measures is justified for “recognized technical reasons in relation to its oceanographical and ecological conditions.” I shall return to this provision in a separate section of this chapter.<sup>203</sup>

Enforcement jurisdiction does not mirror legislative jurisdiction to the full extent – Paragraphs 3, 5, and 6 of Article 220 contain important thresholds that restrict the extent of coastal states’ enforcement jurisdiction. In the event of a violation of the applicable international rules and standards of the coastal states’ laws that give effect to these regulations, enforcement authorities pursuant to Article 220(3) are merely allowed to “require the vessel to give information regarding its identity and port of registry, its last and its next port of call and other relevant information required to establish whether a violation has occurred.”<sup>204</sup> This procedure is designed to enable the port state or the flag state to initiate

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<sup>200</sup> It reads: “In the exclusive economic zone, the coastal State has [...] jurisdiction as provided for in the relevant provisions of this Convention with regard to [...] the protection and preservation of the marine environment”.

<sup>201</sup> Horace B. Robertson, “Navigation in the Exclusive Economic Zone”, 24 *VJIL* (1984), pp. 865-915, at p. 897. Nonetheless, concerns have been voiced that recent state practice increasingly disregards navigational rights in the EEZ, cf. Jon M. Van Dyke, “The Disappearing Right to Navigational Freedom in the Exclusive Economic Zone” 29 *Marine Policy* (2005), pp. 107-121, at 109 et seqq.

<sup>202</sup> See, *infra*, Sec. III.4 of this chapter.

<sup>203</sup> See, *infra*, Sec. III.3 of this chapter.

<sup>204</sup> Art. 220(3).

follow-up proceedings.<sup>205</sup> If the violation of the aforementioned regulations has resulted “in a substantial discharge causing or threatening significant pollution of the marine environment,” the coastal state may inspect the vessel.<sup>206</sup> Otherwise, the coastal state is confined to the means of Article 220(3). However, even this right to inspection is qualified by a safeguard that “the vessel has refused to give information or if the information supplied by the vessel is manifestly at variance with the evident factual situation and if the circumstances of the case justify such inspection.”<sup>207</sup> Eventually, only if the violation causes “major damage or threat of major damage to the coastline or related interests of the coastal State, or to any resources of its territorial sea or [EEZ], that State may [...] institute proceedings, including detention of the vessel [...]”<sup>208</sup> Further safeguards with respect to enforcement are to be found in Section 7 of UNCLOS.<sup>209</sup>

The EEZ notion is part of the body of customary international law, as the ICJ acknowledged as early as 1975 in its judgment on the *Libya/Malta Continental Shelf Case*.<sup>210</sup> However, clear evidence in this respect only applies to the institution of the zone itself and to the rights and duties set out in Articles 56 and 58 of UNCLOS. Whether any of the other more detailed rights and duties have passed into customary law has been rightly doubted.<sup>211</sup>

It should not be forgotten that one part of the coastal state’s EEZ – adjacent to the territorial sea – is, or may be claimed as, the so-called contiguous zone, where coastal states are allowed to exercise the control necessary to prevent and punish infringements of their customs, fiscal, immigration or sanitary laws and regulations committed within the territorial sea.<sup>212</sup> Legislative jurisdiction does not exist in the contiguous zone, which must not extend more than 24 nm from the baseline (it thus has a maximum breadth of 12 nm) and is not automatically ascribed to the coastal state but must be claimed. The concept of the contiguous zone is not of relevance for the topic discussed in this work, but nevertheless it should be mentioned as a further layer in the law of the sea framework allocating rights and duties.

<sup>205</sup> Horace B. Robertson, *supra*, note 201, p. 900.

<sup>206</sup> Cf. art. 220(5). As is rightly emphasised by Lindy S. Johnson, *Coastal-State Regulation of International Shipping* (Dobbs Ferry: Oceana Publications 2004), p. 120, this provision (as well as para. 6) “only provides for enforcement *after* a discharge has taken place”.

<sup>207</sup> Art. 220(5).

<sup>208</sup> Art. 220(6).

<sup>209</sup> For a brief discussion of provisions contained in Section 7, see Horace B. Robertson, *supra*, note 201, p. 902 et seqq. Furthermore, Robin R. Churchill and Vaughan Lowe, *supra*, note 100, p. 350 et seq.

<sup>210</sup> *Continental Shelf Delimitation Case (Libya/Malta)*, ICJ, 3 June 1985, *I.C.J. Reports* 1985, pp. 13-58, para. 34.

<sup>211</sup> See further Robin R. Churchill and Vaughan Lowe, *supra*, note 100, p. 161 et seq.

<sup>212</sup> Cf. Art. 33 of UNCLOS.

### c) High Seas

On numerous occasions, the desire has been uttered also to provide for the protection of high-seas ecosystems through high-seas marine protected areas (HSMPAs).<sup>213</sup> Contrary to widespread perception, there is a need for HSMPAs, as fragile ecosystems do not only exist in coastal regions; examples include sea mounts and hydrothermal vents.<sup>214</sup> Most of the obstacles that HSMPAs might face have been said to be of a political nature and could eventually be overcome.<sup>215</sup> One of the instruments said to have the potential to contribute to the establishment of HSMPAs are PSSAs.<sup>216</sup>

The high seas are “all parts of the sea that are not included in the exclusive economic zone, in the territorial sea or in the internal waters of a State, or in the archipelagic waters of an archipelagic State.”<sup>217</sup> The regime of the high seas, largely modelled upon the *mare liberum* approach, is characterised by the absence of any competence of coastal states to subject it or parts of it to their sovereignty.<sup>218</sup> Pursuant to Article 87 of UNCLOS, the “high seas are open to all States”. The freedom of the high seas, which contains, *inter alia*, the freedom of navigation and the freedom of overflight<sup>219</sup>, cannot be enjoyed unconstrained but is to be exercised “under the conditions of this Convention and by other rules of international law.” As Article 92 states, the responsibility for the behaviour of ships sailing on the high seas lies solely with the state whose flag the vessel is flying.<sup>220</sup> To be allowed to fly its flag, the ship needs to have a “genuine link” with

<sup>213</sup> Hjalmar Thiel, “Approaches to the Establishment of Protected Areas on the High Seas”, in A. Kirchner (ed.), *supra*, note 24, pp. 169-192; Simon J. Cripps and Sabine Christiansen, “A Strategic Approach to Protecting Areas on the High-Seas”, in H. Thiel and J.A. Koslow (eds.), *Managing Risks to Biodiversity and the Environment on the High Seas, Including Tools Such as Marine Protected Areas – Scientific Requirements and Legal Aspects* (Bonn-Bad Godesberg: BfN-Skripten No. 43 2001), pp. 113-121, at 116 et seq. Delegates at the 2003 UNICPOLOS meeting took a similar view, see UN Doc. A/58/95, *Report on the Work of the United Nations Open-Ended Informal Consultative Process on Oceans and the Law of the Sea*, 26 June 2003, para. 20 lit. c.

<sup>214</sup> See, *supra*, Sec. I.2.a)dd) of Chapter 1; and UNEP/CBD/WG-PA/1/INF/1, *Scientific Information on Biodiversity in Marine Areas Beyond the Limits of National Jurisdiction*, Note by the CBD Executive Secretariat for the first meeting of the ad hoc open ended WG on protected areas, 17 May 2005, available from <<http://www.biodiv.org/doc/meetings/pa/pawg-01/information/pawg-01-inf-01-en.pdf>>; (accessed on 30 September 2006), p. 3 et seqq.

<sup>215</sup> A. Charlotte de Fontaubert, “Legal and Political Considerations”, in WWF, IUCN and WCPA (eds.), *The Status of Natural Resources on the High-Seas* (Gland: WWF/IUCN Publishing 2001) pp. 69-93, at 89.

<sup>216</sup> Cf. Tullio Scovazzi, *supra*, note 98, p. 8 et seq. Whether these aspirations hold true will be assessed in Sec. III. of Chapter 10.

<sup>217</sup> Art. 86 of UNCLOS

<sup>218</sup> Art. 89 of UNCLOS.

<sup>219</sup> Art. 87(1) lit. (a) and (b) of UNCLOS.

<sup>220</sup> Nevertheless, all states may exceptionally prosecute certain acts conducted on the high seas: see Wolfgang Graf Vitzthum, “Raum und Umwelt im Völkerrecht”, in *id.* (ed.),

the flag state.<sup>221</sup> The duties of the flag state as laid down in Article 94 include that of “assum[ing] jurisdiction under its internal law over each ship flying its flag and its master, officers and crew in respect of administrative, technical and social matters concerning the ship.”<sup>222</sup> The onus is also on the flag state to ensure “that the master, officer and, to the extent appropriate, the crew are fully conversant and required to observe the applicable international regulations concerning the safety of life at sea, the prevention of collisions [and] the prevention, reduction and control of marine pollution.”<sup>223</sup>

Since the general obligations of Part XII referred to in the previous section are of universal character, they do not cease to apply beyond coastal states’ jurisdiction. Hence, states are also under the obligation to protect and preserve the marine environment of the high seas, which encompasses – by virtue of Article 194(5) – rare and fragile ecosystems. Since there is merely personal jurisdiction on the high seas rather than areal jurisdiction, spatial regulations aimed to preserve the marine environment appear to be very difficult to implement under international law as it stands. I shall assess in Chapter 10 whether, and possibly how, PSSAs can be put into practice to implement environmental protection obligations in areas beyond national jurisdiction.

#### d) Straits used for International Navigation

A particular regime for straits emerged long before UNCLOS was negotiated, owing to peculiar security concerns of major maritime states. The passage through straits often saves time. Their strategic character is underlined by the fact that viable alternative routes sometimes do not exist at all.<sup>224</sup> As coastal states are allowed to suspend innocent passage within their territorial sea in order to protect their security, and many straits constitute important gateways connecting two parts of the high seas through a territorial sea corridor, freedom of navigation could have been undermined very easily. Thus, as early as in the eighteenth century, a rule of customary international law had come into existence that prohibited suspension of the right of innocent passage in straits used for navigation between one part of the high seas and another. This customary rule was acknowledged in the *Corfu Channel Case* by the ICJ<sup>225</sup> and also in Article 16(4) of the 1958 Con-

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*supra*, note 91, para. 64. With respect to port states’ competences in issuing sanctions, see also, *infra*, Sec. III.2.f) of this chapter.

<sup>221</sup> The exact meaning of this term remains unclear, cf. *M/V Saiga (No.2) (Saint Vincent and the Grenadines v. Guinea)*, ITLOS, Order of 1 July 1999, 3 *ITLOS Reports* (1999), pp. 4-73, paras. 75-88. See also the *Dissenting Opinion* of Judge Warioba, pp. 195-233, who elaborates extensively on this issue.

<sup>222</sup> Para. 1 lit. (b).

<sup>223</sup> Para. 4 lit. (c). The duties of the flag state are detailed in Doris König, *supra*, note 98, p. 71 et seqq.

<sup>224</sup> E.g., in the case of the straits of Malacca and Hormuz respectively. See, in more detail, Ram Prakash Anand, “Navigation through Territorial Sea and Straits – Revisited” 36 *Indian Journal of Int’l Law* (1996) pp. 13-38, at 23.

<sup>225</sup> *The Corfu Channel Case (United Kingdom/Albania)*, ICJ, 9 April 1949, *I.C.J. Reports* 1949, pp. 4-37, at 28.

vention on the Territorial Sea and the Contiguous Zone.<sup>226</sup> The court held that a requirement of prior notification and authorisation for entry into the strait, such as the one Albania had introduced in the Corfu Channel, violated customary law.<sup>227</sup>

The provisions of UNCLOS on navigation in straits, pooled in Part III, constitute a considerable revision of the traditional straits regime; and it is, amongst others, for this reason that important strait states such as Turkey and Iran have not yet acceded to the convention.<sup>228</sup> Rather than innocent passage in the territorial sea, vessels in straits enjoy the right of transit passage, which, as will be set out below, confines the competences of the coastal states in various ways. In this respect, the transit passage regime is an exception to states' sovereignty over the territorial sea as fleshed out in Part II.<sup>229</sup> According to Article 37, it applies to "straits which are used for international navigation between one part of the high seas or an exclusive economic zone and another part of the high seas or an exclusive economic zone." However, by virtue of Articles 36, 38(1) and 45, three categories of straits are excluded from the application of Part III of UNCLOS.<sup>230</sup>

According to Article 38, transit passage means the freedom of navigation "solely for the purpose of continuous and expeditious transit of the strait between one part of the high seas or an [EEZ] and another part of the high seas or an [EEZ]." While in transit passage, ships are required to comply with "generally accepted international regulations, procedures and practices for safety at sea", as well as with "generally accepted international regulations, procedures and practices for the prevention, reduction and control of pollution from ships."<sup>231</sup> Coastal states' legislative jurisdiction is narrowed down to the designation of sea lanes and traffic separation schemes, conforming to generally accepted international regulations and adopted by IMO.<sup>232</sup> Furthermore, pursuant to Article 42(1), they are allowed to adopt laws and regulations relating to transit passage in respect of "the prevention, reduction and control of pollution." However, this provision is accompanied by an important qualifier that confines the coastal state merely to "[give] effect to applicable international regulations regarding the discharge of oil,

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<sup>226</sup> See, *supra*, note 155.

<sup>227</sup> *The Corfu Channel Case*, *supra*, note 225, p. 29.

<sup>228</sup> The transit passage regime's development is also closely linked to the question of warships' navigational rights. This point will not be elaborated upon here. For a concise account, see Ram Prakash Anand, *supra*, note 224, p. 19 et seqq.

<sup>229</sup> The differences between transit and innocent passage are set out in detail by Mary George, "Transit Passage and Pollution Control in Straits under the 1982 LOSC", 33 *ODIL* (2002), pp. 189-205, at p. 198.

<sup>230</sup> Cf. Satya N. Nandan and David H. Anderson, "Straits used for International Navigation: A Commentary on Part III of the UNCLOS", 60 *BYIL* (1989), pp. 159-204, at p. 165 et seqq.

<sup>231</sup> Ships not exercising the right of transit passage are subject to provisions other than those in Part III, see Art. 38(3).

<sup>232</sup> Art. 41. See Bernard H. Oxman, "Environmental Protection in Archipelagic Waters and International Straits – The Role of the International Maritime Organization", 10 *IJMCL* (1995), pp. 467-481, at 479 et seq.



oily wastes and other noxious substances in the strait.”<sup>233</sup> Apparently, rules on navigational aids, conservation of living resources and the preservation of the marine environment in a broader manner are outside the scope of Article 42(1). An anti-discrimination clause in Paragraph 2 of this article furthermore stipulates that “[s]uch laws and regulations shall not discriminate in form or in fact among foreign ships or in their application have the practical effect of denying, hampering or impairing the right of transit passage.” It is worth mentioning that the rather weak powers of strait states have been strengthened by recent amendments to the SOLAS Convention. Regulation V/8-1 of SOLAS (now Regulation 11), in force since 1 January 1996, provides for them to operate, with the approval of the IMO, compulsory ship reporting systems also in straits.<sup>234</sup> Part III also contains a provision specifying the general obligation of states to co-operate with the aim of fostering protection and preservation of the marine environment (Article 197). Article 43 requires user and strait states to co-operate by agreement “in the establishment and maintenance in a strait of necessary navigational and safety aids or other improvements in aid of international navigation; and for the prevention, reduction and control of pollution of ships.” This provision appears to offer the possibility of developing progressively the UNCLOS’ straits regime through multilateral action within IMO, which is well equipped to accommodate such multilateral efforts – amongst others by means of specifically designed PSSAs.

The provisions on legislative jurisdiction in straits used for international navigation with regard to marine environment protection are mirrored by an enforcement provision in Part XII, namely Article 233: strait states are merely allowed to enforce rules enacted in accordance with Article 42(1) lit. (a) and (b), and only if the ship has caused or threatened *major* damage to the environment. Warships are exempted from this provision<sup>235</sup> with the consequence that strait states have no jurisdiction over these ships as far as the protection and preservation of the marine environment is concerned.<sup>236</sup>

<sup>233</sup> For some commentators, it seems odd that the term “applicable” was chosen instead of “generally accepted” as in other provisions dealing with prescriptive jurisdiction of coastal states; cf. Erik Jaap Molenaar, *Coastal State Jurisdiction over Vessel-Source Pollution* (The Hague Boston London: Kluwer Law International 1998), p. 291 et seq. In my contention, “applicable” refers to treaty law as well as customary international law applicable in mutual relationships among states; see, *infra*, Sec. III.4 of this chapter. The wording thus reflects peculiar jurisdictional competences of coastal states in international straits.

<sup>234</sup> For a criticism of the new regulation’s compliance with the straits regime established by UNCLOS, see Glen Plant, “The Relationship between International Navigation Rights and Environmental Protection: A legal Analysis of Mandatory Ship Traffic Systems”, in H. Ringbom (ed.), *Competing Norms in the Law of Marine Environmental Protection – Focus on Ship Safety and Pollution Prevention* (London The Hague Boston: Kluwer Law International 1997), pp. 11-29, at 25 et seqq.

<sup>235</sup> According to its wording, Art. 233 only applies to “a foreign ship other than those referred to in Section 10” of Part XII, which deals with ships covered by sovereign immunity.

<sup>236</sup> Mary George, *supra*, note 229, p. 199.

In conclusion, it is readily visible that the regime for international straits elaborated by UNCLOS is very restrictive in terms of coastal states' possibilities to establish rules to ensure the sound protection of vulnerable areas within a strait. As *Churchill* and *Lowe* have put it, transit passage "allow[s] less coastal State control over passing vessels than does innocent passage, but both also fall short of granting the same freedom of navigation as would exist if the waters of the straits constituted high seas."<sup>237</sup> It will be seen in subsequent chapters whether the provisions on international straits hamper the proper implementation of PSSAs in straits.

### e) Archipelagic Waters

A further separate regime is to be found in Part IV of UNCLOS (Articles 46 to 54) for so-called archipelagic states. It is the most recent, as it cannot be said to have been accepted prior to UNCLOS III, although many archipelagic states had already enacted respective legislation before the 1970s.<sup>238</sup> Most of the major maritime states objected to the claims of states to sovereignty over areas within the archipelago for fear of losing important routes traditionally used for navigation. During UNCLOS III, the states concerned reached agreement by which the archipelagic states could legalise their claims to sovereignty over the archipelagic waters, while maritime states at the same time upheld their right to navigate in these waters. Archipelagos are defined as a group of islands forming an "intrinsic geographical, economic and political entity, or which historically have been regarded as such."<sup>239</sup> Only states "constituted by one or more archipelagos"<sup>240</sup> are regarded as archipelagic states that are allowed to draw archipelagic baselines around their islands and thereby create archipelagic waters.<sup>241</sup> By virtue of Article 49(1), archipelagic waters are under the sovereignty of an archipelagic state regardless of their depth or distance from the coast and are thus exempted from regimes that may otherwise apply in these waters, such as territorial sea and EEZ. The archipelagic regime also applies to international straits within archipelagic waters.

The concept of navigation in archipelagic waters has some distinctive features. First and foremost, a state may designate so-called archipelagic sea lanes (ASLs), "suitable for the continuous and expeditious passage of foreign ships [...] through [...] its archipelagic waters and the adjacent territorial sea."<sup>242</sup> Pursuant to Article 53(4), ASLs have to include all normal passage routes used as routes for international navigation. Generally, foreign vessels enjoy innocent passage (Article

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<sup>237</sup> Robin R. Churchill and Vaughan Lowe, *supra*, note 100, p. 105.

<sup>238</sup> *Ibid.*, p. 121 et seq.; for a detailed account of pre-UNCLOS state practice, see Mohamed Munavvar, *Ocean States – Archipelagic Regimes in the Law of the Sea* (Dordrecht Boston London: Martinus Nijhoff Publishers 1995), p. 54 et seqq.

<sup>239</sup> Art. 46 lit. (b).

<sup>240</sup> Art. 46 lit. (a).

<sup>241</sup> Apparently, this definition of an archipelagic state does not include mainland states, such as Denmark or Ecuador; cf. Mohamed Munavvar, *supra*, note 238, p. 126 et seq.

<sup>242</sup> Art. 53(1).

52(1)) pursuant to Part II, Section 3 of UNCLOS. However, if they use the ASLs, which would be the usual mode of transit, they enjoy the right of ASL passage (Article 53(2)), which very much resembles the right of transit passage through straits.<sup>243</sup> According to Article 53(3), ASL passage is defined as “the exercise in accordance with this Convention of the rights of navigation and overflight in the normal mode solely for the purpose of continuous, expeditious and unobstructed transit between one part of the high seas or an [EEZ] and another part of the high seas or an [EEZ].”

The legislative jurisdiction of archipelagic states concerning the navigation of foreign vessels is regulated according to the type of voyage. With respect to ASL passage, the cross-references in Article 54 to Articles 39, 40, 42 and 44 make it clear that archipelagic states have the same narrow prescriptive jurisdiction as strait states have. In addition to ASLs, they are also allowed to establish traffic separation schemes (TSSs) for narrow channels in such ASLs. TSSs play a pivotal role in contributing to the prevention of collisions, which makes them important for the protection of the marine environment. They need to conform to generally accepted international regulations<sup>244</sup>, namely the corresponding COLREG provisions referred to above.<sup>245</sup> If vessels navigate beyond ASLs, they have the right of innocent passage. The only deviation from the innocent passage regime of the territorial sea is that, according to Article 52(2), in archipelagic waters innocent passage cannot be suspended completely but only for specified areas of the archipelago.

The question of the enforcement jurisdiction of archipelagic states, especially as far as marine environment protection is concerned, is rather dubious. Articles 220 and 233, according additional enforcement powers to coastal states for the territorial sea and straits respectively, are not expressly allowed to be applied, *mutatis mutandis*, to archipelagic states. However, as has been observed, this leads to the bizarre situation that an archipelagic state has less enforcement power in its archipelagic waters than in its own territorial sea lying beyond its archipelagic waters.<sup>246</sup> Whether this is in oversight in drafting or not remains unclear; it is widely accepted that archipelagic states may take enforcement actions pursuant to Article 233, because this rule deals with the enforcement of legislation which is

<sup>243</sup> Erik Jaap Molenaar, *supra*, note 233, p. 341 et seq. He also points out that archipelagic states have an important incentive to pursue the designation of ASLs by the IMO. According to Art. 53(12), if ASLs have not been established, passage may be exercised “through the routes normally used for international navigation.” The number of “routes” that ships are allowed to use is likely to decrease after ASLs have been designated. Furthermore, disputes as to what may be regarded as “routes normally used for international designation” may be settled.

<sup>244</sup> Art. 53(8).

<sup>245</sup> See, *supra*, Sec. III.2.a) of this chapter.

<sup>246</sup> Robin R. Churchill and Vaughan Lowe, *supra*, note 100, p. 127 et seq.

permitted to be adopted under Article 42, which, by virtue of Article 54, also applies to archipelagic sea lanes.<sup>247</sup>

#### f) Unique Characteristics of Port State Jurisdiction

In the last part of this section, attention should be drawn to another important feature of UNCLOS' framework relating to vessel-source pollution, namely the so-called port-state control regime that enhances possibilities to enforce anti-pollution legislation. Port-state control refers to the jurisdictional powers of states over foreign ships that are voluntarily in their ports. Particular rules on access to ports were enshrined in the 1954 Territorial Sea Convention and thus represented customary international law even before UNCLOS was negotiated.<sup>248</sup> UNCLOS, although elaborating on these traditional rules, introduced an altogether new concept emphasising the role of ports in ocean governance, especially with respect to the enforcement of pollution-prevention requirements for vessels in ports.<sup>249</sup> The port-state regime came into being, because – owing to the obvious deficiencies in law enforcement by several flag states<sup>250</sup> – many participants in UNCLOS III argued in favour of an alternative approach to ensure compliance of vessels with international obligations. During the deliberations, it was eventually agreed to vest port states with certain competences regarding enforcement and legislation that extend the usual competences of coastal states. The powers that port states enjoy do not resemble jurisdiction over a specific area; they are applied to individual vessels. Thus, the port-state regime is usually seen as an enforcement instrument to ensure compliance with obligations arising under international law.<sup>251</sup> The basic provisions of UNCLOS are fleshed out by several MARPOL regulations relating to the concrete exercise of port-state control.

However, even with respect to legislative jurisdiction, the port-state regime of UNCLOS has implications beyond the mere port area. This follows from a careful

<sup>247</sup> Robin R. Churchill and Vaughan Lowe, *supra*, note 100, p. 127, note 32; Myron H. Nordquist, Satya N. Nandan and Shabtai Rosenne, *supra*, note 157, Vol. II, para. 54.7(b).

<sup>248</sup> Vaughan Lowe, "The Right of Entry into Maritime Ports in International Law", 14 *San Diego L. Rev.* (1977), pp. 597-622.

<sup>249</sup> See, generally, Z. Oya Özçayir, *Port State Control* (London: LLP 2001), p. 80 et seqq.; George C. Kasoulides, *Port State Control and Jurisdiction – Evolution of the Port State Regime* (Dordrecht: Martinus Nijhoff Publishers 1993), p. 117 et seqq.

<sup>250</sup> Doris König, *supra*, note 98, p. 73 et seqq.; for a recent account, see Awni Behnam, "Ending Flag State Control?", in A. Kirchner (ed.), *supra*, note 24, pp. 123-135, at 124 et seqq.

<sup>251</sup> Cf. Lorenzo Schiano di Pepe, "Port State Control as an Instrument to Ensure Compliance with International Marine Environmental Obligations", in A. Kirchner (ed.), *supra*, note 24, pp. 137-156, at 146 et seqq. The IMO has adopted so-called "Procedures for Port State Control" to give guidance to port States when implementing the UNCLOS provisions, cf. Res. A.787(19), as amended by Res. A.882(21), adopted on 25 November 1999.

reading of Article 211(3) in conjunction with Article 25(2).<sup>252</sup> Article 211(3) contains the requirement for states to give due publicity to “particular requirements for the prevention, reduction and control of pollution of the marine environment as a condition for the entry of foreign vessels into their ports.” These regulations must furthermore be communicated to IMO. In contrast to other paragraphs of Article 211, there is no reference whatsoever to international rules and standards. Paragraph 3 is apparently of a predominantly procedural nature and does not limit port-state legislative jurisdiction.<sup>253</sup> The requirements established by port states have *de facto* extra-territorial effect<sup>254</sup> and one might furthermore conclude that coastal states, based on their port-state jurisdiction, may even prohibit the entry into their waters of ships that seek to call at one of their ports (strictly confined to these cases) regardless of what international law states in this respect. This understanding is corroborated by the fact that the last sentence in Article 211(3) stipulates that “[th]is Article is without prejudice to the continued exercise by a vessel of its right of innocent passage”. Such an addendum would be unnecessary if legislative jurisdiction of port states was the same as in the territorial sea or in the EEZ. Furthermore, the relevant provisions of MARPOL do not constitute a maximum limit beyond which port states are not allowed to go to; in fact, Article 9(2) of MARPOL provides that the UNCLOS rules on jurisdiction should prevail.<sup>255</sup> Hence, states are permitted to enact standards beyond MARPOL when UNCLOS gives them the power to do so. Of course, these requirements may not be applied to those ships in innocent, transit or archipelagic sea-lane passage.

In state practice, precedents of such an expanded approach can be found in the US, as well as in Europe. The US Oil Pollution Act of 1990 introduced require-

<sup>252</sup> Hans-Joachim Koch and Cornelia Ziehm, “Schiffssicherheit und Meeresumweltschutz”, 16 *ZUR* (2005), pp. 16-21, at 20. The authors refer to an unpublished opinion of the EU Commission’s legal service of 21 March 2003 concerning the compatibility of a proposed amendment of EC Regulation No. 417/2002 with international law of the sea. This view is shared by Lindy S. Johnson, *supra*, note 206, p. 38 et seqq.; Louise de la Fayette, “Access to Ports in International Law” 11 *IJMCL* (1996), pp. 1-22, at 3 et seq. and Alan E. Boyle, “EU Unilateralism and the Law of the Sea”, 21 *IJMCL* (2006), pp. 15-31, at 21.

<sup>253</sup> Erik Jaap Molenaar, *supra*, note 233, p. 104. *Contra* Agustín Blanco-Balzan, “The Environmental UNCLOS and the Work of IMO in the Field of Prevention from Pollution of Vessels”, in A.Kirchner (ed.), *supra*, note 24, pp. 31-47, at 40, who contends that “the exercise of port State jurisdiction aims to correct non-compliance or ineffective flag State enforcement of IMO regulations”.

<sup>254</sup> *Ibid.*, p. 102.

<sup>255</sup> *Ibid.*, p. 111; Hans-Joachim Koch and Cornelia Ziehm, *supra*, note 252, p. 21; Lindy S. Johnson, *supra*, note 206, p. 44, in note 147, generally observes that a state, by becoming party to an international convention, “has [not] necessarily committed itself to a maximum level of prescriptive jurisdiction [...] since this type of restriction basically takes away an element of sovereignty.” Emphasising the possibly adverse effects on international shipping, Mario Valenzuela, “International Maritime Transportation: Selected Issues of the Law of the Sea”, in A.H.A. Soons (ed.), *Implementation of the Law of the Sea Convention Through International Institutions* (Honolulu: The Law of the Sea Institute 1990), pp. 187-215, at 213 et seqq., expresses the opposite view.

ments for the design of oil tankers seeking to call at US ports beyond those agreed under MARPOL; and in 2002 the European Union tightened its legislation on requirements for calling at its ports that exceeded international rules applicable at that time.<sup>256</sup> With respect to the former, *Churchill* and *Lowe* held that its provisions are “in accordance with the jurisdiction of port States under both customary law and the UNCLOS, but maybe against the spirit of the convention.”<sup>257</sup> The 1990 OPA does not appear to have caused notable opposition – in contrast to the European Regulation. The shipping industry, in particular, voiced concerns that it would violate international law.<sup>258</sup> However, only two months after the new regulation came into force, IMO agreed to align the relevant MARPOL Provision 13G of Annex 1 to the tighter European rules.

It is important to note that, while port states enjoy broad powers with respect to combating vessel-source pollution, the relevance of the port-state regime for the problems at issue in this treatise is rather limited. The aim of every marine protected area is to provide protection against all vessels and not just those calling at one of the coastal state’s ports. It must nevertheless be stressed that port states under the UNCLOS regime are permitted to make compliance with specific rules, even those only applicable in parts of their waters, a requirement for entry into their ports.

### **3. Special Rules for Areal Protection in Part XII of UNCLOS**

It has been mentioned earlier in this chapter that parties to UNCLOS are required by Article 194(5) to take measures aimed at protecting and preserving rare or fragile ecosystems and habitats. This general obligation is not the only provision addressing the protection of certain vulnerable areas. Somewhat hidden in Part XII, Paragraph 6 of Article 211 transposes this obligation into a right for coastal states to protect their EEZ better against pollution from shipping. As has been noted above, according to Article 211(5), states may legislate with respect to their EEZ in order to give effect to generally accepted international rules and standards dealing with the prevention, reduction and control of pollution from vessels. Inasmuch as the rules and standards referred to in Paragraph 5 are inadequate for a particular area of the EEZ of a coastal state, Article 211(6) lit. (a) provides for a possibility to subject navigation in these “special areas” to tighter measures.<sup>259</sup> This

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<sup>256</sup> Regulation (EC) No. 417/2002 of the European Parliament and of the Council of 18 February 2002 on the accelerated phasing-in of double-hull or equivalent design requirements for single-hull oil tankers and repealing Council Regulation (EC) No 2978/94, OJ (2002) L No. 64, pp. 1-5.

<sup>257</sup> Robin R. Churchill and Vaughan Lowe, *supra*, note 100, p. 353.

<sup>258</sup> See ICS, “The Threat to International Law”, available from <<http://www.marisec.org/ics-isfkeyissues2004/prestigetext.htm#threat%20international%20law>>; (accessed on 4 July 2005).

<sup>259</sup> The term “special area” must not be confused with the same term used for the regime established under the MARPOL Convention. That regime will be introduced in the next chapter.

provision may prove to be important for coastal states seeking to designate MPAs in their waters, which is why it should be examined in more detail.

Coastal states may establish a regime pursuant to Article 211(6) lit. (a) for a part of their EEZ, because it allows them to adopt laws and regulations for the prevention, reduction and control of pollution from vessels “implementing such international rules and standards or navigational practices as are made applicable, through the organization, for special areas.” At first sight, it seems reasonable to contend that this term signifies “special areas” under the MARPOL Convention<sup>260</sup>, which would enable (and limit) states to enact legislation prohibiting, *inter alia*, the discharge of oil and limiting air emissions from ships.<sup>261</sup> However, the references in Article 211(6) lit. (a) to “special mandatory measures” and “international rules and standards or navigational practices” does not appear to confine states to mere discharge restrictions applicable in MARPOL special areas.<sup>262</sup> The measures adopted may also relate to specific navigational aids and even to rules on CDEM standards.<sup>263</sup> Furthermore, reference to rules, standards and navigational practices “as are made applicable” through IMO does not imply the exclusion of recommendatory acts from the scope of the provision. It rather indicates that potential measures must be approved as being suitable for the protection of specifically vulnerable areas.

In order to preserve the delicate balance struck between coastal states’ and vessels’ rights in Part XII in general and in Article 211 in particular, the extended

<sup>260</sup> Rainer Lagoni, “Die Errichtung von Schutzgebieten in der AWZ aus völkerrechtlicher Sicht”, 24 *NuR* (2002), pp. 121-133, at 127. The author makes clear that this UNCLOS provision is not a mere reiteration of the respective MARPOL rules. Art. 211(6) lit. (a) lays down other criteria and has a different purpose and may thus be advantageous for some coastal states. See further Kari Hakapää, *Marine Pollution in International Law – Material Obligations and Jurisdiction* (Helsinki: Sumolainen Tiedeakatemia 1981), p. 250 et seqq.

<sup>261</sup> Whether the term “special areas” in this understanding would allow for the adoption of measures envisaged for so-called “SO<sub>x</sub> emission control areas”, introduced by the new Annex VI of MARPOL, in force since 19 May 2005, is unclear. Since these *control areas* are only different to *special areas* in name, the answer would arguably be in the affirmative.

<sup>262</sup> “While MARPOL special-area requirements apply only to the discharge of harmful substances, Article 211(6) of UNCLOS does not contain any specification as to the kind of measures that may be taken.” See IMO, *Implications of the United Nations Convention on the Law of the Sea for the International Maritime Organization*, 2005, IMO, available from <[http://www.imo.org/includes/blastDataOnly.asp/data\\_id%3D15081/4.pdf](http://www.imo.org/includes/blastDataOnly.asp/data_id%3D15081/4.pdf)>; (accessed on 30 September 2006), p. 51. Furthermore Kari Hakapää, *supra*, note 261, p. 253, as well as Erik Jaap Molenaar, *supra*, note 233, p. 405, note 9 and accompanying text, who also highlights the express reference to Art. 211(1) in the beginning of para. 6 lit. (a).

<sup>263</sup> Erik Jaap Molenaar, *ibid.*; for specific measures mentioned in the summary report of the first international meeting of legal experts on PSSAs in 1992, see Kristina Gjerde and David Freestone, “Particularly Sensitive Sea Areas – An Important Environmental Concept at a Turning-point?: Introduction by the Editors”, 9 *IJMCL* (1994), pp. 431-468, Appendix 1, para 5.2.

competences of coastal states in Paragraph 6 lit. (a) are subject to a number of safeguards. An area only falls under its purview if “the adoption of special mandatory measures for the prevention of pollution from vessels is required for recognized technical reasons in relation to its oceanographical and ecological conditions, as well as its utilization or the protection of its resources and the particular character of its traffic.” Before designating an area pursuant to Article 211(6) lit. (a), coastal states have to conform to certain procedural requirements. First, they need to conduct appropriate consultations with any other state concerned, viz. neighbouring states and flag states whose vessels are used to navigating in the area.<sup>264</sup> Secondly, coastal states are obliged to direct a communication to the IMO<sup>265</sup> corroborating their submission by “scientific and technical evidence in support and information on necessary reception facilities.”<sup>266</sup> IMO is to determine the legitimacy of the submission within 12 months of the receipt of the communication. Article 211(6) lit. (b) furthermore stipulates that the limits of the special area have to be duly publicised. The laws and regulations envisaged by the proposal must not become effective for foreign vessels until 15 months after the submission. In effect, as has been observed elsewhere, the coastal state under this procedure “has no unilateral prescriptive role and is in fact not more than the initiator.”<sup>267</sup>

Paragraph 6 lit. (c) authorises coastal states to enact “additional laws and regulations for the same area for the prevention, reduction and control of pollution from vessels” which “may relate to discharges or navigational practices but shall not require foreign vessels to observe design, construction, manning or equipment standards other than generally accepted international rules and standards.” To make sense of the existence of subparagraph (c), it is sensible to assume that these additional laws and regulations that states may enact are different from, and stricter than, those that are made applicable under subparagraph (a).<sup>268</sup> Concrete additional laws need to be determined on a case-by-case basis; *Molenaar* probably rightly suggested that the term might concern national laws not necessarily based on existing IMO instruments;<sup>269</sup> *Lagoni* contends that subparagraph (c) allows giving effect to discharge restrictions other than those envisaged by MARPOL, albeit this view is based on his narrow interpretation of subparagraph (a).<sup>270</sup> With a view to procedural aspects, the wording of subparagraph (c) is unequivocal in that additional rules for special areas have to be submitted to IMO “at the same time” as the application for a designation as such. However, it appears from a

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<sup>264</sup> Rainer Lagoni, *supra*, note 260, *loc.cit.* He points out that conducting “appropriate consultations” does not mean that other states have to consent to the designation.

<sup>265</sup> There is no doubt that the competent international organisation referred to in Art. 211(6) lit. (a) is the IMO, cf. Myron H. Nordquist, Satya N. Nandan, Shabtai Rosenne, *supra*, note 157, para. 211.15(d).

<sup>266</sup> Art. 211(6) lit. (a), first sentence.

<sup>267</sup> Erik Jaap Molenaar, *supra*, note 233, p. 404.

<sup>268</sup> Kari Hakapää, *supra*, note 261, p. 255.

<sup>269</sup> Erik Jaap Molenaar, *supra*, note 233, p. 407.

<sup>270</sup> Rainer Lagoni, *supra*, note 260, p. 127 et seq.



purpose-guided interpretation that it would suffice to require states to notify IMO of possible further measures envisaged for a specific area.

The procedural requirements for specially protected areas are only outlined roughly in Article 211(6). IMO has not yet managed to elaborate guidelines fleshing out Article 211(6), in contrast to guidelines addressing the establishment of MARPOL Special Areas and PSSAs.<sup>271</sup> It is arguably due to this guidance deficit that as of today no proposals have been submitted to IMO for areas that make use of Article 211(6) rules on special EEZ protected areas.<sup>272</sup> Whether or not this situation is likely to change in the future cannot be predicted. However, it should be borne in mind that Article 211(6) is part of international law and maybe relied upon, even partly, by any other instrument providing for the establishment of marine protected areas in the EEZ.

One further provision on areal protection provided for by UNCLOS – addressing both prescriptive and enforcement jurisdiction – should not be forgotten. Article 234, dealing with the particular vulnerable ecosystems of ice-covered areas, allows for broad coastal powers “within the limits of the [EEZ]”, thus including territorial waters. The drafting of this provision can be traced back to the enactment of the Canadian Arctic Waters Pollution Act of 1970<sup>273</sup>, which, *inter alia*, provided for the establishment of so-called shipping safety control zones restricting navigation to a large extent and, at the time, led to fierce opposition from the major maritime states.<sup>274</sup> Article 234 now legalises protective approaches such as the one by Canada. For ice-covered areas, coastal states may “adopt and enforce non-discriminatory laws and regulations for the prevention, reduction, and control of marine pollution from vessels”, whilst having “due regard to navigation and the protection and preservation of the marine environment based on the best available scientific evidence.” The wording expressly accords powers to coastal states to apply their national legislation to all vessels (on equal terms) navigating in the area, regardless of whether the laws concern discharge, navigational or CDEM standards and whether they are stricter than internationally agreed rules

<sup>271</sup> IMO Res. 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”, adopted 29 November 2001; and IMO Res. A.982(24), *Revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas*, adopted on 1 December 2005. The latter instrument is reproduced in the annex to this treatise.

<sup>272</sup> Cf. Lindy S. Johnson, *supra*, note 206, p. 110. This shortcoming is insisted upon by the US in MEPC 52/8, *Proposed Amendments to Assembly Resolution A.927(22) to Strengthen and Clarify the Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas*, 9 July 2004, p. 3 and p.11, in note 12.

<sup>273</sup> 9 *ILM* (1970), pp. 543-552; for a concise commentary on the Act, see Richard B. Bilder, “The Canadian Arctic Waters Pollution Prevention Act: New Stresses on the Law of the Sea”, 69 *Mich. L. Rev.* (1970-1971), pp. 1-50.

<sup>274</sup> Cf. “Documents concerning Canadian Legislation on Arctic Pollution and Territorial Sea and Fishing Zones”, reproduced in 9 *ILM* (1970), pp. 598-615, at 607 et seqq. For the historical background of art. 234, see Kari Hakapää, *supra*, note 261, p. 256 and 258.

and standards.<sup>275</sup> Usual regimes of innocent or transit passage, in particular Article 211(5) and (6), are *leges generales* to Article 234.<sup>276</sup> However, as coastal states “shall have due regard to navigation” (a term different from freedom of navigation), it is reasonable to contend that a total closure for ice-covered area within coastal states’ jurisdiction would constitute a violation of Article 234. It nevertheless permits temporal closures due to harsh weather conditions.<sup>277</sup>

#### **4. Incorporation of IMO Regulations through UNCLOS Rules of Reference**

There is one more basic feature of the law of the sea framework for the protection of specific marine areas that merits attention, not least because it adds a dynamic facet to the UNCLOS regime. Various UNCLOS provisions throughout Part XII include references to the “competent international organization”, in both singular and plural, with respect to the establishment of “generally accepted international rules and standards”<sup>278</sup> or “applicable international rules and standards”,<sup>279</sup> setting either minimal or maximum standards for states’ laws.<sup>280</sup> The concept plays a crucial role in determining the extent to which coastal states are able to prescribe environmental protection standards for foreign vessels navigating in waters under their control. For instance, Article 211(5) stipulates that states must not give effect to laws other than those implementing generally accepted international rules and standards. As has been noted above, it is not disputed that the competent international organisation means the IMO, at least in respect of those UNCLOS provisions relating to shipping matters.<sup>281</sup> It is clear from the outset that the rules of reference change UNCLOS from a static treaty structure to a dynamic frame-

<sup>275</sup> Lindy S. Johnson, *supra*, note 206, p. 115; D.M. McRae and D.J. Groundey, “Environmental Jurisdiction in Arctic Waters: The Extent of Article 234”, 16 *U.B.C. L. Rev.* (1982), pp. 197-228, at 215 et seqq.

<sup>276</sup> Kari Hakapää, *supra*, note 261, p. 258; Myron H. Nordquist, Satya N. Nandan, Shabtai Rosenne, *supra*, note 157, para. 234.1.

<sup>277</sup> D.M. McRae and D.J. Groundey, *supra*, note 275, go further inasmuch as they argue that coastal state jurisdiction under Art. 234 resembles jurisdiction in the territorial sea, i.e. limiting measures to *generally accepted international rules and standards*. This view does not take account of the exceptional status of the norm, which intends to accord *extra* powers to coastal states with respect to ice-covered areas.

<sup>278</sup> E.g., Art. 211(5).

<sup>279</sup> E.g., Art. 216 (1) and 217(1). Some articles also include “navigational practices”, e.g. Art. 211(6) lit. (a).

<sup>280</sup> It should be noted, though, that the notion of incorporating “international rules and standards” was introduced by the 1958 Geneva Convention on the High Seas; cf. Bernard H. Oxman, “The Duty to Respect Generally Accepted International Standards”, 24 *N.Y.U. J. Int’l L. & Pol.* (1991), pp. 109-159, at 121 et seqq.

<sup>281</sup> See further Frederic L. Kirgis, “Shipping”, in: O. Schachter and Ch.C. Joyner (eds.), *United Nations Legal Order, Vol. II* (Cambridge: ASIL and CUP 1995), pp. 715-751, at p. 734; For a comprehensive list of international organisations referred to by UNCLOS, see DOALOS, “‘Competent or relevant international organizations’ under the United Nations Convention on the Law of the Sea”, 31 *LOSJ* (1996), pp. 79-95.

work taking account of rules and standards that have been established outside its regime.<sup>282</sup> However, it is not obvious from the wording to what extent IMO is involved in this development of UNCLOS, because that depends on the types of acts encompassed by the phrase “international rules and standards”. As I have already set out in more detail elsewhere, IMO is both a diplomatic forum where states convene to negotiate and adopt international treaties, as well as an agency with quasi-legislative functions adopting legal acts.<sup>283</sup> Due to the restrictive drafting of its constitutional treaty, IMO is confined to adopting instruments of a recommendatory nature. If the UNCLOS rules of reference included recommendatory acts, IMO’s role would be strengthened significantly, as its instruments would acquire a binding effect, at least for those states that are parties to UNCLOS and to the extent the rules of reference provide for them to become effective.

Different views have been expressed on how to interpret the meaning of “generally accepted”, as well as the scope of the phrase “rules and standards.” Fewer disputes arise with respect to the interpretation of “(generally) applicable”; it is widely accepted that this term excludes non-binding instruments of international law (often referred to as “soft law”) from its ambit and only encompasses treaty law and customary international law that is applicable in the mutual relationship between coastal and flag states.<sup>284</sup> This opinion reasonably echoes the contexts in which the term is used in the UNCLOS rules of reference.<sup>285</sup> Of course, insofar as “generally accepted international rules and standards” are incorporated into the UNCLOS regime, for parties to UNCLOS they are also included in “applicable international rules and standards”.<sup>286</sup>

The term “generally accepted international rules and standards” can be interpreted in at least two different ways. One school of thought, exposed by *van Reenen*, argues in favour of a very strict approach to this question. In his opinion, it has no meaning other than rules and standards that can be considered to be customary international law, regardless of whether UNCLOS refers to rules,

<sup>282</sup> Cf. Rüdiger Wolfrum, “IMO Interface with the Law of the Sea Convention”, in M.H. Nordquist and J.N. Moore (eds.), *Current Maritime Issues and the International Maritime Organization* (The Hague: Martinus Nijhoff Publishers 1999), pp. 223-236, at 229.

<sup>283</sup> Markus J. Kachel, *supra*, note 172, p. 31 et seqq.

<sup>284</sup> Thus, also a soft-law instrument might be generally applicable, inasmuch as it reiterates customary law. See Willem van Reenen, “Rules of Reference in the New Convention on the Law of the Sea, in Particular in Connection with the Pollution of the Sea by Oil from Tankers”, XII *NYIL* (1981), pp. 3-44, at 13; George C. Kasoulides, *supra*, note 249, p. 38, who also exposes literature contending that custom is not included.

<sup>285</sup> See, e.g., Art. 42(1) lit. (b) on restricted coastal state jurisdiction in international straits, and Art. 220(3) addressing the enforcement jurisdiction of coastal states in their EEZ.

<sup>286</sup> Erik Franckx (ed.), *Vessel-Source Pollution and Coastal State Jurisdiction – The Work of the ILA Committee on Coastal State Jurisdiction Relating to Marine Pollution* (The Hague London Boston: Kluwer Law International 2001), p. 114; see further Rüdiger Wolfrum, *supra*, note 282, p. 231 et seq.; Henning Schult, *Das völkerrechtliche Schiffsicherheitsregime* (Berlin: Duncker & Humblot 2005), p. 99 et seq.; Erik Jaap Molenaar, *supra*, note 233, p. 170.

standards or regulations.<sup>287</sup> Non-binding IMO measures are included only if they acquire a binding character as a result of representing customary international law.<sup>288</sup> Some authors modify this strict approach and claim that rules contained in multilateral treaties – contrary to soft-law instruments – are also included regardless of whether they represent customary international law.<sup>289</sup> One argument produced to support this opinion is that several articles of UNCLOS, such as Articles 207(4) and 208(3), include additional references to “recommended practices and procedures,” which would tend to exclude non-binding instruments from the scope of “international rules and standards.”<sup>290</sup> Others hold the view that non-binding instruments, including resolutions of IMO, are also accepted as included within the meaning of “generally accepted international rules and standards.”<sup>291</sup> There are several arguments supporting the latter opinion. First, the distinction made between rules and standards seems to suggest that reference is not only made to clearly mandatory rules but also to instruments of a recommendatory character, because rules are generally thought to indicate binding (treaty and customary) law.<sup>292</sup> There is no apparent reason for equating this term with “generally accepted international rules”.<sup>293</sup> Secondly, references extended to recommended practices and procedures are used in a completely different context from generally accepted international rules and standards, since they relate to

<sup>287</sup> Willem van Reenen, *supra*, note 284, p. 9 et seqq. *Contra* Jurij Daniel Aston, *Sekundär-gesetzgebung internationaler Organisationen zwischen mitgliedsstaatlicher Souveränität und Gemeinschaftsdisziplin* (Berlin: Duncker & Humblot 2005), p. 163, who rightly notes that it is highly doubtful whether complex technical regulations can ever be of a norm-creating character.

<sup>288</sup> Willem van Reenen, *ibid.*; George C. Kasoulides, *supra*, note 249, p. 37 et seqq.; Christoph Ilg, *Die Rechtssetzungstätigkeit der International Maritime Organization – Zur Bedeutung der IMO bei der Weiterentwicklung des Meeresumweltschutzes* (Tübingen: Campus Druck 2001), p. 128 et seqq.

<sup>289</sup> Alan E. Boyle, “Marine Pollution under the Law of the Sea Convention”, 79 *AJIL* (1985), pp. 347-372, at 356 et seq.; Henning Schult, *supra*, note 286, p. 74 et seqq.

<sup>290</sup> Christoph Ilg, *supra*, note 288, p. 129.

<sup>291</sup> Cleopatra E. Henry, *The Carriage of Dangerous Goods by Sea – The Role of the International Maritime Organization in International Legislation* (New York: St. Martin’s Press 1985), p. 49; Frederic L. Kirgis, *supra*, note 281, p. 736; Christian Tomuschat, “Obligations Arising for States Without or Against Their Will”, 241 *RdC* (1993-IV), pp. 199-369, at 350; Edith Brown Weiss, “Conclusion: Understanding Compliance with Soft Law”, in D. Shelton (ed.), *Commitment and Compliance: The Role of Non-Binding Norms in the International Legal System* (Oxford: OUP 2000), pp. 535-556, at 537; Lindy S. Johnson, *supra*, note 206, p. 75 et seqq.; José E. Alvarez, *International Organizations as Law-Makers* (Oxford: OUP 2005), p. 220; Jurij Daniel Aston, *supra*, note 287, p. 162 et seqq.

<sup>292</sup> Frederic L. Kirgis, *supra*, note 281, p. 735; Budislav Vukas, “Generally Accepted International Rules and Standards”, in A.H.A. Soons (ed.), *supra*, note 255, pp. 405-421, at 416.

<sup>293</sup> To support his argument for limiting the scope to customary international law, Willem van Reenen, *supra*, note 284, p. 11, incorrectly refers to the *North Sea Continental Shelf Cases*, *supra*, note 119, para. 73, that elaborates on a definition of “general rules of international law”.

pollution from land-based sources and pollution from sea-bed activities, which are both outside IMO's competence. Article 207(4) stipulates that states "shall endeavour to establish global and regional rules, standards and recommended practices and procedures", addressing the fact that rule-making with regard to land-based pollution is not carried out in a clearly defined institutional process; Article 208(3) does not refer to any international organisation. This reasoning would also produce curious results: while some soft-law instruments would have no effect in the territorial sea or the EEZ, ships in transit passage would be obliged to adhere to them in international straits.<sup>294</sup> Thirdly, it would be unnecessary to include only treaty law by reference, as it is already binding without being referred to. It is furthermore awkward to limit the rules of reference to treaty rules elaborated under the auspices of the IMO, when its work is mainly reflected in recommendatory instruments. If the relevant provisions of UNCLOS are to have a logical meaning, the only reasonable explanation is that IMO instruments become legally binding through incorporation in the UNCLOS regime.<sup>295</sup> This reasoning is in line with the dynamic nature of UNCLOS as a "constitution"; while the basic principles and rules are not subject to modification, the interplay with other treaty or soft-law instruments could trigger a re-interpretation of specific provisions and may thus help the overall regime to adapt to changing circumstances.<sup>296</sup>

What rules and standards are exactly referred to depend on the interpretation of the qualifier "generally accepted", which signifies that not all international rules and standards become binding through the rules of reference. The term does not require the rules and standards to be accepted unanimously as a comparison with the prerequisites for customary international law rules shows.<sup>297</sup> However, a precise definition is difficult to determine.<sup>298</sup> In the light of the non-treaty nature of PSSAs, it suffices here to say that to be "generally accepted", IMO instruments should be at least adopted by an overwhelming majority. In this context, it is worthwhile noting that the ILA Committee on coastal state jurisdiction solely relied on the level of acceptance for an instrument, because it was impossible for its members to reach a conclusion on the nature of "rules and standards". The Committee held that generally international rules and standards "are primarily based on state practice, attaching only secondary importance to the nature and status of the instrument containing the respective standard."<sup>299</sup> In effect, this reasoning supports the view that generally accepted international rules and standards are not confined to treaties and customary rules.

To sum up, "generally accepted international rules and standards" cover international treaties that have gained widespread ratification, IMO Conventions that

<sup>294</sup> Art. 39(2) obliges "[s]hips in transit passage [...] to comply with generally accepted international regulations, procedures and practices" relating to both safety at sea and vessel-source pollution.

<sup>295</sup> Christian Tomuschat, *supra*, note 291, p. 350.

<sup>296</sup> Alan Boyle, "Further Development of the Law of the Sea Convention: Mechanisms for Change", 54 *ICLQ* (2005), pp. 563-584, at 567 et seqq.

<sup>297</sup> Jurij Daniel Aston, *supra*, note 287, p. 164 et seq.

<sup>298</sup> For an elaborate discussion, see Henning Schult, *supra*, note 286, p. 77 et seqq.

<sup>299</sup> Erik Franckx (ed.), *supra*, note 286, p. 107.

have come into force and relevant resolutions adopted by IMO with a great majority.<sup>300</sup> By incorporating the rules and standards contained in these instruments, parties to UNCLOS are also bound by them even if they have not subjected themselves to those rules. While this limits the freedom of states to refuse to be bound by instruments they have not expressly consented to, it ensures coherent application and enforcement of uniform standards. This observation will have to be taken into account in subsequent chapters.

### **5. Relation to other Multilateral Agreements**

With a view to the scope of this treatise, it is particularly interesting to consider whether states are allowed to agree to treaties that enhance coastal states' rights to impose restrictions on vessels navigating in vulnerable marine areas located within waters under their jurisdiction. As has been mentioned above, the interplay of UNCLOS and other regimes in international law are governed by Articles 237 and 311, which concern UNCLOS' relation to other treaties. At the most general level, Paragraph 2 of Article 311 notes that UNCLOS does not alter the rights and duties states have acquired through international agreements as long as the other agreement is compatible with UNCLOS and does "not affect the enjoyment by other States Parties of their rights or the performance of their obligations under [UNCLOS]."<sup>301</sup> Its wording follows Article 41 of the Vienna CLOT<sup>302</sup> and does not broaden the competences of coastal states over third-state vessels. Paragraph 3 allows the conclusion of treaties between two or more states modifying or suspending the operation of UNCLOS provisions, provided that the convention can still be executed effectively and that other states are not impaired in enjoying their rights. It hence does not release state parties from the confines of the *pacta tertiis* principle. As a result, states may conclude treaties that strengthen coastal states' jurisdiction over foreign ships. However, these ships must fly the flag of one of the parties to the modification agreement.

Article 237, a *lex specialis* solely applicable to Part XII, transposing the general content of Article 311(2) and (3) into the context of environmental protection, reads: "The provisions of this part are without prejudice to the specific obligations assumed by States under special conventions and agreements [...] which may be concluded in furtherance of the general principles set forth in this Convention." It hence accords priority to specific obligations of states assumed under special environmental treaties. It is important to note that Article 237 addresses the "furtherance of the general principles", which cannot be regarded as a qualification of Article 311(2) that other agreements must be compatible with

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<sup>300</sup> Customary international law, if not already encompassed by the aforementioned types of acts, is also included. However, as has been said before, in note 287, it is highly doubtful whether complex technical regulations can ever be of a norm-creating character.

<sup>301</sup> Cf. *Filleting within the Gulf of St Lawrence Arbitration (Canada/France)*, 17 July 1986, 82 *ILR* (1990), pp. 590-670, para. 51.

<sup>302</sup> Convention on the Law of Treaties, adopted on 22 May 1969, in force as from 27 January 1980, 8 *ILM* (1969) 679.

UNCLOS.<sup>303</sup> In addition, Paragraph 2 stipulates that obligations assumed under other treaties should “be carried out in a manner consistent with the general principles and objectives of the Convention.” Consequently, treaties may be agreed in order to foster environmental protection by, for instance, designating MPAs. To that end, Article 237 allows parties greater latitude to depart from Part XII than from other parts of UNCLOS.<sup>304</sup> However, hypothetical provisions relating to MPAs must respect rights and duties in the different maritime zones, because they are – as administrative cornerstones of the UNCLOS regime – arguably part of the Convention’s “general principles.”

It is clear from what has been said above that the interplay of global, regional and sub-regional treaties concluded in furtherance of the general objectives of Part XII of UNCLOS may substantially flesh out its content. Still, it is also clear that any additional rule cannot modify the essence of the law of the sea framework. UNCLOS’ relationship with other international treaties is evidently characterised by its dominance over other regimes, even though that can contradict Article 237(1), inasmuch as parties may be hindered from meeting their obligations under “special conventions and agreements” towards third states for whom UNCLOS is *res inter alios acta*.<sup>305</sup>

#### IV. Implications of the Convention on Biological Diversity

As has become apparent throughout this chapter, the rules and principles embodied in UNCLOS strongly influence the international legal framework for marine environmental protection. Nevertheless, it should not be forgotten that other global agreements also shape the environmental ocean governance regime. One of these agreements, the CBD, is of particular significance for the topic of this treatise.

Biological diversity, or biodiversity, is defined by Article 2 as “the variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and ecosystems.” The aims of the CBD, which was a major outcome of the 1992 UNCED, are the conservation of biodiversity and the sustainable use of its components, as well as the fair and equitable sharing of the benefits arising out of the utilisation of genetic

<sup>303</sup> Myron H. Nordquist, Satya N. Nandan, Shabtai Rosenne, *supra*, note 157, para 237.7(a). As the authors recognise, Art. 237(1) must be read in conjunction with Para. 2, that obliges states to carry out their special obligations “in a manner consistent with the general principles and objectives” of UNCLOS.

<sup>304</sup> Alan Boyle, “Further Development of the Law of the Sea Convention: Mechanisms for Change”, 54 *ICLQ* (2005), pp. 563-584, at 579.

<sup>305</sup> Budislav Vukas, “United Nations Conventions on the Law of the Sea and the Polar Marine Environment”, in D. Vidas (ed.), *supra*, note 177, pp. 34-56, at 45.

resources.<sup>306</sup> Although marine biodiversity is expressly included in the CBD's ambit, its application is confined to the territorial sea and the EEZ of the parties.<sup>307</sup> Most notably for the context of protected areas, Article 8 lit. (a) includes an obligation to establish, as far as possible and appropriate, a system of protected areas or areas where special measures need to be taken to conserve biological diversity. In the same manner, Article 8 lit. (l) obliges parties to regulate or manage any processes or categories of activities determined to have significant adverse impacts on protected areas. This obligation clearly applies to shipping.<sup>308</sup> Several COP decisions have thus far particularised the protection of marine biodiversity. The most basic decisions were taken at COP 2, after the Subsidiary Body for Scientific, Technical and Technological Advice (SBSTTA) had developed a recommendation on strategies for the conservation and sustainable use of marine and coastal biodiversity.<sup>309</sup> Its recommendation was approved and adopted with some additional conclusions and a programme for further work by COP Decision II/10, which has become known as the *Jakarta Mandate*.<sup>310</sup> One of the thematic areas identified in Decision II/10 as an issue for further action are *marine and coastal protected areas* (MCPAs).<sup>311</sup> COP 7 adopted a revised programme of work on marine and coastal biodiversity.<sup>312</sup> Programme element 3, on MCPAs, sets out an ambitious aim, namely establishing MCPAs within regional and global networks, "building upon national and regional systems, including a range of levels of protection, where human activities are managed, particularly through national legislation, regional programmes and policies, traditional and cultural practices and international agreements, to maintain the structure and functioning of the full range of marine and coastal ecosystems, in order to provide benefits to both present and future generations."<sup>313</sup>

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<sup>306</sup> Art. 1. To achieve this aim, the CBD expressly relies on the ecosystem approach, which was described in Sec. II.1. of Chapter 3. It should be noted that the third aim is not of relevance for this treatise.

<sup>307</sup> Cf. Art. 4. Inasmuch as the convention applies "in areas within the limits of [the party's] jurisdiction", it arguably encompasses the continental shelf, even if it exceeds 200 nm.

<sup>308</sup> Florian Th. Wegelein, "Marine Protected Areas in the Exclusive Economic Zone: the European Union between a Rock and a Hard Place?", 5 *Georgian Law Review* (2002), pp. 321-371, at 357.

<sup>309</sup> UNEP/CBD/COP/2/5, *Report of the First Meeting of the Subsidiary Body for Scientific, Technical and Technological Advice*, 21 September 1995, Recommendation I/8.

<sup>310</sup> UNEP/CBD/2/19, Decision II/10, *Conservation and Sustainable Use of Marine and Coastal Biological Diversity*. For an overview, see Maas M. Goote, "The Jakarta Mandate on Marine and Coastal Biological Diversity", 12 *IJMCL* (1997), pp. 377-389, at 381 et seqq.

<sup>311</sup> For an analysis of the five thematic areas, see A. Charlotte de Fontaubert, David R. Downes and Tundi S. Agardy, "Biodiversity in the Seas: Implementing the Convention on Biological Diversity in Marine and Coastal Habitats", 10 *Geo. Int'l Env'tl. L. Rev.* (1998), pp. 753-854, at 768 et seqq.

<sup>312</sup> UNEP/CBD/7/21, Decision VII/5, *Marine and Coastal Biological Diversity*, Annex I.

<sup>313</sup> *Ibid.*, para. III. See further A. Charlotte de Fontaubert, David R. Downes and Tundi S. Agardy, *supra*, note 311, p. 775 et seqq.



Obviously, the designation of MCPAs as envisaged by the CBD framework, as well as enforcement of potentially strict conservation measures, bear the risk of colliding with UNCLOS' balance of rights between coastal and flag states. Like many other treaties, the CBD contains a collision clause, which is included in Article 22. Paragraph 1 clarifies that the CBD does not prevail over other treaties except where serious damage or a threat to biological diversity would be caused.<sup>314</sup> Paragraph 2 is more specific in that it states that the CBD shall be implemented "with respect to the marine environment consistently with the rights and obligations of states under the law of the sea." Interestingly, a qualifier similar to the one of Paragraph 1 has not been included. From the wording it seems that parties to UNCLOS are bound by its rights and duties even if their exercise leads to damage or threats to biodiversity, because UNCLOS prevails over the CBD with regard to ocean governance.<sup>315</sup> Nevertheless, it would be premature to conclude that the CBD has no effect on the UNCLOS system at all. As has been observed, reference to "rights and duties" under the law of the sea is not equivalent to the law of the sea in general, as there is no mention of general principles.<sup>316</sup> UNCLOS may thus be complemented and environmentally strengthened by the objectives of the CBD, provided that it does not alter the rights and obligations of the former. One example would be an expansion of the rather restrictive focus on pollution in Part XII to encompass other shipping-related threats to biodiversity as well. Articles 311 and 237 of UNCLOS, referred to in the previous section, do not preclude this interpretation, as long as objectives of the CBD do not expressly contradict those of UNCLOS. On this basis, Article 8 lit. (a), for instance, can be construed as fulfilling Article 194(5) of UNCLOS.<sup>317</sup> With respect to the subject of this treatise, however, modifications of the CBD to the UNCLOS regime are of a rather marginal character. Provisions of the CBD regarding MPAs for marine biodiversity can be implemented by coastal states, but must not impair innocent passage rights and navigation rights in the EEZ.<sup>318</sup> Even in the light of these limitations, PSSAs have been identified as a key instrument by which states could implement goals formulated by Agenda 21, which enjoins

<sup>314</sup> This clause creates a *de facto* superiority of the CBD and may be subject to a wide margin of interpretation: see Rüdiger Wolfrum and Nele Matz, "The Interplay of the United Nations Convention on the Law of the Sea and the Convention on Biological Diversity", 4 *Max Planck UNYB* (2000), pp. 445-480, at 475 et seqq.

<sup>315</sup> Cyrille de Klemm and Clare Shine, *supra* note 63, p. 25; Rainer Lagoni, *supra*, note 260, p. 129; and Florian Th. Wegelein, *supra*, note 308, p. 357. A different approach is maintained by Detlef Czybulka, "Das Rechtsregime der Ausschließlichen Wirtschaftszone (AWZ) im Spannungsfeld von Nutzungs- und Schutzinteressen", 23 *NuR* (2001), pp. 367-374, at 367, who views UNCLOS as a framework for CBD measures rather than an "eye of a needle" [own translation].

<sup>316</sup> Rüdiger Wolfrum and Nele Matz, *supra*, note 314, p. 476. *Contra* Rainer Lagoni, *supra*, note 260, p. 129, in note 91.

<sup>317</sup> Detlef Czybulka, "Geltung der FFH-Richtlinie in der Ausschließlichen Wirtschaftszone" 23 *NuR* (2001), pp. 19-27, at 24 et seq.; Florian Th. Wegelein, *supra*, note 308, p. 357.

<sup>318</sup> Rüdiger Wolfrum and Nele Matz, *supra*, note 314, p. 478; A. Charlotte de Fontaubert, David R. Downes and Tundi S. Agardy, *supra*, note 311, p. 776.

coastal states to establish and manage protected areas for the maintenance of biological diversity supported by international organisations, as well as obligations arising from the CBD and the *Jakarta Mandate*.<sup>319</sup>

## V. Summarising Remarks

Efforts to seek protection for vulnerable marine areas evoke the need to enact regulations to govern adequately activities that occur in the area and may have a harmful effect on the marine environment. While domestic law will be the means by which protective action is primarily sought, international law is a crucial factor where the conduct of foreign ships is to be regulated. At the most general level, five legal principles can be identified that shape the allocation of rights and duties in the delicate relationship between vessels and coastal states. On the one hand, freedom of navigation and the principle of flag-state enforcement ensure that vessels are largely free from interference of coastal states. On the other hand, three competing legal principles, the principle of sustainable development, the preventive and the precautionary principle, confine vessels' rights with a view to their impact on the marine environment.

UNCLOS, as the major treaty instrument regulating a broad array of matters relating to the use and protection of the world's oceans, reflects both competing concerns. Coastal states' power over foreign vessels is devised in a restrictive way, inasmuch as the flag state's jurisdiction generally prevails. However, with respect to certain issues, including the protection and preservation of the marine environment, the coastal state is allowed to enact and enforce regulations, provided that they conform to the convention's requirements. In the territorial sea, foreign vessels must conform to coastal states' laws, as long as innocent passage is not hampered and regulations do not modify internationally agreed standards on construction, design, equipment and manning. In the EEZ, coastal states' laws must not be stricter than what is contained in generally accepted international rules and standards. In archipelagic waters and international straits, even stricter regimes apply. And on the high seas, where by definition no coastal states exist, jurisdiction is completely left with the flag state.

With a view to the different maritime zones, the account given in this chapter has identified an apparent problem for the designation of protected areas: the fragmentation of coastal waters is arbitrary in that the zones' boundaries are based on geological factors, i.e. the coastline. It is not difficult to predict that this approach yields inconsistencies with ecological needs that rather require giving uniform protective status to vulnerable areas even if they straddle different maritime zones. Whether provisions on the protection of certain particularly vulnerable marine areas, such as Article 211(6) lit. (a) of UNCLOS, can remedy these shortcomings is doubtful – especially because they can only be applied in the EEZ. In the light of these observations, it should be noted that UNCLOS

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<sup>319</sup> A. Charlotte de Fontaubert, David R. Downes and Tundi S. Agardy, *supra*, note 311, p. 779 et seq.

affirms an accentuated role of IMO as a “legislator” with respect to vessel-related anti-pollution standards. Through its rules of references, UNCLOS incorporates regulations developed either directly by IMO or negotiated under its auspices. It remains to be seen how the PSSA Guidelines, adopted as an IMO resolution, fit into the legal framework set out in this chapter and whether they have the potential to increase markedly coastal states’ competences in protecting and preserving fragile areas under their jurisdiction and beyond.

## **Chapter 5: Marine Protected Areas in Multilateral Instruments**

The previous chapter identified the international legal framework for marine environment protection and, in particular, the delicate balance of coastal states’ and vessels’ rights. Expanding on this network of rules, there exist a range of multilateral treaties, both on a global and a regional level, that expressly provide for the protection of vulnerable marine areas, thereby entailing different rights and obligations for their parties. The purpose of this chapter is to shed light on the different types of protective mechanisms that can be found in these instruments. Differences and similarities should be highlighted and examined with regard to the effective abatement of marine pollution. In so doing, it is my primary intention to look at if and how the protective measures prescribed for specific areas can be applied to shipping activities.

### **I. Global International Law**

As of today, there is no single multilateral treaty exclusively dealing with marine protected areas. The treaties under scrutiny in this section can be roughly compartmentalised into those designed to prevent pollution of the marine environment and those addressing protected areas for a specific purpose, while in both categories of treaties the protection of particular marine areas as such is only a side aspect of the instruments’ main aim.<sup>320</sup>

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<sup>320</sup> The account will not deal with the 1979 Bonn Convention on the Conservation of Migratory Species of Wild Animals (CMS). Although the CMS urges contracting parties to conserve and, where feasible and appropriate, restore habitats of endangered migratory species, the obligation to protect and maintain (networks of) habitats contained in Art. V.5(f) is rather unspecific and has not yet been fleshed out by further acts of the Convention’s bodies.

### 1. Protective Mechanisms of the MARPOL Convention

The 1973 International Convention for the Prevention of Pollution from Ships<sup>321</sup> was not the first attempt to address multilaterally the problem of vessel-source pollution of the marine environment. MARPOL was modelled upon the 1954 International Convention for the Prevention of Pollution by Oil<sup>322</sup>, which was considered – at the time MARPOL was negotiated – as not efficient enough to prevent vessel-source oil pollution. The need for new rules on pollution prevention was sparked by large tanker accidents, such as the grounding of the *Torrey Canyon* in 1967 and rising environmental awareness in the aftermath of the 1972 Stockholm Conference on the Human Environment (UNCHE).<sup>323</sup> MARPOL lays down CDEM standards for different kinds of vessels, as well as discharge and emission restrictions.<sup>324</sup> Although its general rules are obviously to be found in the text of the convention and the protocol, only the six accompanying annexes make MARPOL work in practice. Annex I, dealing with the prevention of pollution by oil, and Annex II, containing regulations for the prevention of pollution by noxious liquid substances in bulk, were adopted at the same time as the convention text.<sup>325</sup> Subsequently, MARPOL's scope was expanded by Annex III, in force since 1 July 1992, to the prevention of pollution by harmful substances carried by sea in packaged form, by Annex IV, in force since 31 December 1988, to the prevention of pollution by sewage, and by Annex V, in force since 27 September

<sup>321</sup> Adopted on 2 November 1973, in force as from 2 October 1983, as modified by the Protocol of 1978 relating thereto, adopted on 17 February 1978, in force as from 2 October 1983; hereafter MARPOL. The text of the Convention, the Protocol and the Annexes is reproduced, together with the Unified Interpretations, in IMO, *MARPOL 73/78 – Consolidated Edition 2004* (London: IMO Publications 2004).

<sup>322</sup> Adopted on 12 May 1954, in force as from 26 July 1958; 327 *UNTS* 3; hereafter OILPOL. By virtue of Art. 9(1) of MARPOL, it supersedes OILPOL for parties to both conventions. The few states that have ratified OILPOL but not MARPOL remain bound by the rules of the former. See, generally, R. Michael M'Gonigle and Mark W. Zacher, *Pollution, Politics, and International Law: Tankers at Sea*. (Berkeley Los Angeles London: University of California Press 1979), p. 87 et seqq.

<sup>323</sup> IMO, "MARPOL – 25 Years", *Focus on IMO*, October 1998, available from <[http://www.imo.org/includes/blast\\_bindoc.asp?doc\\_id=432&format=PDF](http://www.imo.org/includes/blast_bindoc.asp?doc_id=432&format=PDF)>; (accessed on 30 September 2006), p. 1.

<sup>324</sup> A comprehensive overview of the technical requirements of MARPOL is to be found in Stephan W. Douvier, *MARPOL – Technische Möglichkeiten, rechtliche und politische Grenzen eines internationalen Übereinkommens* (Bremen 2004), electronic edition available from [http://www.gbv.de/du/services/gLink/2.1/379454823/8100/http://elib.suub.uni-bremen.de/publications/dissertations/E-Diss786\\_Douvier.pdf](http://www.gbv.de/du/services/gLink/2.1/379454823/8100/http://elib.suub.uni-bremen.de/publications/dissertations/E-Diss786_Douvier.pdf)>; (accessed on 30 September 2006), p. 21 et seqq. For an assessment of MARPOL's regulations, see Patricia Birnie and Alan Boyle, *supra*, note 13, p. 362 et seqq.

<sup>325</sup> The fact that the ratification of the Convention was linked to the mandatory implementation of Annexes I and II was one of the reasons why the 1978 Protocol had to be negotiated. It eventually decoupled the annexes, in that implementation of Annex II could be deferred for at least three years. Cf. Erik Jaap Molenaar, *supra* note 233, p. 64. Annex I apparently entered into force at the same time as the amended convention. Annex II entered into force on 6 April 1987.

2003, to the prevention of pollution by garbage from ships. Annex VI, designed to prevent air pollution from ships, was adopted on 26 September 1997 and has only recently, on 19 May 2005, entered into force. Each annex deploys a unique regulatory approach. Yet some similarities exist, one of which is the concept of special areas intended to grant a higher level of protection to specific vulnerable parts of the oceans.

The special area concept also has a predecessor (in name rather than in substance) in the 1954 OILPOL Convention, whose Annex A provided for so-called *prohibition zones*. Annex A was merely designed to detail – and in some cases even limit – the geographical scope of application for the discharge restrictions set forth in Article III.<sup>326</sup> In 1971, IMO for the first time specifically described and designated a prohibition zone, the *Great Barrier Reef*, by way of an amendment to OILPOL.<sup>327</sup> It remained a sole endeavour. Since Annex VI entered into force, MARPOL now recognises two different types of protected zones. The first are special areas pursuant to Annex I, II and V, the second are “SO<sub>x</sub> Emission Control Areas” (SECAs) introduced by Annex VI. The differentiation is mainly based on procedural requirements, but as SECAs are also broader in scope, it is reasonable to examine each type separately.

#### a) Special Areas

The traditional concept of special areas is provided for by Annex I, II and V. In all of these annexes, special areas are defined as “a sea where for recognized technical reasons in relation to its oceanographical and ecological condition and to the particular character of its traffic the adoption of special mandatory methods for the prevention of sea pollution by oil [or by noxious liquid substances or by garbage respectively] is required.”<sup>328</sup> Concrete prerequisites are not dwelled on in any more detail. To fill this apparent gap, IMO has adopted “Guidelines for the Designation of Special Areas under MARPOL 73/78.”<sup>329</sup> Starting from the wording of the special area definition, it includes oceanographic and ecological conditions, as well as requirements for vessel traffic characteristics, which must be satisfied for an area to be eligible for designation.<sup>330</sup>

<sup>326</sup> The initial standards applying to prohibition zones were tightened in the 1962 and 1969 amendments to OILPOL. Furthermore, in the 1969 amendments to OILPOL, the term “prohibited zones” was changed to “prohibition zones”. See Erik Jaap Molenaar, *supra*, note 233, p. 64 and 68.

<sup>327</sup> Cf. Res. A.232(VII), *Protection of the Great Barrier Reef*, adopted on 12 October 1971. This amendment was to replace the vague wording of para. (d) of Annex A. However, it never entered into force, but was later incorporated in MARPOL Annex I.

<sup>328</sup> The corresponding definitions are to be found in Regulation I/1(10), II/1(7), and V/1(3).

<sup>329</sup> Res. 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*, adopted on 15 January 2002, Annex 1. Hereafter Special Area Guidelines.

<sup>330</sup> For details see *infra* Sec. I.1.b) of Chapter 9.

### aa) Procedural Aspects

The guidelines contain provisions aimed at facilitating the identification of special areas. Principally, designation of a special area is carried out through an amendment of the respective annex. Adopting amendments to the annexes, as well as to MARPOL in general, is a matter for the “expanded MEPC”<sup>331</sup> to decide. The adoption of amendments is accomplished through a procedure called *tacit acceptance*, that provides for the entry into force without express consent of the contracting parties.<sup>332</sup> States seeking special area status for an area are obliged to submit a corresponding proposal to the MEPC. These proposals should contain “a draft amendment to MARPOL 73/78 as the formal basis for the designation”, as well as “a background document setting forth all the relevant information to explain the need for the designation.”<sup>333</sup> This background document should specify geographical coordinates of the area, indicate the type of Special Area proposed and analyse how the area fulfils the criteria for the designation. Most importantly, the background material should contain a general description of the area in order to allow MEPC to conduct a thorough assessment of the proposal. This includes disseminating information with respect to oceanography, ecological characteristics, social and economic values, scientific and cultural significance, environmental pressures from ship-generated pollution, as well as other environmental pressures, and measures already taken to protect the area. Because ships have to be given the possibility to dispose of harmful substances they would otherwise discharge whilst at sea, information also needs to be given on the availability of adequate reception facilities in ports within the area.<sup>334</sup> Proposals need not be submitted by only one country. If an area encompasses maritime zones of other states, they may act as co-sponsors of the submission. Proposals can also be made simultaneously with respect to the three annexes. However, they will be examined separately.

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<sup>331</sup> Most of the IMO member states are parties to MARPOL. The decisions regarding MARPOL are therefore taken during the normal MEPC session. However, from a strict legal point of view, only MARPOL parties decide on these matters. Hence, the usual MEPC is – for these circumstances – expanded by non-IMO member states that are parties to MARPOL. It is for this reason that proposals for amendments are not set forth in MEPC documents but rather in circular letters disseminated by the IMO Secretariat acting as the Secretariat for MARPOL. See, e.g. Circular Letter No. 2434 of 21 November 2002 regarding the special area status of the Oman sea area of the Arabian seas.

<sup>332</sup> On the tacit acceptance procedure, see Markus J. Kachel, “Competencies of International Maritime Organisations to establish Rules and Standards”, in P. Ehlers and R. Lagoni (eds.), *supra*, note 165, pp. 21-51, at 33 et seq. Generally, see Krzysztof Skubiszewski, “International Legislation”, *EPIL* Vol. II (1995), pp. 1255-1262, at 1256 et seq.

<sup>333</sup> Para. 3.2.1 and .2 of the Special Area Guidelines.

<sup>334</sup> Reception facilities are crucial for making the MARPOL discharge restrictions work in practice. For further insights on this issue, see Rainer Lagoni, “The Disposal of Oily Waste from Ships in Community Ports – Report, Legal Aspects and Discussion Paper”, in H.-J. Koch and R. Lagoni (eds.), *The Reception of Oily Waste from Ships in European Ports* (Baden-Baden: Nomos Verlagsgesellschaft 1998) pp. 1-105.

The review is usually carried out by a Technical Group (TG) established by MEPC.<sup>335</sup> It reports back to the committee, which thereupon takes a decision on the proposal. In examining the proposal, the TG is guided by several additional considerations laid down in the guidelines. First, where discharges of harmful substances pose a threat to amenities, the argument for special area status may be strengthened.<sup>336</sup> Secondly, account should be taken of the extent to which other sources of pollution influence the area; for instance, land-based pollution. In that respect, “[p]roposals would be strengthened if measures are being, or will be, taken to prevent, reduce and control pollution of the marine environment by these sources of pollution.”<sup>337</sup> Finally, there is a stronger argument for areas to attain special area status if there is already a management system in place under which the stricter discharge restrictions could be implemented and monitored. Even though not explicitly stated, the Special Area Guidelines assume that information on these three issues is set out by states in the background document attached to their formal proposal.<sup>338</sup> However, as the wording suggests, it is left to MEPC’s discretion whether or not it takes the additional considerations into account when examining the proposal. Nevertheless, these issues may prove to be crucial if no consensus can be reached on whether the area sufficiently meets the three main criteria.

#### **bb) Substantive Aspects**

As to the specific requirements for Special Areas, concrete discharge standards are to be found in Regulations I/10, II/8 and V/5. Regulation I/10, concerned with special areas restricting the discharge of oil, first of all specifies the different special areas that have so far been designated.<sup>339</sup> It stipulates that in these areas “any discharge into the sea of oil or oily mixture from any oil tanker and any ship of 400 tons gross tonnage and above” is prohibited.<sup>340</sup> Vessels below that threshold may discharge oil, “except when the oil content of the effluent without

<sup>335</sup> See, for instance, the establishment of a TG at MEPC 54, cf. MEPC 54/21, *Report of the Marine Environment Protection Committee on its Fifty-Fourth Session*, 27 March 2006, para. 8.11. The assessment of the TG is contained in MEPC 54/WP.9, *Report of the Technical Group on Special Areas under MARPOL and PSSAs*, 22 March 2006.

<sup>336</sup> Para. 2.8 of the Special Area Guidelines.

<sup>337</sup> Para. 2.9 of the Special Area Guidelines.

<sup>338</sup> This is the case in practice. See, for instance, the submission by the Sultanate of Oman, MEPC 47/7/3, “Proposal for extension of the Special Area in the Gulf area for Annexes I and V of MARPOL 73/78”, 8 July 2002, which dwells upon these matters at length (Annex, p. 16 et seqq.).

<sup>339</sup> These are the Mediterranean Sea, the Baltic Sea, the Black Sea Area, the Red Sea Area, the Gulf Area, the Gulf of Aden Area, the Antarctic Area and the North-West European Waters, the exact coordinates of which can be found in Regulation I/10 (a) to (h). With the 2004 (October) amendments taking effect, this list will be augmented by the Oman Area of the Arabian Sea, see MEPC Res. 117(52), *Amendments to the Annex of the Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships 1973*, adopted on 15 October 2004.

<sup>340</sup> Regulation I/10(2) lit (a).

dilution does not exceed 15 parts per million.” In the Antarctic area, discharges are prohibited unconditionally. Further paragraphs of Regulation I/10 specify the requirements that allow, *inter alia*, for the discharge of bilge water and clean or segregated ballast. The implications of Regulation I/10 are best understood if read in conjunction with Regulation I/9. This provision allows tankers and other ships to discharge oil whilst navigating outside special areas, albeit subject to strict conditions. For instance, existing tankers must not discharge oil or oily mixtures if the discharge exceeds “1/15,000 of the total quantity of the particular cargo of which the residue formed a part.”<sup>341</sup> Lower quantities may only be discharged en route at a distance of more than 50nm from the nearest land. Furthermore, discharges are generally prohibited if they contain chemicals and other hazardous substances in concentrations which are hazardous to the marine environment.<sup>342</sup> As has been observed with some surprise, MARPOL’s discharge restrictions with respect to oil have been substantially strengthened over the course of the years, while special area restrictions have – at least in recent years – remained unaltered.<sup>343</sup> This development has largely diminished the difference between discharge limits applying within specially designated zones and those applying without. It should finally be noted that the aforementioned provisions of Annex I are accompanied by a safeguard clause in Regulation I/11. It allows discharges in excess of the applicable limits in the following cases: first, the need to secure the safety of the ship and the lives of the seafarers; secondly, damage to a ship or its equipment; and thirdly, combating pollution incidents.

Regulation II/5 deals with discharge requirements for special areas with respect to noxious liquid substances. It is supplemented by Regulation II/8 providing for measures to handle the substances in ports within and outside special areas. The areas that were given special area status for that purpose are enumerated in the definitions section<sup>344</sup> and include the Baltic Sea area, the Black Sea area and the Antarctic area. Unlike Annex I, Annex II discharge restrictions with respect to both areas with and without special area status are contained in a single provision. Regulation II/5, as well as other provisions in Annex II, builds upon the categorisation of liquid noxious substances in Categories A to D with respect to the dangers they pose to the marine environment, human health or amenities.<sup>345</sup> It includes provisions for Category A, B and C substances within and outside special areas. Category D substances, allegedly having only a minor impact on the Annex’s subjects of protection, are not liable to stricter requirements in special areas; they universally fall within the ambit of a single regime. Outside special areas, the discharge into the sea of Category A substances, as well as ballast water and tank washings containing these substances, is prohibited.<sup>346</sup> Restricted dis-

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<sup>341</sup> Regulation I/9(1) (v).

<sup>342</sup> Regulation I/9(5).

<sup>343</sup> Erik Jaap Molenaar, *supra*, note 233, p. 68 et seq. (table) and 431.

<sup>344</sup> Regulation II/1(7).

<sup>345</sup> See definitions in Regulation II/3(1) lit. (a) to (d) with A bearing the most serious threats. Substances presently categorised in any of the categories are listed in Appendix II of Annex II.

<sup>346</sup> Regulation II/5(1).



charge is only allowed of water that has been added to the tank after it has been washed in a port facility. Although Regulation II/5 principally prohibits the discharge of Category B, C and D substances as well, it allows for exceptions. Generally, the vessel must proceed en route with at least 7 knots<sup>347</sup> and the discharge must be made at a distance of at least 12 nm from the nearest land. In addition, due to the respective threats of the three categories of substances, the maximum quantity that may be discharged is highest with respect to Category D substances and lowest with respect to Category B substances. Moreover, Category B and C substances must not be discharged in a depth of water of less than 25 metres. The same restrictions apply to Category A, B and C substances within special areas. However, the concentration and quantity of the discharged chemicals must be lower than outside special areas.<sup>348</sup> Regulation II/8, supplementing the discharge regulations, specifies the handling requirements for noxious liquid substances in ports within and outside special areas. This concerns tank washing, as well as the removal of cargo residues. Regulation II/8 does not differentiate between Category A substances and Category D substances: Category A substances, as the most dangerous, are subject to very strict requirements in all areas.<sup>349</sup> In contrast, residues of Category D substances may even be discharged into the sea within special areas if diluted beforehand.<sup>350</sup> The handling requirements for Category B and C substances are lower than those for Category A substances. Nevertheless, their remaining residues must not be discharged into the sea but to a reception facility. Like Regulation I/11, Regulation II/6 provides for safeguard provisions exempting vessels from discharge restrictions in the above-mentioned cases.

In contrast to Annexes I and II, Annex V deploys a rather straightforward approach. The hitherto designated areas are enumerated in Regulation V/5(1).<sup>351</sup> Within these special areas, the disposal of different types of garbage, listed in Regulation V/5(2) (a) (i) and (ii), is strictly prohibited. Subparagraph (b) requires food waste to be disposed of “as far as practicable from land, but in any case not less than 12 nautical miles from the nearest land.”<sup>352</sup> The limits on the disposal of waste cannot be circumvented by mixing it with other discharges. As Regulation V/5(3) expressly states, where disposals have different requirements, the more stringent measures must apply. Regulation V/6 contains a safeguard clause that resembles Regulations I/11 and II/6, while it also comprises the accidental loss of synthetic fishing nets.

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<sup>347</sup> Regulation II/5(2). The latter requirement only applies to self-propelled vessels. I assume that, at least for the purpose of this research, the discharges from vessels that are not self-propelled are of very little relevance.

<sup>348</sup> The exact qualifications are given in Regulation II/5(7) to (9).

<sup>349</sup> Regulation II/8(2) to (4).

<sup>350</sup> Regulation II/8(8).

<sup>351</sup> The list encompasses the Mediterranean Sea, the Baltic Sea, the Black Sea, the Red Sea, the Gulf Area, the North Sea, the Antarctic area, and the Wider Caribbean Region.

<sup>352</sup> By virtue of Regulation V/5(2) lit. (c), this exemption from the general rule is excluded for the Wider Caribbean Region.

Inasmuch as the provisions for special areas represent “internationally accepted rules and standards”, they apply, by virtue of Article 211(5) of UNCLOS, to all vessels navigating in the area, regardless of whether its flag state is a party to the relevant annex of MARPOL. This is true for Annexes I and II<sup>353</sup>, arguably also for Annex V. Because only a few more states have so far ratified Annex VI than was necessary for it to enter into force, at the moment this annex has mere *inter partes* effect. As has become clear throughout this section, MARPOL does not apply a proactive special area approach, but merely seeks to give effect to discharge restrictions. In that respect, special area status does not require stricter CDEM standards to be complied with. Furthermore, special areas are not managed in a particular manner, nor are their provisions necessarily overseen by a special area authority or secretariat. In some cases such institutions may exist – as the special area guidelines imply –, but in general the control of discharge regulations is left to the coastal states and to the port authorities.

### **b) SO<sub>x</sub> Emission Control Areas**

Annex VI, dealing with the abatement of air pollution from ships, has departed from the approach of Annexes I, II and V in several respects. It provides for the protection of specific areas, so-called *SO<sub>x</sub> Emission Control Areas* (SECAs). As the name indicates, they are not designed to address air pollution in general but are limited to SO<sub>x</sub> emissions. Pursuant to Regulation VI/1(11), SECAs are defined as areas “where the adoption of special mandatory measures for SO<sub>x</sub> emissions from ships is required to prevent, reduce and control air pollution from SO<sub>x</sub> and its attendant adverse impacts on land and sea areas.” Contrary to special areas, the SECA notion thus entails a more holistic approach, because impacts on the terrestrial part need to be considered as well. Whereas usually vessels flying the flag of a MARPOL Annex VI party are obliged to use fuel oil with a sulphur content below 4.5% m/m<sup>354</sup>, the sulphur content of fuel oil used in SECAs must not exceed 1.5% m/m.<sup>355</sup> The underlying regulatory approach, however, allows for considerable leeway in that ships may also comply with SECA rules by applying an exhaust-gas cleaning system<sup>356</sup> or any other technological method with which an equivalent result can be achieved.<sup>357</sup> It is obvious, though, that the SECA concept is distinct in its focus on CDEM standards to reach its ecological targets.

Criteria and procedural requirements for the designation of SECAs can be found in Appendix III to Annex VI. Its wording makes clear that a SECA should only be considered for adoption “if supported by a demonstrated need to prevent, reduce, and control air pollution from SO<sub>x</sub> emissions from ships.”<sup>358</sup> To that end, it is for the proposing government(s) to provide the necessary evidence in their submission to the MEPC. Apart from a clear delineation and description of the

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<sup>353</sup> Rainer Lagoni, *supra*, note 260, pp. 121-133, at 126.

<sup>354</sup> Cf. Regulation VI/14(1).

<sup>355</sup> Regulation VI/14(4).

<sup>356</sup> Due to certain conditions as laid down in Regulation VI/14(4) lit. (b).

<sup>357</sup> Regulation VI/14(4) lit. (c).

<sup>358</sup> Para. 1.2 of Appendix III.

general, as well as the meteorological, conditions of the area, the proposal must specify the nature of the ship traffic in the area. Furthermore, it must be illustrated to what extent the ships operating in the area contribute to air pollution from SO<sub>x</sub>.<sup>359</sup> Arguably the most important requirement obliges proposing governments also to include “a description of the control measures taken by the proposing Contracting State[s] addressing land-based sources of SO<sub>x</sub> emissions affecting the area at risk that are in place and operating concurrent with the consideration of measures” that would apply in the SECA.<sup>360</sup> As has been convincingly argued, this paragraph demands a comparative assessment of other sources of pollution and requires proposing states to have in place measures that effectively reduce terrestrial SO<sub>x</sub> emissions.<sup>361</sup>

Moreover, in marked contrast to special areas, in the process of assessing a SECA proposal, the MEPC must not only take into account the information set out in the background documents but also “the relative costs of reducing sulphur depositions from ships when compared with land-based controls.”<sup>362</sup> In addition, the “economic impacts on shipping engaged in international trade should also be taken into account.” These requirements seek to optimise the cost-effectiveness of pollution control, but inevitably amount to a major safeguard clause for the shipping industry, since the IMO by its very nature tends to take account of the economic impacts on shipping with respect to almost every decision it takes.<sup>363</sup> And – at least from a legal point of view – it is not understandable either why constraints on SO<sub>x</sub> emissions should be considered in the light of economic considerations whereas constraints on, for instance, hazardous substances, the subject matter of Annex II, should not.

Once the MEPC has designated a new SECA, the entry into force of the respective amendment is followed by a 12-month adaptation period in which ships are exempted from complying with the stricter sulphur emission requirements.<sup>364</sup> As of today, the Baltic Sea is the only area in the world in which the SECA requirements of Annex VI apply. Once the adaptation period is over in November 2007, the North Sea will be effective as a second SECA. Since the Baltic Sea was already included in the original text of Annex VI, the North Sea is the first SECA to have been designated via the amendment procedure. Looking at the history of that particular process, it is evident that it took almost a decade from the initial proposal made by the parties to the OSPAR Convention<sup>365</sup> to the final approval of

<sup>359</sup> Cf. para. 2.2.3. of Appendix III. It stipulates that this assessment should include “a description of the impacts of SO<sub>x</sub> emissions on terrestrial and aquatic ecosystems, areas of natural productivity, critical habitats, water quality, human health, and areas of cultural and scientific significance, if applicable”.

<sup>360</sup> Para. 2.2.6 of Appendix III.

<sup>361</sup> Erik Jaap Molenaar, *supra*, note 233, p. 433.

<sup>362</sup> Para. 3.3 of Appendix III.

<sup>363</sup> Erik Jaap Molenaar, *supra*, note 233, p. 435.

<sup>364</sup> Regulation VI/14(7).

<sup>365</sup> For more information on the OSPAR Convention see, *infra*, Sec. II.4. of Chapter 5.

the amendment. After discussions that had gone on for several years<sup>366</sup>, the states concerned submitted a proposal to the MEPC in December 1999.<sup>367</sup> It then took five years before the IMO/MARPOL Secretariat was able to circulate draft amendments incorporating the proposal.<sup>368</sup> In July 2005, MEPC 53 eventually adopted the amendments to become effective in November 2006.<sup>369</sup>

At the moment, there are no proposals for additional SECAs. It is not clear which way the concept will go and whether it will ever become a success, as it takes a lot of effort to work out a promising proposal. It is, however, quite likely that the SECA concept will be modified in the near future. Annex VI is going to be subject to a thorough review initiated in MEPC 53, which will address, amongst others, new emission thresholds for SO<sub>x</sub>, NO<sub>x</sub>, and particulate matter<sup>370</sup> and might eventually lead to an expanded SECA regime.

## 2. Ramsar Sites

The 1971 Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitats<sup>371</sup> is one of the longest-standing multilateral treaties on nature conservation and was the first legal instrument whose protective scope went beyond specific species to deal with important habitat types as a whole. It currently has 146 contracting parties, with 1609 wetland sites, totalling 145.82 million hectares.<sup>372</sup> According to Article 1 of the convention, wetlands qualifying for protection “are areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish

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<sup>366</sup> Cf. summary record of the 1997 meeting of the Committee of North Sea Senior Officials, available from <<http://odin.dep.no/md/nsc/p10003262/022001-990249/dok-bn.html>>; (accessed on 30 September 2006), para 2.5 et seq.

<sup>367</sup> MEPC 44/11/4, *Designation of the North Sea area as a SO<sub>x</sub> Emission Control Area*, 3 December 1999.

<sup>368</sup> Cf. Circular No. 2598 of 15 November 2004. In fairness, it should be noted that the amendments were chiefly concerned with the contentious implementation of the International Air Pollution Prevention Certificate – a fact that arguably contributed to the delay.

<sup>369</sup> MEPC 53/22, *Report of the Marine Environment Protection Committee on its Fifty-Third Session*, 25 July 2005, para. 5.10 et seq. The Committee did not forget to note “that the requirements within SO<sub>x</sub> emission control areas, for that area would only become effective one year later, i.e. November 2007, as provided for in Regulation 14(7)”.

<sup>370</sup> MEPC 53/4/4, *MARPOL Annex VI – Proposal to initiate a revision process*, 15 April 2005. This plea was endorsed by the committee, cf. MEPC 53/22, *supra*, note 369, para. 4.50.

<sup>371</sup> Adopted on 2 February 1971, in force as from 21 December 1975, as amended by the 1982 Paris Protocol and the 1987 Regina Amendments; a consolidated version is reproduced in Ramsar Convention Secretariat, *The Ramsar Convention Manual: a Guide to the Convention on Wetlands*, Third Ed. (Gland: Ramsar Convention Secretariat 2004), Appendix 1.

<sup>372</sup> Correct as of 14 June 2006; see information available from <<http://www.ramsar.org/sitelist.pdf>>; (accessed on 30 September 2006), p. 4.

or salt, including areas of marine water the depth of which at low tide does not exceed six metres.” Although this definition obviously includes marine areas, in the light of the limited depth it is doubtful whether Ramsar sites could possibly reach into areas used by international shipping.<sup>373</sup> They may, however, interfere with international shipping routes, where they incorporate “riparian and coastal zones adjacent to wetlands”<sup>374</sup> as buffer zones, which is justified under the convention if this is necessary to protect the core area.

Designation of sites is accomplished by inclusion in a “List of Wetlands of International Importance”,<sup>375</sup> which is maintained by the Ramsar Convention Bureau. Further sites can be added to the list if a contracting party wishes to do so. To that end, the drafting of the convention carefully upholds the sovereign rights of each of the contracting parties. It is only for the respective states to decide whether they want to add wetlands to the list or extend the boundaries of those already listed. In the case of urgent national interest, a state may also delete habitats from the list or reduce their dimensions.<sup>376</sup> Neither the Ramsar Convention Bureau nor the Ramsar COP have the competence to alter the party’s decision, even though one of the latter’s duties is to discuss additions to and changes in the list. With respect to the scientific criteria that parties should take into account for their assessment, the convention itself gives only little guidance. The relevant factor is the international significance of a site “in terms of ecology, botany, zoology, limnology or hydrology.”<sup>377</sup> These vague requirements were specified in the “Criteria for Identifying Wetlands of International Importance”, included in the “Strategic Framework for the List of Wetlands of International Importance”.<sup>378</sup> It sets out three groups of criteria: first, criteria for representative or unique wetlands; second, general criteria based on plants or animals; and third, specific criteria based on waterfowl. In addition, the recommendation sets forth guidelines that seek to assist parties in “assessing the suitability of wetlands for inclusion on the List.”<sup>379</sup>

Upon ratification of, or accession to, the convention, a state must include at least one site in the list. Once a wetland is designated, the parties are under various obligations to maintain its value. The overriding requirement is “to promote [...] as far as possible the wise use of wetlands in their territory.”<sup>380</sup> This vaguely

<sup>373</sup> Nevertheless, some marine areas have been chosen as Ramsar sites; see, for instance, the Tubbataha Reefs National Marine Park (Philippines) in the Sulu Sea. The site is at risk from dynamite fishing and commercial trawling for tuna; cf. <[http://www.wetlands.org/reports/directory.cfm?site\\_id=241](http://www.wetlands.org/reports/directory.cfm?site_id=241)>; (accessed on 30 September 2006).

<sup>374</sup> Art. 2(1). No limit as to the depth of the water column is given.

<sup>375</sup> Art. 2(1).

<sup>376</sup> Art. 2(5).

<sup>377</sup> Art. 2(2).

<sup>378</sup> Adopted by Res. VII.11 (COP7, 1999) and amended by Resolutions VII.13 (1999), VIII.11 and VIII.33 (COP8, 2002), and Res. IX.1, Annexes A and B (COP9, 2005). A consolidated edition is available from <[http://www.ramsar.org/key\\_guide\\_list2006\\_e.htm](http://www.ramsar.org/key_guide_list2006_e.htm)>; (accessed on 30 September 2006).

<sup>379</sup> *Ibid.*, Part 2.

<sup>380</sup> Art. 3(1).

formulated objective is not defined in the convention's text, which has sparked a lot of criticism.<sup>381</sup> COP 3 in 1987 interpreted the term to imply "sustainable utilization for the benefit of humankind in a way compatible with the maintenance of the natural properties of the ecosystem."<sup>382</sup> Anticipating the main thrust of the *Brundlandt Report*, it took "sustainable utilization" to mean the "human use of wetland so that it may yield the greatest continuous benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations."<sup>383</sup> COP 9 further refined the definition of wise use as "the maintenance of their ecological character, achieved through the implementation of ecosystem approaches, within the context of sustainable development."<sup>384</sup> Apart from maintaining and promoting wise use, a further obligation on the contracting parties is to exchange information with the convention's bureau regarding the sites' status.<sup>385</sup> With respect to important sites that are not listed, parties are obliged to promote the conservation of wetlands by establishing nature reserves and, additionally, through habitat management, the encouragement of research and the exchange of data.<sup>386</sup> Where loss of wetlands is inevitable, the states should as far as possible compensate for it by, *inter alia*, the creation of nature reserves elsewhere.<sup>387</sup>

For the purpose of this treatise, it is important to consider the fact that, as has been shown, the implementation of protective measures is principally confined to the domestic level. Obligations of the contracting parties concerning sites outside their territory are limited to cooperation in implementation "in the case of a wetland extending over the territories of more than one Contracting Party or where a water system is shared by Contracting Parties."<sup>388</sup> This provision appears to

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<sup>381</sup> Michael Bowman, "The Ramsar Convention Comes of Age", 42 *NILR* (1995), pp. 1-52, at 11: "It is legitimate to speculate whether it would have been possible to frame a treaty obligation in more vague and vacuous terms, and it is indeed debateable whether such words should be regarded as having created any legal obligation at all." See also Patricia Birnie and Alan Boyle, *supra*, note 13, p. 619.

<sup>382</sup> Rec. 3.3, *Wise use of wetlands*, Regina, 25 May-5 June 1987, Annex, para. 1. The definition was later accompanied by Rec. 4.10, *Guidelines for the implementation of the wise use concept*, 27 June-4 July 1990, Annex, which was itself amplified by Res. 5.6, *The wise use of wetlands*, 9-16 June 1993, Annex: "Additional Guidance for the Implementation of the Wise Use Concept".

<sup>383</sup> Rec. 3.3, *supra*, note 382, para. 2.

<sup>384</sup> Res. IX.1, Annex A, *A Conceptual Framework for the wise use of wetlands and the maintenance of their ecological character*, Kampala, 8-15 November 2005, para. 22. The definition in a footnote accompanying the term *ecosystem approaches* expressly refers to endeavours under the CBD and HELCOM/OSPAR mentioned, *supra*, in Sec. I.2. of Chapter 3.

<sup>385</sup> Art. 3(2).

<sup>386</sup> Art. 4(1), (3), and (4).

<sup>387</sup> For a general overview of implementation issues, see Michael Bowman (2002), "The Ramsar Convention on Wetlands: Has it Made a Difference?", in O. Schram Stokke and Ø.B. Thommessen (eds.), *Yearbook of International Co-operation on Environment and Development 2002/2003* (London: Earthscan Publications), pp. 61-68, at 64 et seq.

<sup>388</sup> Art. 5.

specify the principle of cooperation<sup>389</sup>, but does not seem to extend beyond that. It is doubtful whether there are any obligations on contracting parties that arise from the convention with respect to sites outside their territory that are not already part of either treaty law<sup>390</sup> or customary international law.<sup>391</sup> In the context of international shipping, that would mean that the designation of an important wetland site under the Ramsar Convention would not attach any additional (legal) protection to it from possible threats of international shipping in or near the area. The Ramsar Convention does not provide for any legislative or enforcement jurisdiction to prohibit shipping in Ramsar wetlands or buffer zones adjacent to it. Even worse, flag states that are parties to the Ramsar Convention are not obliged to order their vessels to avoid navigating through or near designated areas. Acting in good faith, flag states should, however, ensure that the behaviour of ships offensively violating a Ramsar site is duly prosecuted.

### 3. UNESCO World Heritage Sites & Biosphere Reserves

The Convention Concerning the Protection of the World Cultural and Natural Heritage<sup>392</sup> is designed to protect the world's heritage. Article 2 of the Convention defines natural heritage as “[...] precisely delineated areas which constitute the habitat of threatened species of animals and plants of outstanding universal value from the point of view of science or conservation; [and] natural sites or precisely delineated areas of outstanding universal value from the point of view of science, conservation and natural beauty.” Similar to the Ramsar Convention, the application of its protective provisions is triggered by the inclusion of a site in a list. This so-called World Heritage List is, according to Article 11(2), “a list of properties forming part of the cultural heritage and natural heritage, as defined in Articles 1 and 2 of this Convention.” The list is established and administered by the World Heritage Committee<sup>393</sup> on the basis of specific proposals submitted by contracting parties subject to an evaluation against specific criteria the Committee has established in the so-called “Operational Guidelines”.<sup>394</sup> Compared with those of the Ramsar Convention, the World Heritage Convention's conservation obliga-

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<sup>389</sup> See, *supra*, Chapter 4, note 175 and accompanying text.

<sup>390</sup> For instance, the 1979 Convention on Long-Range Transboundary Air Pollution, 18 *ILM* (1980) 1442.

<sup>391</sup> Likewise Michael Bowman, *supra*, note 381, p. 16.

<sup>392</sup> Adopted on 16 November 1972, in force as from 17 December 1975, 11 *ILM* (1972) 1358; hereafter WHC.

<sup>393</sup> The full name is Intergovernmental Committee for the Protection of the Cultural and Natural Heritage of Outstanding Universal Value. Cf. Art. 8(1).

<sup>394</sup> Doc. WHC.05/2, *Operational Guidelines for the Implementation of the World Heritage Convention*, 2 February 2005, available from <<http://whc.unesco.org/archive/opguide05-en.pdf>>; (accessed on 30 September 2006), para. 77. Assistance is provided by advisory bodies, such as the IUCN, cf. para. 31(e) and 145. Detailed procedural requirements are set out in para. 120 et seqq.

tions are much more stringent and specific.<sup>395</sup> Nonetheless, it has narrower prerequisites for a listing, which “prevent[s] it from being the major instrument of habitat protection.”<sup>396</sup> Nothing in the Convention precludes marine areas from being listed as natural heritage.<sup>397</sup> Since the sites proposed for inclusion in the World Heritage List need to be “situated on [each state party’s] territory”,<sup>398</sup> the convention cannot, however, be applied beyond the territorial sea. The obligations to conserve the heritage sites are set out in Articles 4 and 5 for the domestic level and in Articles 6 and 7 for the international community as a whole.

Pursuant to Article 4, each party has “a duty of ensuring the identification, protection, conservation, presentation and transmission to future generations of the cultural and natural heritage.”<sup>399</sup> The contracting parties furthermore agreed to “do all [they] can to this end, to the utmost of [their] own resources.”<sup>400</sup> Article 5 amplifies this obligation in that it stipulates that the parties must adopt a general policy aimed at pursuing the convention’s aim, set up authorities to properly administer the sites, support relevant research projects and training facilities and, more generally, take the appropriate “measures necessary for the identification, protection, conservation, presentation and rehabilitation of this heritage.” With respect to sites outside their territory, the contracting parties are under the general obligation to become part of “a system of international co-operation and assistance designed to support States Parties to the Convention in their efforts to conserve and identify [the] heritage.”<sup>401</sup> This entails, according to Article 6, giving help to other parties and the avoidance of “any deliberate measure which might damage directly or indirectly the cultural and natural heritage” on other parties’ territories.

The implications for the protection of world heritage sites against threats posed by international shipping are similar to those identified with respect to the Ramsar Convention.<sup>402</sup> Coastal states do not acquire jurisdictional competences to interfere with vessels navigating through or near listed heritage sites. Where World Heritage Sites are situated in, or extend into, the territorial sea, coastal states have

<sup>395</sup> For recent conflicts in Germany revolving around heritage sites in Cologne and Dresden, see Ira Mazzoni, “Wenn wir das gewusst hätten”, *Süddeutsche Zeitung*, No. 143, 24 and 25 July 2006, p. 13; and Johan Schloemann, “Die Historisierung der Welt – Diktat der Unesco: Von der Willkür des Kulturerbes”, *Süddeutsche Zeitung*, No. 159, 13 July 2006, p. 11.

<sup>396</sup> Patricia Birnie and Alan Boyle, *supra*, note 13, p. 622.

<sup>397</sup> Examples include the marine environment surrounding the Gough and Inaccessible Islands, see Dec. 28 COM 14B.17, included in WHC-04/28.COM/26, *World Heritage Committee – Twenty-Eighth Session*, 29 October 2004; and the Coiba National Park and its Special Zone of Marine Protection, see Dec. 29 COM 8B.13, included in WHC-05/29.COM/22, *World Heritage Committee – Twenty-Ninth Session*, 9 September 2005.

<sup>398</sup> Art. 4.

<sup>399</sup> *Ibid.*

<sup>400</sup> *Ibid.* The High Court of Australia in the *Tasmanian Dam Case*, Judgment of 1 July 1983, 46 *ALR* (1983) 625, held that the Convention imposed a legal duty to protect heritage sites and that this duty entailed an international obligation not to abolish the protection status of a site.

<sup>401</sup> Art. 7.

<sup>402</sup> See, *supra*, Sec. I.2. of Chapter 5.



prescriptive and enforcement powers that they gain under the innocent passage regime of UNCLOS. As far as obligations of the flag states are concerned, it is obvious that they must ensure that their vessels do not pose a danger to heritage sites. This requirement is, however, subject to a considerable threshold, namely deliberate measures. The mere navigation of vessels near a world heritage site certainly does not qualify as a deliberate measure. It is therefore hard to see how vulnerable marine areas could gain any additional protection against the threats of international shipping from being included in the world heritage list.

A similar instrument is the UNESCO Man and the Biosphere (MAB) Programme, based on the Statutory Framework of the World Network of Biosphere Reserves.<sup>403</sup> It should be mentioned in this section, as the protective mechanism resembles the Ramsar Convention and the World Heritage Convention, even though the Statutory Framework is not a treaty in a legal sense.<sup>404</sup> At the request of the state concerned, a site may be designated by the International Co-ordinating Council of the MAB Programme. Article 1 of the Statutory Framework expressly refers to “coastal/marine ecosystems” to be included in its scope of application. Given the soft-law basis, these sites are only submitted to state legislation, not to an international treaty. The aim of the MAB Programme is to establish a World Network of Biosphere Reserves, whose objective is to encourage the widespread designation of biosphere reserves. It relies solely on the willingness of states to implement domestically the biosphere regime and on the effect a declaratory international designation might have on peoples’ behaviour.<sup>405</sup> With respect to the scope of this study, it should be noted that IMO’s PSSA guidelines contain an express reference to biosphere reserves emphasising the compatibility of the two instruments. Indeed, two PSSAs, the Wadden Sea and the Galapagos Archipelago, are both PSSAs and biosphere reserves; furthermore, two islands covered by the Canary Islands PSSA have also been included in the World Network of Biosphere Reserves.<sup>406</sup>

## II. Regional International Law

In the following part, an overview should be given of multilateral treaties adopted on a regional level which provide for the designation of marine protected areas. UNCLOS does not preclude the regionalisation of marine environment protection. On the contrary, it implies the realisation of its general obligations through the

<sup>403</sup> Available from <[http://www.unesco.org/mab/BRs/pdf/statfram\\_E.pdf](http://www.unesco.org/mab/BRs/pdf/statfram_E.pdf)>; (accessed on 30 September 2006). German version reproduced in UNESCO, *Biosphärenreservate – Die Sevilla-Strategie und die Internationalen Leitlinien für das Weltnetz* (Bonn: Bundesamt für Naturschutz 1996), p. 20 et seqq.

<sup>404</sup> In fact, it was drafted and agreed upon in 1995, many years after the Programme was set up.

<sup>405</sup> The obligation to legally protect core areas of biosphere reserves is set forth in Art. 4(5) lit. (a) of the Statutory Framework.

<sup>406</sup> See list of current biosphere reserves available from <<http://www.unesco.org/mab/BRs/brlist.PDF>>; (accessed on 30 September 2006).

adoption of further instruments. Article 197 of UNCLOS, for example, explicitly instructs states to cooperate on a global, as well as on a regional level, similar to Article 123 lit. (b), that reiterates this duty for riparian states of enclosed and semi-enclosed seas. For the field of marine environmental protection, Article 237(1) consequently orders UNCLOS to be without prejudice for regional treaties. The impacts are, however, reciprocal; the furtherance of marine environmental protection is only allowed if the result does not derogate from the general principles set forth in Part XII of UNCLOS. The implementation of these treaties also has to be carried out in accordance with the principles and aims of UNCLOS, as Paragraph 2 of Article 237 expressly states.<sup>407</sup> In the light of the scope of this study, it can be noted that states, in giving effect to regional international law, have to adhere to the carefully balanced regimes that UNCLOS sets out for the various maritime zones.<sup>408</sup>

As has been pointed out, although UNCLOS contains several references to “regions”, it is not defined what a region should be taken to mean.<sup>409</sup> Neither is there any definition in existing conventional or customary law.<sup>410</sup> Nonetheless, whether one seeks to define regions with respect to physical, geographical or political conditions, or with respect to patterns of use, it turns out to be a purely theoretical endeavour. UNCLOS employs a very pragmatic approach to regionalism in that it considers it sufficient for states to cooperate in a particular part of the ocean.<sup>411</sup> At the end of the day, the states concerned decide where it is appropriate to work together on a regional basis.

These cooperative efforts envisaged by UNCLOS have borne many fruits, although, in fact, regional activities were already going on at the time it was negotiated and have since then increased enormously. The most prominent example is UNEP’s “Regional Seas Programme,” which it set up in 1974 and which now comprises 13 regions.<sup>412</sup> Its aim is to “address the accelerating degradation of the world’s oceans and coastal areas through the sustainable management and use of the marine and coastal environment, by engaging neighbouring countries in comprehensive and specific actions to protect their shared marine environment.”<sup>413</sup> For most regional seas, states have adopted conventions to

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<sup>407</sup> For further details on the relation of UNCLOS to other multilateral treaties, see, *supra*, Sec. III.5. of Chapter 4.

<sup>408</sup> Likewise Rainer Lagoni, *supra*, note 260, p. 130; and Hans D. Jarass, *Naturschutz in der Ausschließlichen Wirtschaftszone* (Baden-Baden: Nomos-Verlagsgesellschaft 2002), S. 37.

<sup>409</sup> Alan Boyle, “Globalism and Regionalism in the Protection of the Marine Environment”, in D. Vidas (ed.), *supra*, note 177, pp. 19-33, at 26 et seq.

<sup>410</sup> *Ibid.* For an account of the situation before UNCLOS, see Lewis M. Alexander, “Regional Arrangements in the Oceans” 71 *AJIL* (1977), pp. 84-109, at 89.

<sup>411</sup> Adalberto Vallega, “The Regional Scale of Ocean Management and Marine Regional Building”, 24 *Ocean and Coastal Management* (1994), pp. 17-38, at 22 et seq.

<sup>412</sup> Cf. UN Regional Seas Programme, “Who We Are & What We Do”, available from <<http://www.unep.org/regionalseas/About/default.asp>>; (accessed on 30 September 2006).

<sup>413</sup> *Ibid.*

govern jointly the respective marine area. But also outside the Regional Seas Programme, efforts to stop the deterioration of the marine environment had been initiated in the early 1970s, largely inspired by the 1972 Stockholm UNCHE. Some of these regional instruments feature provisions providing for the designation of marine protected areas. In the following section, it is my aim to give some insights into the different concepts that are deployed. In so doing, I will turn to those treaties in force that are most detailed in providing guidance for the selection and protection of sites, namely the 1992 Kingston SPAW Protocol, the 1995 Barcelona SPAMI Protocol, the 1992 OSPAR Convention, the 1992 Helsinki Convention and the 1985 Nairobi SPA Protocol, as well as the 1991 Protocol on Environmental Protection to the Antarctic Treaty. With respect to the scope of this study, emphasis will be put on assessing the impact of the different regimes on coastal state powers to regulate international shipping in order to prevent harm to vulnerable marine areas. In a subsequent section, I will briefly comment on recent developments within other regimes.

### **1. Kingston SPAW Protocol**

The first instrument to examine is the 1990 Kingston Protocol Concerning Specially Protected Areas and Wildlife<sup>414</sup> to the 1983 Cartagena Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region.<sup>415</sup> According to Article 2(1) of the Cartagena Convention, the regime's geographical ambit encompasses the Gulf of Mexico, the Caribbean Sea and the areas of the Atlantic Ocean adjacent thereto, south of 30° North and within 200 nm of the Atlantic coasts of the contracting parties. As of today, the Convention has 21 contracting parties, which are obliged to adopt measures aimed at preventing, reducing and controlling pollution from ships, from sea-bed activities and from land-based sources and activities, as well as pollution caused by dumping and airborne pollution. In deploying a proactive approach, the Convention furthermore stipulates that states must cooperate with one another, provide for environmental impact assessment procedures and address the issue of liability and compensation. Apart from the SPAW Protocol, two other protocols have been adopted to supplement the Cartagena Convention: one on cooperation in combating oil spills and the other on pollution from land-based sources and activities.

Parties to the SPAW Protocol are under the general obligation to protect, preserve and manage both areas of special value and threatened or endangered species.<sup>416</sup> To that end, parties must "regulate and, where necessary, prohibit activities having adverse effects on these areas and species."<sup>417</sup> Moreover, states have

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<sup>414</sup> Adopted on 18 January 1990, in force as from 18 June 2000, text available from <<http://www.cep.unep.org/pubs/legislation/spaw.php>>; (accessed on 30 September 2006); hereafter SPAW Protocol.

<sup>415</sup> Adopted on 24 March 1983, in force as from 11 October 1986, 22 *ILM* (1983) 221.

<sup>416</sup> Art. 3(1) of the SPAW Protocol.

<sup>417</sup> Para. 2 of the same provision.

agreed to cooperate in the enforcement of these measures, while each party is confined to measures within their competence and in accordance with international law. Articles 4 to 9 spell out the protocol's regime with respect to the protection of areas. Generally, each of the contracting parties is required to establish marine protected areas if this is deemed necessary "with a view to sustaining the natural resources of the Wider Caribbean Region, and encouraging ecologically sound and appropriate use, understanding, and enjoyment of these areas, in accordance with the objectives and characteristics of each of them."<sup>418</sup> States may do so wherever they are allowed to exercise sovereignty, sovereign rights or jurisdiction, viz. in internal waters, the territorial sea and their EEZs. The aim of establishing protected areas is to conserve, maintain and restore representative types of ecosystems; habitats critical to the survival of threatened species; the productivity of ecosystems and natural resources; and areas whose special features render them important for the functioning of the Wider Caribbean ecosystems.<sup>419</sup> The protection of protected areas under the SPAW Protocol's regime is strengthened by the additional possibility of designating buffer zones in areas adjacent to them.<sup>420</sup>

The obligation to designate MPAs as such is complemented by the duty, enshrined in Article 5(1), to take all necessary measures to ensure that the objectives of the designation are achieved for the respective areas. This general provision is fleshed out in Paragraph 2, which includes a detailed – albeit non-exhaustive – list of possible protective measures. With respect to international shipping, the Protocol in Paragraph 2(c) acknowledges the right of coastal states to regulate the passage of ships and their stopping and anchoring, as well as other activities that would have significant adverse environmental effects on the MPA, while recognising the various rights of passage that foreign vessels might enjoy under international law. A further obligation on contracting parties is to adopt and implement management and enforcement measures for MPAs under their jurisdiction pursuant to Article 6. This provision also includes, by way of example, a list of measures that parties should contemplate when implementing the protocol's regime.

Article 7 makes clear that the overriding goal of the SPAW Protocol is to establish a coherent network of interdependent and mutually supportive MPAs. In order to institutionalise activities to that end, it creates a cooperation programme for protected areas, which is responsible for maintaining a list of designated sites and assisting in the different tasks parties have to carry out.<sup>421</sup> During the negotiations prior to the adoption of the protocol, designing this process was subject of considerable disagreement.<sup>422</sup> It was eventually agreed to evaluate and

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<sup>418</sup> Art. 4(1).

<sup>419</sup> Art. 4(2).

<sup>420</sup> Art. 8.

<sup>421</sup> The programme is known as the SPAW Programme. Further information available from <<http://www.cep.unep.org/who/spaw.htm>>; (accessed on 30 September 2006).

<sup>422</sup> See David Freestone, "Specially Protected Areas and the Wildlife in the Caribbean – The 1990 Kingston Protocol to the Cartagena Convention", 5 *IJECL* (1990), pp. 362-382, at 364.

select the areas jointly on the basis of guidelines and criteria adopted by the Conference of the Parties. The Scientific and Technical Advisory Committee (STAC) was placed at the heart of the process.<sup>423</sup> It reviews sites nominated by contracting parties against the criteria adopted by the parties pursuant to Article 21.<sup>424</sup> Based on its recommendations, the MOP includes the nomination in the list of protected areas. The SPAW Programme has set up various initiatives to ensure that the network of MPAs in the Wider Caribbean region is maintained at the highest possible level. Amongst others, it has established a so-called Network of Wider Caribbean Marine Protected Areas Managers (CaMPAM) in 1997,<sup>425</sup> as well as training programmes for MPA managers, and it has entered into memoranda of cooperation with the CBD and the Ramsar Convention. The latter instruments were developed to regionalise and implement the global conventions under the auspices of the Caribbean Environment Programme (CEP), one of the sub-programmes of UNEP's Regional Seas Programme.

The SPAW Protocol has been hailed as “the most comprehensive regional wildlife protection treaty in the world.”<sup>426</sup> Indeed, at least as far as its provisions on protected areas are concerned, it brings together ambitious standards for the maintenance of these areas, far-reaching protection requirements and a unique network-oriented approach in a manner unprecedented at the time it was negotiated. Nonetheless, although its rules expressly provide for the regulation of vessel activities potentially influencing the status of the area, exertion of these rights remains conditional upon non-interference with the freedom of navigation. To the extent provided for by UNCLOS, the latter may thus acquire supremacy over environmental purposes – arguably not the best prerequisite for effectively protecting threatened marine habitats.

## 2. Barcelona Protocol

As one of the first multilateral instruments under the UNEP Regional Seas Programme, riparian states of the Mediterranean Sea adopted the Barcelona Convention in 1976 and it was substantially amended in 1995.<sup>427</sup> In the wake of

<sup>423</sup> The STAC is established by virtue of Art. 20(1) of the Protocol. The procedure for the establishment of the list is laid down in Art. 7(3).

<sup>424</sup> Those were adopted in 1996, cf. Caribbean Environment Programme, *Common Guidelines and Criteria for Protected Areas in the Wider Caribbean Region: Identification, Selection, Establishment and Management*, published as CEP Technical Report No. 37; available from <<http://www.cep.unep.org/pubs/Techreports/tr37en/content.html>>; (accessed on 30 September 2006).

<sup>425</sup> CaMPAM aims at the “enhancement of marine and coastal area management in the Wider Caribbean Region through sharing and collaboration to strengthen our national and regional systems of existing and future marine and coastal protected areas.” See the network's webpage, available from <<http://www.cep.unep.org/programmes/spaw/MPA/mpa.htm>>; (accessed on 30 September 2006).

<sup>426</sup> David Freestone, *supra*, note 422, p. 368.

<sup>427</sup> Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean, adopted on 10 June 1995, in force as from 9 July 2004. The text is

revising the convention, states felt able to agree on a new protocol dealing with marine protected areas<sup>428</sup>, which is, according to its preamble, designed to protect and improve the state of the Mediterranean natural and cultural heritage by providing for the designation of so-called Specially Protected Areas of Mediterranean Importance (SPAMIs). Under the terms of Article 2, the protocol is applicable to any sea area of the Mediterranean, regardless of the legal status attached to it.<sup>429</sup> Its scope of application is furthermore geographically expanded to internal waters up to the freshwater limit and to terrestrial coastal areas, and encompasses the seabed and its subsoil.<sup>430</sup> This comprehensive approach was considered necessary, especially for the appropriate protection of highly migratory species.<sup>431</sup>

General obligations on the parties, contained in Article 3, include the protection, preservation and management of vulnerable sites, in particular by establishing MPAs in accordance with the protocol; cooperation directly or through the competent international organisations with a view to conserving and sustainably using the Mediterranean's biodiversity; and the application of measures provided for in the protocol without prejudice to the sovereignty or the jurisdiction of other parties or third states. In a more general manner, Paragraph 5 of this article calls for the application of the precautionary principle to the extent that the parties are obliged to "identify processes and categories of activities which have or are likely to have a significant adverse impact on the conservation and sustainable use of biological diversity." Moreover, Paragraph 6 requires parties to act in accordance with international law when enforcing protective measures. Article 4 sets forth the objectives of deploying the SPAMI concept, which comprise protection of representative ecosystems, critical habitats and sites of particular scientific, aesthetic, cultural or educational interest. The protective means to achieve these ends include, by virtue of Article 5, prohibition of dumping or discharge of wastes and other matters; regulation of the passage of ships and any stopping or anchoring; and, generally, any measure aimed at safeguarding ecological and biological processes and the landscape. Mirroring Article 3(6), the chapeau of Article 6 stipulates that protective measures must be carried out in conformity with international law.

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reproduced in Tullio Scovazzi *supra*, note 33, pp. 129-139. Hereafter Barcelona Convention.

<sup>428</sup> Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean, adopted on 10 June 1995, in force as from 12 December 1999; text reproduced in Tullio Scovazzi (ed.), *supra*, note 33, pp. 163-177; hereafter Barcelona Protocol. The protocol did not amend but replaced the 1982 Geneva Protocol Concerning Mediterranean Specially Protected Areas.

<sup>429</sup> In this respect, it is important to note that no coastal state has yet proclaimed an EEZ in the Mediterranean Sea. Hence, the waters beyond the territorial sea are to be regarded as high seas.

<sup>430</sup> Cf. Ornella Ferrajolo, "Specially Protected Areas and Biodiversity in the Mediterranean", available from <<http://www.isgi.cnr.it/stat/pubblicazioni/sustainable/068.pdf>>; (accessed on 30 September 2006), p. 69 et seqq.

<sup>431</sup> Tullio Scovazzi, *supra*, note 98, pp. 1-17, at 11 et seqq.

The designation mechanism is dealt with in Articles 8 to 10. Similar to the approach adopted by the Ramsar Convention and the World Heritage Convention, Article 8 establishes a “SPAMI List”, which is to present those sites that parties agree to designate under the protocol. Assessment of the proposals is done by National Focal Points.<sup>432</sup> Common criteria for the selection of sites are formulated in Annex I to the protocol.<sup>433</sup> In addition to the three general criteria of Article 8(2) of the protocol, they address the uniqueness of ecosystems; natural representativeness; diversity of species, communities, habitats or ecosystems; and naturalness. In laying down requirements for the subsequent procedure, Article 9 reflects the possibility that protected sites may be designated in all parts of the sea, inasmuch as it contains different rules for, first, areas in those parts of the sea in which coastal states enjoy sovereignty or jurisdiction, and secondly, areas partly or wholly on the high seas. Where areas are situated in the territorial sea or the EEZ of only one state and the result of the National Focal Point’s assessment is in the affirmative, the MOP is informed accordingly and must incorporate the area in the SPAMI List. For all other areas, the procedure is more complex. Amplifying the generally recognised duty to cooperate, Article 9 (2) lit. (b) and (c) stipulates that proposal should be made by the “neighbouring parties concerned.” If the proposed area meets the established criteria for the selection of sites, the MOP is informed about the outcome of the assessment but is under no obligation to include the area in the list. In addition, its decision must be taken by consensus and the protective measures applicable in the area also need formal approval. Once the area is included in the list, planning in and management of the protected area are subject to relevant guidelines envisaged by Article 16(c). So far, the parties have merely adopted broad guiding principles for management and planning contained in Part D(5) of Annex I to the protocol.

In terms of compliance with, and enforcement of, protective measures, the Barcelona Protocol deploys a twofold approach. With respect to those states that are parties to the protocol, protective measures have a binding effect. Article 8(3) is clear in that it orders parties “to recognize the particular importance of these areas for the Mediterranean” and “to comply with the measures applicable to the SPAMIs and not to authorize nor undertake any activities that might be contrary to the objectives for which the SPAMIs were established.” In line with the *pacta tertiis* principle in international law<sup>434</sup>, non-party states cannot be subjected to the instrument’s rules. In seeking compliance, states may only resort to the application of rules enshrined in customary international law and UNCLOS. Article 28(1) of the Barcelona Protocol reflects that when it acknowledges that any measure under the protocol has to be “consistent with international law.” However, Article 28(1) goes beyond mere affirmation of the status quo by obliging parties to “invite

<sup>432</sup> Established pursuant to Art. 24 of the Barcelona Protocol.

<sup>433</sup> As envisaged by Art. 16(a) of the Barcelona Protocol.

<sup>434</sup> As reflected in Art. 34 of the Vienna CLOT, according to which “[a] treaty does not create either obligations or rights for a third state without its consent.” See, further, Günther Handl, “Regional Agreements and Third State Vessels: Is the *Pacta Tertiis* Principle Being Modified?” in H. Ringbom (ed.), *supra* note 234, pp. 217-240, at 221 et seqq.

States that are not Parties to the Protocol and international organizations to cooperate in the implementation.” It is evident that the IMO would be the prime choice for seeking the global protection of SPAMIs, at least as far as threats from international shipping are concerned.

Thus far, 14 SPAMIs have been included in the list.<sup>435</sup> As concerns their legal status, Article C of Annex I, Paragraph 1 notes that “all areas eligible for inclusion in the SPAMI List must be awarded a legal status guaranteeing their effective long-term protection.” This wording implies that SPAMIs as such have no autonomous legal status. Their designation is just an additional recognition by other states of the area’s domestically identified vulnerability. Finally, note should be taken of criticism voiced by the EEA. It complained that in contrast to the Barcelona Protocol’s rather progressive ambitions, most Mediterranean states lack the political will to actually enforce the Barcelona Convention and its protocols.<sup>436</sup>

### **3. Helsinki Convention: Establishing a Network of Baltic Sea Protected Areas**

The Convention for the Protection of the Marine Environment of the Baltic Sea<sup>437</sup> was adopted in its revised form on 9 April 1992 and entered into force on 17 January 2000 after ratification by all Baltic Sea states. The alarming state of the marine environment of the Baltic Sea and its growing anthropogenic use had led to close cooperation of the riparian states many years before – even during the Cold War – on the basis of the 1972 Helsinki Convention.<sup>438</sup> The revision of the Convention, primarily aimed at aligning it with UNCLOS,<sup>439</sup> introduced Article 15 to strengthen marine environment protection by obliging contracting parties to preserve natural habitats and biological diversity and to protect ecological processes. It furthermore stipulates that “[s]uch measures shall also be taken in order to ensure the sustainable use of natural resources within the Baltic Sea Area.” In furtherance of these obligations, the contracting parties committed themselves to adopting “subsequent instruments containing appropriate guidelines and criteria.” Correspondingly, the Helsinki Commission (HELCOM), consigned with the task of observing the implementation of the Convention and making appropriate recommendations, initiated the establishment of a system of protected marine and

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<sup>435</sup> Marjo Vierros and Charlotte Salpin, “Evaluating and Enhancing the Implementation of the Marine and Coastal Programme of Work of the Convention on Biological Diversity”, 19 *Ocean Yearbook* (2005) pp. 232-252, at 246.

<sup>436</sup> EEA, *Priority Issues in the Mediterranean Environment*, EEA Report No. 4/2006 (Copenhagen: EEA 2006), p. 77.

<sup>437</sup> Text reproduced in 8 *IJMCL* (1993) 215; hereafter Helsinki Convention.

<sup>438</sup> Peter Ehlers, “Marine Environment Protection – The Baltic Sea Example”, in P. Ehlers, E. Mann-Borgese and R. Wolfrum (eds.), *Marine Issues* (The Hague London New York: Kluwer Law International 2002), pp. 93-104, at 95. The text of the 1972 Convention is reproduced in 13 *ILM* (1974) 546.

<sup>439</sup> Peter Ehlers, *supra*, note 438, *loc.cit.*; Gerold Janssen, *supra*, note 3, p. 40.



coastal areas, the so-called Baltic Sea Protected Areas (BSPAs)<sup>440</sup> In March 1994. The recommendation expressly refers to the decisions of the 1992 UNCED, which it tries to put into practice in the specific context of the Baltic Sea's marine ecosystems.<sup>441</sup> The BSPA network's purpose is to contribute to the protection of representative ecosystems as well as to guarantee the sustainable use of natural resources to protect sufficiently the biodiversity of the Baltic Sea.<sup>442</sup> To facilitate the recommendation's implementation, HELCOM adopted guidelines that have recently been revised.<sup>443</sup> The guidelines contain criteria that an area should meet in order to become part of the network, including biological features, such as representativeness, and geographical features, such as size.

As there are no high-sea areas in the Baltic Sea, the main focus of Recommendation 15/5 is on the establishment of BSPAs in the EEZ. Means of implementation envisaged in this zone include protected areas designated pursuant to the EU Wild Birds Directive or the EU Habitats Directive<sup>444</sup> and PSSAs designated by IMO.<sup>445</sup> These designations are necessary, since BSPAs as such provide no legal basis for norms applicable to foreign ships sailing through the EEZ. Even though the bundle of protective measures for respective areas may address shipping matters, these measures cannot go beyond those rules that have been agreed within IMO, for instance, discharge restrictions applicable in MARPOL special areas.<sup>446</sup> The most important instruments for BSPAs are so-called management plans.<sup>447</sup> They are designed to cover all relevant human activities that might occur in, and

<sup>440</sup> Helcom Recommendation 15/5, *System of Coastal and Marine Baltic Sea Protected Areas (BSPA)* adopted 10 March 1994, updated by Helcom heads of delegation meeting 11/2003, available from <[http://www.helcom.fi/Recommendations/en\\_GB/rec15\\_5/](http://www.helcom.fi/Recommendations/en_GB/rec15_5/)>; (accessed on 30 September 2006).

<sup>441</sup> The recitals refer primarily to Chapter 17 of Agenda 21, which calls on states to protect the marine environment in an integrated, precautionary and preventive manner, and to the CBD.

<sup>442</sup> A recent assessment of domestic implementation of the BSPA notion yielded rather unsatisfactory results; see Åsa Andersson et al, *Do Governments Protect the Treasures of our Seas? – Measuring Progress on Marine Protected Areas* (Bremen: WWF Germany 2003), p. 22 et seqq.

<sup>443</sup> Guidelines for Designating Marine and Coastal Baltic Sea Protected Areas (BSPA) and Proposed Protection Categories, adopted by the meeting of the heads of delegation, 25-26 March 2003, available from <[http://www.helcom.fi/Recommendations/guidelines/en\\_GB/guide15\\_5/](http://www.helcom.fi/Recommendations/guidelines/en_GB/guide15_5/)>; (accessed on 30 September 2006). See further Gerold Janssen, *supra*, note 3, p. 58 et seqq.

<sup>444</sup> On these two directives, see, *infra*, Sec. II.7 of this chapter.

<sup>445</sup> Guidelines for Designating Marine and Coastal Baltic Sea Protected Areas (BSPA) and Proposed Protection Categories, *supra*, note 443, para. 1.2. The latter reference has become outdated, since IMO has designated almost the whole Baltic Sea as a PSSA. Yet, within the Baltic Sea Area PSSA specific protective measures may be applied to small areas that have been identified as BSPAs.

<sup>446</sup> The Baltic Sea is a special area under Annexes I, II and V, as well as a SECA under Annex VI. See further, *infra*, Sec. V.1. of Chapter 8 and Sec. II.2. of Chapter 9.

<sup>447</sup> Cf. HELCOM HABITAT 5.2/8, *Guidelines for Management of Baltic Sea Protected Areas*, adopted 12 October 2005, available from <[http://www.helcom.fi/Recommendations/guidelines/en\\_GB/guidel\\_15\\_5\\_mgt/](http://www.helcom.fi/Recommendations/guidelines/en_GB/guidel_15_5_mgt/)>; (accessed on 30 September 2006), para. 7.

negatively affect, a protected area, such as extraction of sand, stones and gravel; tourism; and the transport of hazardous substances by ship through these areas.<sup>448</sup> The management plans should regulate and monitor these activities and, if necessary, impose restrictions or bans in extent, time or space.<sup>449</sup>

Because coastal States, by virtue of Article 56 of UNCLOS, have been assigned sovereign rights with respect to regulating these activities in their territorial sea and EEZ, relevant measures can be based on jurisdiction sufficiently recognised in international law. Other instruments intended to protect the BSPA need to correspond, too, with the rights of other states as laid down in UNCLOS.<sup>450</sup> This is also expressly stated in the Helsinki Convention's collision rules of Articles 27 and 29. Recommendations of HELCOM merely constitute non-binding decisions of an international organisation and, hence, Recommendation 15/5 does not entail any legal duty to designate parts of the sea as a BSPA.<sup>451</sup> However, states are obliged by Article 15 to become active in one way or another to protect vulnerable habitats. The concept of BSPAs provides them with an instrument that warrants the coordination and integration of various protective measures in particularly vulnerable marine areas. Nonetheless, it does not permit the regulation of international shipping beyond what is envisaged in UNCLOS and other relevant treaties.

#### 4. OSPAR Convention

Another regional treaty providing for marine protected areas is the 1992 Convention for the Protection of the Marine Environment of the North-East Atlantic.<sup>452</sup> It is a merger of two preceding treaties, the 1972 Oslo Convention and the 1972 Paris Convention,<sup>453</sup> and is frequently referred to as the Oslo-Paris Convention, or, in short, OSPAR Convention. The Convention consists of the Convention itself, as well as five annexes and three appendices, both of which form integral parts of the Convention.<sup>454</sup> It is governed by the so-called OSPAR Commission.<sup>455</sup> Originally, the OSPAR Convention in Article 2(1) lit. c contained a general obligation to “conserve marine ecosystems and, when practicable,

<sup>448</sup> Helcom Recommendation 15/5, *supra*, note 440, lit. d.

<sup>449</sup> Guidelines for Management of Baltic Sea Protected Areas (BSPAs), *supra*, note 447, para. 6.

<sup>450</sup> Hans D. Jarass, *supra*, note 408, p. 38.

<sup>451</sup> Annette Ballschmidt-Boog, *supra*, note 10, p. 102; Markus J. Kachel, *supra*, note 332, p. 42 et seq.; Peter Ehlers, “Das neue Helsinki-Übereinkommen – Ein weiterer Schritt zum Schutz der Ostsee”, 15 *NuR* (1993), pp. 202-212, at 203.

<sup>452</sup> The Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft, adopted 15 February 1972, in force 7 April 1974, 11 *ILM* (1972) 262, as amended by the protocols of 2 March 1983 and 5 December 1989; and the Convention for the Prevention of Marine Pollution from Land-Based Sources, adopted on 4 June 1974, in force as from 6 May 1978, 13 *ILM* (1974) 352, as amended by the Protocol of 26 March 1986.

<sup>453</sup> Cf. Art. 31 of the Convention.

<sup>454</sup> Art. 14.

<sup>455</sup> Art. 10.

restore marine areas which have been adversely affected”, which was not specified in any more detail. It was in 1998, when the contracting states at the Ministerial Meeting of the OSPAR Commission in Sintra (Portugal) adopted Annex V on the protection and conservation of the ecosystems and biological diversity of the maritime area and Appendix III setting forth criteria for identifying human activities for the purpose of Annex V. Annex V, in particular, is designed to give concrete form to the prerequisites of the OSPAR Convention, while at the same time taking into account the principles of the CBD. The adoption of the new instruments is meant to contribute to the establishment of an OSPAR Network of marine protected areas<sup>456</sup>, which should have close ties with the Helsinki Commission’s BSPA network and the EU Natura 2000 network.<sup>457</sup>

The protective approach deployed by Annex V is twofold. First, Article 2 of Annex V obliges *parties* “to take the necessary measures to protect and conserve the ecosystems and biological diversity of the marine area, and to restore, where practicable, marine areas which have been adversely affected.”<sup>458</sup> Article 3(1) of the annex calls for the *Commission* “to draw up programmes and measures for the control of the human activities by the application of the criteria in Appendix 3, [...] to develop means [...] for instituting protective, conservation, restorative or precautionary measures related to specific areas or sites or related to particular species or habitats, [and] to aim for the application of an integrated ecosystem approach.”<sup>459</sup>

Even though these provisions become binding after ratification of the parties to OSPAR<sup>460</sup>, they do not introduce a new category of marine protected areas in international law. Article 2 of Annex V simply constitutes an obligation on the contracting parties to the OSPAR Convention. If they wish to designate MPAs pursuant to the requirements of the convention, whose protective measures should be applicable to all potential users of the area, including vessels flying flags of non-parties, they are confined to the means that are internationally recognised,

<sup>456</sup> See *OSPAR Recommendation 2003/3 on a Network of Marine Protected Areas*, adopted on 27 June 2003, para. 3.

<sup>457</sup> This might well lead to a “joint network of well-managed marine protected areas by 2010”, cf. Declaration of the Joint Ministerial Meeting of the Helsinki and OSPAR Commissions, para. 17, available from <[http://www.ospar.org/eng/html/md/joint\\_declaration\\_2003.htm](http://www.ospar.org/eng/html/md/joint_declaration_2003.htm)>; (accessed on 30 September 2006). For information on the Natura 2000 network, see, *infra*, Sec. II.7 of this chapter.

<sup>458</sup> OSPAR member states’ willingness to implement MPAs in their waters to date is low: “submissions have generally been fewer and slower than ideal”; cf. OSPAR Commission, *2005/2006 Report on the Status of the OSPAR Network of Marine Protected Areas* (2006), available from <[http://www.ospar.org/documents/dbase/publications/p00268\\_First%20status%20of%20the%20OSPAR%20Network%20of%20MPAS.pdf](http://www.ospar.org/documents/dbase/publications/p00268_First%20status%20of%20the%20OSPAR%20Network%20of%20MPAS.pdf)>; (accessed on 30 September 2006), p. 9.

<sup>459</sup> See further Wolff Heintschel von Heinegg, “The Development of Environmental Standards for the North-East Atlantic, Including the North Sea”, in P. Ehlers, E. Mann-Borgese and R. Wolfrum (eds.), *supra*, note 438, pp. 135-153, at 141.

<sup>460</sup> In March 2006, Annex V and Appendix III entered into force for the last contracting party, Portugal; see information available from <[http://www.ospar.org/eng/html/convention/ospar\\_conv10.htm](http://www.ospar.org/eng/html/convention/ospar_conv10.htm)>; (accessed on 30 September 2006).

such as Article 211(5) and (6) of UNCLOS, MARPOL special areas, and PSSAs; or specific vessel traffic measures under SOLAS. In that respect, it is just a clarification that Annex V stipulates that any means of protecting vulnerable sites must be consistent with international law.<sup>461</sup> Furthermore, whenever the OSPAR Commission contemplates the adoption of a measure concerning international shipping, it must bring it to the attention of IMO, while the member states, in implementing the annex, have to take “account of any guidelines developed by that Organization on the designation of special areas, the identification of particularly sensitive areas or other matters.”<sup>462</sup> Apparently, consistency with global rules of international law was a crucial concern in the process of drafting this annex.

### **5. Nairobi SPA Protocol**

The Western Indian Ocean is an area that has since long been part of the UNEP Regional Seas Programme.<sup>463</sup> The 1985 Protocol Concerning Protected Areas and Wild Fauna and Flora in the Eastern African Region was adopted as a protocol to its governing instrument, the 1985 Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region.<sup>464</sup> Both agreements were part of the launch of UNEP’s Eastern African Action Plan and they currently have ten parties.<sup>465</sup> The area the instruments are applicable to is defined in Article 2(a) of the Convention as “the marine and coastal environment of that part of the Indian Ocean situated within the Eastern African region and falling within the jurisdiction of the Contracting Parties to this Convention.” The region is known for its outstanding value in terms of providing habitat for marine flora and fauna. It predominantly features mangrove forests, seagrass beds, seashores, lagoons and coral reefs supporting more than 11,000 species and providing breeding sites for 70 per cent of the world’s marine turtle population.<sup>466</sup> However, a number of human activities adversely impact on the status of these marine ecosystems, including unplanned urbanisation and over-exploitation of resources. The protected-areas concept of the Nairobi Protocol was seen as a key element in bringing environmental degradation to a halt.

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<sup>461</sup> Art. 3(1) lit. b (ii). The expression “international law” means UNCLOS; see Rainer Lagoni, *supra*, note 260, p. 131.

<sup>462</sup> Art. 4(2) of Annex V.

<sup>463</sup> Decision 8/13C by the Governing Council of UNEP, 29 April 1980.

<sup>464</sup> Both adopted on 21 June 1985, in force as from 30 May 1996. Hereafter Nairobi Convention and Nairobi Protocol, text reproduced in Wolfgang Burhenne, *International Environmental Law – Multilateral Treaties* (Berlin: Erich Schmidt Verlag 1974, loose leaf collection), sec. 985:46 and 985:47. For a general overview, see Philippe Sands, *supra*, note 107, p. 404 and 526 et seq.

<sup>465</sup> See information available from <[http://www.unep.org/regionalseas/Programmes/UNEP\\_Administered\\_Programmes/Eastern\\_African\\_Region/default2.asp](http://www.unep.org/regionalseas/Programmes/UNEP_Administered_Programmes/Eastern_African_Region/default2.asp)>; (accessed on 30 September 2006).

<sup>466</sup> Cf. UNEP, “Eastern Africa”, available from <[http://www.unep.org/regionalseas/Programmes/UNEP\\_Administered\\_Programmes/Eastern\\_African\\_Region/default2.asp](http://www.unep.org/regionalseas/Programmes/UNEP_Administered_Programmes/Eastern_African_Region/default2.asp)>; (accessed on 30 September 2006).

With respect to protected areas, Article 10 of the Nairobi Convention generally formulates that “the Contracting Parties shall, individually or jointly, take all appropriate measures to protect and preserve rare or fragile ecosystems as well as rare, depleted, threatened or endangered species of wild fauna and flora and their habitats in the Convention area. To this end the Contracting Parties shall, in areas under their jurisdiction, establish protected areas.” If activities in those areas are regulated or prohibited to avoid adverse effects on species, ecosystems of biological processes, this must be carried out “subject to the rules of international law.” In this regard, Article 10 expressly stipulates that protective measures must not “affect the rights of other Contracting Parties and third States and in particular other legitimate uses of the sea.” These formulations have obviously been drafted to prevent protective measures from interfering with navigational rights of third-state vessels as framed in UNCLOS, even though the convention is not mentioned in express terms. It should furthermore be noted that Article 5 addresses vessel-source pollution in that it obliges the contracting parties to “take all appropriate measures to prevent, reduce and combat pollution of the Convention area caused by discharges from ships.” In so doing, they must “ensure the effective implementation of the applicable international rules and standards established by [IMO].” This norm is an additional safeguard clause protecting foreign vessels navigating through an MPA from undue interference on the basis of environmental rules exceeding those agreed on a global level.

Fleshing out the obligations of Article 10 of the Convention, the parties adopted the aforementioned protocol, which in Article 8(1) states: “The Contracting Parties shall, where necessary, establish protected areas in areas under their jurisdiction [...] and shall take all appropriate measures to protect those areas.” To effectively protect particular areas, parties are invited to establish buffer zones around those areas “in which activities are less severely restricted while remaining compatible with the purposes of the protected area.”<sup>467</sup> Addressing the objectives of SPAs, Paragraph 2 of Article 8 notes, amongst others, the need to safeguard representative samples of all types of ecosystems in the Eastern African region, as well as populations of the greatest possible number of species of fauna and flora depending on these ecosystems. Paragraph 3 sets forth features to be taken into account that underpin the importance of protected areas such as, *inter alia*, critical habitats for rare species, migratory routes for migratory species and rare or fragile ecosystems. Recognising that Article 8 is still more of a framework character, Article 9 explicitly obliges parties to “formulate and adopt guidelines, standards or criteria concerning the identification, selection, establishment and management of protected areas” at their first meeting. Nevertheless, the MOPs have not yet adopted a coherent set of guidelines such as those intended by the provision.<sup>468</sup> With respect to the protective measures envisaged for MPAs established pursuant

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<sup>467</sup> Art. 11 of the Protocol.

<sup>468</sup> These and other shortcomings led to COP 3 contemplating a review of the protocol, cf. UNEP(DEC)/EAF/CP.3/9, *Report of the third Meeting of the Contracting Parties to the Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region*, 27 February 2002, p. 67 et seqq.

to Article 8, Article 10 lays down a variety of different possibilities, which must be taken “in conformity with international law.” Some of these listed measures may potentially have implications for the navigation of foreign vessels in the protected areas, but none of them expressly relates to navigational aids, CDEM standards for vessels or discharge restrictions. It can thus be concluded that the SPA concept of the Nairobi Protocol does not provide for the designation of marine protected areas that expand coastal state jurisdiction, to the extent that it impinges upon the navigational rights of foreign vessels in excess of measures justified under UNCLOS.

### **6. Antarctic Specially Protected Areas under the Antarctic Treaty System**

A further category of protected areas applicable to marine ecosystems are Antarctic Specially Protected Areas (ASPAs), which aim “to protect outstanding environmental, scientific, historic, aesthetic or wilderness values, any combination of those values, or ongoing or planned scientific research.”<sup>469</sup> The instrument which provides for ASPAs is Annex V of the 1991 Madrid Protocol<sup>470</sup> to the 1959 Antarctic Treaty.<sup>471</sup>

Antarctica’s environment is truly exceptional. It covers almost 14 million square kilometres of pristine wilderness, 98 per cent of which are covered by a permanent ice-sheet that on average is about 2.5 km thick.<sup>472</sup> The average temperature is almost always below freezing point. Due to the harsh conditions, flora and fauna on the terrestrial part are meagre. There exist several species of lichens and mosses, and about ten species of birds. Biological diversity is more abundant in the Southern Ocean surrounding Antarctica. Seals and whales are the visible image of it, but the most important animal is krill, which is a crucial element in the predator/prey relationships of the Southern Ocean.<sup>473</sup> Since the continent’s conditions are extremely hostile to human beings, apart from scientists, no one lives there permanently and only few go there as tourists. Antarctica is also the only continent without indigenous people, thus human presence in general is very low. Its ecosystem with little human interference has been a scene for scientific research for many decades. The continent was discovered in 1773, but it was not until the twentieth century when the first state, the United Kingdom claimed parts of Antarctica in 1908 as belonging to its territory.<sup>474</sup>

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<sup>469</sup> Art. 3(1) of Annex V of the 1991 Madrid Protocol to the 1959 Antarctic Treaty

<sup>470</sup> Adopted on 4 October 1991, in force as from 14 January 1998, 30 *ILM* (1991) 1461.

<sup>471</sup> Adopted on 1 December 1959, in force as from 23 June 1961, 402 *UNTS* 71.

<sup>472</sup> See information available from <<http://www.cep.aq/apa/introduction/information.html>>; (accessed on 30 September 2006).

<sup>473</sup> George A. Knox, “The Living Resources of the Southern Ocean: A Scientific Overview”, in F. Orrego Vicuna (ed.), *Antarctic Resources Policy: Scientific, Legal and Political Issues* (Cambridge: CUP 1983), pp. 21-60, at 48 et seq.

<sup>474</sup> Kees Bastmeijer, *The Antarctic Environmental Protocol and its Domestic Legal Implementation* (The Hague London New York: Kluwer Law International 2003), p. 6.

It is obvious that there are several features that make Antarctica a unique region, which required a unique treaty system to govern it. In 1959, various states negotiated the Antarctic Treaty. Although the application of the treaty's provisions is limited to a particular part of the world<sup>475</sup>, it provides for global participation. This is due to the subject matter of the Antarctic Treaty, which was negotiated in the light of various overlapping claims to the terrestrial part of Antarctica. It laid down principles to reconcile these claims<sup>476</sup> and to ensure that Antarctica was used for peaceful purposes only.<sup>477</sup> Thus, the spatial approach was complemented with a functional criterion, concentrating on the patterns of use, as well as a political criterion, based on the actual cooperation between states. All states with an interest in the area, for instance those engaged in scientific research, may accede to the Treaty; no state is excluded from participation. The contracting parties meet once a year for an Antarctic Treaty Consultative Meeting (ATCM).

The 1959 Antarctic Treaty was the foundation stone of the Antarctic Treaty System (ATS)<sup>478</sup>, subsequently supplemented by instruments designed to amplify general obligations in the treaty on specific issues, such as resource management<sup>479</sup>, while relying on the overall framework of the treaty. In 1991, the contracting parties adopted the Protocol on Environmental Protection. It was negotiated in the course of only one year – this was said to be related to the fact that it does not raise contentious sovereignty-related issues.<sup>480</sup> Its provisions are rather of consolidating character as they mostly build upon pre-existing environmental standards within the ATS, trying to subject them to an integrated and holistic instrument.<sup>481</sup> Nevertheless, the protocol constitutes an added value to the ATS in that, *inter alia*, earlier measures are ordered and recommendatory instruments are elevated to binding law.<sup>482</sup> By virtue of Article 2, the parties to the protocol are

<sup>475</sup> Pursuant to Art. VI, “the provisions of the present Treaty shall apply to the area south of 60° South Latitude”.

<sup>476</sup> Cf. Art. IV(2).

<sup>477</sup> Cf. Art. I(1).

<sup>478</sup> The ATS, as defined by the 1991 Protocol in Art. 3(1), comprises “the Antarctic Treaty and measures in effect under that Treaty, [and] its associated separate international instruments in force and the measures in effect under those instruments.” Cf. Jörn Axel Kämmerer, *Die Antarktis in der Raum- und Umweltschutzordnung des Völkerrechts* (Berlin: Duncker & Humblot 1994), p. 75 et seqq.

<sup>479</sup> See 1988 Convention on the Regulation of Antarctic Mineral Resource Activities (CRAMRA) on mineral resources – not in force; and the 1980 Convention on the Conservation of Antarctic Marine Living Resources for marine living resources. All instruments under the ATS share the approach of “regional application – global participation”.

<sup>480</sup> In contrast to the 1980 CRAMRA, that never entered into force because two states, namely Australia and France, feared it may preclude them from asserting territorial sovereignty, cf. Catherine Redgwell, “Environmental Protection in Antarctica: The 1991 Protocol”, 43 *ICLQ* (1994), pp. 599-634, at 605. For a concise account of the negotiating history of the Environmental Protocol, see Kees Bastmeijer, *supra*, note 474, p. 38 et seq.

<sup>481</sup> Catherine Redgwell, *supra*, note 480, *loc.cit.*

<sup>482</sup> These aspects are discussed by Kees Bastmeijer, *supra*, note 474, p. 50 et seqq.

obliged “to commit themselves to the comprehensive protection of the Antarctic environment” and to consider Antarctica “as a natural reserve, devoted to peace and science.” One of the critical aims is to prevent marine pollution in the Antarctic Treaty area.<sup>483</sup> The key provision is Article 3, setting forth the principles by which the environment of Antarctica should be governed and thus creating an “environmental safety-net”<sup>484</sup> for activities not addressed elsewhere.<sup>485</sup> As a further general requirement, Article 3(2) lit a stipulates that “activities in the Antarctic Treaty area shall be planned and conducted so as to limit adverse impacts on the Antarctic environment.”

Several environmentally important aspects are fleshed out in the five accompanying annexes, all of which form integral parts of the Protocol.<sup>486</sup> Annex I contains requirements for environmental impact assessments to be carried out for certain activities in the area, Annex II addresses the conservation of flora and fauna, and Annex III is concerned with waste. Annex IV features particular provisions pertaining to the prevention of marine pollution. By amplifying Recommendation VX-4 of the ATCM, it seeks to integrate existing international rules into the ATS. To this end, several articles link Annex IV to the MARPOL Convention and thus make MARPOL mandatory for ATS parties which are non-MARPOL parties.<sup>487</sup> For instance, Article 3 of Annex IV prohibits “any discharge into the sea of oil or oily mixture” except where permitted by MARPOL Annex 1. Since the Antarctic Area is a special area with respect to that annex, its rigid restrictions apply to all ATS parties, whether parties to MARPOL or not.<sup>488</sup>

The most relevant annex for the purpose of this study is Annex V, which is concerned with area protection and management. Like most aspects of the Protocol, it builds upon various instruments adopted by the contracting parties through either recommendations or so-called Agreed Measures.<sup>489</sup> Annex V was not agreed at the same time as the other annexes, as some parties could not agree on some of its provisions at the meeting in Madrid. It was subsequently adopted at the XVIIth ATCM in Bonn in October 1991 as an annex to Recommendation

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<sup>483</sup> Cf. Art. 3(2) lit. b (iii) of the Protocol. For an overview, see Christopher C. Joyner, “Protection of the Antarctic Environment against Marine Pollution under the 1991 Protocol”, in D. Vidas (ed.), *supra*, note 177, pp. 104-123, 107 et seqq.

<sup>484</sup> Catherine Redgwell, *supra*, note 480, p. 607.

<sup>485</sup> Cf. Laurence Cordonery, “Environmental Protection in Antarctica: Drawing Lessons from the CCAMLR Model for the Implementation of the Madrid Protocol”, 29 *ODIL* (1998), pp. 125-146, at 131. Samuel K.N. Blay, “New Trends in the Protection of the Antarctic Environment: The 1991 Madrid Protocol”, 86 *AJIL* (1992), pp. 377-399, at 389.

<sup>486</sup> Art. 9(1) of the Protocol.

<sup>487</sup> Catherine Redgwell, *supra*, note 480, p. 627; Christopher C. Joyner, *supra*, note 483, p. 116 et seq.

<sup>488</sup> Some problems and loopholes remain, especially with respect to enforcement matters; see Christopher C. Joyner, *loc.cit.*

<sup>489</sup> For the pre-Annex V protected area system, see Beth Marks Clark and Karen Perry, “The Protection of Special Areas in Antarctica”, in F. Francioni and T. Scovazzi (eds.), *International Law for Antarctica* (The Hague: Kluwer Law International 1997), pp. 293-318, at 308 et seqq.



XVI-10<sup>490</sup>, and became legally binding with its entry into force on 24 May 2002.<sup>491</sup> Until the adoption of Annex V, eight different categories of protected areas had already been established under the ATS<sup>492</sup> which are now merged into two: Antarctic Specially Protected Areas (ASPAs) and Antarctic Specially Managed Areas (ASMAs). All existing Specially Protected Areas (SPAs) and (Marine) Sites of Special Scientific Interest (MSSSIs and SSSIs) became ASPAs when Annex V entered into force.<sup>493</sup>

The legal definition of ASPAs in Article 3(1) as cited at the beginning of this section is silent on marine areas, but Article 2 makes it clear that “any area, including any marine area, may be designated as an [ASPA].” Parties are obliged to identify areas that feature representative examples of habitats, breeding grounds or species.<sup>494</sup> Identified sites must be of sufficient size to fulfil their protective role. Entry into the protected area is generally prohibited except in accordance with the conditions laid down in an entry permit issued by the appropriate authority.<sup>495</sup> The key element for the designation is the so-called management plan.<sup>496</sup> Apart from describing the area and its characteristics, it is to clarify protective objectives and particular measures that should regulate activities in the area, as well as conditions under which permits for entry may be granted.<sup>497</sup> By setting forth substantive rules to be applied to the management of the protected area, management plans also provide for the rules necessary for the subsequent implementation phase. The conditions for granting permits are supplemented by a code of conduct that further elaborates on activities carried out in the ASPA. There is a good argument to be made in favour of a very restrictive stance as regards the conditions for the permit and the code of conduct. Article 7(2) stipulates that permits for entry into SPAs designated under the previous regime, that did not require management plans to be in place, should only be issued if there exists a “compelling scientific purpose which cannot be served elsewhere and which will not jeopardize the natural ecological systems in that Area.” Since no general guidance of that kind is given with respect to standards made effective in management plans, there is no reason not to use the underlying rationale of Article 7(2) for the formulation of management plans under the current regime.

<sup>490</sup> Annex V is not contained in the published text of the protocol referred to, *supra*, in note 470. The text of Rec. XVI-10 and its annex is reproduced in William M. Bush, *Antarctica and International Law* (Dobbs Ferry: Oceana Publishing 1991, loose leaf collection), booklet AT91F, sec. AT18101991.28.

<sup>491</sup> Catherine Redgwell, “Protection of Ecosystems under International Law: Lessons from Antarctica”, in A. Boyle and D. Freestone, *supra*, note 109, pp. 205-224, at 208, in note 16. See, generally, Christopher C. Joyner, *supra*, note 483, p. 119 et seq.

<sup>492</sup> For an overview see: “The Antarctic Protected Area System: Old Categories (SPA, SSSIs)”, available from <<http://www.cep.aq/apa/introduction/categories.html>>; (accessed on 30 September 2006).

<sup>493</sup> Art. 3(3) of Annex V.

<sup>494</sup> Set forth in more detail in Art. 3(2) of Annex V.

<sup>495</sup> Cf. Art. 3(4) and 7(1) of Annex V.

<sup>496</sup> Art. 5 of Annex V.

<sup>497</sup> Art. 5(3) of Annex V.

Finally, it should be noted that to adapt to possible changes of the prevailing conditions in the area, the management plan must be kept under review.<sup>498</sup>

As has been seen, marine areas can be designated as ASPAs. This leads to the question of how the ASPA regime relates to UNCLOS, especially to the navigational rights of vessels established therein. Because Antarctica is not state territory, it cannot generate a territorial sea or an EEZ and so its coastal waters are all high seas.<sup>499</sup> The ATS parties are under the obligation to comply with Annex V rules and to cooperate in achieving its preservation objectives. Thus, vessels flying their flag would not be allowed to sail through a marine ASPA without prior permission by the competent authority. For non-party vessels, the situation is different. As Article VI of the AT clearly states, “nothing in the present Treaty shall prejudice or in any way affect the rights, or the exercise of the rights, of any State under international law with regard to the high seas within that area.” These general presumptions are not modified by the Environmental Protocol, which is expressed by Article 4(1): “This Protocol shall supplement the Antarctic Treaty and shall neither modify nor amend that Treaty.” Compliance with protective measures in ASPAs in Antarctic parts of the oceans would thus wholly depend on the goodwill of either the state (ordering its vessels to avoid such areas) or the master of a vessel. There is no provision in UNCLOS to counterbalance the weak protection of the Antarctic waters as high seas. Article 234, subjecting ice-covered areas to a strict environment protection regime, cannot be deployed because it is only applicable within the limits of the EEZ, which does not exist off Antarctica.<sup>500</sup>

It can therefore be concluded that, although the ATS allows for global participation, it is not of universal character with respect to protecting marine ASPAs designated under Annex V of the 1991 Environmental Protocol to the Antarctic Treaty. The protective rules are subject to the global UNCLOS regime, whose marine environment protection regime is to a large extent determined by the existence of coastal states and their sovereignty, sovereign rights and jurisdiction in their coastal waters. Coastlines and shallow waters are considered most vulnerable to marine pollution, so it makes sense to impinge more intensively on navigation rights the closer a vessel navigates to the coast. This model loses its elegance in Antarctica, where coastal ecosystems are equally or even more vulnerable than elsewhere in the world, but its unique international status – with many overlapping claims to sovereignty, none of which is entirely

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<sup>498</sup> Art. 6(3) of Annex V.

<sup>499</sup> Some commentators have suggested that a claim to an EEZ off Antarctica is not prohibited by the Antarctic Treaty. For an overview of the discussion, see Erik Jaap Molenaar, *supra*, note 233, p. 444.

<sup>500</sup> Alfred van der Essen, “The Arctic and Antarctic Regions”, in R.-J. Dupuy and D. Vignes (eds.), *A Handbook on the New Law of the Sea*, Vol. 1 (Dordrecht Boston Lancaster: Martinus Nijhoff Publishers 1991), pp. 525-560, at 528; Budislav Vukas, “United Nations Conventions on the Law of the Sea and the Polar Marine Environment”, in D. Vidas (ed.), *supra*, note 177, pp. 34-56, at 52.

recognised – precludes the approach based on maritime zones from becoming effective.<sup>501</sup> The legal framework of the ATS does not provide for protection of ASPAs to go beyond an *inter partes* approach.<sup>502</sup> These observations substantially weaken the marine ASPA regime with respect to vessel-source pollution.

### 7. Other Regional Agreements

As has been noted earlier, the six aforementioned regional treaties do not form an exhaustive list. Other regional seas are also subject to treaties providing for the protection of their environment. Some, however, do not entail mechanisms for the protection of specific parts of the sea, whereas others merely call for the protection of particular areas in a general manner while not creating a specific type of marine protected area.<sup>503</sup> As concerns the former, this may change in the future as most treaty regimes develop over time. For instance, the Framework Convention for the Protection of the Marine Environment of the Caspian Sea<sup>504</sup>, adopted on 4 November 2003, sets out the duty of contracting parties to “conserve biodiversity, habitats of rare and endangered species, as well as vulnerable ecosystems,”<sup>505</sup> but leaves it to further protocols “to undertake the necessary measures for protection, preservation and restoration of marine biological resources.”<sup>506</sup> Protocols to the convention have not yet emerged, but will arguably do so in the future.

In the South Pacific Region, the 1976 Apia Convention currently has five parties that are under the obligation to establish protected areas, both national parks and national reserves. However, the convention does not establish a defined form of protected area.<sup>507</sup> The same is true of the 1986 Noumea Convention for the Protection of Natural Resources and Environment of the South Pacific Region<sup>508</sup>, which has 19 parties and is governed by the South Pacific Regional Environment Programme (SPREP).<sup>509</sup>

<sup>501</sup> Cf. Budislav Vukas, *supra*, note 305, p. 51. Christopher C. Joyner, *Antarctica and the Law of the Sea* (Dordrecht Boston London: Martinus Nijhoff Publishers 1992), p. 41 et seqq. and p. 143 et seqq.

<sup>502</sup> ATS parties have not so far collectively established maritime zones as a basis for a possible regulatory regime *erga omnes*, even though this might be possible in theory, cf. Erik Jaap Molenaar, *supra*, note 233, p. 449.

<sup>503</sup> For a comprehensive overview of international legal instruments providing for the protection of marine areas, see UNEP/CBD/SBSTAA/9/INF/28, “Protected Areas: Looking for Synergies in the Implementation of Site-based International Agreements and Programmes”, 27 October 2003, annex.

<sup>504</sup> Not yet in force, 44 *ILM* 1 (2005).

<sup>505</sup> Art. 14(1) lit (f) of the Framework Convention.

<sup>506</sup> Art. 14(2) of the Framework Convention.

<sup>507</sup> Michael Huber and Kerry McGregor, *SPREP Technical Report 2002 – Volume 1: A Synopsis of Information Relating to Marine Protected Areas*, available from <[http://www.sprep.org/att/publication/000191\\_Volume\\_1\\_MPA.pdf](http://www.sprep.org/att/publication/000191_Volume_1_MPA.pdf)>; (accessed on 30 September 2006), p. 16 et seqq.

<sup>508</sup> Adopted 28 November 1986; in force 22 August 1990, *ATS* (1990), No. 31. Cf. Richard Herr, “Environmental Protection in the South Pacific: The Effectiveness of SPREP and

Another example is the Black Sea. Its marine environment is protected by the 1992 Convention on the Protection of the Black Sea against Pollution<sup>510</sup>, administered by the Black Sea Commission. One of the protocols adopted under the convention is the Black Sea Biodiversity and Landscape Protection Protocol<sup>511</sup>, which obliges the contracting parties “to protect, to preserve and to sustainably manage the biological and landscape diversity of the Black Sea.”<sup>512</sup> With respect to MPAs, this obligation is specified in that states “shall endeavour to inform the public of the value of protected areas, species and landscapes and shall give appropriate publicity to the establishment of these areas and regulations relating thereto.” This rather weak wording is hardly made clearer by Annex I on “Protected Areas”. The establishment of MPAs is exclusively left to the parties’ discretion. Although they are obliged to comply with certain criteria in order to achieve the conservation objective set out in Article 1, this does not signify a cooperative effort, because states merely have to comply with *their own* criteria. The Protocol does not envisage uniform standards. Similar to the 1995 Barcelona Protocol<sup>513</sup>, it establishes a “list of landscapes and habitats of Black Sea importance”<sup>514</sup>, in which all protected areas should eventually be included. Interestingly, Article 3(1) of the annex calls for protective measures in accordance with the national legal systems concerning, amongst others, “the regulation of the passage of ships, any stopping or anchoring” without providing for a safeguard clause to ensure compliance with the internationally recognised navigational rights of foreign vessels. Given the weak design of the MPA mechanism, this seems to be an oversight in drafting rather than a purposeful act.

The Lima Convention for the Protection of the Marine Environment and Coastal Area of the South-East Pacific was adopted in 1981. It contained no reference to MPAs whatsoever. These shortcomings were counteracted by the 1989 Paipa Protocol for the Conservation and Management of Protected Marine and Coastal Areas of the South-East Pacific.<sup>515</sup> On the basis of jointly formulated criteria, the parties have to establish protected areas.<sup>516</sup> The Protocol does not, however, provide for a specific type of MPA but leaves it to the individual states to choose from the types established by domestic legislation. The General Secretariat of the Permanent Commission for the South Pacific (CPPS), acting as

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its Conventions”, in O.S. Stokke and Ø.B. Thommessen (eds.), *supra* note 387, pp. 41-49, at 45 et seq.

<sup>509</sup> More information can be found at <<http://www.sprep.org>>; (accessed on 30 September 2006).

<sup>510</sup> Adopted on 21 April 1992, in force as from 15 January 1994, 32 *ILM* (1993) 1101.

<sup>511</sup> Text available from <[http://www.blacksea-commission.org/Official Documents/BLDC\\_iframe.htm](http://www.blacksea-commission.org/Official Documents/BLDC_iframe.htm)>; (accessed on 30 September 2006).

<sup>512</sup> Art. 2 of the Protocol.

<sup>513</sup> See, *supra*, Sec. II.2. of this chapter.

<sup>514</sup> Art. 4(5) of the Protocol.

<sup>515</sup> Adopted on 21 September 1989, in force as from 17 October 1994; text reproduced in Wolfgang Burhenne, *supra*, note 464, sec. 989:71.

<sup>516</sup> Art. II of the Protocol.

the Secretariat to the Protocol, has been given extensive functions with respect to collecting and disseminating data about the various protected areas.<sup>517</sup>

For the North-East Pacific region, the Convention for Co-operation in the Protection and Sustainable Development of the Marine and Coastal Environment of the North-East Pacific (Antigua Convention) was adopted in 2002.<sup>518</sup> Although it includes a general obligation to identify “areas to be protected and [rehabilitate] degraded habitats and ecosystems”<sup>519</sup> by establishing protected areas<sup>520</sup>, it contains no further specifications as to the material prerequisites or the designation procedure.

Although not part of regional international law but rather regional law *sui generis*, European Union (EU) regulations on protected areas are also quite elaborate and certainly have implications for the marine sector. They should thus be mentioned here, too, albeit very briefly. Two EU directives are relevant: the 1979 Wild Birds Directive<sup>521</sup> and the 1996 Habitats Directive<sup>522</sup> – both of which provide for the protection of environmentally valuable sites that together constitute the backbone of the so-called Natura 2000 network.<sup>523</sup> The Natura 2000 regulations arguably envisage the strictest protection regime of all international instruments, having an impact on all aspects of human development. Their emergence may be traced back to, amongst other factors, the unique legislative procedures within the EU. Implementing the requirements of the directives is mandatory under the rules of the EC Treaty. Pursuant to the Wild Birds Directive, Special Protection Areas (SPAs) have to be identified and designated. The designation of Special Areas of Conservation (SACs) under the Habitats Directive is more complex. As a first step, EU member states have to notify all relevant sites to the EU Commission that amount to at least 5 per cent of their territory. The Commission then chooses those sites best suited to contributing to the coherence of the Natura 2000 network (so-called sites of Community importance), most of which will become SACs in a final selection process.<sup>524</sup> Eventually, those sites already designated as SPAs pursuant to the Wild Birds Directive become part of the Natura 2000 regime. The purpose of the network is to “enable the natural

<sup>517</sup> Art. III, XII, and XV of the Protocol.

<sup>518</sup> Adopted on 18 February 2002, not yet in force; text available from <[www.unep.org/regionalseas/Publications/nep.doc](http://www.unep.org/regionalseas/Publications/nep.doc)>; (accessed on 30 September 2006).

<sup>519</sup> Art. 6(2) lit. c of the Convention.

<sup>520</sup> Art. 10(5) of the Convention.

<sup>521</sup> Council Directive 79/409/EC of 2 April 1979 on the Conservation of Wild Birds, OJ L No. 319, 7 November 1979, p. 3.

<sup>522</sup> Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora, OJ L No. 206, 22 July 1992, p. 7.

<sup>523</sup> For a general overview of Natura 2000 rules, refer to Christian Maaß and Peter Schütte, “Naturschutzrecht”, in H.-J.Koch (ed.), *supra*, note 124, pp. 297-345, para. 68 et seqq.; and Jan H. Jans, *European Environmental Law*, Second Ed. (Groningen: Europa Law Publishing 2000), p. 410 et seqq.; on the particular issue of marine Natura 2000 sites, see Katharina Castrangius, *Meeresschutzgebiete – Die völkerrechtliche Zulässigkeit mariner Natura 2000-Gebiete* (Baden-Baden: Nomos-Verlagsgesellschaft 2006), p. 205 et seqq.

<sup>524</sup> See art. 4 of the Habitats Directive for procedural issues.

habitat types and the species' habitats concerned to be maintained or, where appropriate, restored at a favourable conservation status in their natural range."<sup>525</sup> Generally speaking, the standard of protection for Natura 2000 sites (both SPAs and SACs), governed by Article 6 of the Habitat Directive, is not absolute, as the degradation or even destruction of sites is permissible as long as certain procedural safeguards are in place.<sup>526</sup> These safeguards resemble the notion of environmental impact assessment since, for instance, alternatives with lesser impact on the environment have to be considered before developments are permitted. In contrast to the former Wild Birds Directive's regime, economic considerations may be taken into account in a decision interfering with the coherence of a site.<sup>527</sup> Whereas Article 1(b) of the Habitats Directive clearly states that "natural habitats means terrestrial or aquatic areas", there is no explicit indication as to whether its regulations are only applicable to the territorial sea or also to the EEZs of the member states. Article 2(1) defines the purpose of the Habitats Directive as contributing "towards ensuring biodiversity through the conservation of natural habitats and of wild fauna and flora *in the European Territory of the Member States to which the Treaty applies*" (italic emphasis added). There was some doubt as to whether the last clause of this phrase confines application of the directive to the territorial sea of the member states. However, it is now widely accepted that the broad-ranging purpose of the directive, as well as the fact that it was partly designed to implement the CBD, which applies beyond the territorial sea, also require the directive's application in both the EEZ and in the waters superjacent to the continental shelf.<sup>528</sup> Thus, the duty to choose, notify, designate and – most importantly – protect areas under the *Natura 2000* regime includes vast marine areas, encompassing some of the world's most important routes for international shipping.

However, as far as the Natura 2000 regime's relationship with third-state vessels' navigational rights is concerned, it must be observed that the Habitat Directive was primarily designed to be applied in terrestrial areas. Consequently,

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<sup>525</sup> Art. 3(1) of the Habitats Directive.

<sup>526</sup> For an account of conservation and protection obligations, see Katharina Castrangius, *supra*, note 523, p. 232 et seqq.

<sup>527</sup> Cf. Art. 6(3) of the Habitats Directive. The main reason for subjecting SPAs to the Natura 2000 regime was to weaken the Wild Birds Directive's very strict protective approach, that envisaged no derogations from the standard of protection as set out in its Art. 4.

<sup>528</sup> *R v Secretary of State for Trade and Industry, ex parte Greenpeace*, English High Court of Justice, Queen's Bench Division (Maurice Kay J), 5 November 1999, 120 *ILR* (2002), pp. 617-656, at 625 et seqq. See, concurring with the findings in the judgment, Detlef Czybulka, *supra* note 317, pp. 19-27, at 23; Katharina Castrangius, *supra*, note 523, p. 210 et seqq.; and Jan H. Jans, "Case Law Analysis – The Habitats Directive", 12 *JEL* (2000), pp. 385-390, at 386 et seq. Others have argued that the wording of Art. 2(1) was primarily chosen to exclude all high-seas areas from the directive's scope of application, cf. Lauri Nordberg, "Die Anwendbarkeit der Fauna-Flora-Habitat-Richtlinie und der Vogelschutzrichtlinie der Europäischen Gemeinschaft auf die marine Umwelt", in D. Czybulka (ed.), *Naturschutz und Rechtsregime im Küsten- und Offshore-Bereich* (Baden-Baden: Nomos Verlagsgesellschaft 2003), pp. 111-120, at 115.

Article 6(2) does not specify the type and origin of the sources of deterioration or disturbance. What thus follows from the wording is that EU member states are under the obligation to avoid these sorts of impact in marine areas regardless of the nationality of potential users of the area. Obviously, these obligations need to be aligned with requirements set out by UNCLOS. *Castringius* has suggested limiting EU member states' obligations to the extent that they do not violate international law.<sup>529</sup> This approach appears to be reasonable, since the directives establishing the Natura 2000 framework cannot alter obligations arising in international law. The navigation of non-EU vessels cannot be limited beyond what UNCLOS provides for, i.e. measures available for unilateral prescription in the territorial sea and measures available with the approval of IMO in, for instance, PSSAs.<sup>530</sup>

### III. Concluding Remarks: Similarities – Contrasts – Improvement Opportunities

As has become apparent throughout this chapter, an enormous variety of international legal instruments provide for the protection of specific marine areas identified as being particularly vulnerable. Although these instruments differ in scope, institutional arrangements and enforceability – to name but a few –, it is also worth pointing out the similarities they feature. To be aware of the strengths and weaknesses of the different models, and also of the challenges they face, is necessary when assessing the PSSA concept.

First of all, it can be noted that there is a palpable difference between global and regional instruments. Whereas the global instruments concentrate on specific concerns such as pollution from ships or protection of particular habitats and species, the regional conventions are designed as comprehensive marine environment protection treaties addressing all issues relevant for the sound management of an ocean region. The characteristics of the MPA concepts identified in this chapter reflect that point. While the regional instruments aim at establishing MPAs in a coherent manner, global MPA regimes are restricted, according to the scope of their underlying instruments: MARPOL special areas are confined to addressing specific vessel-source pollution, Ramsar sites are designated for the sole purpose of protecting waterfowl habitats and World Heritage sites must represent a part of the world's natural heritage. Their narrow scope of application precludes each of them from constituting a major global MPA treaty. Besides, only MARPOL envisages designation of protected areas beyond the territorial sea. The latter treaties, therefore, are not able properly to protect vulnerable areas against threats caused by international shipping.

As for the regional treaties, the MPA mechanisms are embedded in an overall legal structure whose purpose is to coordinate and strengthen environmental protection for a clearly defined marine region. For most regimes, deploying an

<sup>529</sup> Katharina Castringius, *supra*, note 523, p. 251.

<sup>530</sup> *Ibid.*, p. 253 et seq.

MPA concept is just one of several different protective means. The different MPA concepts have several elements in common. They introduce certain types of criteria against which prospective protected areas are assessed and that provide for uniform implementation on the domestic level. Whereas the concrete procedures to evaluate the sites' potential differ, (independent) scientific advisory bodies to assist in these processes are established within all regimes. In one way or another, their goal is to establish an interdependent network of representative habitats and ecosystems, which clearly represents a move away from MPAs based on narrow scientific or national interests towards a holistic ecological approach. In the same way that these regional instruments lay down similarly ambitious standards, they face similar drawbacks. The most obvious point one needs to mention is the regional instruments' relation to freedom of navigation. All instruments contain collision clauses stipulating the supremacy of freedom of navigation in conflicts between environment and shipping interests. This prevalence is not absolute but limited according to the rules of UNCLOS as the main treaty balancing coastal states' and vessels' rights according to customary international law.

Of course, even the global instruments are designed not to contradict the UNCLOS principles. In summing up her assessment of the Ramsar Convention, the World Heritage Convention and the Man and the Biosphere Programme, *Kimball* recognises that “[n]one of these provides for designation of marine areas beyond the 12-mile territorial sea, thus avoiding any issues related to navigation freedoms.”<sup>531</sup> Although this conclusion forgets to take into account the right to innocent passage in the territorial sea, it emphasises the main point: there is not even the slightest attempt to derogate from the given framework in order to attain MPAs with a more robust protective status. As *Spadi* has highlighted, “the fact that [the] agreements are devoted to MPAs would seem to make the supremacy of innocent passage and freedom of navigation over the need to prohibit navigation for environmental purposes even more significant than it would be if the treaties in question were not connected to the subject of environmentally sensitive sites.”<sup>532</sup>

Against this background, it is even more irritating that none of the instruments, whether global or regional, incorporates a reference to Article 211(6) lit c of UNCLOS, which would allow – at least for some areas designated under the various regimes – for a considerably higher protective standard with respect to the dangers posed by international shipping. Whether this is due to the complicated procedure set forth in this particular provision, a caveat against the involvement of the IMO in general or just loose drafting cannot be answered seriously. Linking the management and protection of MPAs to UNCLOS Part XII evokes a further difficulty. Responsibility for protecting MPAs lies with the coastal states alone. The traditional rules do not envisage giving competences to (or sharing com-

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<sup>531</sup> Lee A. Kimball, *International Ocean Governance – Using International Law and Organizations to Manage Marine Resources Sustainably* (Gland: IUCN Publications 2001), p. 35.

<sup>532</sup> Fabio Spadi, “Navigation in Marine Protected Areas: National and International Law”, 31 *ODIL* (2000), pp. 285-302, at 288. The only exception in that respect are MARPOL special areas pursuant to Annex I and II, which are easily enforceable by the coastal state, since those MARPOL rules are considered as being customary law.



petences with), for instance, supra-national entities entrusted with managing MPA networks under some of the regional treaties. This is a substantial obstacle to a management approach that is not confined to individual sites but works towards reflecting and valuing their interdependence in an international context. UNCLOS' division of the sea into various zones adds to that problem. As jurisdictional boundaries are inherently arbitrary in ecosystem terms, they are difficult to reconcile with the need to manage MPAs in an integrated manner.<sup>533</sup> Thus, while remaining the prime actors with respect to MPA management, states are confined to a system of jurisdiction that is not able to accommodate fully the ecologically determined needs.

Another issue that has been stressed elsewhere is the problem of alleged future deterioration of areas.<sup>534</sup> As far as one can see, none of the MPA concepts described above expressly allows taking into account damage to marine habitats that has not yet occurred but is likely to in view of the existing patterns of use. Of course, protective measures inherently attempt to alter human behaviour in order to stop deterioration, but, for instance, designation criteria always refer to habitats that *are* demonstrably threatened, and protective measures are justified only if certain perils *are* existing and verifiable. The hurdle to a truly precautionary approach to marine area protection is thus twofold. First, the designation and protection of MPAs is solely determined by recourse to the status quo, and, secondly, compliance with the legal prerequisites has to be sufficiently demonstrated, in other words no leeway can be allowed in the case of persistent scientific uncertainties.<sup>535</sup>

As we have seen, there are now several international mechanisms that provide for special protection of vulnerable habitats and ecosystems through both management requirements and customised protective measures for each area. However, especially with respect to the protection against threats posed by international shipping, some considerable shortcomings have been identified. In the light of the latter, it should be asked if there is a potential for changes to the existing framework in the near future. It appears fair to say that, on the global level, there is very little chance that new multilateral instruments will emerge which could supplement the current canon of treaties as examined in Section I of Chapter 5. A modification of treaties, whether UNCLOS Part XII or MARPOL, is also very unlikely at the moment. This is particularly true of the regional instruments, as most of them have either been adopted or substantially revised since the 1992 UNCED, which brought significant changes to the mainstream of thinking on how international environmental law should be designed. It is too early to say if and

<sup>533</sup> Patricia Birnie and Alan Boyle, *supra*, note 13, p. 350.

<sup>534</sup> Erik Jaap Molenaar, *supra*, note 233, p. 431.

<sup>535</sup> Nevertheless, it should be noted that the SPAW Protocol envisages the application of a precautionary approach when "manag[ing] species of flora and fauna with the objective of preventing species becoming threatened or endangered." Cf. art. 3(3) of the SPAW Protocol; David Freestone, "The Conservation of Marine Ecosystems under International Law", in C. Redgwell and M. Bowman (eds.), *International Law and the Conservation of Biological Diversity* (London The Hague Boston: Kluwer Law International 1995), pp. 91-107, at 96.

when new developments will trigger a new wave of treaty revision. In addition to that, most treaties will still have to stand the test of time, because they have only been in force since the late 1990s.

Perhaps changes are more likely to happen on the institutional level. In the Northern Hemisphere, in particular, the issue of cooperation is increasingly stressed. The Joint HELCOM/OSPAR Declaration of 2003 is a prominent example of this development. It states that “[w]e will explore the possibilities for collaboration with the Barcelona Convention and the Bucharest Convention and in the framework of the Arctic Council in this field;<sup>536</sup> as appropriate, identify and assist where collaboration with other international forums (such as the Convention on Biological Diversity, and the Berne, Bonn and Ramsar Conventions) may be required, for the implementation and management of HELCOM and OSPAR marine protected areas.”<sup>537</sup> The joint ministerial meeting of the two commissions was the first of its kind, and was therefore in itself a signal for closer institutional collaboration. It is not yet possible to say whether this commitment will be followed up appropriately and if it will actually lead to an innovative form of cooperation.<sup>538</sup> On a more general level, it can be argued that by exploring new ways of linking different protective approaches in different regions, states might one day come to a more holistic management of MPAs and be able to overcome the arbitrary barriers currently dominating international law. It should not be forgotten that it is by the will of the states that international law is moulded; if ambitious environmental protection rules are implemented and applied on a regional level, they may in the event trigger a change to the basic rules on the global level. To what extent the PSSA concept can be regarded as a part of this developing picture is going to be the subject of the following chapters.

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<sup>536</sup> Joint HELCOM/OSPAR Work Programme on Marine Protected Areas, adopted at Bremen, 25-26 June 2003, available from <[http://www.helcom.fi/stc/files/Bremen\\_Docs/Joint\\_MPA\\_Work\\_Programme.pdf](http://www.helcom.fi/stc/files/Bremen_Docs/Joint_MPA_Work_Programme.pdf)>; (accessed on 30 September 2006), para. 21.

<sup>537</sup> *Ibid.*, para. 2k.

<sup>538</sup> There are already established forms of co-operation, such as the Memorandum of Cooperation between the Ramsar Convention and the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region, available from <[http://www.ramsar.org/moc/key\\_cartagena\\_moc\\_2004.htm](http://www.ramsar.org/moc/key_cartagena_moc_2004.htm)>; (accessed on 30 September 2006); general objectives are laid down in Annex I.

## **Part 3: Particularly Sensitive Sea Areas: an IMO Instrument to Protect Marine Areas**

The third part of this treatise, comprised of Chapters 6 to 8, focuses on the PSSA concept that IMO has developed to attach increased protection to certain vulnerable marine areas under particular stress from international shipping. Chapter 6 outlines the legal and institutional context, in which IMO carries out the tasks assigned to it by the international community. Chapter 7 introduces the legal basis of the PSSA concept, namely the PSSA Guidelines, in particular its development within the last two decades and its basic prerequisites, while Chapter 8 describes protective measures that may be deployed to protect a PSSA.

### **Chapter 6: Protection of the Marine Environment through IMO within the System of International Institutions**

The PSSA concept is one of an array of instruments governed by IMO. It would be premature to examine the implications of PSSAs without having explored the competences assigned to the IMO. Since IMO is not the only international organisation dealing with maritime matters, it is necessary to put its activities into context by precisely defining the scope of the various organisations' activities in the maritime field. It is also important to take note of the general legal principles that mould and constrain the legislative competences of international organisations. In so doing, this chapter should shed some light on the constraints IMO is subjected to in carrying out its duties.

#### **I. International Organisations Addressing Marine Matters**

There exists no single international organisation comprehensively dealing with all matters pertaining to the oceans and their use. No fewer than nine organisations share respective responsibilities that shall be outlined in this section. These organisations are part of a system that is sometimes referred to as the "UN family." However, their status in terms of how they relate to the UN, its Economic and Social Council (ECOSOC), and to one another differs. Three different types of institutions can be identified: UN specialised agencies, UN programmes and other autonomous organisations.

Specialised agencies are established independently of the UN by multilateral treaties. Pursuant to Articles 57 and 63 of the UN Charter<sup>1</sup>, in order to become specialised agencies, they have to enter into relationship agreements with the UN through ECOSOC, to which they have, amongst others, reporting obligations.<sup>2</sup> Nevertheless, supervision by ECOSOC is limited – thus specialised agencies are largely independent. Of the seventeen agencies operational today, IMO is responsible for all matters relating to shipping.<sup>3</sup> Other specialised agencies of relevance are the Food and Agricultural Organization (FAO), the UN Educational, Scientific and Cultural Organization (UNESCO) and the UN Industrial Development Organization (UNIDO), which are responsible for fisheries, maritime science and maritime technologies respectively.

FAO has its headquarters in Rome and was founded in 1943. It was established as an international organisation by the first FAO conference in 1945, which adopted the constituent treaty.<sup>4</sup> Its general purpose is to achieve food security for all people. By recourse to a wide range of means, FAO is to contribute to raising levels of nutrition and improving agricultural productivity to better the lives of rural populations and thereby help the world economy to grow. The major programme on fisheries aims at promoting the sustainable development of responsible fisheries and contributing to food security.<sup>5</sup> UNESCO maintains an Intergovernmental Oceanographic Commission (IOC), whose purpose, according to Article 2 of its statute, is “to promote international cooperation and to coordinate programmes in research, services and capacity-building, in order to learn more about the nature and resources of the ocean and coastal areas and to apply that knowledge for the improvement of management, sustainable development, the protection of the marine environment, and the decision-making processes of its Member States.”<sup>6</sup> The IOC was established in 1960 by Resolution 2.31 adopted by the General Conference of UNESCO at its eleventh session. UNIDO, in its endeavour to improve marine technologies, focuses on fisheries and water and coastal zone management.<sup>7</sup> Its overall aim is to fight poverty through the promotion of competitive industrial production, international industrial partnerships

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<sup>1</sup> Adopted on 26 June 1945, in force as from 24 October 1945, 1 *UNYB* (1946-47) 831.

<sup>2</sup> Ignaz Seidl-Hohenveldern and Gerhard Loibl, *Das Recht der Internationalen Organisationen*, Seventh Ed. (Köln Berlin Bonn München: Carl Heymanns Verlag 2000), para. 0813 et seqq.; A. LeRoy Bennet and James K. Oliver, *International Organizations – Principles and Issues*, Seventh Ed. (Upper Saddle River: Prentice Hall 2002), p. 305 et seqq.

<sup>3</sup> For an account of the scope of IMO’s activities see, *infra*, Sec. III. of Chapter 6.

<sup>4</sup> Constitution of the Food and Agricultural Organization, adopted on 16 October 1945, in force as from 16 October 1945. The text is reproduced, as amended on 26 November 1991, in FAO, *Basic Texts of the FAO*, Vol. 1 (Rome: FAO Publication 1992).

<sup>5</sup> A general overview is available from <<http://www.fao.org/fi/default.asp>>; (accessed on 30 September 2006).

<sup>6</sup> Cf. Doc. IOC/INF-1148. The text is reproduced in UNESCO, *IOC Statute* (Paris: UNESCO Publishing 2000).

<sup>7</sup> See further information available from <<http://www.unido.org/doc/5073?language %5fcode=en>>; (accessed 30 September 2006).

and sustainable industrial development.<sup>8</sup> UNIDO, succeeding the UN Centre for Industrial Development (CID), was established by UN General Assembly Resolution 2152 (XXI), adopted on 17 November 1966 as a subsidiary body of the UN General Assembly. This resolution was superseded by the 1979 constitution of UNIDO.<sup>9</sup>

Further institutions addressing maritime matters can be found amongst the so-called United Nations Programmes. UN programmes have been established in order to reach certain narrowly defined objectives through the co-ordination of overlapping competences of organisations within the UN family.<sup>10</sup> Legally they are established as subsidiary organs of the General Assembly as envisaged in Articles 7(2) and 22 of the UN Charter. Two UN programmes are of relevance: the UN Development Programme (UNDP) and the UN Environment Programme (UNEP). UNDP's purpose is to foster sustainable economic growth by assisting states in identifying, using and improving the use of their resources.<sup>11</sup> Its work in the maritime sector focuses on coastal development; a current priority topic in this respect is the Strategic Initiative for Ocean and Coastal Management (SIOCAM), which seeks to harness the knowledge and skills of those involved in this work in order to enhance the effectiveness of ocean and coastal management projects in promoting sustainable human development, in particular in poor countries.<sup>12</sup> UNDP's headquarters are based in New York. It came into being on 1 January 1966, following the adoption by the UN General Assembly of Resolution 2029 (XX).<sup>13</sup> Within the UN system, UNEP "acts as a catalyst, advocate, educator and facilitator to promote the wise use and sustainable development of the global environment."<sup>14</sup> Since the time it was set up in 1972, one of its priority issues are marine and coastal areas. It has developed programmes such as the International Coral Reef Action Network (ICRAN) and the Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities (GPA). Arguably the most influential scheme is the so-called regional seas programme, explained in more detail in Chapter 5<sup>15</sup>, which promotes regional cooperation for the protection and development of the shared marine environment.

Autonomous organisations include the International Hydrographic Organization (IHO) and the International Seabed Authority (ISA). Even though these inter-

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<sup>8</sup> Philippe Sands and Pierre Klein, *Bowett's law of International Institutions*, Fifth Ed. (London: Sweet & Maxwell 2001), para. 3-070.

<sup>9</sup> Adopted on 8 April 1979, in force as from 21 June 1985, 1401 *UNTS* 3.

<sup>10</sup> Ignaz Seidl-Hohenveldern and Gerhard Loibl, *supra*, note 2, para. 0814b.

<sup>11</sup> Cf. Cynthia D. Wallace, "United Nations Development Programme", *EPIL IV* (2000), pp. 1086-1089, at 1086.

<sup>12</sup> Further information available from <<http://www.undp.org/water/initiatives/ocean.html>>; (accessed on 30 September 2006).

<sup>13</sup> For an historical account of UNDP's work, see Cynthia D. Wallace, *supra*, note 11, p. 1087 et seq.

<sup>14</sup> UNEP, *About UNEP*, available from <<http://hq.unep.org/Documents.Multilingual/Default.asp?DocumentID=43&ArticleID=3301&l=en>>; (accessed on 30 September 2006).

<sup>15</sup> Sec. II.

governmental organisations do not have an official status as UN specialised agencies, they work closely together with other international institutions and UN subsidiary organs. The IHO, responsible for hydrographic services<sup>16</sup>, is an inter-governmental consultative and technical organisation that was established in 1921 as the International Hydrographic Bureau (IHB) with its headquarters in Monaco. Its status was changed by the Convention Establishing the IHO, adopted in 3 May 1967. By co-ordinating national efforts in hydrographic services and providing for uniformity in nautical charting, IHO aims at supporting the safety of navigation and the protection of the marine environment. The ISA, which has its constitutional basis in UNCLOS Part XI and the 1994 Agreement Relating to the Implementation of Part XI of UNCLOS<sup>17</sup>, is entrusted with administering the protection and exploitation of the international deep-sea bed. The deep-sea bed is defined as the area that lies beyond the limits of national jurisdiction; its resources are considered to be the “common heritage of mankind.”<sup>18</sup>

Aside from the global international organisations that have been mentioned, there are further maritime institutions that have been created at the regional level. These institutions include both regional fisheries commissions and bodies governing regional marine environment protection treaties, such as the Helsinki Commission and the Black Sea Commission, referred to in the previous chapter. Especially the latter are comprehensive in scope, inasmuch as they attempt to address all possible threats and sources of pollution that may have an impact on the environment of the respective part of the sea.

Apparently, areas of concern of the aforementioned organisations overlap to quite a large extent – both horizontally, between global and regional organisations concerned with the same issues on different levels, and vertically, between global organisations addressing similar problems from a different viewpoint. It is thus interesting to contemplate how the competences of international organisations can be specified and distinguished. What come into play are the principle of cooperation and the principle of subsidiarity. The former, which was introduced, *supra*, in Chapter 4<sup>19</sup> as applying among states, may also guide the behaviour of other entities such as international organisations. It is today a common phenomenon that inter-organisational working groups are established to foster the coordination of organisations working on different aspects of the same topic.<sup>20</sup>

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<sup>16</sup> Further information available from <<http://www.iho.shom.fr/>>; (accessed on 30 September 2006).

<sup>17</sup> Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982, adopted on 28 July 1994, in force as from 28 July 1996, 33 *ILM* (1994) 1309.

<sup>18</sup> Art. 136 of UNCLOS.

<sup>19</sup> Refer to Sec. III.1. of Chapter 4.

<sup>20</sup> See Moira L. McConnell, “Inter-Agency Collaboration or Inter-Agency Competition – A Challenge for the UN System”, in A. Kirchner (ed.), *International Marine Environmental Law* (The Hague New York London: Kluwer Law International 2003), pp. 69-91, at 87.

The latter principle, that has most prominent status in EU law<sup>21</sup>, stipulates that a task should primarily be carried out by the smallest and most specialised entity.<sup>22</sup> Its application is limited by recourse to the performance of a duty: if a particular body does not have the ability to handle the task, the bigger entity may step in and act. Apart from these principles, another aspect *de facto* limits an overlap of activities: membership. States that are members of different organisations are interested in preventing a duplication of services and conflict of goals to enhance the effectiveness and efficiency of the institutions' work.<sup>23</sup>

As far as IMO is concerned, its constitution calls for close cooperation with other organisations. By virtue of Article 60 of the Convention on the International Maritime Organization<sup>24</sup>, IMO is to “cooperate with any specialized agency of the United Nations in matters which may be the common concern of the Organization and of such specialized agency, and shall consider such matters and act with respect to them in accord with such specialized agency.” Article 61 clearly states that co-operation may well be sought with non-UN specialised agencies, too. If need be, IMO may even take over functions, resources and obligations from other international organisations.<sup>25</sup> Efforts to cooperate can be identified in many of the matters IMO addresses in its work. As is obvious, IMO often touches upon issues of interest for other organisations, for instance when setting standards applicable to the workforce on vessels (ILO), or needs their assistance, for example with respect to the latest maritime technologies (IOC). The usual way of dealing with these overlaps is by means of establishing inter-agency bodies.<sup>26</sup> A very ambitious inter-agency coordination mechanism, UN Oceans, was set up in 2003. UN Oceans rather broadly aims to foster coherent action on oceans and coastal issues within the UN system.<sup>27</sup> Other prominent examples include the continuing cooperation of WHO, IMO and IOC within GESAMP and IMO's recently initiated efforts to address lost and discarded fishing gear and other marine debris

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<sup>21</sup> Cf. Art. 5(2) of the EC Treaty. See Hans-Joachim Koch, *Das Subsidiaritätsprinzip im Europäischen Umweltrecht* (Stuttgart: Richard Boorberg Verlag 2004), p. 15 et seqq.

<sup>22</sup> Ignaz Seidl-Hohenveldern and Gerhard Loibl, *supra*, note 2, para. 0800. For the underlying idea, see Hans-Joachim Koch, *supra*, note 21, p. 12 et seqq.

<sup>23</sup> Cf. A. LeRoy Bennet and James K. Oliver, *supra*, note 2, p. 307.

<sup>24</sup> Adopted on 6 March 1948, in force as from 7 January 1959, 289 *UNTS* 48; hereafter IMO Convention. The text, as modified by amendments adopted by the Assembly, is reproduced in IMO, *Basic Documents*, Vol. I (London: IMO Publication 2004), pp. 7-25.

<sup>25</sup> Albeit subject to a two-thirds majority vote of the Assembly: see Art. 63 of the IMO Convention.

<sup>26</sup> The cooperation of institutions today is a common phenomenon with respect to ocean matters: see Annick de Marffy, “Ocean Governance: A Process in the Right Direction for the Effective Management of the Oceans”, 18 *Ocean Yearbook* (2004), pp 162-192, at 184 et seqq.

<sup>27</sup> Further information available from its website at <<http://www.oceansatlas.org/www.un-oceans.org/Index.htm>>; (accessed on 30 September 2006).

in conjunction with FAO and UNEP.<sup>28</sup> As has been observed, “[e]ach [agency] is, in a sense, specialised or has a particular focus that appears, at least on paper, to make sense and constitutes a reasonable division of effort and expertise. But this is a structure that has been built over time and reflects an ongoing process of accommodation and *ad hoc* renovation rather than design.”<sup>29</sup> It remains to be seen whether this institutional fragmentation will be overcome at some point in the future. However, for the time being, IMO is the only competent international organisation for governing issues related to international shipping.

## **II. Legal Framework of IMO Efforts to Protect the Marine Environment**

As has been indicated in the previous section, IMO has, over the years, developed an abundance of instruments that cover almost every aspect relevant to the regulation of international shipping. Among its various committees, the Marine Environment Protection Committee (MEPC) is responsible for initiating and maintaining the mechanisms that IMO deploys in order to prevent, reduce and minimise damage to the environment caused by vessels. IMO instruments are either enshrined in multilateral treaties or adopted as resolutions of the Assembly or one of the committees respectively. To examine the extent to which these rules have to be complied with, one needs to take a look at the competences of international organisations in binding their member states. I shall subsequently determine, first, in which circumstances international organisations are allowed to legislate and to what extent states are obliged – by virtue of international law – to comply with these acts. Turning to IMO, I will, secondly, dwell upon the legal basis for its various activities.

### **1. Legislative Competences of International Organisations**

Under domestic legal systems, the legislature is free to enact any provision it considers necessary for governing, and securing the functioning of, society. If the majority votes in favour of a rule, even the minority is bound by the decision. In other words, everyone must follow the adopted regulations, for they are subject to the acts of the sovereign. Moreover, even if the enactment of certain rules is prohibited by a constitutional provision, there are procedures by which this provision might be changed by the legislature – albeit not by a simple majority – if this is deemed necessary. Public international law, by contrast, is governed by the consent principle rather than the majority principle. Therefore, a state is never bound by a multilateral instrument unless it has given its consent, namely signed and ratified it. This reflects the fact that the prime foundation pillar of public international law is national sovereignty, even though practice in international

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<sup>28</sup> See MEPC 53/24, *Report of the Marine Environment Protection Committee on its Fifty-Third Session*, 25 July 2005, para. 11.51. Further examples are given by Moira L. McConnell, *supra*, note 20, p. 89 et seqq.

<sup>29</sup> *Ibid.*, p. 88.



policy, in particular concerning amendments to treaties, sometimes deviates from the prerequisite of an explicit articulation of consent.<sup>30</sup> These basic principles find their expression in the 1969 Vienna Convention on the Law of Treaties<sup>31</sup> and are unquestionably obvious to every scholar of international law. It is, however, worth bringing them to mind again, since a comparison of municipal and international legislative systems permits the drawing of some conclusions regarding international organisations which are established through multilateral treaties (to which the Vienna CLOT expressly applies<sup>32</sup>). As international organisations are established by multilateral treaties, it is within the framework of international law that they acquire competences to enact rules and standards aimed at universal applicability. By consenting to the constituent treaty of an international organisation, states waive certain sovereign rights, as they cede specific powers to the institutions authorised to act on their behalf. Hence states attach high importance to the proper application and interpretation of the constituent treaty: if the international organisation is allowed to issue binding legal acts, they are bound by an act although they might have voted against it. And even if an international organisation has no competence to adopt binding acts, states might not be pleased that the organisation addresses a delicate issue in the first place. To provide a general overview of the issue, I shall in the following section explore the means by which international organisations may contribute to the fabric of international law and then clarify why some acts may be legally binding for states.

### a) Means of Establishing Rules and Standards

As already pointed out above, there is a fundamental difference between treaties concluded by individual states following an initiative, and under the auspices of, an international organisation and those legal acts that are adopted by an organ of an international organisation. With respect to treaty-making, international organisations do not act in their own capacity; they merely provide a forum for plenipotentiaries of states to negotiate the treaty. While most treaties are drafted by one of the organisations' organs, the treaty-making process is often not limited to the organisation's member states, but is open to all members of the UN. Although these treaties are adopted within an organisation, member states retain complete freedom as to the approval or disapproval of the treaty.<sup>33</sup> Since the instruments elaborated are multilateral treaties within the meaning of the 1969 Vienna CLOT, the process is governed by the consent principle. With the notable exception of the ILO, that applies special procedures for the adoption of an

<sup>30</sup> José E. Alvarez, *International Organizations as Law-Makers* (Oxford: OUP 2005), p. 274 et seqq.; see also, *infra*, Sec. II.1.a) and III.1 of this chapter.

<sup>31</sup> Done at Vienna, adopted on 23 May 1969, in force as from 27 January 1980, 8 (1969) *ILM* 679; hereafter Vienna CLOT.

<sup>32</sup> Art. 5.

<sup>33</sup> Philippe Sands and Pierre Klein, *supra*, note 8, para. 11-030; Julia Sommer, "Environmental Law-making by International Organizations", 56 *ZAöRV* (1996), pp. 628-667, at 634.

international labour convention<sup>34</sup>, international organisations assume the same functions as diplomatic conferences in other contexts. Hence, states are only bound by a treaty if they expressly accept its rules. This binding effect extends to rules and standards set out in the annexes to multilateral treaties, inasmuch as they are integral parts of a treaty.<sup>35</sup>

As regards those legal acts that international organisations are – to varying extents – authorised to adopt through their organs, elements of the consent principle are gradually replaced by parliamentary features, reflecting the fact that issues they touch upon are more technical and less political. In attempts to systematise these acts, three different types have been identified: quasi-legislation, resolutions and legislative fact-finding, all of which have peculiar characteristics briefly set out below.

Although states often feel the need to amend existing treaties, it can take years for an amendment to be elaborated under traditional amendment procedures. Many international organisations have therefore been assigned the duty to review and, if necessary, amend treaties in order to allow a fast and flexible response to problems that have recently arisen. These law-making powers have been called *legislation* or *quasi-legislation*, because they are essentially a hybrid between legislation and treaty-making.<sup>36</sup> By using this technique – called “tacit acceptance” – amendments are adopted with a majority of votes of the parties, which can vary from a simple majority to a nine-tenth majority vote, and enter into force unless a certain number of states object to the decision. Amendments thereby do not require an express act of approval by each state to become bound.<sup>37</sup> Thus, the slow working pace of states is used in a progressive manner in favour of the enactment of rules. Most amendment procedures are, however, supplemented by safeguards such as “opting-out” procedures or prohibitive *quora* to protect states from becoming bound too easily against their interests.<sup>38</sup> In contrast to these treaty-related procedures, *resolutions* adopted by the organs of international organisations (assemblies, commissions, committees, etc.) emphasise the parliamentary character of international institutions.<sup>39</sup> They represent the prime technique by which international organisations elaborate rules and standards – mostly in the

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<sup>34</sup> Cf. Philippe Sands and Pierre Klein, *supra*, note 8, para. 11-030, and further literature cited there.

<sup>35</sup> Astrid Skala, *Internationale technische Regeln und Standards zum Umweltschutz: ihre Entstehungsarten und rechtlichen Wirkungen* (Köln et al: Carl Heymanns Verlag 1982), pp. 138 et seqq.

<sup>36</sup> Charles Henry Alexandrowicz, *The Law-Making Functions of the Specialised Agencies of the United Nations* (Sydney: Angus and Robertson 1973), p. 6 et seqq.

<sup>37</sup> For details on the impact of tacit acceptance procedures on the work of IMO, see, *infra*, Sec. III.1 of this chapter.

<sup>38</sup> Julia Sommer, *supra*, note 33, p. 645.

<sup>39</sup> Cf. Henry G. Schermers, “International Organizations, Resolutions”, *EPIL* Vol. II (1995), pp. 1333-1336, at 1333; Igor I. Lukashuk, “Recommendations of International Organisations in the International Normative System”, in W.E. Butler (ed.), *International Law and the International System* (Dordrecht Boston Lancaster: Martinus Nijhoff Publishers 1987), pp. 31-45, at 34 et seqq.

form of a coherent set of rules – as a result of their consultative function. Whether member states, or indeed non-member states, are bound by those acts is a different question, which will be addressed in the next section. The terminology is far from being consistent: resolutions may be entitled recommendations, guidelines, general provisions, codes, decisions or codes of conduct, with the binding effect not necessarily deducible from the term used. Resolutions are also used to adopt procedural rules, which belong to the internal law of the organisation. A further category is *standard-setting* or *legislative fact-finding*. Although often adopted in the form of a resolution, legislative fact-finding is different from that particular category. While resolutions may be understood as legal acts in the form of conventions, legislative fact-finding denotes decisions upon the mere technical aspects of an issue without elaborating on the legal context of how and when these standards should be applied.<sup>40</sup> To that end, international organisations rather fulfil the role of experts in their respective area of technical expertise. Examples include the WHO, IMO and IAEA.<sup>41</sup> Certain treaties, such as UNCLOS<sup>42</sup>, the 1974 Safety of Life at Sea Convention<sup>43</sup> or the 1972 London Dumping Convention<sup>44</sup>, call for international organisations to implement norms by elaborating definitions or standards which are to be regarded as an internationally agreed lowest common denominator.

#### **b) Determination of the Legal Quality: Binding and Recommendatory Acts**

Since they are governed by the consent principle, rules that have been laid down in a treaty by means of traditional international law-making are undoubtedly binding for all contracting parties. The same applies to amendments of treaties implemented by an organ of an international organisation that is entitled to do so, although these amendment procedures are not entirely guided by the consent principle: where tacit acceptance procedures are employed, states that do not opt out are bound by the respective treaty as amended. However, it is much more difficult to determine the binding effect of other legal acts. In principle, as with resolutions or decisions of international organisations, even though they might have been adopted unanimously, they are not binding on member states. This is not necessarily a weakness, since their soft-law form provides certain advantages to multilateral treaty-making, such as easier implementation on the national and

<sup>40</sup> See Frederic L. Kirgis, “Specialized Law-Making Processes”, in O. Schachter and Ch.C. Joyner (eds.), *United Nations Legal Order, Vol. II* (Cambridge: ASIL and CUP 1995), pp.109-168, at 139 et seqq.

<sup>41</sup> *Ibid.*

<sup>42</sup> Cf. DOALOS, “‘Competent or Relevant International Organizations’ under the United Nations Convention on the Law of the Sea”, 31 *LOS* (1996), pp. 79-95.

<sup>43</sup> In force 25 May 1980, 1184 *UNTS* 2; hereafter SOLAS. Chapter V of the annex refers to standards set by the IHO.

<sup>44</sup> In force as from 30 August 1975, 1046 *UNTS* 120; see Annex II(D) and Art. VI para. 1(a).

local level and more flexibility in adapting to changing technology.<sup>45</sup> In some circumstances, however, legal acts acquire binding effect.<sup>46</sup> This is generally the case if norms contained in a non-binding resolution can be associated with “traditional” sources of international law.<sup>47</sup> In other words, a resolution “is legally binding when its violation constitutes a breach of international law.”<sup>48</sup>

A principal distinction must be drawn between acts aimed at regulating the internal course of procedures and acts that aim to become effective outside the organisation’s legal order. Instruments containing internal rules, such as rules of procedure or the exertion of budgetary powers, are of mandatory character because they are either based on express provisions in the constituent treaty or established by recourse to so-called “implied powers.”<sup>49</sup> With respect to measures aimed at the external sphere, most importantly and most obviously, a binding effect can also be established by recourse to the constitutional instrument, which limits the organisation’s area of responsibility or – expressed in a positive manner – represents a general justification for its activities. Concerning competences to adopt legal acts, existing constitutional treaties include numerous different provisions regarding procedure, scope and the legal effect attached to it. The prime example is the Security Council of the UN, whose decisions – pursuant to Article 25 of the UN Charter – have mandatory character. Other treaties establishing international institutions also allow for adoption of measures binding upon member states. Prominent examples include regulations of the World Health Organization<sup>50</sup> and standards adopted by the ICAO Council.<sup>51</sup>

Given that each international institution is constrained by its respective constitutional treaty, it is not an incorrect assumption to contend that the organisation has no competences beyond what the text provides for. However, it would be pre-

<sup>45</sup> Alan E. Boyle, “Some Reflections on the Relationship of Treaties and Soft Law”, 48 *ICLQ* (1999), pp. 901-913, at 902 et seqq.; Diane Shelton, “Introduction”, in D. Shelton (ed.), *Commitment and Compliance* (Oxford: OUP 2000), pp. 1-18, at 12.

<sup>46</sup> For an overview, see José E. Alvarez, *supra*, note 30, p. 219 et seqq.; Astrid Skala, *supra*, note 35, p. 176 et seqq.; Jochen Abr. Frowein, “The Internal and External Effects of Resolutions by International Organizations”, 47 *ZAöRV* (1987), pp. 778-790, at 784 et seqq.

<sup>47</sup> Philippe Sands and Pierre Klein, *supra*, note 8, para. 11-051; likewise Rainer Lagoni, “Resolution, Declaration, Decision”, in R. Wolfrum and Ch. Philipp (eds.), *United Nations: Law, Policies and Practice*, Vol. 2 (München and Dordrecht: C.H.Beck and Martinus Nijhoff Publishers 1995), pp. 1081-1091, at 1084.

<sup>48</sup> Rainer Lagoni, *loc.cit.*

<sup>49</sup> Philippe Sands and Pierre Klein, *supra*, note 8, para. 11-032 and 14-031 et seq. These competences are based on the recognition that international organisations must be allowed to regulate their own administrative matters even if the constituent treaty does not include respective express provisions.

<sup>50</sup> Art. 21 and 22 of the 1948 WHO Constitution, cf. Monika Vierheilig, *Die rechtliche Einordnung der von der Weltgesundheitsorganisation beschlossenen regulations* (Heidelberg: R. v. Decker 1984), pp. 60 et seqq.

<sup>51</sup> Art. 37, 38, 54 lit. (l), 90 lit. (a) of the 1944 Chicago Convention; cf. Ludwig Weber, “Convention on International Civil Aviation – 60 Years”, 53 *German Journal of Air and Space Law* (2004), pp. 289-311, at 297.

mature to stop here, as there are further factual or legal settings where international organisations' decisions acquire binding force. First of all, an act may be considered to have a binding effect if it aims at "stating, restating, clarifying or supplementing the provisions of the constituent instrument on particular activities or situations falling within the competence of the organisation."<sup>52</sup> It may be seen as "subsequent practice in the application of the treaty which establishes the agreement of the parties regarding its interpretation" in the sense of Article 31 (3) c) of the 1969 Vienna CLOT.<sup>53</sup> A norm pronounced in a recommendation may also be binding if it can be regarded as expressing customary international law. Moreover, a binding effect may also derive from a vote that is cast in favour of a recommendatory instrument regarding the norms enunciated in this institutional act.<sup>54</sup> However, a number of authors rightly argue that voting patterns must not be taken into account, because a mere vote does not represent any kind of contract the state enters into.<sup>55</sup> Last but not least, a "factual" binding effect can flow from a state of necessity that forces states to comply with institutional acts that are not binding *per se*.<sup>56</sup>

To sum up, resolutions adopted by international institutions can take various forms. Although these acts may in some circumstances become binding without the consent of the individual states, international organisations are not in the position to rescind the fundamentals of public international law. They largely depend on their member states to reach agreement on disputed issues and subsequently to implement and enforce the agreed rules in good faith.

## 2. Legal Basis for the Work of IMO

The main purpose of IMO's work, according to Article 1 of the IMO Convention, is "to provide machinery for co-operation among governments in the field of governmental regulation and practices relating to technical matters of all kinds

<sup>52</sup> Philippe Sands and Pierre Klein, *supra*, note 8, para. 11-047.

<sup>53</sup> Jochen Abr. Frowein, *supra*, note 46, p. 790; Henry G. Schermers and Niels M. Blokker, *International Institutional Law: Unity within Diversity*, Third ed. (The Hague London Boston: Martinus Nijhoff Publishers 1995), para. 1255.

<sup>54</sup> Grigory I. Tunkin, "The Role of Resolutions of International Organisations in Creating Norms of International Law", in W.E. Butler (ed.), *supra*, note 39, pp. 5-19, at 11; Jochen Abr. Frowein, *supra*, note 46, p. 790.

<sup>55</sup> E.g., Ingrid Detter, "The Effect of Resolutions of International Organisations", in: J. Makarczyk (ed.), *Theory of International Law at the Threshold of the 21st Century: Essays in Honour of K. Skubiszewski* (The Hague Boston London: Kluwer Law International 1996), pp. 381-392, at 391 et seq. and Ingrid Delupis, "The Legal Value of Recommendations of International Organisations", in W.E. Butler (ed.), *supra*, note 39, pp. 47-65, at 53 et seq.

<sup>56</sup> Philippe Sands and Pierre Klein, *supra*, note 8, para. 11-045, mention guidelines adopted by the IMF Executive Directors to control exchange-rate stability. Although the guidelines are not binding *per se*, states stepping out of line would risk their economy going bust. Another example are decisions by ITU, see Jens Hinricher, "The Law-Making of the International Telecommunication Union (ITU) – Providing a New Source of International Law?", 64 *ZaöRV* (2004), pp. 489-501, at 495 et seqq.

affecting shipping engaged in international trade, and to encourage and facilitate the general adoption of the highest possible standards in matters concerning maritime safety, efficiency of navigation and prevention and control of marine pollution from ships.<sup>57</sup> It is to deal with all administrative and legal matters which may arise when pursuing its objectives.<sup>58</sup> Article 2 stipulates that in order to achieve these aims, IMO should either facilitate and convene diplomatic conferences to negotiate multilateral instruments, provide machinery for consultation and the exchange of information between governments, or make recommendations to be adopted by one of its organs as resolutions.

The main organ of IMO is the Assembly, which consists of all member states and meets every two years. Its functions are laid down in Article 15, including the approval of the work programme of the organisation<sup>59</sup>, the recommendation of regulations and guidelines to members for adoption<sup>60</sup>, and the competence to decide upon the initiation of diplomatic procedures aimed at the adoption of international conventions.<sup>61</sup> However, it does not enjoy the same dominant role as plenary organs of other international institutions.<sup>62</sup> Between the sessions of the Assembly, the Council of IMO<sup>63</sup> performs all the functions of the organisation, except the function of making recommendations. It consists of thirty-two members and should coordinate and supervise the work of the organisation.<sup>64</sup> The IMO Convention also provides for the work of the other main organs of IMO: the Maritime Safety Committee (MSC)<sup>65</sup>, the Marine Environment Protection Committee (MEPC)<sup>66</sup>, the Legal Committee (LEG)<sup>67</sup> and the Technical Co-operation Committee (TCC)<sup>68</sup>. The Facilitation Committee (FAL) has been established as a permanent body by the Assembly. In contrast to the other committees, which (apart from the MSC, that had been included in the original convention) have been established by amendments to the original convention, FAL has not yet been incorporated in the IMO Convention, although proposals have been made to that

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<sup>57</sup> Art. 1 lit. (a) of the IMO Convention. See further Kamil A. Bekiashev and Vitali V. Serebriakov, *International Marine Organizations – Essays on Structure and Activities* (The Hague Boston London: Martinus Nijhoff Publishers 1981), p. 39 et seqq.

<sup>58</sup> Art. 1(a) and 2(a).

<sup>59</sup> Art. 15 lit (f).

<sup>60</sup> Art. 15 lit (j).

<sup>61</sup> Art. 15 lit (l).

<sup>62</sup> Philippe Sands and Pierre Klein, *supra*, note 8, para. 3-055.

<sup>63</sup> Art. 16-26.

<sup>64</sup> Art. 26.

<sup>65</sup> Art. 27-31.

<sup>66</sup> Art. 37-41.

<sup>67</sup> Art. 32-36.

<sup>68</sup> Art. 42-46.

effect.<sup>69</sup> Some of the committees are supported by sub-committees<sup>70</sup>, the most important of which are the Sub-Committee on Navigation (NAV), on Ship Design and Equipment (DE) and on Flag State Implementation (FSI). Apart from the generally worded Articles 1 and 2 mentioned above, several further articles contain legal bases for activities of the Assembly and the committees. For the purpose of this treatise, it suffices to point out those provisions referring to the Assembly and the MEPC. With respect to the former, Article 15(j) allows for it to recommend to members for adoption regulations and guidelines concerning, amongst other matters, the effect of shipping on the environment; as regards the latter, Article 38(a) provides for adoption and amendments of regulations as provided for in international conventions, such as MARPOL, and Article 38(c) requires it to assemble information on the impact of ships on the environment and, as appropriate, “make recommendations and develop guidelines.”

The IMO Constitution is not the only international treaty that authorises IMO activities. Other treaties make recourse to decisions by IMO and thereby incorporate its expertise in global shipping into their regimes. For instance, the 1972 Convention on the International Regulations for Preventing Collisions at Sea<sup>71</sup> in Rule 10 stipulates that traffic separation schemes, which were prescribed before by IMO on a purely voluntary basis, are mandatory for its parties. And SOLAS in Regulation 8 of Chapter V confers upon IMO the power to introduce mandatory ship reporting systems. In contrast to that, UNCLOS’ rules of reference, described in Section III.4 of Chapter 4, do not provide an additional legal basis but simply refer to decisions that have already been taken and make them binding for parties to UNCLOS. Moreover, as has already been noted, IMO is responsible for keeping under review and amending, if necessary, various IMO Conventions, such as MARPOL and the 1965 Convention on Facilitation of International Maritime Traffic.<sup>72</sup> In this respect, IMO’s constitutional treaty contains several provisions (one for each committee) addressing the issue in that it allows the committees to perform functions conferred upon it by other treaties and to conform to possibly different procedural requirements.<sup>73</sup> The competent organ thereby resembles the organisational structures of multilateral environmental agreements, many of which provide for an institutional backbone with secretariats and scientific bodies and

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<sup>69</sup> Christoph Ilg, *Die Rechtssetzungstätigkeit der International Maritime Organization – Zur Bedeutung der IMO bei der Weiterentwicklung des Meeresumweltrechts* (Tübingen: Campus Druck 2001), p. 16.

<sup>70</sup> For an overview see the organisational chart at <[http://www.imo.org/includes/blastDataOnly.asp/data\\_id%3D7520/What\\_is\\_Poste%28Final\\_Artwork.pdf](http://www.imo.org/includes/blastDataOnly.asp/data_id%3D7520/What_is_Poste%28Final_Artwork.pdf)>; (accessed on 30 September 2006).

<sup>71</sup> Adopted on 20 October 1972, in force as from 15 July 1977, 1050 *UNTS* 16. Hereafter COLREG.

<sup>72</sup> Adopted on 9 April 1965, in force as from 5 March 1967, 591 *UNTS* 265. Hereafter Facilitation Convention.

<sup>73</sup> Cf. Art. 31, 36, and 41.

give far-reaching powers of COPs and MOPs respectively.<sup>74</sup> These COP-like decisions by IMO do not take effect immediately but need to be “approved” by a sufficient majority of states under a “tacit acceptance” procedure.

### III. Instruments Established and Governed by IMO

To get a better understanding of the legal context in which the PSSA concept is embedded, a brief account should be given of both IMO conventions and non-binding instruments.

#### 1. Multilateral Treaties: Conclusion and Amendment

With respect to multilateral treaties initiated by and adopted within IMO, it acts, as has been indicated above, merely as a forum for diplomatic conferences. IMO has a long history in convening conferences, preparing drafts of treaty instruments and promoting their adoption, mainly in the field of maritime safety, prevention of marine pollution and liability.<sup>75</sup>

Early examples include the 1954 OILPOL Convention<sup>76</sup>, while a more recent convention is the 2004 International Convention for the Control and Management of Ships’ Ballast Water and Sediments.<sup>77</sup> As IMO is neither party to the treaties nor an omnipotent legislator able to bind states against their will, it has only coordinating functions with respect to multilateral treaties. Usually, treaty drafts are elaborated in one of the committees. The Council then decides whether IMO should invite all UN member states to a diplomatic conference to discuss and adopt the instrument.<sup>78</sup> For them to enter into force, treaties adopted within IMO must be ratified not only by a qualified number of states, but these states also have to represent a combined registered tonnage of typically 50% in order to avoid peculiar rules for just a few flag states. IMO’s Secretary-General usually acts as

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<sup>74</sup> See Robin R. Churchill and Geir Ulfstein, “Autonomous Institutional Arrangements in Multilateral Environmental Agreements: A Little-Noticed Phenomenon in International Law”, 94 *AJIL* (2000), pp. 623-659, at 636 et seqq.

<sup>75</sup> Rainer Lagoni, “Die Internationale Seeschiffahrts-Organisation (IMO) als Rechtssetzungsorgan”, in P. Ehlers and W. Erbguth (eds.), *50 Jahre Vereinte Nationen: Tätigkeit und Wirken der Internationalen Seeschiffahrtsorganisation (IMO)* (Baden-Baden: Nomos-Verlagsgesellschaft 1997) pp. 45-56, at 46 et seqq.; Peter Seidel, “IMO – International Maritime Organization”, in R. Wolfrum and Ch. Philipp (eds.), *supra*, note 47, Vol. 1, pp. 734-742, p. 736 et seq.; Christian Tomuschat, “Die Internationale Seeschiffahrts-Organisation (International Maritime Organization, IMO) als Hauptakteur”, in Ch. Tomuschat (ed.), *Schutz der Weltmeere gegen Öltankerunfälle – Das rechtliche Instrumentarium* (Berlin: Duncker & Humblot 2005), pp. 21-30, at 24 et seqq.

<sup>76</sup> International Convention for the Prevention of Pollution of the Sea by Oil, adopted on 12 May 1954, in force as from 26 July 1958; 327 *UNTS* 3.

<sup>77</sup> Adopted on 13 February 2004, not yet in force. See <[http://www.imo.org/Conventions/mainframe.asp?topic\\_id=867](http://www.imo.org/Conventions/mainframe.asp?topic_id=867)> (accessed on 30 September 2006).

<sup>78</sup> Christian Tomuschat, *supra*, note 75, p. 26.



depository and some instruments allow for IMO to govern the amendment procedure. To that extent, IMO is now responsible for more than 40 conventions and protocols, which are frequently referred to as IMO Conventions.<sup>79</sup>

IMO's role regarding amendments of some of the IMO Conventions is of a special character that needs to be looked at in some detail. Although multilateral conventions are normally amended by a new treaty concluded pursuant to the 1969 Vienna CLOT, these conventions allow for amendments by a "tacit acceptance" procedure.<sup>80</sup> The amendments are negotiated by an "expanded Committee" of IMO (the competent committee inclusive of the non-IMO parties that are parties to the respective Convention) which, similar to a COP, adopts them as resolutions.<sup>81</sup> An amendment to one of its annexes is adopted if a two-thirds majority of the parties present votes in favour of it. It enters into force on a pre-selected date provided that it is not formally rejected by one third of the parties to the convention or by parties representing more than 50% of the world's gross merchant tonnage.<sup>82</sup> The Extended Committee thereby acts on the basis of competences acquired by the respective treaty provisions on amendment procedures. The consent principle is not waived but used in a progressive manner: unless states issue a declaration to the contrary, they are bound by the amended treaty.

The notion "tacit acceptance" constitutes enormous progress in international law. It has proved to be crucial for the development of multilateral conventions, not only by IMO but by nearly all other international institutions.<sup>83</sup> In recent years, amendments to IMO Conventions agreed by tacit acceptance entered into force in just 18 or 24 months after adoption.<sup>84</sup> In contrast, for example, "none of the amendments to the 1960 SOLAS Convention adopted between 1966 and 1973 received sufficient acceptance to satisfy the requirements for entry into force".<sup>85</sup> The fact that as of today no amendment has been rejected by IMO member states<sup>86</sup> is vital proof that the procedure is now widely accepted, as it really accelerates

<sup>79</sup> Cf. information available from <[http://www.imo.org/Conventions/mainframe.asp?topic\\_id=247](http://www.imo.org/Conventions/mainframe.asp?topic_id=247)>; (accessed on 30 September 2006).

<sup>80</sup> See generally, *supra*, sec. II.1.a) of this chapter. Some IMO Conventions only allow for the annexes, or, such as SOLAS, only for some of the annexes to be governed by a tacit-acceptance procedure. These parts contain technical regulations that need to be kept under permanent review. See Heiko Bloch, "Standardisierung im internationalen Seerecht – Moderne Regelsetzungsverfahren der IMO für die Schiffssicherheit", 51 *Vereinte Nationen* (2003), pp. 11-14, at 12.

<sup>81</sup> It should be noted that these "resolutions" are not resolutions in the sense set out, *supra*, in Sec. II.1.a) of this chapter, but rather acts by the governing body of the respective convention. At least in a strict legal sense, it is not IMO (or one of its committees) that has been given the competence to adopt binding resolutions; see Rainer Lagoni, *supra*, note 75, p. 52.

<sup>82</sup> See, for instance, art. VII of the Facilitation Convention.

<sup>83</sup> For an overview see Krzysztof Skubiszewski, "International Legislation", *EPIL*, Vol. II (1995), pp. 1255-1262, at 1256 et seq.

<sup>84</sup> Christoph Ilg, *supra*, note 69, p. 52 et seq.

<sup>85</sup> IMO, "Conventions", available from <[http://www.imo.org/Conventions/mainframe.asp?topic\\_id=148#\\_amend](http://www.imo.org/Conventions/mainframe.asp?topic_id=148#_amend)> (accessed on 30 September 2006).

<sup>86</sup> Christian Tomuschat, *supra*, note 75, p. 27.

legislative processes rather than producing premature results, as some had feared. Although questions have sporadically been raised concerning the compatibility of the tacit acceptance procedure with the IMO Convention, it is unanimously praised as being an efficient vehicle for responding quickly to new challenges while at the same time preserving the sovereignty of states.<sup>87</sup> Still, administering the amendment procedure cannot be equated with a truly legislative competence.

## **2. Soft-Law Instruments Adopted by IMO**

All decisions of IMO organs are issued in the form of resolutions. Their content can vary from simple decisions to complex and detailed guidelines and codes. In its work, IMO has adopted such a vast array of resolutions that it is virtually impossible to give a concise overview, let alone a concrete answer to the legal quality of each of the various instruments.<sup>88</sup> Still, some examples should be highlighted that have relevance for the subject of this treatise. The soft-law instruments IMO has developed can largely be grouped into two categories: codes and other resolutions.

Codes adopted by IMO include the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code, adopted in 1983<sup>89</sup>), the International Maritime Dangerous Goods Code (IMDG Code, adopted in 1965<sup>90</sup>) and the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code, adopted in 1983<sup>91</sup>). These codes are voluminous conventions that dwell upon important practical matters by providing a legal framework for achieving uniform standards for the conduct of ships' crews.<sup>92</sup> Because they are adopted as resolutions, they are of recommendatory nature. It is important to acknowledge that some of these codes – at least partly – have become binding through incorporation in the SOLAS Convention.<sup>93</sup> The most recently adopted is the International Ship and Port Facility Security Code (ISPS Code), which was developed in the wake of the terrorist attacks of

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<sup>87</sup> Christoph Ilg, *supra*, note 69, *loc.cit.*; see further Julia Sommer, *supra*, note 33, p. 644 et seq. and Heiko Bloch, *supra*, note 80, p. 12 et seq.

<sup>88</sup> As of September 2004, the Assembly and the committees had adopted several hundred resolutions. See IMO, *Index of IMO Resolutions, 2004 Edition* (London: IMO Publication 2004).

<sup>89</sup> Adopted by IMO Res. A.212(VII). Text, as amended, reproduced in IMO, *IBC Code – 1998 Edition* (London: IMO Publication 1998).

<sup>90</sup> Adopted by IMO Res. A.716(17). The current version of the code is reproduced in IMO, *IMDG Code – 2004 Edition* (London: IMO Publication 2004).

<sup>91</sup> Adopted by IMO Res. MSC.5(48). A consolidated version can be found in IMO, *IGC Code – 1993 Edition* (London: IMO Publication 1993).

<sup>92</sup> Note that codes are not a category of legal instrument confined to IMO; see Ingrid Delupis, *supra*, note 55, p. 48 et seq.

<sup>93</sup> For instance, Regulations 8 to 10 of Chapter VII and Regulations 11 to 13 make mandatory (“shall comply with...”) the rules contained in the IBC Code and the IGC Code respectively. Under Regulation 1.3 of Chapter VII, the carriage of dangerous goods is prohibited unless carried out in accordance with the IMDG Code.

11 September 2001 amid fears that ships and ports would become targets of similar attacks. The ISPS Code gives ample evidence of how far this particular cross-fertilisation of hard and soft law within IMO has developed. It was adopted as a soft-law, non-binding resolution by the MSC; at the same meeting, delegates accepted necessary amendments to SOLAS, by which the ISPS Code was made mandatory as from 1 July 2004.<sup>94</sup>

A peculiar consequence of the reference mechanism deployed in SOLAS and other IMO Conventions is that, on the one hand, individuals – master or owner of a vessel, who are not addressees of the binding convention – are only in breach of domestic law of the flag state; internationally, the vessel is a “sub-standard ship” which may be subjected to sanctions pursuant to port-state control. On the other hand, the flag state is under no obligation to conform to the standards set out in the codes, as it is not an addressee of the code, but merely needs to ensure conformity with the code by enacting respective domestic law norms.<sup>95</sup> It would not be far-fetched to contend that this consequence makes it easier for a number of states to agree to decisions that attach binding force to a code. However, as IMO’s committees are allowed to amend codes by resolutions, these formally non-binding instruments have the potential to significantly shape international law rules governing the safety of vessels.

Resolutions which do not result in the adoption of a code represent the second category of soft-law instruments. Some of these instruments have been forerunners of multilateral conventions adopted after states had tried out rules contained in voluntary instruments.<sup>96</sup> Others are stand-alone rules that cover a variety of subjects, such as general provisions on ships’ routing (Res. A.572(14), as amended), performance standards for a bridge navigational watch alarm system (Res. MSC.128(75)), steering gear standards for passenger and cargo ships (Res. A.415(XI)), performance standards for radar reflectors (Res. MSC.164(78), the use of pilotage services in certain areas (e.g., Res. A.710(17) for the Torres Strait), and standards for procedures and arrangements for the discharge of noxious liquid substances (Res. MEPC.18(22), Res. MEPC.62(35)). Whatever is brought to the attention of IMO by either its member states or other international organisations is considered and decided upon, as appropriate.

Since the IMO Convention does not provide for binding resolutions either of the Assembly or the committees, their resolutions lack binding character. However, binding treaty law and customary international law do not lose their obligatory nature if included in non-binding instruments. To turn the argument on

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<sup>94</sup> The relevant resolutions are reproduced in IMO, *ISPS Code and SOLAS Amendments 2002* (London: IMO Publication 2003).

<sup>95</sup> Rainer Lagoni, *supra*, note 75, p. 52.

<sup>96</sup> For instance, Res. MEPC.46(30) recommending “Measures to control potential adverse impacts associated with the use of tributyl tin compounds in anti-fouling paints” was relied upon by the drafters of the 2001 Anti-Fouling Convention, and the “Guidelines for the Control and Management of Ships’ Ballast Water to Minimize the Transfer of Harmful Aquatic Organisms and Pathogens”, introduced by Res. A.50(31) have been the basis for the development of the 2004 International Ballast Water Management Convention.

its head, it means that whenever the content of resolutions can be linked to sources of international law pursuant to Article 38 of the Statute of the ICJ, the addressees are bound by it. Hence, as seen above<sup>97</sup>, there may be good reasons to establish a binding effect for resolutions which qualify in terms of clarity and precision. With respect to IMO, three aspects can be identified. First, as set out in some detail in Chapter 4, soft-law IMO instruments have binding force for parties to UNCLOS if they represent “generally accepted international rules and standards” in the sense of, *inter alia*, Article 211(5) of UNCLOS. Secondly, IMO instruments may acquire a binding effect if relied upon *expressis verbis* by other treaties, as in the case of several IMO Codes. In addition, as I have argued elsewhere, the same is true of those instruments referred to in the footnotes of multilateral treaties, if the referenced regulation contains a precise and clear duty<sup>98</sup> and reference is made to specific documents.<sup>99</sup> Finally, some IMO conventions, such as COLREG, allow for the organisation to take certain binding decisions implementing their regulations. Although all IMO member states are allowed to vote, the decision is binding only for parties to the convention and not for non-parties that are IMO members.<sup>100</sup> It can be acknowledged that, despite the IMO Convention’s proviso to the contrary, resolutions issued by IMO’s organs are thus binding upon states in several circumstances.

### **3. Some Remarks on the Impact of IMO Instruments on Marine Environment Protection**

As has become apparent, IMO is active in all sorts of marine environment matters: 42 treaties, of which 35 are in force, and numerous soft-law instruments are a vital sign of these efforts.<sup>101</sup> Although this chapter was devoted to international organisations, with special emphasis on IMO, and the implications of the legal

<sup>97</sup> See, *supra*, sec. II.1.b) of this chapter.

<sup>98</sup> Frederic L. Kirgis, “Shipping”, in O. Schachter and Ch.C. Joyner (eds.), *supra*, note 40, pp. 715-751, at 729 et seq.

<sup>99</sup> The critical issue is clarity. As long as the parties know to what rules and standards they agree, this drafting technique does not contradict public international law. It is not sufficient, for instance, to refer to “various resolutions and recommendations of the International Hydrographic Organisation” as is the case in Regulation V/9(3) of SOLAS. See Markus J. Kachel, “Competencies of International Maritime Organisations to establish Rules and Standards”, in P. Ehlers and R. Lagoni (eds.), *International Maritime Organisations and their Contribution towards a Sustainable Marine Development* (Münster: LIT 2006), pp. 21-51, at 36. This view is shared by Malgosia A. Fitzmaurice, “Modifications to the Principle of Consent in Relation to Certain Treaty Obligations”, 2 *ARIEL* (1997), pp. 275-317, at 276, and, in more general terms, by Hermann E. Ott, *Umweltregime im Völkerrecht* (Baden-Baden: Nomos-Verlagsgesellschaft 1998), p. 273 et seq.

<sup>100</sup> Frederic L. Kirgis, *supra*, note 40, p. 138.

<sup>101</sup> Relevant IMO measures are outlined in IMO, “IMO – Towards Sustainable Development at Johannesburg 2002”, *IMO News* (2002), No.2, pp. 10-13, at 11 et seqq. Up-to-date information on the status of IMO Conventions is available from <[http://www.imo.org/Conventions/mainframe.asp?topic\\_id=247](http://www.imo.org/Conventions/mainframe.asp?topic_id=247)>; (accessed on 30 September 2006).

acts they initiate or adopt, it should not be forgotten that what really matters in the end is whether the results are what they were hoped to be. Hence, regardless of the form of the instruments and their legal status, it should be asked if they contributed positively to the protection of global oceans. Space does not permit an in-depth evaluation of this issue, but it is nevertheless useful to stress some aspects.

The number and scope of the instruments is undeniably impressive. And some statistics, such as the declining number of ship accidents and oil spills<sup>102</sup>, are indeed indicative of substantial progress that has been achieved over the last four decades: stricter global requirements have contributed enormously to safer ships, even though a direct causal link is hard to establish.<sup>103</sup> More recent instruments, such as the Anti-Fouling Convention, still have to produce verifiable results. The density and – at least for some conventions – almost universal acceptance of IMO's regulations is, however, in stark contrast to the number of vessels actually complying with them. A significant number of vessels are still considered to be sub-standard ships. IMO is aware of these shortcomings, but faces difficulties that are inherent in the present law of the sea system.<sup>104</sup> The enforcement of CDEM standards lies almost solely with the flag state, whereas interested third states can only act on their behalf if vessels call at their ports voluntarily. Generally, it has been observed that states in non-compliance with international standards are not necessarily reluctant to comply; they are often not able to achieve full compliance due to a lack of financial capacity or technical expertise.<sup>105</sup> This is arguably the case in shipping matters, too. And although growing environmental awareness has made flag states more conscious of the importance of compliance control, the problem of sub-standard shipping is a persistent one. IMO has addressed these matters in its work with several initiatives to strengthen technical expertise, especially in developing countries,<sup>106</sup> and close cooperation in regional port-state

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<sup>102</sup> See statistics compiled in ITOPI, *Oil Tanker Spill Statistics* (2005), available from <<http://www.itopf.com/stats05.pdf>>; (accessed on 30 September 2006).

<sup>103</sup> Christoph Hinz, "50 Jahre Vereinte Nationen – Tätigkeit und Wirken der Internationalen Seeschiffahrtsorganisation (IMO)", in P. Ehlers and W. Erbguth (eds.), *supra*, note 75, pp. 15-21, at 17.

<sup>104</sup> Another problem, the slow process of ratification, is raised by Joseph J. Angelo, "The International Maritime Organization and Protection of the Marine Environment", in M.H. Nordquist and J.N. Moore (eds.), *Current Maritime Issues and the International Maritime Organization* (The Hague Boston London: Martinus Nijhoff Publishers 1999), pp. 105-111, at 108 et seqq.

<sup>105</sup> Malgosia A. Fitzmaurice and Catherine Redgwell, "Environmental Non-Compliance Procedures and International Law", XXXI *NYIL* (2000), pp. 35-65, at 40.

<sup>106</sup> Aref Fakhry, "Capacity-Building in International Marine Environmental Law: Perspectives of Developing Countries" in A. Kirchner (ed.), *supra*, note 20, pp. 93-99, at 95 et seq., and Annick de Marffy, *supra*, note 26, p. 189. However, IMO does not have a regular budget allocation to finance its technical cooperation activities; see David Edwards, "Technical Assistance: A Tool for Uniform Implementation of Global Standards", in M.H. Nordquist and J.N. Moore (eds.), *supra*, note 104, pp. 391-416, at 406 et seqq.

control regimes is increasingly cracking down on non-compliance<sup>107</sup>, but sustained success still remains an exception.

To add to that, other problems pertaining to the marine environment and its biodiversity still remain. The state of the marine environment is generally deteriorating, with vessel-source pollution being just one part of the problem.<sup>108</sup> The desolate overall picture is largely a result of continuing land-based pollution, which IMO has no powers to deal with. Yet it is clear that even within IMO a lot of work is still to be done. Whether the PSSA regime is a mechanism that could possibly contribute to strengthening measures aimed at curbing vessel-source environmental damage by expanding coastal states' competences to legislate and enforce respective rules will be examined in the following chapters.

## **Chapter 7: Development and Structure of the PSSA Concept: Implementation and Coordination of Protective Measures**

The previous chapters have illustrated the deteriorating state of the marine environment and how far states are allowed, under international law, to respond by deploying regimes that subject specific marine areas to enhanced protection. While the PSSA concept was still being drafted, Friends of the Earth International, who were strongly involved in and dedicated to the process, noted that the PSSA regime should “be developed as a means of harmonizing existing international conventions and other legal instruments relating to the protection of marine areas with protective measures provided by IMO Conventions.”<sup>109</sup> Even though it is not a premature observation to note that these demands have been met, it is the aim of this treatise not just to sum up the concept roughly but also to reveal its subtle strengths and weaknesses. Thus, in the following sections, I shall shed light on the main components of the PSSA concept as it was developed by IMO within the last two decades. It will become clear that this remarkably open concept stands out for a number of reasons, even though it is restricted in that it only addresses vessel-source environmental threats.

A PSSA is defined as “an area that needs special protection through action by IMO because of its significance for recognized ecological, socio-economic, or scientific attributes where such attributes may be vulnerable to damage by

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<sup>107</sup> Regional MOUs also develop inter-institutional ties on administrative and technical levels, cf. Tokyo MOU, *Annual Report on Port State Control in the Asia-Pacific Region* (2005), available from <<http://www.tokyo-mou.org/ANN05.pdf>>; (accessed on 30 September 2006), p. 8 et seq.

<sup>108</sup> See, *supra*, Chapters 1 and 2, further SRU (ed.), *Marine Environment Protection for the North and Baltic Seas – Special Report* (Baden-Baden: Nomos-Verlagsgesellschaft 2004), p. 33 et seq.

<sup>109</sup> MEPC 23/16/1, as cited by Gerard Peet, “Particularly Sensitive Sea Areas – A Documentary History”, 9 *IJMCL* (1994), pp. 469-507, at 476.

international shipping activities.”<sup>110</sup> Details concerning proposal, assessment and designation of a site are administered by guidelines that have been adopted by the IMO Assembly. The experience of states when applying these guidelines, first established in 1991, have led to two major revisions, the second of which led to the adoption of the current guidelines in December 2005. The content of the guidelines as well as the history of their development (to the extent that it is beneficial for the understanding of the current version) shall be illustrated in the first section of this chapter. In a second section, emphasis will be put on procedural aspects, i.e. what the guidelines require to be included in a proposal, against which criteria and how PSSA proposals are assessed, and in what way IMO committees collaborate in this procedure. A third section is devoted to the legal consequences of a designation. Questions that will be addressed in this regard include whether the designation as such can have a protective effect and whether it entails additional responsibilities for proponents outside the PSSA regime.

It should not be forgotten that to make the concept work in practice, it is necessary to ensure efficient implementation of protective measures. These issues will not be dealt with in the present chapter, but in Chapter 8.

## **I. IMO Assembly Resolution A.982(24): Implementing the Concept**

As was pointed out in Chapter 6, IMO instruments are always adopted as resolutions of either the Assembly or one of the committees. The PSSA Guidelines are contained in Resolution A.982(24), which was adopted at the 24th meeting of the Assembly in November 2005. The adoption by the Assembly was, however, not more than a formal placet to a text that was negotiated within MEPC and various correspondence groups before it was agreed to forward the draft as a proposal to the Assembly. The full title of the resolution is “Revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas.”

### **1. Content and Structure of the Guidelines**

The structure of the PSSA Guidelines resembles an international convention with a preamble-like first section, followed by two sections dealing with the substantive and the procedural aspects of the subject matter. As is expressly stated in Paragraph 1.4 of the guidelines, their purpose is, first, to provide guidance for those governments wishing to designate an area as a PSSA; secondly, to ensure a balanced consideration of all interests at stake; and thirdly, to provide mechanisms for IMO’s assessment of applications. They also indicate the three main elements of a PSSA, which are inextricably linked:<sup>111</sup> attributes of the area, vulnerability of

<sup>110</sup> Res. A.982(24), *Revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas*, adopted on 1 December 2005, para. 1.2. The guidelines are reproduced in the annex of this treatise. Hereafter PSSA Guidelines.

<sup>111</sup> PSSA Guidelines, para. 1.5.

the area to damage by international shipping and so-called associated protective measures (APMs) available to address identified threats. With respect to the subject of protection, the guidelines acknowledge that ships are a source of threats to the marine environment by operational, accidental or intentional release of hazardous substances, as well as by physically damaging marine habitats.

On the basis of this observation, the guidelines lay down criteria to identify areas that are to be adequately protected by specifically tailored measures. Corresponding to the definition of a PSSA, to attain this status, areas must have exceptional features which are under serious threat from international shipping. The criteria for particular sensitivity are divided into ecological, socio-economic and scientific, although this division has no legal relevance: the area must meet at least one of the criteria, while “one of the criteria [must] exist throughout the entire proposed area, [...] the same criterion need not be present throughout the entire area.”<sup>112</sup> When the PSSA concept was drafted, states were reluctant to grant special protective status to an area just for its own good. Therefore, in addition to its outstanding characteristics, an area must also be vulnerable to threats posed by international shipping. To facilitate assessment of this question, the guidelines list both vessel traffic characteristics and natural factors that should be taken into account in the decision-making process.

Once an area is approved as meeting the required parameters, it needs to be sufficiently protected. Metaphorically speaking, a PSSA is an empty vessel, since its designation entails no automatic protective instrument. In fact, its regime resembles a management mechanism that provides for housing all kinds of different protective measures under a single administrative roof. APMs thus need to be applied on a case-by-case basis. The guidelines contain detailed provisions on what sort of APMs are allowed to be deployed and what legal basis they need to have.<sup>113</sup> Moreover, they oblige applying states to indicate possible impacts of APMs on both vessel safety and vessel traffic. The final major part of the guidelines’ text sets forth criteria for the assessment of applications and, in particular, a thoroughly designed procedure elaborating on the role of MEPC and other committees and sub-committees of IMO.

## **2. Development of the Guidelines and Adoption by the Assembly in 1991**

Although IMO had put in place navigational measures that could be used to protect environmentally sensitive areas in the 1960s and early 1970s<sup>114</sup>, it was in February 1978, through the adoption of Resolution 9 at the International Conference on Tanker Safety and Pollution Prevention (TSPP), that the issue of protected areas was for the first time formally addressed within the global shipping

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<sup>112</sup> *Ibid.*, para. 4.4.

<sup>113</sup> *Ibid.*, para. 6 and 7.

<sup>114</sup> Cf. Gerard Peet, “Particularly Sensitive Sea Areas – An Overview of Relevant IMO Documents”, 9 *IJMC* (1994), pp. 556-576, at 563 et seqq.



community.<sup>115</sup> While the resolution had invited IMO to explore whether and, if so, how such areas should be protected, the organisation did not address the issue until 1986, when MEPC 23 decided to commence deliberation on the concept.<sup>116</sup>

During the years of 1986 to 1991, the mandate was intensively pursued in MEPC, which received numerous contributions from other organs (MSC and NAV), other international bodies (IOC and LDC)<sup>117</sup> and various NGOs (such as IUCN and FoEI).<sup>118</sup> As an important intermediate occasion, in 1990 an International Seminar on the Protection of Particularly Sensitive Sea Areas was held in Malmö, Sweden. Participants adopted a Declaration containing several recommendations regarding the implementation of the PSSA regime<sup>119</sup>, most of which were later integrated into the final instrument. With assistance of the aforementioned entities, MEPC elaborated a lengthy document that addressed both Special Areas under MARPOL and PSSAs.<sup>120</sup> It was accepted by the Assembly in November 1991 as Resolution A.720(17).<sup>121</sup> These guidelines consisted of a general chapter on marine protected areas and threats posed by international shipping, a chapter on MARPOL special areas and a chapter on PSSAs. In trying to assist states to draw up proposals, the guidelines included several tables and a voluminous appendix, containing existing MARPOL special areas, existing routeing measures and other existing IMO measures. The length of the original guidelines would later prove to be one of its main shortcomings.

### 3. Review 2001 and 2005: Reasons and Results

Shortly after the original guidelines were put in place, the first PSSA,<sup>122</sup> the Great Barrier Reef (GBR) off the Northwest Australian Coast, was identified.<sup>123</sup> How-

<sup>115</sup> The wording is reproduced in Res. A.720(17), *Guidelines for the Designation of Special Areas and the Identification of Particularly Sensitive Sea Areas*, adopted on 6 November 1991, annex, p. 2.

<sup>116</sup> See MEPC 23/22, *Report on the Marine Environment Protection Committee on its Twenty-Third Session*, 25 July 1986, para. 16.

<sup>117</sup> For cooperation of IOC and IMO, see remarks in the IOC Secretary's Report on Intersessional Activities, in IOC, *Thirteenth Session of the Assembly, Paris, 12-28 March 1985* (Paris: UNESCO Publication 1985), p. 20 et seq.

<sup>118</sup> For an overview of submissions on that subject to MEPC, see Gerard Peet, *supra*, note 114, p. 557 et seqq.

<sup>119</sup> See Ryan P. Lessmann, "Current Protections on the Galapagos Islands are Inadequate: The International Maritime Organization Should Declare the Islands a Particularly Sensitive Sea Area", 15 *Colo. J. Int'l Env'tl. L. & Pol'y* (2004), pp. 117-151, at 146 et seq.; Peter Ottesen, Stephen Sparkes and Colin Trinder, "Shipping Threats and Protection of the Great Barrier Reef Marine Park – The Role of the Particularly Sensitive Sea Area Concept", 9 *IJMCL* (1994), pp. 507-522, at 519 et seq.

<sup>120</sup> MEPC 30/19/1, *Draft Guidelines for the Designation of Special Areas and the Identification of Particularly Sensitive Areas*, 17 August 1990; and MEPC 30/19/1/Corr.1 of 12 October 1990.

<sup>121</sup> See, *supra*, note 115.

<sup>122</sup> Res. MEPC.44(30), *Identification of the Great Barrier Reef as a Particularly Sensitive Sea Area*, adopted on 16 November 1990.

ever, this should not be considered as an indication that the guidelines were easy to apply. On the contrary, the GBR Marine Park had been used as a blueprint for the development of the 1991 guidelines and the Australian government was more than ready to submit a proposal for identification to IMO.<sup>124</sup> From 1992 to 1994, the University of Hull hosted three meetings of legal experts that aimed at exploring, in particular, the relationship between the guidelines and certain UNCLOS provisions. As no additional application for a PSSA designation had been submitted to IMO, the third meeting in Texel (Netherlands) was largely devoted to this issue and concluded that states were unwilling to utilise the 1991 guidelines.<sup>125</sup> The reason soon became apparent: “they were too long, too complicated and very difficult to understand.”<sup>126</sup> Building on the work of the legal experts, a revised draft Assembly resolution was submitted to MEPC for further consideration in September 1995.<sup>127</sup> However, these endeavours ended in talk. Eventually, the review process was instigated in 1997 by MEPC 40, because the original Guidelines were not only perceived to be too bulky to really assist in making proposals for a designation; the information on marine protected areas and measures applicable under MARPOL had also become outdated.<sup>128</sup> Before culminating in the adoption of the 2001 Guidelines, the review process also led to minor modifications in 1999. These amendments only changed the identification procedure, because states could not find common ground with respect to revising the substance of the original guidelines.

When the review was commenced, all delegations were in favour of a complete redraft, except for the United States, which insisted that it would be sufficient merely to adopt new procedural rules. MEPC 41 in 1998 decided to establish a drafting group to work on both the Guidelines as a whole and the US proposal for new procedures. It assembled a progress report for MEPC 43.<sup>129</sup> While several delegations commented on this document, it was IUCN’s paper that had the most

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<sup>123</sup> The first guidelines used the term “identification” instead of “designation” as in subsequent versions. It is thus used here in the text, too. The change of terms is not of legal significance.

<sup>124</sup> Augustín Blanco-Bazán, “The IMO Guidelines on Particularly Sensitive Sea Areas (PSSAs) – Their Possible Application to the Protection of Underwater Cultural Heritage”, 20 *Marine Policy* (1996), pp. 343-349, at 345; Peter Ottesen, Stephen Sparkes and Colin Trinder, *supra*, note 119, p. 519. In fact, Australia submitted its proposal before the 1991 Guidelines were approved; cf., *infra*, Sec. V.1. of Chapter 8.

<sup>125</sup> See Report from the Third Meeting of Legal Experts on Particularly Sensitive Sea Areas, held at Texel (The Netherlands), 1994; reproduced in Kristina Gjerde and David Freestone, “Particularly Sensitive Sea Areas – An Important Environmental Concept at a Turning-point?: Introduction by the Editors”, 9 *IJMC* (1994), pp. 431-468, Appendix 3, para. 8.

<sup>126</sup> Louise de la Fayette, “The Marine Environment Protection Committee: The Conjunction of the Law of the Sea and International Environmental Law”, 16 *IJMC* (2001), pp. 155-238, at 187.

<sup>127</sup> Augustín Blanco-Bazán, *supra*, note 124, p. 346.

<sup>128</sup> Louise de la Fayette, *supra*, note 126, p. 187.

<sup>129</sup> MEPC 43/6, *Revision of resolution A.720(17) – Report of the Drafting Group*, 3 December 1998.

far-reaching impact.<sup>130</sup> To assist the drafting group in revising the long document, IUCN had elaborated draft revised guidelines that suggested retaining the base elements concerning MARPOL special areas and PSSAs while dividing them into two separate yet coherent documents, as well as deleting the explanatory material.<sup>131</sup> An updated draft was submitted to MEPC 44, where its recommendations received widespread support from member states' delegations and the drafting group's terms of reference were formulated accordingly.<sup>132</sup>

Meanwhile, the US maintained their stance. It was thus agreed first to change the procedure, as this was considered to be of prime importance, and to leave the substantive issues to a separate negotiating endeavour.<sup>133</sup> The amendments to the guidelines, which were finalised during MEPC 43, were adopted by the Assembly as Resolution A.885(21).<sup>134</sup> It did not bring about drastic changes to the procedure; the actual achievement of the new provisions was to distillate procedural requirements that had been hidden behind a cloak of words and – in addition – were scattered throughout the 1991 Guidelines, mixed with other requirements for, in particular, the adoption of routing measures. Whereas Resolution A.720(17) had established separate procedures for assessing the PSSA as such and its APMs and left it to the proposing governments to decide whether to submit an application to either MEPC or MSC, Resolution A.885(21) provided for MEPC to “bear primary responsibility within IMO for considering PSSA applications.”<sup>135</sup> These provisions are very similar to the procedures envisaged by the current version of the guidelines, explained *infra* in the following section. It also contained information on a second PSSA, the Sabana-Camagüey Archipelago off Cuba that was identified in 1997.<sup>136</sup> However, as of 2000, no additional proposals had been submitted to IMO. Concerns about the usability of the Guidelines thus remained and delegates were under considerable pressure to finish the review process. Work on the substantive aspects continued in 2000 and 2001, when the Correspondence Group was finally able to present a report to MEPC 46.<sup>137</sup> The text the committee agreed to was, in the event, substantially shorter than the previous one and shorn of most of the explanatory material. It divided the rules on MARPOL special areas

<sup>130</sup> MEPC 43/6/3, *Identification and Protection of Special Areas and Particularly Sensitive Sea Areas*, 2 April 1999.

<sup>131</sup> A revised draft was submitted to MEPC 44. For an invaluable recount of the Committee's work, see Louise de la Fayette, *supra*, note 126, p. 188 et seqq.

<sup>132</sup> Cf. MEPC 44/20, *Report of the MEPC on its forty-fourth Session*, 12 April 2000, para. 7.8, and Annex 14, para. 2.

<sup>133</sup> Louise de La Fayette, “The Protection of the Marine Environment – 1999”, 30 *EPL* (2000), pp. 51-60, at 55.

<sup>134</sup> Res. A.885(21), *Procedures for the Identification of Particularly Sensitive Sea Areas and the Adoption of Associated Protective Measures and Amendments to the Guidelines contained in Resolution A.720(17)*, adopted on 4 February 2000.

<sup>135</sup> Para. 4.3 of Res. A.885(21).

<sup>136</sup> Res. MEPC.74(40), *Identification of the Sabana-Camagüey Archipelago as a Particularly Sensitive Sea Area*, adopted on 25 September 1997.

<sup>137</sup> MEPC 45 had already decided several questions that were contentious among members of the correspondence group, cf. MEPC 45/6, *Report of the Correspondence Group on the Revision of Resolution A.720(17)*, 3 June 2000.

and PSSAs into two separate sections, the latter of which consisted of ecological and other criteria that were decisive for the scientific assessment of a proposal, provisions on APMs, as well as procedural requirements incorporating provisions of the 1999 amendments. In November 2001, the Assembly adopted the new guidelines in Resolution A.927(22) and revoked both previous resolutions.<sup>138</sup>

It was hoped that the updated instrument would lead to an increasing number of PSSA applications. To that end, the instrument may have proven to be *too* successful. After 2001, within four years, nine additional PSSAs were designated.<sup>139</sup> The designation of small, pristine areas such as Malpelo Island in 2002 and the Paracas National Reserve in 2003 did not evoke notable opposition, as they had long since been recognised for their exceptionally valuable and vulnerable marine ecosystems. The harmonious tone within MEPC changed significantly in the aftermath of the *Prestige* accident, which left large parts of the Spanish and French coastline polluted.<sup>140</sup> The accident was perceived to be the result of the vessel's insufficient design for choppy seas and its general condition, because she was a single-hull tanker over 25 years old. Those states affected by the spill responded domestically by tightening their laws on vessel safety, but also pressed for more stringent rules on the European and global level.<sup>141</sup> Accordingly, five European countries submitted a proposal to designate vast parts of the Western European Atlantic as a PSSA with the aim of banning single-hull oil tankers from sailing through the area by introducing a correspondingly tailored APM.<sup>142</sup> The application prompted intense discussions within IMO. Several maritime states and industrial NGOs fiercely opposed the proposal, because, in their view, it would, if it was approved, violate the traditional freedom of navigation and the right to transit passage as reflected in UNCLOS.<sup>143</sup> Proponents eventually withdrew the

<sup>138</sup> Res. 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*, adopted on 29 November 2001.

<sup>139</sup> Malpelo Island (Columbia, 2002); Florida Keys (USA, 2002); Wadden Sea (The Netherlands, Germany, Denmark, 2002); Paracas National Reserve (Peru, 2003); Galapagos Islands (Ecuador, 2005); Canary Islands (Spain, 2005); Torres Strait (Australia and Papua New Guinea, 2005) Baltic Sea Area (All Baltic Sea coastal states except Russian Federation, 2005); and the Western European Waters (Portugal, Spain, France, Belgium, UK, Ireland, 2005). For detailed information on the individual PSSAs and APMs approved for their protection, see, *infra*, Sec. V. of Chapter 8.

<sup>140</sup> For an account of the background to the incident, see Markus Detjen, "The Western European PSSA – testing a unique international concept to protect imperilled marine ecosystems", 30 *Marine Policy* (2006), pp. 442-453, at 443 et seq.; and Thomas Höfer, "Tanker Safety and Coastal Environment: *Prestige*, *Erika*, and what else?", 10 *ESPR* (2003), pp. 1-5.

<sup>141</sup> Developments following the incident have been studied by Veronica Frank, "Consequences of the *Prestige* Sinking for European and International Law", 20 *IJMCL* (2005), pp. 1-64, at 6 et seq.

<sup>142</sup> MEPC 49/8/1, *Designation of a Western European Particularly Sensitive Sea Area*, 11 April 2003, Annex 1, para. 5.1.

<sup>143</sup> See, e.g., LEG 87/16/1, *Designation of a Western European PSSA – Comments on MEPC 49/8/1*, 15 September 2003, submitted by Liberia, Panama, the Russian Fed-

controversial APM<sup>144</sup> and merely retained the second APM obliging ships carrying certain hazardous cargo to give notice to authorities 48 hours before entering the area to put the coastal states in the position to respond adequately to a possible accident.<sup>145</sup> They also agreed to reduce the size of the area east of the Shetland Isles to bring the easterly line to 0° longitude.<sup>146</sup>

Two parallel developments should be recalled to understand the dynamic of the process. First, Baltic Sea coastal states during MEPC 51 proposed that the Baltic Sea should be designated a PSSA without any further APMs being put in place.<sup>147</sup> As in the case of the Wadden Sea PSSA, existing IMO measures were merely reaffirmed and it was announced that additional measures would be prepared for proposal at a later date. The Russian Federation did not support the proposal, because it was afraid of signing a blank cheque for future measures contradicting its shipping interests. It requested to have its reservations recorded that the designation of most parts of the Baltic Sea violated cooperation obligations allegedly enshrined in the PSSA Guidelines.<sup>148</sup> Secondly, Australia and Papua New Guinea applied for approval of an extension to the GBR PSSA to include the Torres Strait.<sup>149</sup> APMs would include compulsory pilotage as was introduced for the GBR PSSA on 1 October 1991. Opponents claimed that such a measure would violate the right to transit passage as envisaged in UNCLOS, while Australia and Papua New Guinea maintained the opposite view.<sup>150</sup> Eventually, four committees (MEPC, LEG, NAV, and MSC) were involved in dealing with questions arising from this APM.

These developments amounted to allegations that loosely drafted terms in the 2001 Guidelines could be easily misused, may lead to a proliferation of PSSAs and, in the event, would devalue the whole concept.<sup>151</sup> Therefore, several dele-

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ration and various shipping industry lobby groups (BIMCO, Intertanko, Intercargo, ICS, and IPTA).

<sup>144</sup> The withdrawal was not least due to the fact that IMO member states managed to agree to the tightening of requirements in Regulation 13G of MARPOL Annex I, resulting in a faster phase-out of single-hull oil tankers.

<sup>145</sup> MEPC 49/22, *Report of the MEPC on its Forty-Ninth Session*, 8 August 2003, para. 8.23.

<sup>146</sup> *Ibid.* This was done at the request of Norway, which feared that too many single-hull tankers would choose an alternative route near the Norwegian coast.

<sup>147</sup> MEPC 51/8/1, *Designation of the Baltic Sea Area as Particularly Sensitive Sea Area*, 19 December 2003.

<sup>148</sup> MEPC 51/22, *Report of the MEPC on its Fifty-First Session*, 22 April 2004, Annex 8. Whether proposing governments are under an obligation to cooperate with neighbouring states is examined, *infra*, in Sec. II.5.b) of this chapter.

<sup>149</sup> MEPC 49/8, *Extension of Existing Great Barrier Reef PSSA to include the Torres Strait Region*, 10 April 2003.

<sup>150</sup> Cf. NAV 50/3/12, *Torres Strait PSSA Associated Protective Measure – Compulsory Pilotage*, 14 May 2004, submitted by the ICS; and NAV 50/3, *Torres Strait PSSA Associated Protective Measure – Compulsory Pilotage*, 22 March 2004.

<sup>151</sup> MEPC 51/8/4, *Comments on the Guidelines for the Designation of Special Areas under MARPOL 73/78 and the Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas*, 4 February 2004, para. 8. The paper was submitted by

gations called for a review to be conducted by MEPC. However, as there were no specific proposals for a review, the chairman of the committee asked for proposals to be submitted to its next session.<sup>152</sup> Consequently, at MEPC 52 the US presented a draft revised text of IMO Resolution A.927(22) in order to clarify and strengthen its wording.<sup>153</sup> Several delegations responded to this initiative by submitting comments and further proposals for modification of the guidelines.<sup>154</sup> The committee, after having considered the issue in plenary and in an informal technical group<sup>155</sup>, agreed to establish an intersessional correspondence group which was instructed

- “1. to review, with the objective of clarifying, and, where appropriate, strengthening the Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas, as contained in Annex 2 of Assembly Resolution A.927(22), using document MEPC 52/8 by the United States as the base document, taking into account documents MEPC 52/8/1, MEPC 52/8/2, MEPC 52/8/3, and MEPC 52/8/4, and the discussions and direction given in the report of the Committee;
2. to prepare a draft Assembly resolution and a draft text of the amended PSSA Guidelines; and
3. to submit a report to MEPC 53.”<sup>156</sup>

The report of the correspondence group to MEPC 53 was included in a voluminous 45-page document that managed to clear away a number of problems.<sup>157</sup> Still, the most contentious subjects remained unresolved and, therefore, delegates had to decide, apart from a few minor issues, on three overriding issues, namely the two-phase designation, the inclusion of APMs in the initial proposal of a PSSA and the legal basis for APMs. To that end, the committee after an intense debate agreed that “all PSSA applications should identify proposals for at least one APM”, that “proponents should be allowed to propose additional APMs at a later stage” and that “the language currently given in the base text and closely mirroring Resolution A.927(22) should be retained, which allows for APMs to be

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those industry NGOs mentioned in note 143 together with OCIMF. The Russian Federation concurred with that opinion, see MEPC 52/8/1, *Proposed amendments to Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas (Annex 2 to IMO Assembly resolution A.927(22))*, 6 August 2004, para. 4.

<sup>152</sup> Cf. MEPC 51/22, *supra*, note 148, para. 8.11.

<sup>153</sup> MEPC 52/8, *Proposed Amendments to Assembly Resolution A.927(22) to Strengthen and Clarify the Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas*, 9 July 2004.

<sup>154</sup> The Russian Federation (MEPC 52/8/1, *supra*, note 151), ICS and Intertanko (MEPC 52/8/2, *Proposed Amendments to Assembly Resolution A.927(22) on the Identification and Designation of Particularly Sensitive Sea Areas (PSSAs)*, 6 August 2004), as well as WWF (MEPC 52/8/4, *Proposed Amendments to Assembly Resolution A.927(22) to Strengthen and Clarify the Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas (PSSAs) – Comments on MEPC 52/8*, 18 August 2004).

<sup>155</sup> See MEPC 52/WP.12, *Report of the Informal Group on the PSSA Guidelines*, 14 October 2004.

<sup>156</sup> MEPC 52/24, *Report of the MEPC on its Fifty-Second Session*, 18 October 2004, para. 8.27 and para. 8.32.1.

<sup>157</sup> MEPC 53/8/2, *Report of the Correspondence Group*, 15 April 2005.

adopted under an existing IMO instrument [...]; APMs to be adopted after the amendment or development of a new IMO instrument, or APMs to be adopted based on specific language of UNCLOS delegating such authority to IMO.”<sup>158</sup> A drafting group was established to align the text of the intersessional group with the decisions taken by the plenary. The final text was subsequently adopted and forwarded to the Assembly for adoption, although a number of delegations expressed their disappointment with the outcome of the review process.<sup>159</sup> The PSSA Guidelines are now an autonomous document, which has been completely decoupled from the guidelines for the identification of MARPOL special areas that are still to be found in Annex 1 of Resolution A.927(22).

As has become apparent, the review processes in 2001 and 2005 addressed distinct problems in response to the application of the guidelines in force at the time. The 2001 revision was carried out since many states held the view that the instrument was not appropriately utilised, whereas the 2005 revision was due to the perception of some states that vaguely drafted provisions of the Guidelines might lead to their misuse and a proliferation of protected areas, which could eventually restrict navigation in too many parts of the sea. Whether these expectations have been met will be seen in the following sections.

## II. Designation: Requirements and Procedures

The actual designation of a PSSA is done in the form of a resolution adopted by MEPC. However, prior to this formal act several steps have to be taken within IMO. One or more states submit an application for an area to be designated, which subsequently needs to be assessed by the competent bodies.<sup>160</sup> The following sections will deal with, first, the criteria that IMO must take into account when determining whether the area is particularly sensitive and whether it is under considerable stress from international shipping, and, secondly, the procedure designed to accommodate these tasks, viz. the interwoven responsibilities of the committees and sub-committees, as well as detailed requirements for the individual application.

### 1. Criteria for Particular Sensitivity

To be designated a PSSA, an area first of all has to meet certain criteria that render it particularly sensitive. The Guidelines list 17 criteria, which are compartmentalised into three different sub-sections: *ecological, socio-economic and*

<sup>158</sup> MEPC 53/24, *supra*, note 28, para. 8.25.11.

<sup>159</sup> In particular, the Russian Federation complained that tightening of the guidelines had not been successful, MEPC 53/24, *supra*, note 28, para. 8.30. See also Hugh O’Mahony, “Russian Federation states case on developing PSSA Guidelines”, *Lloyd’s List*, 21 July 2005, p. 3.

<sup>160</sup> See, *infra*, table 1.

*cultural criteria*.<sup>161</sup> It is sufficient for an area to meet one of the 17 criteria. In that regard, while at least one criterion must exist throughout the entire proposed area, it need not necessarily be the same.<sup>162</sup> It should be noted that all PSSAs designated so far feature most of the listed criteria signifying their unique status. Furthermore, as paragraph 4.5 indicates, criteria for MARPOL special areas and PSSAs are not mutually exclusive. PSSAs may thus be designated in parts of the sea that have been given the special area status and *vice versa*.

With a view to the scope of this study, I shall put particular emphasis on the ecological criteria. However, to exemplify the breadth of the PSSA Guidelines' scope, socio-economic and scientific criteria should at least be mentioned briefly here. The former are economic importance for people living in coastal areas, significance of the area for subsistence food production of local communities and the existence of cultural heritage sites;<sup>163</sup> while the latter encompass high scientific interest in the area, suitable baseline conditions for monitoring studies and exceptional possibilities for demonstrating natural phenomena.<sup>164</sup>

The criteria generally dwell upon certain characteristics for which a marine area stands out against others. The eleven ecological criteria have been formulated in varying detail; some are detailed and include examples (4.4.1, 4.4.3, 4.4.10), others are defined by a single sentence. The complete list consists of

- (1) Uniqueness or rarity
- (2) Critical habitat
- (3) Dependency
- (4) Representativeness
- (5) Diversity
- (6) Productivity
- (7) Spawning or breeding grounds
- (8) Naturalness
- (9) Integrity
- (10) Fragility; and
- (11) Bio-geographic importance.

When the guidelines were drafted for the first time, these criteria were taken from the IUCN list of attributes and definitions for marine protected areas.<sup>165</sup> However, the PSSA guidelines' wording has departed somewhat from that of the IUCN list, since in both the 2001 and 2005 revisions drafters always sought to reflect appropriately the distinctive characteristics of global shipping in the criteria's language. Nevertheless, the criteria still seem to be quite broad, especially in the light of the fact that an area – in order to qualify for designation – only has to meet them.<sup>166</sup>

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<sup>161</sup> Para. 4.4.1 to 4.4.17.

<sup>162</sup> Para. 4.4.

<sup>163</sup> Para. 4.4.12 to 4.4.14.

<sup>164</sup> Para. 4.4.15 to 4.4.17.

<sup>165</sup> Cf. Graeme Kelleher, *Guidelines for Marine Protected Areas* (Gland and Cambridge: IUCN 1999), p. 40 et seq.

<sup>166</sup> This approach poses questions as to the practicability of the concept, which will be addressed, *infra*, in Sec. II.1. of Chapter 11.



For the sake of lucidity, the development of the criteria should be examined more closely by recourse to “spawning and breeding grounds” in 4.4.7 and “naturalness” in 4.4.8, both of which give also vivid example of the scope of the criteria. Paragraph 4.4.7 defines as particularly sensitive “an area that is a critical spawning or breeding ground or nursery area for marine species which may spend the rest of their life-cycle elsewhere, or is recognised as migratory routes for fish, reptiles, birds, mammals, or invertebrates.”

This criterion highlights the importance of specific areas as the origin of marine life. It is designed to protect those marine parts of the oceans which play a crucial role in maintaining the existence of animals throughout entire oceans. This is why it is not only breeding or spawning sites that are protected but also areas that are used as migratory routes by all kinds of marine animals. In the 2005 revision, it was agreed to delete the term “scientific,” that was used as a qualifier for “recognised,” to acknowledge recognition outside the traditional realm of science, such as the local knowledge of indigenous communities.<sup>167</sup> Moreover, and more generally, it was believed that developing countries, in particular, would have difficulties maintaining adequate resources to obtain hard scientific evidence.<sup>168</sup> Nonetheless, migratory routes still require to be recognised in some way, which signifies additional rigour to that end.

As for paragraph 4.4.8, an area may qualify as a PSSA if it “[...] has experienced a relative lack of human-induced disturbance or degradation.”

This criterion is reflective of the desire to grant special protection to the few remaining marine areas that have not yet been subject to adverse human activities. The PSSA concept aims to contribute to their naturalness by avoiding that vessels impact on these areas. What is evident from the language used in paragraph 4.4.8 is that the interpretation of the wording employed may prove to be a crucial issue. In this particular context, it is the meaning of “relative lack.” Would it be reasonable to assume that every area without hotels for mass tourism is understood as an “area that has experienced a relative lack of human-induced disturbance or degradation”? The purpose of the guidelines suggests otherwise – interpretation and assessment of its criteria need to ensure that their result remains a benchmark for having an area defined as *particularly* sensitive. In addition, the mentioning of “international significance” in paragraph 4.4.1 implies that interpretation of the criteria is restricted with a view to international significance on a global level compared in contrast to mere domestic importance of marine areas.

What is already obvious from these examples is the absence of any detailed guidelines in terms of exactly what information needs to be assembled by states so as to prove the proposed area’s sensitivity.<sup>169</sup> States interested in having parts of their waters designated as PSSAs are left with a very brief description of every criterion, which is open to interpretation. As will be seen in Chapter 9 below, other protective regimes provide voluminous accompanying documents to guide

<sup>167</sup> MEPC 53/8/2, *supra*, note 157, annex, p. 13, annotation to para. 4.4.7 of the draft guidelines.

<sup>168</sup> *Ibid.*, annex, p. 38, annotation to para. 8.3.6 of the draft guidelines.

<sup>169</sup> Procedural obligations are dealt with in more detail, *infra*, in Sec. II.5.b) of this chapter.

proposing states and ease assessment of whether an area meets criteria that are set out by the respective regime: for instance, by determining the kinds of species that must be found in an area as evidence that it serves as a habitat for a species under threat. It may readily be assumed that lack of guidance with respect to ecological criteria makes the concept particularly prone to political pressure.<sup>170</sup>

Having mentioned two examples of ecological criteria, it should be noted that there is a further general legal issue, which was debated at some length during the 2005 review. The 1991 Guidelines, as well as the 2001 Guidelines, used the term “an area that may be” at the beginning of most of the criteria’s definitions. While Resolution A.927(22) was under scrutiny by the Correspondence Group, it was strongly argued to have this phrase replaced by “an area that is.” Those in favour of the revised language held that it would ease uniform application of the criteria.<sup>171</sup> Those opposing the replacement contended that substitution of the original text would violate the precautionary principle.<sup>172</sup>

## **2. Risks Posed by International Shipping**

To reflect the aim of the PSSA concept, the guidelines require sensitive areas additionally to meet a further criterion. As IMO measures may merely grant protection from threats posed by vessels navigating near or in an area, respective areas must be at risk from international shipping (“vulnerability”). This requirement is amplified by seven factors, which should be taken into account in determining the area’s vulnerability.<sup>173</sup> Four of them dwell upon the vessel traffic characteristics of the area; the others set out natural factors which may cause navigational problems. As regards the former, “operational factors” (5.1.1) address the types of marine activities already occurring in the area and “vessel types” (5.1.2) concern the vessels passing through the area, while “traffic characteristics” (5.1.3) and “harmful substances carried” (5.1.4) make recourse to the quantity and interaction of vessels passing through the area and the possibly dangerous substances they carry respectively. Natural factors comprise hydrographical, meteorological and oceanographic factors (5.1.5 to 5.1.7). Hydrographical factors include those calling for increased navigational prudence, such as water depth or unusual coastline topography. Meteorological factors encompass prevailing weather conditions; relevant oceanographic factors may be tidal streams, ocean

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<sup>170</sup> This assumption and its likely consequences are addressed, *infra*, in Sec. II.1. of Chapter 11.

<sup>171</sup> MEPC 52/8, *Proposed Amendments to Assembly Resolution A.927(22) to Strengthen and Clarify the Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas*, 9 July 2004, para. 3.

<sup>172</sup> MEPC 52/8/4, *supra*, note 154, para. 8. Whether the current wording adequately reflects the precautionary principle will be dealt with in Sec. I.4. of Chapter 11.

<sup>173</sup> This fact is seemingly overlooked by Jürgen Schmidt-Räntsch, “§ 38 Geschützte Meeresflächen”, in E. Gassner, G. Bendomir-Kahlo, and J. Schmidt-Räntsch (eds.), *BNatSchG*, Second Ed. (München: C.H. Beck 2003), para. 11, since he argues that protected zones may not be designated by virtue of domestic law if MEPC rejects a PSSA proposal.

currents or ice. Both meteorological and oceanographic factors must be able to trigger an “increase [of] the risk of collision and grounding and also the risk of damage to the sea area from discharge.”<sup>174</sup>

States wishing to have an area protected by the PSSA mechanism are under the obligation to submit sufficient information to IMO in order to enable it to take a decision mindful of all issues involved. Hence, they need to present adequate evidence that proves that at least one of the criteria for particular sensitivity is met and that the area is at risk from shipping. In addition, paragraph 5.2 lists information that helps IMO in assessing the application, inasmuch as it further illustrates the description of the area and its features. Additional information include evidence that vessel accidents may cause harm to the attributes of the area; historic data on groundings, collisions and spills; measures already applied and their actual or anticipated benefits; and stresses from other sources on the environment.

With respect to documented information that states submit to IMO, it should be noted that in contrast to paragraph 4.4 (“the area should meet at least one of the criteria listed below”), paragraph 5.1 merely notes that “the area should be at risk from international shipping activities [which] *involves* consideration of the following factors” (italic emphasis added). The last phrase of paragraph 5.1, in particular, is indicative of a non-exhaustive list. The choice of language implies that governments in their applications are free to add more factors which may be able to prove an area’s vulnerability. In that respect, they are not constrained by paragraph 5.2, which does not have more than a guiding function. Thus far, states have always tried to submit to IMO as concise information as possible. Even though there is no obligation to do so, there seems to be a general perception that it is helpful for the outcome of the assessment if states in that way prove their sincere interest in pursuing the designation.

### **3. Size and Biogeographical Characteristics of the Area**

While the two previous sections have addressed requirements for PSSA designations that are expressly mentioned in the PSSA Guidelines, the criteria referred to in this section may not exist at all. It is doubtful whether the guidelines expressly or implicitly require an area to be of a particular size or to be defined as a coherent ecosystem. I have already argued elsewhere that neither criterion adequately reflects the wording of the PSSA Guidelines.<sup>175</sup> Roberts et al<sup>176</sup>, as well as Ünlü,<sup>177</sup> raise the issue but are reluctant to voice an opinion.

<sup>174</sup> Para. 5.1.6 and 5.1.7.

<sup>175</sup> Markus Detjen, *supra*, note 140, p. 452. This view is shared by Veronica Frank, *supra*, note 141, pp. 1-64, at 34 et seq.

<sup>176</sup> Cf. Julian Roberts et al, “The Western European PSSA Proposal: a ‘politically sensitive sea area’”, 29 *Marine Policy* (2005), pp. 431-440, at 439 et seq.

<sup>177</sup> Nihal Ünlü, “Particularly Sensitive Sea Areas: Past, Present and Future”, 3 *WMU Journal of Maritime Affairs* (2004), pp. 159-169, at 166 et seq.

The question of the size of a PSSA became a contentious issue within IMO in the debate on the Western European PSSA, which is very large and contains different ecosystems; it is also not a biologically functional unit.<sup>178</sup> Especially during deliberations at the 49<sup>th</sup> and the 51<sup>st</sup> sessions of MEPC, some states held that only well-defined small marine areas were eligible for designation.<sup>179</sup> In their opinion, other types of areas violated paragraph 1.2 of the PSSA Guidelines that defines a PSSA as “an area that needs special protection.” This view was mainly based on the perception that Article 211(6) constitutes the legal basis for PSSAs – an argument to which I will come back later in this treatise.<sup>180</sup> Irrespective of the legal basis issue, a more compelling systematic argument can be deployed to show that the guidelines are not restrictive in terms of size. Paragraph 6.1.1 of the guidelines provides for, *inter alia*, the designation of a MARPOL Special Area within a PSSA. In fact, these Special Areas usually encompass large areas.<sup>181</sup> It can thus be reasoned that this also applies to PSSAs.

A related question – that of whether an area is only eligible for designation if it constitutes a “coherent ecosystem” – also warrants some attention.<sup>182</sup> Again, based on the assumption that PSSA Guidelines flesh out Article 211(6), which requires “clearly defined areas”, some IMO member states opposed designation of the Western European PSSA, as well as the Baltic Sea Area PSSA on the grounds that PSSAs must be clearly defined by biogeographical criteria.<sup>183</sup> The guidelines do not expressly exclude areas that contain various different ecosystems. Therefore, it needs to be established how the term “area that needs special protection [...] because of its significance” in paragraph 1.2 of the guidelines has to be understood: it might reflect the desire to protect only coherent ecosystems in which all parts are equally vulnerable. Most PSSAs designated so far seem to endorse such an interpretation, because they are small unique areas known for their rich flora and fauna. However, the most commonly cited example, the Great Barrier Reef off the coast of Queensland (Australia), is of similar size to the Western European PSSA and the Baltic Sea Area PSSA. As has been mentioned above<sup>184</sup>, it was designated as the first PSSA in 1991 and is said to have served as a role model for

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<sup>178</sup> MEPC 49/WP.10, *Report of the Informal Technical Group*, 16 July 2003, Annex 1, para. 2.1.4.

<sup>179</sup> This view was voiced by Liberia, Panama, the Russian Federation and some shipping industry NGOs, see LEG 87/16/1, *supra*, note 143, para. 1. See further MEPC 49/22, *supra*, note 145, para. 8.24.3; and Kristina M. Gjerde, “Report on PSSAs at MEPC 51”, available from <[http://www.iucn.org/themes/marine/Word/PSSA\\_MEPC%2051\\_report.doc](http://www.iucn.org/themes/marine/Word/PSSA_MEPC%2051_report.doc)>; (accessed on 30 September 2006), p 2.

<sup>180</sup> Cf. Sec. I.2.a) of Chapter 10.

<sup>181</sup> E.g. the Baltic Sea or the Mediterranean Sea.

<sup>182</sup> Markus Detjen, *supra*, note 140, p. 452.

<sup>183</sup> With respect to the Western European PSSA, it is widely accepted that its parts are not equally vulnerable. WWF, for example, called for an additional APM to develop a risk map with the “areas of highest sensitivity/vulnerability (in ecological and socio-economic terms) within the PSSA”; cf. MEPC 49/8/4, *Designation of a Western European PSSA – Comments on MEPC 49/8/1*, 23 May 2003, para. 5.

<sup>184</sup> Cf., *supra*, Sec. I.3. of this chapter.

the development of the PSSA concept. Even the Great Barrier Reef can hardly be considered a single ecosystem.<sup>185</sup> Within its boundaries, more than 100 biogeographically distinct zones have been identified, including coral reefs and mangroves, as well as seagrass beds and tiny islands.<sup>186</sup> To add to that, the level of vulnerability varies: the Australian government is to introduce so-called marine environment high risk areas<sup>187</sup> reflecting different protective needs. The same is arguably true of the Florida Keys PSSA. However, no state would oppose the view that both areas constitute PSSAs in accordance with the guidelines. This comes as no surprise as it merely indicates that the ocean by its nature is interconnected and that for some commentators certain marine areas evoke the mere perception that they represent coherent ecosystems. But on the contrary, it is very difficult to determine biologically on what geographical level an ecosystem has to be “coherent.” As has been pointed out in Chapter 3, the notion ecosystem is applicable on every scale (global, regional, local, down to microbial communities)<sup>188</sup> and is thus not confined to a “region.” Hence, the guidelines do not require PSSAs to consist of a “coherent ecosystem.”

#### **4. Establishment of Protected Area Networks**

A related issue concerns the establishment of protected area networks. It is today widely accepted that the most suitable way of protecting vulnerable marine ecosystems is to establish networks of jointly managed individual protected areas, since the viability of an ecosystem in one place often depends upon the sound protection of other places.<sup>189</sup> However, the PSSA Guidelines envisage neither the development of a PSSA network nor the integration of PSSAs in existing or proposed networks under other regimes. While they arguably do not prohibit their integration into networks – because the Guidelines foresee parallel protection under other instruments –, they obviously lack an obligation at least to consider the issue of protected area networks. This omission may be explained by recourse to the predominant characteristics of PSSAs. Their focus is on shipping threats rather than on ecological necessities. Although the environmental status of an area designated as a PSSA may be dependent upon conditions in other areas, these areas would only qualify as PSSAs if vessel traffic and natural factors amounted to a risk from international shipping, as defined in Section 5 of the PSSA Guidelines. In addition, the establishment of MPA networks only makes sense if areas included in the network are managed in a manner that takes account of the

<sup>185</sup> The GBR is arguably a special case. It was already designated a “prohibited zone” under the 1954 OILPOL Convention in 1971, cf. IMCO Res. A.232(VII), *Protection of the Great Barrier Reef*, adopted on 12 October 1971.

<sup>186</sup> Kristina M. Gjerde, *supra*, note 179, p 2.

<sup>187</sup> Cf. Australian Maritime Safety Authority, *Review of Ship Safety and Pollution Prevention Measures in the Great Barrier Reef* (July 2001), available from <[http://www.amsa.gov.au/Shipping\\_Safety/Great\\_Barrier\\_Reef\\_Review/GBR\\_Review\\_Report/Documents/gbr.pdf](http://www.amsa.gov.au/Shipping_Safety/Great_Barrier_Reef_Review/GBR_Review_Report/Documents/gbr.pdf)>; (accessed on 30 September 2006), figure 5.2.

<sup>188</sup> Refer to Sec. I.2. of Chapter 3.

<sup>189</sup> Cf. Sec. II.1. of Chapter 3.

ecological interdependencies. The PSSA concept does not envisage proactive management. Hence, proposing governments are not under any obligation to address the potential of a proposed PSSA to be included into a protected area network.

### **5. Designation Procedure within IMO**

As has been said, the designation of an area as a PSSA must be proposed by one of IMO's member states. The application is to be addressed to the MEPC that oversees the assessment procedure and coordinates the participation of other committees and sub-committees in decision-making. The PSSA Guidelines stipulate requirements for assessing the admissibility of an application;<sup>190</sup> complementary assistance being given in a guidance document issued by MEPC.<sup>191</sup> This section should illuminate the differing responsibilities of the committees involved and the procedural requirements governments have to be aware of when submitting an application.

#### **a) Course of the Procedure**

The guidelines set forth the PSSA designation procedure in paragraphs 7 and 8. Its main structure is illustrated in Table 1. MEPC, after having received an application from one or more of its member states, considers its aspects during the committee's meeting prior to which the application has been submitted. If no general objections are raised against the proposal, the committee establishes an informal technical group (ITG), to which the proposal is referred. The ITG assesses the pure technical and scientific aspects of the application. If it concludes that the guidelines' criteria are met, it recommends to the plenary how to proceed with the application. For ease of assessment, the ITG uses a so-called PSSA Proposal Review Form, which rephrases into checklist questions all requirements set forth by the guidelines<sup>192</sup> and thereby tends to endorse a binary yes/no inquiry. Doubts have been uttered as to the appropriateness of the current design of the review form; complex applications for large areas would be better facilitated by a more holistic and deliberate technical review.<sup>193</sup> MEPC embraced that view<sup>194</sup> and a revised form is due to be considered at MEPC 55.<sup>195</sup>

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<sup>190</sup> Para. 8.

<sup>191</sup> MEPC/Circ.398, *Guidance Document for Submission for PSSA Proposals to IMO*, 27 March 2003. The document complements the 2001 version of the PSSA Guidelines. Its value may thus be limited in the light of the revised Guidelines.

<sup>192</sup> Cf. MEPC 51/WP.9, *Report of the Informal Technical Group*, 1 April 2004, Annexes 1 to 3, assessing the Canary Islands, the Galapagos Archipelago and the Baltic Sea Area respectively.

<sup>193</sup> See personal statement given by *Jim Osborne* of Canada, Chairman of the ITG at MEPC 49, in the plenary; reproduced in MEPC 49/22, *supra*, note 145, para. 8.22; also statement by the U.S. in MEPC 52/8, *supra*, note 153, para. 4.

<sup>194</sup> MEPC 52/24, *supra*, note 156, para. 8.24.

<sup>195</sup> MEPC 55/8, *Particularly Sensitive Sea Area Proposal Review Form*, 16 June 2006, annex.

Subsequently, two steps need to be taken by MEPC. First, the committee should approve the designation of the area “in principle.”<sup>196</sup> This term reflects IMO’s identification of the area’s particular sensitivity, while indicating that approval of the APMs is still pending. Second, accompanying APMs must be identified and referred to the competent committee, which may be MSC, MEPC itself, NAV<sup>197</sup> or the Assembly<sup>198</sup> – depending on the responsibility for the instrument pursuant to which the APM should be introduced. The respective organ examines whether the instrument’s prerequisites are met and informs MEPC accordingly (on the criteria for the adoption of APMs, see Chapter 8<sup>199</sup>). Generally speaking, it is autonomous in its decision. A notable exception to this principle is the NAV sub-committee. According to paragraph 8.3.5, where measures require approval of MSC, it merely adopts a recommendation for approval or rejection of the APM. It is then a matter for MSC to take a definitive decision, while taking into account NAV’s position. If the proposed APMs are not approved by the competent organ, MEPC has two options. It may either reject the application and notify the proposing government by providing a statement of reason, or request the government to submit additional information that might eventually lead to an approval of the application.<sup>200</sup> In the case of at least one APM being approved, the MEPC is able to designate the area as a PSSA. Designation of the area “in principle” will then merge into a definitive designation.

Earlier versions of the PSSA guidelines recognised a second category of designations “in principle,” which was abolished during the 2005 revision. Revoked provisions allowed for a more radical understanding of this two-phase concept. Whereas currently areas may only be designated in principle if APMs have already been examined, under the old guidelines applications for designation could be submitted – and approved “in principle” – without any accompanying APMs. Proposing governments had merely to promise to apply for respective measures at a later date. The approach of the current guidelines, which inextricably links proposals for PSSA designation and adoption of APMs (as will be explained in more detail in the following chapter), does not leave any leeway for this approach to be maintained. During the 2005 revision process, it was suggested that the “in principle” designation should be repealed completely and only the possibility of adopting a final designation be upheld.<sup>201</sup> The Correspondence

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<sup>196</sup> Para. 8.3.2 of the PSSA Guidelines.

<sup>197</sup> As a sub-committee, NAV is not allowed to take decisions. If MEPC refers an issue to NAV, the latter may only recommend a decision on a specific issue.

<sup>198</sup> See para. 8.3.2 of the PSSA Guidelines. Neither the 1991 Guidelines nor the 2001 Guidelines envisaged participation of the Assembly in that process. This was changed to reflect the possibility that the Assembly may adopt APMs, cf. MEPC 53/8/2, *supra*, note 157, annex, p. 37, annotation to para 8.3.2 of the draft guidelines.

<sup>199</sup> Sec. II.

<sup>200</sup> Para. 8.3.6. of the PSSA Guidelines.

<sup>201</sup> MEPC 52/8/1, *supra*, note 151, para. 20 et seq.

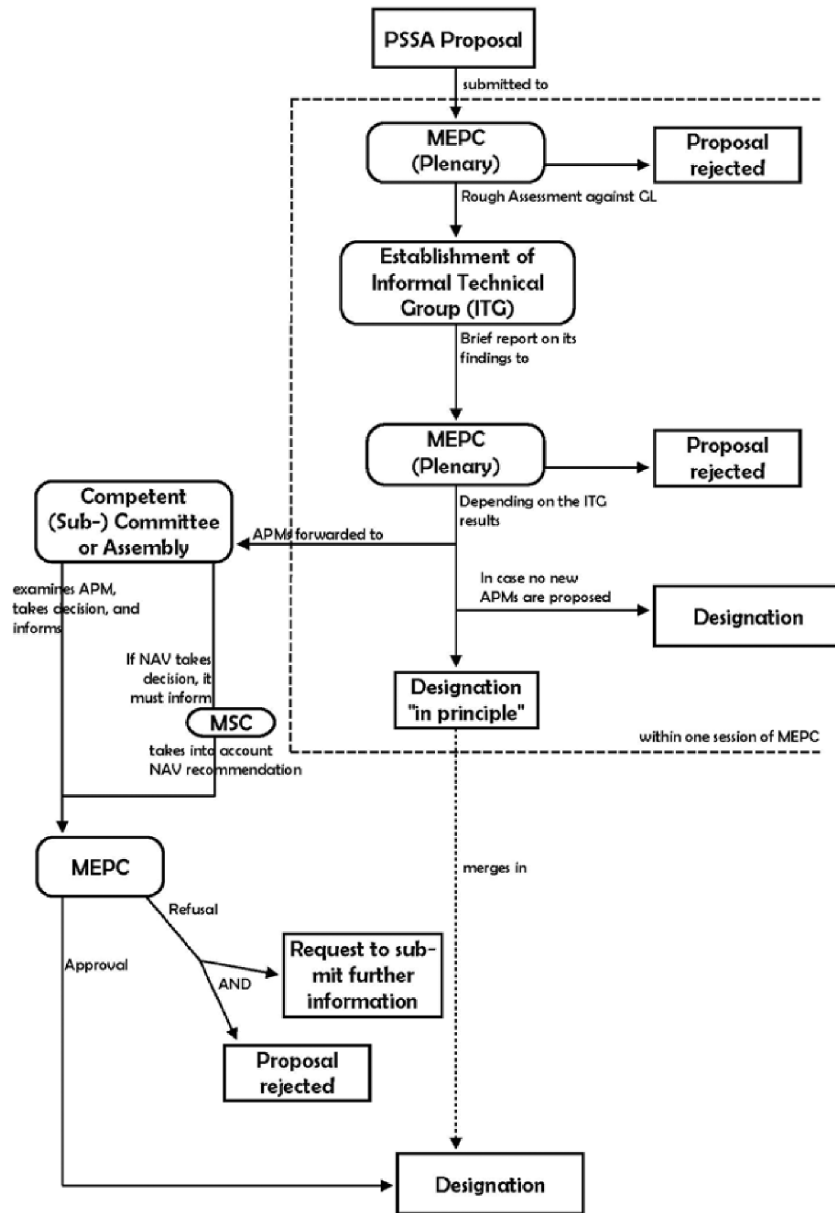


Fig. 1: The Procedure for Identification and Designation of PSSAs



Group recognised that PSSA applications submitted without APM were inconsistent with the guidelines, because without an APM to be examined several relevant provisions of the guidelines could not be considered.<sup>202</sup> However, the general approach was eventually retained as it was perceived valuable to expose an area's exceptional value and vulnerability even before final approval of APMs is given. In that way, it was argued, IMO is able to contribute to precautionary protection of the area.<sup>203</sup>

The duration of the whole designation procedure is difficult to determine. It usually takes at least one year before MEPC has received the necessary approval from other committees regarding the admissibility of APMs. If it decides, at its subsequent session, to designate the area, there is a further delay before regulations enter into force to allow sufficient time for all interested parties to adapt to new measures. Pursuant to paragraph 8.5, IMO is to ensure "that the effective date of implementation is as soon as possible based on the rules of IMO and consistent with international law."

### **b) Requirements for Proposing Governments**

The designation procedure, although governed by MEPC, to a great extent depends on the proposing government's ability to assemble sufficient data, as well as to cooperate if information on an issue is seen as deficient. The PSSA Guidelines set out various obligations for governments with respect to the drawing up and submission of applications. However, even before governments submit an application to IMO, they should contemplate a mere domestic designation of MPAs. Only if it is considered necessary to request action on a global level may they act accordingly.<sup>204</sup>

Generally speaking, "[a]n application for PSSA designation should address all relevant considerations and criteria in these Guidelines, and should include relevant supporting information for each such item."<sup>205</sup> The proposal must, first of all, contain a summary of the objectives of the proposed PSSA designation.<sup>206</sup> According to paragraph 7.5, an application generally consists of two parts. As concerns the first part, by virtue of paragraph 7.5.1, it should encompass a description of the area's location by using, *inter alia*, appropriate nautical charts. Furthermore, it should be sufficiently stated why the area is significant with respect to the criteria set out in the guidelines. This requirement is in line with paragraph 4.4, which stipulates that "information and supporting documentation should be provided to establish that at least one criterion exists throughout the entire area." Finally, in taking account of natural factors listed in paragraph 5, the proposal should contain information on the nature and extent of the risks

<sup>202</sup> MEPC 53/8/2, *supra*, note 157, para. 9.

<sup>203</sup> See remarks by the Correspondence Group, MEPC 53/8/2, *supra*, note 157, para. 7 et seq.; and comments on earlier drafts by WWF, cf. MEPC 52/8/4, *supra*, note 154, para. 20.

<sup>204</sup> Cf. MEPC/Circ.398, *supra*, note 191, para. 2.1.

<sup>205</sup> Para. 7.7 of the PSSA Guidelines.

<sup>206</sup> Para. 7.4.

international shipping poses in the area, as well as a description of shipping activities that may contribute to causing harm.<sup>207</sup> As to state practice, it can be duly noted that proposing governments have so far always sought to assemble as concise information as possible.<sup>208</sup>

The second part should address the APMs proposed, especially IMO's competence in adopting these measures. At least one APM, which may already exist, must be appended to the PSSA proposal. If the proposal contains new APMs, it should set out how they are going to be implemented, in particular with respect to the legal basis. If no new APMs are being proposed, it should be stated how the area is already being protected by the existing IMO measures. Issues relating to APMs will be dealt with in more detail in the next chapter. Further documentation that needs to be provided concerns possible impacts of proposed measures on the safety and efficiency of navigation (paragraph 7.6), in particular on existing traffic patterns or usage of the proposed area. Moreover, proposals should illustrate action taken under domestic law against ships failing to comply with protective measures (paragraph 7.9).

Another issue that should be mentioned here is that of cooperation of countries bordering the same maritime area. Under the terms of paragraph 3.1, governments that have a common interest in an area "should formulate a co-ordinated proposal." As coastal states of a particular region mostly share environmental problems related to shipping off their coasts, this phrase may seem to state the obvious. However, in the case of the Baltic Sea Area PSSA it became relevant, inasmuch as all states bordering the Baltic Sea sponsored the respective PSSA application – except the Russian Federation. Sweden, speaking on behalf of the proponents, informed MEPC that it had tried to get Russia involved as a co-sponsor, but it declined even to start deliberations on this issue.<sup>209</sup> The Russian Federation, on the contrary, contended that – regardless of any efforts on the side of the proponents – a designation of the Baltic Sea as a PSSA against its will constituted a violation of paragraph 3.1 of the PSSA Guidelines and furthermore amounted to an infringement of IMO's fundamental decision-making principles, namely openness, transparency and consensus.<sup>210</sup> The MEPC ignored Russia's remarks, allegedly embracing the view that the wording of paragraph 3.1 is recommendatory and does not represent an obligation to cooperate. This interpretation is thought-provoking, since paragraph 3.1 aims at encouraging states to seek participation with one another to allow data included in the application to be more concise. To subject

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<sup>207</sup> This includes information called for by para. 5.2.

<sup>208</sup> See applications referred to in footnotes of Sec. V.1. of Chapter 8.

<sup>209</sup> MEPC 51/22, *supra*, note 148, para. 8.51. See further MEPC 51/8/1, *supra*, note 147, para. 1.1.

<sup>210</sup> Cf. Statements by the Russian Federation concerning the designation of the Baltic Sea as a PSSA, reproduced in MEPC 51/22, *supra*, note 148, Annex 8. A similar view was held by Israel in response to an Egyptian proposal to designate the Gulf of Aqaba and the Strait of Tiran as a PSSA, cf. MEPC 45/6/1, *Identification and Protection of Special Areas and Particularly Sensitive Sea Areas*, 3 July 2000, para. 5.

applications of one IMO member state to the factual approval of another prior to IMO's assessment would be an unnecessary complication. Each application is judged on its merits within IMO; if it is approved, it shows that the area in question is qualified to be designated a PSSA and that the application does not conflict with international law. In the 2005 revision process, the Russian Federation had tried to amend the Guidelines so as to reflect its appeal that "applications for a PSSA affecting several countries should only be made on the basis of consensus of these countries."<sup>211</sup> It called for replacing "should" in paragraph 3.1 with "shall", as well as adding a paragraph, which would have further illustrated its stance<sup>212</sup>, but in the event MEPC did not concur with this proposal.

If governments have submitted a correct application and MEPC or other organs of IMO have approved the application's admissibility, MEPC may finally designate the area as a PSSA. This is done by adopting a formal resolution. The immediate consequences of the designation will be dealt with in the next section.

### III. Consequences of a Designation

Apparent consequences of a PSSA designation are its inclusion in nautical charts and the control of compliance with its APMs by the respective coastal state. In the following section, I shall set out in more detail how this is going to be carried out. In addition, I shall examine whether PSSAs may entail protective effects beyond what is explicitly provided for by APMs. Moreover, it should be asked if a PSSA designation may give rise to further obligations for coastal states to protect the area outside the PSSA regime.

#### 1. Charting of PSSAs and APMs

As a practical necessity, after designation, mariners must be informed about the new status of an area. The PSSA Guidelines are reflective of that inasmuch as they call for identification of all APMs "on charts in accordance with symbols and methods of the International Hydrographic Organization (IHO)."<sup>213</sup> Carrying "adequate and up-to-date charts" to assist in navigation is required by SOLAS.<sup>214</sup>

Although the guidelines' wording suggests otherwise, IHO charting standards were not available at the time the PSSA instrument was introduced. Quite on the contrary, it has taken the IHO a long while to elaborate adequate charting standards, in particular for PSSAs as such and APMs that had not been available in IMO instruments before. The work was carried out by the Chart Standardization and Paper Chart Working Group (CSPCWG) of the Committee on Hydrographic

<sup>211</sup> MEPC 53/24, *supra*, note 28, para. 8.22.3.

<sup>212</sup> MEPC 52/8/1, *supra*, note 151, para. 9 et seq.

<sup>213</sup> Para. 9.1.

<sup>214</sup> Regulation V/20.

Requirements for Information Systems (CHRIS) of IHO. CSPCWG provides a core of expertise on the basic concepts of charting, whatever physical form the chart or publications may take. It has only very recently finalised new standards.

With respect to paper charts, CHRIS 17 in October 2005 agreed to update the regulations for international charts and chart regulation of the IHO (INT1).<sup>215</sup> Regulation B-437 of INT1 now provides chart specifications for Environmentally Sensitive Sea Areas (ESSAs), a generic term used by IHO for marine protected areas, whether national or international, IMO- or non-IMO- approved. According to paragraph 6 lit. b of Regulation B-437, the limits of an ESSA should be charted using a broken line with a tinted band, both in green or magenta.<sup>216</sup> Furthermore, a suitably worded note should be inserted on the relevant chart, indicating, in particular, that the designation is approved by IMO. As for APMs, regulations differentiate between those that are based on a measure for which IHO specifications exist and others.<sup>217</sup> With respect to the former, they should be included in accordance with existing specifications.<sup>218</sup> As regards the latter, national hydrographic offices should consider combining the PSSA note with a note detailing the APM.

Taking a look at the practice of the German Federal Maritime and Hydrographic Agency (BSH – *Bundesamt für Seeschifffahrt und Hydrographie*)<sup>219</sup>, it becomes apparent how difficult it is adequately to reflect the complex PSSA regime in nautical charts. Only the Wadden Sea PSSA (comprising parts of the Dutch, German and Danish territorial sea) has yet been included in paper charts in full accordance with the IHO INT1 regulations. With respect to the Western European PSSA, BSH has not yet charted the area, but merely issued the complete IMO Resolution MEPC.121(52) in the weekly Notices to Mariners (NfS – *Nachrichten für Seefahrer*)<sup>220</sup>, which was considered sufficient for the time being, since it includes an overview chart of the designated area. The Baltic Sea Area PSSA has not yet been charted at all. This is due to the fact that almost the whole of the Baltic Sea was designated as a PSSA, which triggered charting problems that have not yet been resolved.

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<sup>215</sup> Edition 3.003 of August 2006, available from <<http://www.iho.shom.fr/publicat/free/files/M4-v3003.pdf>>; (accessed on 5 December 2005).

<sup>216</sup> In nautical charts, green is used for environmental matters, magenta for superimposed information.

<sup>217</sup> Regulation B-437.6 lit. c of INT1.

<sup>218</sup> Examples include symbols for basic elements of routeing measures in para. 9.3 of the General Provisions on Ships' Routeing; reproduced in IMO, *Ships' Routeing*, Seventh Ed. (London: IMO Publication 1999, looseleaf collection, updated to 2003), Part A. Hereafter GPSR.

<sup>219</sup> This part is based on personal information obtained from *Dr. Mathias Jonas*, Head of Nautical Information Service, Federal Maritime and Hydrographic Agency, Rostock/Germany. I am very thankful for his kind cooperation.

<sup>220</sup> NfS, 2005, No. 12.

With regard to electronic charting standards, their establishment is of even more recent nature. Generally, Regulation V/19 of the annex of SOLAS stipulates that so-called Electronic Chart Display and Information Systems (ECDIS) are accepted as meeting the chart carriage requirements of Regulation V/20.<sup>221</sup> ECDIS standards have been developed in close cooperation by IMO and IHO and respective systems are already used by many vessels voluntarily.<sup>222</sup> It is quite certain that, in the near future, most vessels will be obliged to be equipped with ECDIS systems.<sup>223</sup> ECDIS is not only used to present electronic nautical charts (ENCs); it is also an information system. Thus, ECDIS enables the user to retrieve information on the items displayed in addition to the graphical presentation.<sup>224</sup> IHO is responsible for standardising the digital chart objects for ECDIS. Those standards have been published in IHO's Special Publication No. 57 (S-57). However, S-57 standards do not contain any information about the presentation of symbols on the screen. For generating the appropriate symbolisation, ECDIS refers to the second important IHO standard, the presentation library (PRESLIB), published in the Special Publication No. 52 (S-52).

Standards contained in both S-57 and S-52 are not yet able adequately to encode ESSAs/PSSAs, but work on updated standards is progressing within IHO. In September 2005, CHRIS 17 decided to update current standards within one

<sup>221</sup> For an instructive overview, see IMO, *Electronic Charts*, available from <[http://www.imo.org/Safety/mainframe.asp?topic\\_id=350](http://www.imo.org/Safety/mainframe.asp?topic_id=350)>; (accessed on 30 September 2006); and Peter Ehlers, "Die internationale Entwicklung der hydrographischen Dienste", 7 *NuR* (2003), pp. 414-418, at 416.

<sup>222</sup> ECDIS performance standards are contained in IMO Resolution A.817(19), Performance Standards for Electronic Chart Display and Information System (ECDIS), adopted on 23 November 1995; as amended by Res. MSC 64(67) of 4 December 1996 and Res. MSC 86(70) of 8 December 1998. Cf. Peter Ehlers and Horst Hecht, "Stand und Aussichten von ECDIS", 54 *Schiff & Hafen* No.4 (2002), pp. 11-14, at 12.

<sup>223</sup> NAV 51 in July 2005 was divided on whether it was within its remit to discuss the establishment of a mandatory ECDIS requirement. Nonetheless, one of its WGs has already developed a phase-in approach for different types of ships. Cf. NAV 51/19, *Report to the Marine Safety Committee on its Fifty-First session*, 4 July 2005, para. 6, and NAV 51/WP.4/Rev.1, *Evaluation of the Use of ECDIS and ENC development*, 10 June 2005, para. 6. MSC 81 agreed to instruct NAV 53 to work on carriage requirements for ECDIS equipment, see MSC 81/25, *Report of the Maritime Safety Committee on its Eighty-First Session*, 24 May 2006, para. 23.39 et seq. following a proposal by Norway and Denmark that also summarised positive results of a cost-benefit analysis, as well as of a risk assessment, see MSC 81/23/13, *Proposal for a new work programme item for the NAV Sub-Committee on carriage requirements for ECDIS, and for the STW Sub-Committee on ECDIS training and familiarization*, 19 December 2005. NAV 52 already considered the matter and invited member states to submit proposals and comments to NAV 53; cf. NAV 52/18, *Report to the Maritime Safety Committee*, 15 August 2006, para. 17.50 et seqq.

<sup>224</sup> For basic information on ECDIS, see Wikipedia, "Electronic Chart Display and Information System", available from <<http://en.wikipedia.org/wiki/ECDIS>>; (accessed on 30 September 2006).

year.<sup>225</sup> The Transfer Standard Maintenance and Applications Development (TSMAD) WG in November 2005 discussed proposals to update S-57 edition 3.1 to 3.1.1 by including data standards for ESSAs/PSSAs, as well as for Archipelagic Sea Lanes. After finalisation of this work, the Colours and Symbols Maintenance Working Group (C&SMWG) of CHRIS will be able to develop appropriate symbolisation to be included in S-52. It is expected that in late September 2006 CHRIS 18 will adopt revised S-57 and S-52 standards.

As has become apparent, the charting of PSSAs and their APMs on either electronic or paper charts is a very complex issue. It should be kept in mind, however, that charting is only envisaged “[w]hen a PSSA receives final designation.” Consequently, tentative measures that have merely received initial approval must not be placed on a chart, until they actually need to be complied with by users of the area.

## **2. Enforcement of Protective Measures**

Once a PSSA designation and accompanying APMs are approved by IMO, all vessels navigating through the area are forced to comply with its protective measures. Responsibility for enforcement of applicable APMs lies with both the coastal states in whose territorial sea or EEZ the PSSA, or parts of it, are situated, as well as with the flag states.<sup>226</sup> Competence is determined by recourse to respective UNCLOS provisions on enforcement:<sup>227</sup> the coastal state is only allowed to act within the confines of these provisions. Where it lacks competence to enforce protective measures, the vessels’ flag states have to ensure that adequate non-compliance mechanisms are in place to punish those violating APMs through their authorities. If it is up to the flag state to act, under the provisions of paragraph 9.3, it should provide a report to the “[g]overnment which has reported the offence” (hence not necessarily the coastal state bordering the PSSA) on follow-up action concerning the reported alleged non-compliance with an APM.

*Scovazzi* held the view that APMs “have no mandatory character, as the use of the conditional tense (‘should’) clearly discloses.”<sup>228</sup> He referred to ex-paragraph 5.3 (now 9.3) that stipulates that IMO member governments “should take all appropriate steps to ensure that ships flying their flag comply with the [APMs] adopted to protect the area.” Without anticipating any results of Chapter 10, which will analyse APMs and their legal effect in more detail, it can be said that *Scovazzi*’s contention cannot be maintained in the light of the context of the provision and the purpose of the guidelines. Indeed, member governments are encouraged (not obliged) to promote compliance with the APMs approved for the

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<sup>225</sup> Cf. minutes of CHRIS 17, available from <[http://www.iho.shom.fr/COMMITTEES/CHRIS/CHRIS17/CHRIS17\\_Minutes.pdf](http://www.iho.shom.fr/COMMITTEES/CHRIS/CHRIS17/CHRIS17_Minutes.pdf)>; (accessed on 30 September 2006), para. 5.1.

<sup>226</sup> Para. 9.2.

<sup>227</sup> For an overview, see, *supra*, Sec. III.2. of Chapter 4.

<sup>228</sup> Tullio Scovazzi, “Marine Protected Areas on the High Seas: Some Legal and Policy Considerations”, 19 *IJMC*L (2004), pp. 1-17, at 9.

PSSA. However, where APMs are adopted as mandatory measures, it is for the coastal state and the flag state to join forces in enforcing APMs in a manner set out above. In this respect, the flag state is under the obligation to ensure compliance as far as it has jurisdiction.

### **3. Protection without Protective Measures**

It has been said before that PSSAs are protected by associated protective measures. Even though APMs are addressed in detail in the following chapter, it should here be asked whether the PSSA designation as such has a protective effect. PSSA status, some have argued, grants an “added value” to an area subject to its regime.<sup>229</sup> As early as 1993, international experts on PSSAs meeting on Texel (The Netherlands) to assist IMO in developing the concept further, assembled a long list of issues that may be influenced by conferral of PSSA status. Quite generally, they noted that a designation would tend to trigger an immediate effect of altering perceptions of the area, may thus raise the profile of the area as an environmentally sensitive zone requiring special measures of protection and, in the event, result in changes of the behaviour of users.<sup>230</sup> In addition, the designation of a PSSA may provide an opportunity for the introduction of protective measures with respect to other maritime activities, which can be particularly important in multi-use areas.<sup>231</sup>

More specifically, it has been argued that mapping of PSSAs on charts serves to notify mariners of the environmental vulnerability of the area and hence of the rationale for the applicable protective measures. As a result, their attitudes towards measures in place and the way in which they navigate may change. The scant evidence that is obtainable suggests that these expectations have been met. Concerning the Great Barrier Reef PSSA, for instance, it has been noted from early on that global approval of existing national legislation by IMO through the PSSA scheme has substantially increased awareness by users of the area.<sup>232</sup> The same is observed outside the PSSA regime with respect to Marine Environment High Relevance Areas (MEHRAs) introduced by the UK in the aftermath of the

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<sup>229</sup> Cf. Report from the Third International Meeting of Experts on PSSAs, *supra*, note 125, para. 10 et seq. Erik Jaap Molenaar, *Coastal State Jurisdiction over Vessel-Source Pollution* (The Hague: Kluwer Law International 1998), p. 440 et seq. has expressed slight scepticism with respect to intrinsic value.

<sup>230</sup> Report from the Third International Meeting of Experts on PSSAs, *supra*, note 125, para. 13 et seq.

<sup>231</sup> *Ibid.*

<sup>232</sup> Peter Ottesen, Stephen Sparkes and Colin Trinder, *supra*, note 119, p. 518 et seq. Interestingly, IHO’s INT1 regulations in B-437.6 state that “[i]n the case of the Great Barrier Reef, the charting of the PSSA is itself considered to be a protective measure.” The GBR is the only PSSA that has been included in nautical charts for a longer time. As detailed, *supra*, in Sec. III.1. of this chapter, charting standards for PSSAs are of very recent nature and few PSSAs are yet marked on existing charts.

*Braer* accident.<sup>233</sup> Although compliance with its regulations is entirely voluntary for third-state vessels, big shipping companies tend not to permit their ships to sail through them, since they are aware of the fragility of their reputation in the context of transport of oil by sea and possible spills.<sup>234</sup> Of course, loss of reputation can only be feared by those whose policy is to seek a high reputation.<sup>235</sup> Hence, sub-standard ships that even violate binding legal requirements are most likely not to comply with voluntary regulations or behave more cautiously than is required by APMs in a PSSA.

With respect to the awareness-raising character of a PSSA designation, consideration may be given to a recent designation of a considerably large marine area off the west coast of the North Island of New Zealand as a precautionary area<sup>236</sup>, where mariners should be required to navigate with particular caution because of the environmental importance of the area and offshore industrial installations.<sup>237</sup> The proposal, which still needs to be endorsed by MSC 81, has provoked opposition by Danish delegates, who argued that the area was too large.<sup>238</sup> Indeed, precautionary areas are usually established at the termination of other routing measures and not for purely environmental purposes.<sup>239</sup> This particular approval of a “precautionary area” may have repercussions for the PSSA concept in the long run. New Zealand, that had already decided against proposing a PSSA in another case and instead relied on the designation of an Area to be

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<sup>233</sup> The MEHRA concept was elaborated by Lord Donaldson in his inquiry into the prevention of pollution from merchant shipping entitled *Safer Ships, Cleaner Seas* (London: HMSO 1994) in the aftermath of the *Braer* disaster: see Lynda M. Warren and Mark W. Wallace, “The Donaldson Inquiry and its Relevance to Particularly Sensitive Sea Areas”, 9 *IJMC* (1994), pp. 523-534. Only in early 2006 did the UK start actually to designate MEHRAs: see information available from the Department of Transport’s website at <[http://www.dft.gov.uk/stellent/groups/dft\\_shipping/documents/page/dft\\_shipping\\_611167.hcsp](http://www.dft.gov.uk/stellent/groups/dft_shipping/documents/page/dft_shipping_611167.hcsp)>; (accessed on 30 September 2006).

<sup>234</sup> Personal information obtained from Alan Simcock, General-Secretary, OSPAR Commission, in a discussion on 19 July 2005 in the commission’s headquarters in London.

<sup>235</sup> For instance, British Petroleum (BP) Shipping was established within the BP Group for the sole purpose of providing for safe transport of oil. It is the only part of the BP Group that is not obliged to earn profits. Cf. BP, *BP Sustainability Review 2004, Making the Right Choices*, available from <[http://www.bp.com/liveassets/bp\\_internet/globalbp/STAGING/global\\_assets/downloads/S/Sustainability\\_Report\\_2004.pdf](http://www.bp.com/liveassets/bp_internet/globalbp/STAGING/global_assets/downloads/S/Sustainability_Report_2004.pdf)>; (accessed on 30 September 2006), p. 14.

<sup>236</sup> Approval has already been given by NAV: see NAV 52/18, *supra*, note 223, Annex 2, p. 2. A “precautionary area” is a routing method available from the General Provisions on Ships’ Routing, to which I will refer in more detail, *infra*, in Sec. II.1.a) of Chapter 8.

<sup>237</sup> See proposal submitted by New Zealand, NAV 52/3/11, [*Proposal for a Precautionary Area off the West coast of the North Island of New Zealand*], 16 May 2006. Note, however, that it is doubtful whether mariners attach the same importance to a precautionary area as they arguably would to a PSSA.

<sup>238</sup> NAV 52/WP.5, *Report of the Working Group*, 20 July 2006, para. 5.6. Denmark argued that New Zealand should instead deploy so-called recommended routes.

<sup>239</sup> Cf. Sec. II.1.a) of Chapter 8.



Avoided<sup>240</sup>, expressly referred to PSSA criteria in its proposal<sup>241</sup> to justify approval of the precautionary area. It has to be seen in the future whether experience in this specific marine area will lead other governments to follow the route that New Zealand has followed. It is not a premature observation to contend that this will not least depend upon whether PSSA status offers additional rights for coastal states or merely raises awareness of the ecological sensitivity of a clearly defined part of the sea.<sup>242</sup>

A related observation, made by representatives of NGOs, is that a PSSA designation strongly increases political pressure on coastal states to develop and propose additional APMs for implementation in the respective PSSA.<sup>243</sup> In order to respond to the public demand, some coastal state authorities tend to allocate more resources to the development of APMs, as well as to awareness-raising projects to highlight the area's vulnerable character.

In the context of added value, two further issues have been pointed out on which a PSSA designation may have an impact.<sup>244</sup> First, higher standards of care may be expected by courts in assessing claims for damage that occurred in PSSAs; this might have an impact on findings of negligence or gross negligence in relation to establishing liability. This argument, in theory, sounds plausible. It is, however, hard to verify without time-consuming efforts because courts' awards to that end are likely to vary as applicable domestic law differs. A related question – whether coastal states may have additional obligations by applying for a PSSA designation – will be dealt with in the next section. Secondly, the PSSA mechanism provides for an umbrella regime that is able to accommodate and implement other mechanisms, e.g. parts of the CBD or regional conventions. This is indeed an express feature of the PSSA regime and not merely “added value.” In subsequent sections of this treatise, several issues relating to this general problem will be addressed.

#### **4. Additional obligations for the Applying State to Protect the PSSA**

Coastal states obviously have an interest in gaining as much control as possible over potentially dangerous vessel traffic off their coasts. Certain navigational prescriptions available through conferral of PSSA status may prove to be helpful in expanding their competence in this respect. However, one should also take a look at the other side of that very coin, namely obligations that emerge with respect to the coastal state that has applied for a PSSA designation. States are

<sup>240</sup> Refer to note 299 in Chapter 8.

<sup>241</sup> Reference was made to “uniqueness or rarity”, “critical habitat”, as well as “productivity, vulnerability & dependency”; cf. NAV 52/3/11, *supra*, note 237, para. 10 et seqq.

<sup>242</sup> This question is addressed, *infra*, in Sec. II.2.a) of Chapter 10.

<sup>243</sup> Based on a discussion with directors of the International WWF Centre for Marine Conservation, Hamburg, on 25 July 2006. I greatly appreciate the time and personal commitment they devoted to our conversation.

<sup>244</sup> Report from the Third International Meeting of Experts on PSSAs, *supra*, note 125, para. 15 et seq.

multi-faceted entities and hence do not always have coherent interests. The promotion of stricter protection of a marine area may thus collide with the activities of a state (or permitted or supported by it) in this area that have an adverse effect on the marine environment. In discussions leading to the 2005 revision of the PSSA Guidelines, “[...] the observer of ICS reminded the Committee that the adoption of a PSSA places certain obligations, at least of a moral nature, on the coastal States concerned. For example, following designation of the PSSA, certain types of activities may appear inappropriate in an area where the ecosystem has been recognised to be particularly sensitive.”<sup>245</sup> More specifically, Russia, Panama, Liberia and shipping industry groups stated in a joint submission that “[t]he designation of a PSSA also implies that coastal States should take into consideration other activity that should not be conducted within such a sensitive ecological area. Examples of activities that might be considered inappropriate in a PSSA are mineral and oil exploration and extraction, large wind farm developments, commercial fishing activity and military training and exercises. It is understood that such activities do not occur in those PSSAs already designated by IMO and should be considered inappropriate if the area is particularly sensitive to ecological threat.”<sup>246</sup> This statement was arguably driven by political considerations in the debate on the Western European PSSA<sup>247</sup> to discourage proposing states from maintaining their tough stance. Nevertheless, I shall briefly examine whether these assumptions hold true. It is worth highlighting this issue, since it has not received much, if any, attention from scholars.

The problem may be exemplified by recourse to the Western European PSSA, whose designation was mainly initiated by France and Spain, but was eventually co-sponsored by Portugal, Belgium, Ireland and the United Kingdom. Interestingly, the two last-mentioned states have gone to court over a dispute that largely concerned the state of the marine environment of the Irish Sea. The Irish Sea, part of the Western European PSSA, suffers from considerable pollution by nuclear materials that have allegedly been, and are still being, released by several plants housed on a site near Sellafield in the North-West of England. In 2001, the UK had authorised the operation of a new plant that was built to produce a particular nuclear fuel called MOX. In an attempt to reduce the nuclear contamination of the Irish Sea, the Republic of Ireland has lodged a case against the United Kingdom before the International Tribunal for the Law of the Sea (ITLOS).<sup>248</sup> Ireland chiefly relied on UNCLOS Part XII in its request to shut down

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<sup>245</sup> MEPC 49/22, *supra*, note 145, para. 8.24.5.

<sup>246</sup> LEG 87/16/1, *supra*, note 143, para. 17.

<sup>247</sup> For details, see, *infra*, Sec. V.1. of Chapter 8.

<sup>248</sup> Ireland also lodged a case before an arbitration tribunal because of alleged violation of Art. 9 of the OSPAR Convention. The dispute concerned the interpretation of that provision, pursuant to which parties need to exchange information with respect to the state of the marine environment. Ireland argued that the UK had held back reports on possibly adverse environmental effects of the nuclear plant. The arbitration tribunal’s finding was to the contrary; see *Dispute Concerning Access to Information Under Article 9 of the Ospar Convention (Ireland v. United Kingdom)*, PCA, Award of 2 July 2003, 42 *ILM* (2003) 1118, para. 106 et seqq.

the MOX plant. In particular, it argued that the UK had violated Articles 192, 197 and 206 of UNCLOS.<sup>249</sup> The UK, in contrast, contended that Ireland relied on a misapprehension of the facts, since the UK “does not have reasonable grounds for believing that the operation of the MOX Plant may cause substantial pollution or significant and harmful changes to the marine environment. The evidence is to the contrary.”<sup>250</sup> It might legitimately be asked whether the fact that the UK has applied for PSSA status is part of state practice just like any other state practice which might be used as evidence in an international dispute settlement context; in other words, whether the UK’s conduct within IMO is a confession of the general vulnerability of the area. In the application to IMO for designation of the Western European PSSA, the Irish Sea, in particular its large cold-water coral reefs, was described as being exceptionally vulnerable and supporting a rich and diverse fauna.<sup>251</sup> However, in the present case, the UK has not argued that the Irish Sea did not deserve to be protected but rather that it was not threatened by the operation of the MOX plant. The UK’s arguments advanced in the ITLOS response to Ireland’s claims would therefore not be altered in the light of statements made in the PSSA application.

Even assuming the contrary, though, the problem remains that the PSSA Guidelines require a differentiation to be made between threats from international shipping and other factors. Paragraph 4.1 of the guidelines requires that “the following criteria apply to the identification of PSSAs only with respect to adoption of measures to protect such areas against damage, or the identified threat of damage, from international shipping.” Although the environmental criteria enshrined in paragraph 4.4 of the guidelines indicate a *general* particular sensitivity, paragraph 4.1 constitutes a safeguard clause to protect states from being bound by their submissions outside the PSSA regime in that it stipulates that – in a legal sense – the criteria do not indicate a general particular sensitivity. Since the criteria are only to be taken into account “with respect to adoption of measures to protect such areas against damage [...] from international shipping,” it implies that they may not be relied upon in other contexts or fora – at least not automatically. But in the light of the precautionary principle, I would contend that states have a responsibility to act in a prudent manner when carrying out certain potentially hazardous activities in the respective area.

A different conclusion can be drawn with respect to obligations towards prevention of pollution threats from shipping activities. To that end, there are

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<sup>249</sup> *The MOX Plant Case*, ITLOS, Request for Provisional Measures and Statement of Case of Ireland, 9 November 2001, available from <[http://www.itlos.org/case\\_documents/2001/document\\_en\\_191.pdf](http://www.itlos.org/case_documents/2001/document_en_191.pdf)>; (accessed on 30 September), para. 55 et seqq.

<sup>250</sup> *The MOX Plant Case (Ireland v. United Kingdom)*, *Provisional Measures*, ITLOS, Request for Provisional Measures, Written Response of the United Kingdom, 15 November 2001, available from <[http://www.itlos.org/case\\_documents/2001/document\\_en\\_192.pdf](http://www.itlos.org/case_documents/2001/document_en_192.pdf)>; (accessed on 30 September 2006), para. 220. The final judgment is still pending. The tribunal forwarded the case to the ECJ to seek initial clarification as to whether disputes arising from international law between EU member states are a matter solely for the ECJ to decide.

<sup>251</sup> Cf. MEPC 49/8/1, *supra*, note 142, para. 3.2.1.7 et seq.

numerous measures that states may enact outside the PSSA regime and without prior approval by IMO. Examples include accident-management systems together with the allocation of sufficient tug capacity, as well as adequate ports of refuge.<sup>252</sup> It is my contention that where additional measures are necessary for protecting the area sufficiently from shipping threats, the acknowledgment of *particular sensitivity* places an obligation on the applying state to ensure that these measures are implemented. Otherwise, the applicant would contradict its conduct in the process of seeking PSSA status within IMO.

#### IV. Concluding Remarks

It has obviously taken the PSSA concept more than two decades to emerge in full force on the international policy level. From the first diplomatic initiatives in 1978 to recent revisions in late 2005, changes have not been dramatic; however, states seem to be increasingly aware of the potential impact a PSSA designation might have. This development is arguably stimulated by the fact that marine areas only have to meet one of the many PSSA criteria in order to qualify for designation. Nevertheless, PSSA designations follow an elaborate procedure, in which many organs of IMO are involved.

Even though charting standards have only recently been finalised within IHO, some have argued that PSSAs elevate the level of protection for an area by highlighting its significant ecological value to mariners navigating in the area. While these effects may arguably occur, it must be seen whether states in the future rely more on the establishment of precautionary areas to achieve these ends. Whatever the outcome of this development will be, APMs remain the key elements for the protection of PSSAs. The following chapter is thus devoted to an in-depth analysis of measures that may be employed to protect sensitive areas identified by MEPC.

### Chapter 8: Associated Protective Measures as the Essential Part of a PSSA

The previous chapter has already identified Associated Protective Measures (APMs) as the core feature of every PSSA. APMs define the means by and the extent to which a PSSA is protected against environmental threats posed by inter-

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<sup>252</sup> For an excellent survey of the last issue, see Inken von Gadow-Stephani, *Der Zugang zu Nothäfen und sonstigen Notliegeplätzen für Schiffe in Seenot* (Berlin Heidelberg: Springer 2006), p. 70 et seqq. She demonstrates that coastal states are under the obligation to provide ports of refuge by virtue of Art. 192 and 194(1) of UNCLOS, as well as by virtue of customary obligations to prevent cross-border harm to the environment (*sic utere ut alienum non laedas*). What can be drawn from that is that if an area in which a vessel has come into distress is designated as a PSSA, coastal states are under an even greater obligation to provide adequate places of refuge.

national shipping. The present chapter examines the provisions of the PSSA Guidelines dealing with APM requirements, as well as their relationship with relevant UNCLOS provisions on the coastal-state regulation of vessel-source pollution. I shall first outline the range of measures available for adoption by IMO and the legal requirements they have to conform to. Secondly, I shall illustrate how IMO assesses APM proposals and how they are enforced once implemented in an area. In the final section, I will try to summarise the implications of the PSSA concept by highlighting similarities and differences of all PSSAs designated so far. To that end, I will focus on APMs that have been approved by IMO for each of the areas.

## **I. Protective Measures Pursuant to the PSSA Guidelines**

It has become apparent so far that the designation of a PSSA does not automatically provide for protective measures. In addition to the designation, IMO needs to approve APMs to be implemented jointly under the PSSA roof for the whole or parts of the area. Despite a possibly precautionary effect of a PSSA designation as such, the concept would be futile without accompanying instruments constraining dangerous shipping activities.

Two different sections of the PSSA Guidelines, paragraph 7.5.3 and 6.1, include details on the kind of measures that may be adopted. While paragraph 7.5.3 in a more abstract manner dwells upon the legal instruments deployed for APMs, paragraphs 6.1.1 to 6.1.3, by setting forth a non-exhaustive list of options, illustrate the range of protective measures available for IMO to protect PSSAs.

### **1. Legal Bases: Paragraph 7.5.3 of the PSSA Guidelines**

The guidelines include an essential qualifier for measures contemplated for protection of PSSAs. As a central criterion they require every APM to have an identified legal basis. Paragraph 7.5.3 of the PSSA Guidelines lists three options, whose implications shall be scrutinised in the following section. It provides for

- “(i) any measure that is already available under an existing IMO instrument; or
- (ii) any measure that does not yet exist but could become available through amendment of an IMO instrument or adoption of a new IMO instrument. The legal basis for any such measure would only be available after the IMO instrument was amended or adopted, as appropriate; or
- (iii) any measure proposed for adoption in the territorial sea, or pursuant to Article 211(6) of the United Nations Convention on the Law of the Sea where existing measures or a generally applicable measure (as set forth in subparagraph (ii) above) would not adequately address the particularized need of the proposed area.”

#### **a) Section (i) and (ii)**

The first option does not require any interpretation; it obviously allows for all measures under both soft-law and treaty instruments. Examples include the

approval of SOLAS vessel traffic systems or COLREG traffic separation schemes. Paragraph 7.5.3(ii) supplements the first option, inasmuch as it permits the approval of APMs for which no legal bases exist. In such a case, a proposed APM may not be rejected solely on the grounds that it has no legal basis. But proposing governments are obliged to submit an application to amend or create the necessary instrument. Approval or rejection of the APM is pending until the completion of that process. The wording of Section (ii) was changed during the 2005 review of the guidelines. In the 2001 guidelines, it allowed for “any measure that does not yet exist but that should be available as a generally applicable measure and that falls within the competence of IMO.” Apparently, the previous wording did not expressly require an existing instrument, as long as the measure was generally applicable, i.e. accepted for global use. It is questionable whether the current text has dramatically changed prerequisites for APMs, apart from requiring proposing governments to draw up in addition a proposal for an instrument that allows for the enactment of a particular protective measure. It is not inconceivable that MEPC or any other organ of IMO may, at the same session, approve an APM, as well as the instrument providing for its legal basis.<sup>253</sup> In essence, Section (ii) clarifies that an APM may well be approved even though its legal basis is included in an instrument that is pending approval. However, it can only take effect *as an APM for a specific PSSA* after the instrument that it is based on has come into existence.

#### **b) Section (iii)**

Section (iii) probably contains the most controversial provision that arguably allows, in turn, for the most flexibility.<sup>254</sup> As it refers to measures that may be maintained by coastal states under Articles 21 and 211(6) of UNCLOS, it should be recalled what was outlined in Chapter 4 above. With respect to its territorial

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<sup>253</sup> Furthermore, the wording of Section (ii) arguably permits IMO approval of an APM if the respective legal instrument is still under discussion. Implementation and enforcement of the protective measure could be delayed until the soft-law instrument or treaty takes effect.

<sup>254</sup> “This section contains as yet unused authority for coastal States to adopt with IMO approval special mandatory measures that go beyond existing IMO measures. [...] This third category may prove to be a vital outlet for the otherwise growing frustration of coastal States over UNCLOS’ limitations on coastal State jurisdiction.” Statement by Kristina M. Gjerde, “Protecting Particularly Sensitive Sea Areas From Shipping: A Review of IMO’s New PSSA Guidelines”, in H. Thiel and J.A. Koslow (eds.), *Managing Risks to Biodiversity and the Environment on the High Sea, Including Tools such as Marine Protected Areas – Scientific Requirements and Legal Aspects* (Bonn-Bad Godesberg: BfN-Skripten 2001), pp. 123-131, at 126. Likewise, in contemplating Section (iii), Angelo Meriardi, “Legal Restraints on Navigation in Marine Specially Protected Areas”, in T. Scovazzi (ed.), *Marine Specially Protected Areas* (The Hague Boston London: Kluwer Law International 1999), pp. 29-43, at 37, notes: “In fact the establishment of a PSSA could represent a remedy for the limits set by international law regarding the application by coastal States of anti-pollution standards which have not received general acceptance”.

sea, a coastal state is given the power, by virtue of Article 21(1) and (2), to subject foreign vessels to laws and regulations relating to, *inter alia*, the “safety of navigation and the regulation of maritime traffic,” as well as “the preservation of the environment of the coastal state and the prevention, reduction and control of pollution thereof,” as long as these rules do not give effect to CDEM standards other than those giving effect to generally accepted international rules and standards. In contrast, the EEZ regime empowers coastal states to legislate for their respective zones with regard to “the protection and preservation of the marine environment,” but obliges them to “act in a manner compatible with the provisions of this Convention.”<sup>255</sup> Relevant provisions are to be found in Part XII, namely Article 211(5) and (6). Coastal states are usually restricted to enacting regulations based on generally accepted international rules and standards.<sup>256</sup> Where these standards are inadequate for responding to the specific circumstances of an area, coastal states may, with the approval of IMO, introduce more stringent measures pursuant to Article 211(6). Its reference to “laws and regulations for the prevention, reduction and control of pollution from vessels implementing such international rules and standards or navigational practices as are made applicable, through the organization, for special areas” does not only provide for MARPOL special area discharge restrictions, but may also relate to specific navigational aids and even to rules on CDEM standards.<sup>257</sup> Further regulations adopted in accordance with Article 211(6) lit. (c), also subject to approval by IMO, “may relate to discharges or navigational practices but shall not require foreign vessels to observe [CDEM] standards other than generally accepted international rules and standards.” At least as far as legislative competence is concerned, the EEZ regime in UNCLOS special areas thus resembles the territorial sea regime. However, while Article 211(6) is confined to the prevention of pollution from vessels, Article 21(1) and (2), in a more general manner, also deals with rules relating to “the preservation of the environment of the coastal state.”<sup>258</sup>

This is the background against which the significance of Section (iii) must be understood, in particular because the PSSA regime employs an inter-zonal approach. In theory, every PSSA – regardless of the maritime zone it covers – may therefore be protected by measures that states are normally only allowed to adopt for application in their territorial sea or in special areas of their EEZ. The relevant provisions, in particular Article 211(6), thereby appear to have the characteristics of a toolbox.<sup>259</sup> If a coastal state considers it necessary to implement a specific protective measure, this measure need not have a legal basis in an existing instrument. If coastal states were allowed to adopt the measure in their territorial sea or in special areas of their EEZ, this specific APM would have a valid legal

<sup>255</sup> Cf. Art. 56(1)(b)(iii) and (2) of UNCLOS.

<sup>256</sup> Art. 211(5). For a definition of this term, see, *supra*, Sec. III.4. of Chapter 4.

<sup>257</sup> See, *supra*, Sec. III.3. of Chapter 4.

<sup>258</sup> Art. 21(1) lit. (f).

<sup>259</sup> Similarly, Lynda M. Warren and Mark W. Wallace, *supra*, note 233, pp. 523-534, at 534, contend that Art. 211(6) could be “interpreted so as to provide a flexible basis for identification and protection of specified areas.” See further comments by WWF in MEPC 52/8/4, *supra*, note 154, p. 3, in note 1.

basis in terms of the PSSA Guidelines. The legal bases mentioned in Section (iii) of paragraph 7.5.3 of the PSSA Guidelines do not confine APMs to the respective maritime zone, neither to the territorial sea nor to the EEZ. Two arguments support this assumption. First, the chapeau of paragraph 7.5.3 does not include any limitation. Secondly, Section (iii) provides for instruments where measures under (i) or (ii) do not “adequately address the particular need *of the proposed area*” (italic emphasis added). The last phrase signifies that the legal bases for APMs apply to the whole area, not just to one part of it. This reasoning is in line with the holistic approach of the PSSA concept, that seeks to decouple protection of the marine environment from the rather artificial zonal approach deployed by UNCLOS.

In this respect, it should be borne in mind that PSSAs can cover straits used for international navigation and archipelagic waters whose passage regimes only allow for very limited coastal-state activities with respect to protective measures.<sup>260</sup> Hence, two safeguards have to be taken into consideration when contemplating the proposal of an APM. First, it is important to note that the first phrase of section (iii) is referenced by a footnote that reads: “This provision does not derogate from the rights and duties of coastal States in the territorial sea as provided for in the United Nations Convention on the Law of the Sea.” The rationale for its inclusion is readily visible. It aims to clarify that for APMs proposed for application in a PSSA, the whole UNCLOS regime for the territorial sea must be taken account of, e.g. limits concerning CDEM standards, even if it is relied upon for the adoption of an APM in another jurisdictional zone. Secondly, and more importantly for legal disputes that might occur in straits or archipelagos<sup>261</sup>, recourse must be made to the overriding law of the sea framework, since the PSSA Guidelines are “to be implemented in accordance with international law.”<sup>262</sup> With respect to transit passage and ASL passage, it must be noted that UNCLOS leaves very little room for the introduction of mandatory APMs. Each proposed measure must be examined very carefully to ensure that it does not violate the passage rights of foreign vessels as reflected in UNCLOS.

In a nutshell, Section (iii) allows proposing states, in the process of identifying adequate APMs, to choose from measures available in the territorial sea or in the EEZ according to Article 211(6) of UNCLOS respectively. In a second step, it must be investigated whether the APM can be established in the respective maritime zone without violating the UNCLOS framework. This interpretation of the PSSA Guidelines’ approach is corroborated by state practice within IMO.<sup>263</sup>

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<sup>260</sup> Cf. Sec. III.2.d) and e) of Chapter 4.

<sup>261</sup> For the recent dispute about the extension of the Great Barrier Reef PSSA to the Torres Strait, see, *infra*, Sec. II.1.d) of this Chapter.

<sup>262</sup> Fifth recital of the PSSA Guidelines.

<sup>263</sup> Australia and Papua New Guinea, in arguing for the introduction of compulsory pilotage in the proposed Torres Strait PSSA, first noted that compulsory pilotage is available as a measure under Art. 211(6) lit. (c) and, secondly, examined its lawfulness against the requirements set out by Art. 39 et seqq. See NAV 50/3, *supra*, note 150, para. 5.10.



## 2. Preliminary Findings

While Sections (i) and (ii) refer to protective measures that have or will have either a legal basis in a treaty or in an IMO instrument, Section (iii) considerably expands the scope for potential APMs. It provides for the opportunity to identify measures that specifically address the protective needs of the respective area. Moreover, Section (iii) in effect contributes significantly to levelling the differences between the regimes traditionally envisaged for the EEZ and the territorial sea to facilitate the uniform application of protective measures. The PSSA mechanism thereby promotes the application of an ecosystem approach, enabling the *prima facie* determination of the type of APM with a view to the specific needs of the area rather than to the allocation of jurisdiction. However, APMs must conform to the balance of jurisdiction introduced by UNCLOS.

Apparently, the issue of coastal-state jurisdiction over vessel-source pollution is important for the implementation and enforcement of APMs in PSSAs. Thus, after exploring the types of measures available as APMs in the ensuing section of this chapter, it is indispensable for me to come back to this issue at a later stage – it must be examined to what extent the PSSA Guidelines impact on coastal-state legislative and enforcement jurisdiction under UNCLOS. This statement does not conflict with what was said above: while APMs must not contradict the UNCLOS framework, they may change the allocation of rights and duties *within* that framework. Because this is a matter closely related to the legal quality of the PSSA Guidelines and the APMs, it is addressed, *infra*, in Chapter 10.

Before turning to the next section, it should not be forgotten that, in addition to the requirement for an identified legal basis, paragraph 7.5.4 stipulates that APMs, introduced in conformity with paragraph 7.5.3, should be “specifically tailored to meet the need of the area to prevent, reduce, or eliminate the identified vulnerability of the area from international shipping activities.” This does not, however, amount to a legal requirement, but obliges IMO’s competent organs to ensure appropriate application of a protective measure to prevent unnecessary constraints on navigational rights.

## II. Options for Protective Measures

The PSSA Guidelines not only provide for abstract legal bases for measures possibly applied in designated areas; they also list examples of APMs, including navigational aids, discharge restrictions, CDEM standards and others.<sup>264</sup> The most relevant should be introduced with the aim of demonstrating the broad range of instruments that can be used to protect PSSAs and to examine conditions for their utilisation as APMs. Given the necessity to identify a legal basis for each APM in paragraph 7.5.3 of the PSSA Guidelines introduced above, I shall not only introduce how the protective measures could be applied, but also elucidate the criteria and limits set by the instruments on which they are based. If a particular protective

<sup>264</sup> Cf. para. 6.1 of the PSSA Guidelines.

measure is not provided for in a treaty or IMO instruments, I shall investigate whether it could be proposed for adoption in the territorial sea or pursuant to Article 211(6) of UNCLOS.

### **1. Navigational Aids**

Prevention of accidents obviously bears advantageous effects for the marine environment. General rules for the sound navigation of vessels emerged long ago. In the 1960s, they were incorporated into the Convention on the International Regulations for Preventing Collisions at Sea (COLREG)<sup>265</sup>, including provisions concerning properly maintained look-outs (Rule 5), safe speed depending on prevailing circumstances and conditions (Rule 6), and priority rules according to the vessels' ability to manoeuvre (Rule 18). All vessels are obliged to abide by these rules to prevent accidents, both in areas under and beyond national jurisdiction. However, in certain circumstances or areas, including most PSSAs, these general rules are perceived to be insufficient to protect the area appropriately from dangers posed by international shipping. A range of instruments has thus been developed which allow for the adoption of additional measures to facilitate safe navigation; they include certain provisions of COLREG itself, SOLAS and various IMO instruments, most of which have been adopted in the form of resolutions.

#### **a) Routeing Measures**

The term *routeing measure* encompasses a variety of instruments designed to organise and direct vessel traffic in order to contribute to safe navigation, including traffic separation schemes (TSSs) and areas to be avoided (ATBAs). The SOLAS Convention in Regulation V/10(1) of the Annex<sup>266</sup> maintains: "Ships' routeing systems contribute to safety of life at sea, safety and efficiency of navigation and/or protection of the marine environment. Ships' routeing systems are recommended for use by, and may be made mandatory [...] when adopted and implemented in accordance with the guidelines and criteria developed by the Organization."<sup>267</sup> An accompanying footnote expressly refers to the "General provisions on ships' routeing adopted by the Organization by Resolution A.572(14), as amended".<sup>268</sup> The GPSR introduce procedural and material require-

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<sup>265</sup> Adopted on 20 October 1972, in force as from 15 July 1977; current text, as amended, reproduced in IMO, *COLREG – Consolidated Edition 2003* (London: IMO Publication 2003).

<sup>266</sup> In the following sections, if not indicated otherwise, reference is always made to regulations of the annex of the SOLAS Convention. References are shortened for ease of reading.

<sup>267</sup> This particular regulation was amended in 1995 to reflect the contribution of routeing measures to marine environment protection; cf. Res. MSC.46(65), *Adoption of Amendments to the International Convention for the Safety of Life at Sea*, adopted 16 May 1995.

<sup>268</sup> The current text is reproduced in IMO, *supra*, note 218, Part A. Hereafter GPSR.

ments for a broad range of routeing systems. Originally, these measures could only be adopted on the basis of safety considerations. Amendments to the instrument, adopted in 1992 and 1995, took account of the obvious fact that safety of navigation and marine environment protection are inextricably linked and that environmental concerns may even constitute a stand-alone justification for routeing measures.<sup>269</sup> Hence, the objective of the GPSR now provides that routeing systems “may also be used for the purpose of preventing or reducing the risk of pollution or other damage to the marine environment caused by ships colliding or grounding in or near environmentally sensitive areas.”<sup>270</sup> Measures may specifically be introduced to address “the organisation of safe traffic flow in or around or at a safe distance from environmentally sensitive areas”.<sup>271</sup> Routeing measures are arguably the most important and effective means of protecting vulnerable marine areas.<sup>272</sup>

General requirements for routeing systems contemplated for adoption are set out in paragraph 5 of the GPSR. Paragraph 5.4 expressly provides that “a routeing system should not be established in areas where the instability of the sea-bed is such that frequent changes in the alignment and positions of the main channels, and thus of the routeing system itself, are likely.” In addition, routeing systems “selected for a particular area should aim at providing safe passage for ships through the area without unduly restricting legitimate rights and practices, and taking account of anticipated or existing navigational hazards.”<sup>273</sup>

The GPSR provide for traffic separation schemes, separation zones or lines, inshore traffic zones, precautionary areas, deep-water routes, and areas to be avoided. Traffic separation schemes (TSSs), the routeing measure used most frequently, are adopted by IMO pursuant to Rule 1(d) and Rule 10 of COLREG. Depending on the geographical features of the area where a TSS is to be implemented, it is either separated by separation zones or separation lines, while the former should be given priority.<sup>274</sup> A TSS may be complemented by the establishment of so-called inshore traffic zones to keep local traffic clear of the TSS.<sup>275</sup> Rule 10 of COLREG requires vessels using a TSS to proceed in the appropriate traffic lane and – so far as practicable – keep clear of a separation

<sup>269</sup> For details see, *infra*, Sec. I.3. of Chapter 11. The 1995 amendments are reproduced in Res. A.827(19), *Ships’ Routeing*, adopted on 23 November 1995, Annex 3.

<sup>270</sup> Para. 1.1 of the GPSR.

<sup>271</sup> *Ibid.*, para. 1.2.6.

<sup>272</sup> Gerard Peet, *supra*, note 114, pp. 556-576, at 563 argues that PSSAs existed “avant la lettre” (i.e. before formal introduction of the PSSA Guidelines) simply because certain areas were protected by IMO-approved routeing measures. Julian Roberts, “Protecting Sensitive Marine Environments: The Role and Application of Ships’ Routeing Measures” 20 *IJMCL* (2005), pp. 135-159, at 146, remarks that New Zealand rather chose to protect a sensitive area in its territorial sea by the introduction of a mandatory Area to be Avoided than by the designation of a PSSA.

<sup>273</sup> Para. 5.1 of the GPSR.

<sup>274</sup> *Ibid.*, para. 4.1 and 4.2. The latter envisages the use of islands, shoals or rocks as a natural division for opposing traffic streams.

<sup>275</sup> *Ibid.*, para. 4.3.

zone or a separation line.<sup>276</sup> It furthermore contains provisions on the crossing or leaving of traffic lanes and recommended action in the case of an emergency.<sup>277</sup> In some congested areas, TSSs will inevitably meet. The GPSR therefore provide for roundabouts, junctions and crossings, the most appropriate method of which should be used to guide traffic.<sup>278</sup> They may also be used in conjunction with inshore-traffic zones or other routeing measures, as appropriate. Precautionary areas, defined in paragraph 2.1.12 as “a routeing measure comprising an area within defined limits where ships must navigate with particular caution and within which the direction of traffic flow may be recommended,” are often established at the terminations of TSSs, or at roundabouts and junctions, to emphasise the need for extra care in these areas.<sup>279</sup> The benefits of precautionary areas for purely environmental reasons are doubtful, because their adoption does not entail any “measure” that mariners have to abide by.<sup>280</sup>

Deep-water routes may be adopted to provide mariners with recommended routes which have been “accurately surveyed for clearance of sea bottom and submerged obstacles.”<sup>281</sup> This may be useful for steering vessel traffic away from shallower coastal waters or from areas where wrecks are likely to present a danger to safe navigation.

ATBAs are defined in paragraph 2.1.13 of the GPSR as a “routeing measure comprising an area within defined limits in which either navigation is particularly hazardous or it is exceptionally important to avoid casualties and which should be avoided by all ships, or certain classes of ships.” Without any further definition, paragraph 4.6.2 merely refers to two exemplary figures. With respect to the planning of an ATBA, paragraph 5.5 orders the necessity for its creation to be well demonstrated and the reasons stated. Amongst others, unacceptable damage resulting from an accident may justify these safeguards. From what the wording of paragraph 2.1.13 provides for, one may be tempted to argue that a ban on all ships or a category of ships in a large PSSA could be based on the possibility of establishing ATBAs. In fact, a similar APM was contemplated for application in the Western European PSSA. Proposing governments suggested approving an APM prohibiting the passage of single-hull oil tankers of more than 600 deadweight tonnes carrying heavy grades of oil through the PSSA.<sup>282</sup> It is doubtful

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<sup>276</sup> Para. (b) of Rule 10.

<sup>277</sup> Para. (c) to (e) of Rule 10.

<sup>278</sup> Para. 4.4.1 and .2 of the GPSR. Figure 10 (Precautionary area with recommended direction of traffic flow around an area to be avoided complemented by an inshore traffic zone) is an illustrative example of the combination of different routeing measures in a single routeing system. Further rules for converging and junction areas are contained in para. 6.19 and 6.20.

<sup>279</sup> This consideration is reflected in *ibid.*, para. 8.5 and 8.7.

<sup>280</sup> However, as has been alluded to, *supra*, in Sec. III.3. of Chapter 7, a precautionary area for purely environmental purposes will be established in due course in waters under the jurisdiction of New Zealand.

<sup>281</sup> Para. 2.1.11 of the GPSR.

<sup>282</sup> MEPC 49/8/1, *supra*, note 142, para 10. The proposal for that particular APM was eventually withdrawn. Cf. MEPC 49/22, *supra*, note 145, para. 8.23.3.

whether approving this proposal would have been lawful. Even though the definition's wording does not contradict such an approach, the practice of IMO to date suggests that the establishment of ATBAs is only envisaged for small areas to protect a specific environmentally sensitive site or to preclude obstructions to navigation caused by certain features of an area. IMO's approach is supported by the underlying rationale of the instruments providing for ships' routing.<sup>283</sup> The establishment of an ATBA that covers the whole PSSA would contradict the purpose of routing measures, which *a priori* aim at the organisation of vessel traffic rather than its prohibition.<sup>284</sup> ATBAs therefore constitute a last resort to be used as a complementary means<sup>285</sup> and any conduct to the contrary would arguably amount to an undue restriction of the freedom of navigation as reflected in UNCLOS. As all adopted ships' routing systems, according to Regulation V/8(j) of SOLAS, must be consistent with international law, it is unlawful to completely declare large PSSAs as ATBAs.

Similar measures, incorporated in the GPSR through the 2000 Amendments<sup>286</sup>, are so-called "no-anchoring areas". According to paragraph 2.1.14, they are defined as measures "comprising an area within defined limits where anchoring is hazardous or could result in unacceptable damage to the marine environment." While anchoring in these zones is to be avoided, it is permitted in the case of dangers to the ship or the persons on board. The respective GPSR amendments were catalysed by the US application for the Florida Keys PSSA, which contemplated the establishment of three no-anchoring areas, although there was no IMO instrument providing for these particular routing measures.<sup>287</sup> To date, six no-anchoring areas have been designated, which are mandatory without exception and are all located in US waters.<sup>288</sup> Three areas are designed to protect the Flower Garden Banks coral reefs; the other no-anchoring areas are APMs to protect reefs within the Florida Keys PSSA.<sup>289</sup>

<sup>283</sup> For an account of the routing measures' purpose and principles, see Glen Plant, "The Collision Avoidance Regulations as a Regulator of International Navigation Rights: Underlying Principles and their Adequacy for the Twenty-first Century", 49 *Journal of Navigation* (1996), pp. 377-393, at 382 et seqq.

<sup>284</sup> Cf., in particular, para. 1.2.4 to .6 of the GPSR. These objectives are certainly to be taken into account, because the chapeau of para. 4 (Methods) stipulates that "[i]n meeting the objectives set out in section 1, the following are among the methods which may be used" (emphasis added). It should be noted, however, that this is only true of PSSAs as large as the Western European PSSA. An example to the contrary is the Galapagos Islands PSSA, see, *infra*, Sec. V.2. of this Chapter.

<sup>285</sup> Cf. *ibid.*, para 5.5.

<sup>286</sup> MSC 73/21/Add. 3, *Report of the Maritime Safety Committee on its Seventy-Third Session*, 14 December 2000, Annex 20.

<sup>287</sup> For measures protecting the Florida Keys PSSA, see, *infra*, Sec. V.2. of this Chapter. The impact of the Florida Keys PSSA proposal on the development of the GPSR is detailed, *infra*, in Sec. I.3. of Chapter 11.

<sup>288</sup> Note that a mandatory ATBA to be applied in the Italian territorial sea off Venice has recently been approved by NAV 52 and is pending approval by MSC; see, *infra*, note 298.

<sup>289</sup> See compilation in IMO, *supra*, note 218, Part G, p. II/2 et seq.

Further measures contemplated by the GPSR include recommended directions of traffic flow, two-way routes, recommended routes and tracks through areas where navigation is difficult or dangerous.<sup>290</sup>

According to the general jurisdictional rules set out by UNCLOS in Article 21 et seqq., coastal states are free to enact sea lanes or TSSs in their territorial sea unilaterally. Foreign vessels need to abide by them as long as they do not amount to an undue restriction of innocent passage. Nevertheless, it is reasonable to suggest that Article 22(3) lit. (a) of UNCLOS in conjunction with Article 24(1) requires all measures to conform to the GPSR in order to be compatible with UNLCOS.<sup>291</sup> With respect to the EEZ, in contrast, UNCLOS does not envisage any competence for coastal states to establish routeing measures third-state vessels need to conform to. When augmenting existing rules, IMO provided in 1997 for the adoption of mandatory routeing measures after a long and controversial discussion through the adoption of Resolution MSC.46(65), which amended SOLAS Regulation V/8, as well as the GPSR.<sup>292</sup> According to the latter's paragraph 2.1.2, a mandatory routeing system is "adopted by the Organization, in accordance with the requirements of Regulation V/8 of [SOLAS (now V/10)], for mandatory use by all ships, certain categories of ships or ships carrying certain cargoes." However, the shortcomings are evident. Although SOLAS Regulation V/10 is not confined to application in areas under national jurisdiction, it may not be applied in straits used for international navigation and archipelagic sea lanes.<sup>293</sup> Furthermore, the enforcement jurisdiction of coastal states does not correspond to broadened prescriptive jurisdiction, as rules regarding enforcement jurisdiction in Article 220 of UNCLOS are left unaltered. The 1997 SOLAS amendments have been the subject of some controversy, but they are arguably consistent with

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<sup>290</sup> See para. 4.6 of the GPSR for details and explanatory figures.

<sup>291</sup> Henning Schult, *Das völkerrechtliche Schiffsicherheitsregime* (Berlin: Duncker & Humblot 2005), p. 184. Moreover, he rightly contends that Art. 22 of UNCLOS particularises the rights of Art. 21(1) rather than confines coastal states' jurisdiction to the enactment of sea lanes and TSSs. The coastal state is hence entitled to implement any routeing measure contained in the GPSR.

<sup>292</sup> Res. MSC.46(65), *Amendments to the International Convention for the Safety of Life at Sea, 1974*, adopted 16 May 1995. Respective changes to the GPSR were adopted by Res. A.827(19), *supra*, note 269, Annex 3. Cf. Glen Plant, "The Relationship between International Navigation Rights and Environmental Protection: A Legal Analysis of Mandatory Ship Traffic Systems", in H. Ringbom (ed.), *Competing Norms in the Law of Marine Environmental Protection* (Den Haag Boston London: Kluwer Law International 1997), pp. 11-29, at 21 et seqq. The view held by Marcus Schroeder, "Die technischen Regeln zur Erhöhung der Sicherheit von Öltankern", in Ch. Tomuschat (ed.), *supra*, note 75, pp. 49-77, at 61, that through the adoption of Res. A.572(14) in 1971 IMO already put itself in the position of introducing mandatory routeing systems cannot be concurred with.

<sup>293</sup> Regulation V/10(10).

international law, at least since they necessitate a decision made by the international community within IMO.<sup>294</sup>

Expanded possibilities have not yet led to a proliferation of mandatory routing systems; probably due to the fact that, pursuant to paragraph 6.17 of the GPSR, “[t]he extent of a mandatory routing system should be limited to what is essential in the interest of safety of navigation and the protection of the marine environment.” To date, five mandatory routing systems have been adopted. The first, a deep-water route adjacent to the German and Dutch Wadden Sea (Off the Frisian Islands in the North Sea), was approved in 1997.<sup>295</sup> After designation of the area as a PSSA in 2002, it became one of its APMs; it requires vessels with more than 10,000 GRT to make use of the routing system. Furthermore, IMO approved no-anchoring areas for the Flower Gardens (Northwestern Gulf of Mexico/USA)<sup>296</sup>, around the Florida Keys (USA),<sup>297</sup> as well as in the approaches to the Gulf of Venice.<sup>298</sup> A mandatory ATBA was approved in 2003 to protect the marine area around the Poor Knights Islands (New Zealand).<sup>299</sup> In contrast, a recent proposal for a mandatory TSS in the Norwegian Barents Sea was rejected by NAV 52<sup>300</sup>, as were two proposed ATBAs in the Baltic Sea at the previous session.<sup>301</sup>

<sup>294</sup> Likewise Henning Schult, *supra*, note 291, *loc. cit.*; Glen Plant, *supra*, note 292, p. 26 et seqq.; Julian Roberts, *supra*, note 272, p. 150; and Erik Jaap Molenaar, *supra*, note 229, p. 527.

<sup>295</sup> Cf. MSC 67/22, *Report of the Maritime Safety Committee on its Sixty-Seventh Session*, 16 December 1996, Annex 10. See also SN/Circ.184, *Mandatory routing measures – “Mandatory route for tankers from North Hinder to the German Bight”*, 3 June 1997 and Corrigendum of 12 September 1997.

<sup>296</sup> See US proposal in NAV 46/3/3, *No anchoring areas for Flower Garden Banks in the Northwestern Gulf of Mexico*, 5 April 2000; approved by MSC, cf. MSC 73/21/Add.3, *supra*, note 286, Annex 21.

<sup>297</sup> The no-anchoring areas are APMs of the Florida Keys PSSA, see, *infra*, Sec. V.2. of this chapter.

<sup>298</sup> An Italian proposal contained in NAV 52/3/8, *Area to be Avoided/Mandatory No Anchoring Area in the Approaches to Gulf of Venice*, 12 April 2006. The measures were approved by NAV 52 and MSC 81 was invited to adopt them, cf. NAV 52/18, *supra*, note 223, Annex 2, p. 1; however, MSC 81 did not discuss the decision of NAV. Note that environmental considerations have only played a minor role. The no-anchoring area was primarily established to ensure safe operation of an offshore LNG terminal.

<sup>299</sup> Cf. NAV 49/3, *Proposed Area to be Avoided*, 16 January 2003; and MSC 78/26/Add.2, *Report of the Maritime Safety Committee on its Seventy-Eighth Session*, 4 June 2004, annex 22. New Zealand deliberately chose not to apply for the area to be designated as a PSSA, cf. Julian Roberts, *supra*, note 272, p. 146 et seqq. Proposals to establish two mandatory ATBAs in the Baltic Sea were recently rejected by NAV, see, *infra*, Sec. V.3. of this chapter.

<sup>300</sup> The Norwegian proposal is to be found in NAV 52/3/6, *New Mandatory Traffic Separation Scheme off the Coast of Norway from Vardø to Røst*, 12 April 2006. Additional information on the ecological characteristics of the area was submitted by WWF, cf. NAV 52/Inf.9, *Routing of Ships, Ship Reporting and Related Matters*, 6 June 2006. The proposal was rejected, because a TSS of 560 nm(!) was seen as too heavy a burden for international shipping. Instead, Norway eventually proposed 8 voluntary TSSs and

Finally, procedural requirements for routing measures should be mentioned, because they also apply to APM applications. They are split into two sections: paragraph 3.2 of the GPSR provides for rules dealing with the adoption of TSSs pursuant to COLREG Rule 10; paragraph 3.3-3.7 sets forth rules for routing systems other than a TSS pursuant to SOLAS Regulation V/10. The former are formulated straightforwardly. IMO must merely assess whether aids to navigation enable mariners to conform to the TSS and whether the TSS complies with established methods of routing. The latter assessment procedure is more sophisticated. In addition to requirements for TSS approval, IMO must ensure that the vital interests of the interested coastal states are not adversely affected. If measures are introduced to protect expressly the marine environment, it needs to be ensured that proposed measures have a significant protective effect and that the overall size and aggregate number of areas protected by routing systems do not result in “unreasonably limiting the sea area available for navigation.”<sup>302</sup> If a mandatory measure is examined, IMO must determine whether the justification for the mandatory character of the proposal is justified and whether ports or harbours of littoral states are not adversely affected.<sup>303</sup> To assist states in preparing proposals, IMO has issued a Guidance Note that sets forth, in an exemplary manner, information to be disseminated in an application.<sup>304</sup>

All routing measures adopted by IMO are subject to review after a certain length of time. According to paragraph 5.2 of the GPSR, in reviewing a routing system, several factors have to be taken into account by a government, including environmental issues (para. .8), the adequacy of existing aids to navigation, hydrographic surveys and nautical charts of the area (para. .7), existing traffic patterns in the area concerned, including coastal traffic, crossing traffic, naval exercise areas and anchorage areas (para. .3), as well as the existence of environmental conservation areas and foreseeable developments in the establishment of such areas (para. .9).

As has become apparent, ships’ routing systems include a broad array of instruments that states may implement in their waters. IMO consent needs to be obtained for some routing measures in the territorial sea and for all measures to be applied in the EEZ. It appears that so far no routing measures have been established on the high seas. IMO-approved measures are usually recommendatory, but may acquire binding force if applied for by coastal states and endorsed by IMO. With respect to these mandatory measures, IMO, by virtue of SOLAS and COLREG respectively, is given competence to adopt binding legal acts. Inasmuch as states have consented to respective treaty rules, they are bound by

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seven recommended routes connecting them. The sub-committee approved the proposal as modified; cf. NAV 52/18, *supra*, note 223, para. 3.3.6 et seqq., and Annex 1, p. 1 et seqq. (a chart depicting the new TSS is reproduced on p. 6).

<sup>301</sup> See, *infra*, Sec. V.3. of this chapter.

<sup>302</sup> Para. 3.6.2 of the GPSR.

<sup>303</sup> *Ibid.*, para. 3.5.

<sup>304</sup> See MSC.Circ/1060, *Guidance Note on the Preparation of Proposals on Ships Routing Systems and Ship Reporting Systems for Submission to the Sub-Committee on Safety of Navigation*, 6 January 2003.



decisions taken within IMO, even though these decisions are issued in the form of resolutions, to which the IMO constitution does not attach binding force. Of course, routing measures, both mandatory and non-mandatory, can also be adopted outside PSSAs. The PSSA regime offers a possibility to house them under a single management roof; whether it also offers expanded enforcement rights compared with Article 220 of UNCLOS will be examined below in Chapter 10.

## b) Ship Reporting Systems

Ship reporting systems (SRSs) provide means that “contribute to safety of life at sea, safety and efficiency of navigation and/or protection of the marine environment.”<sup>305</sup> They aim to give notice to coastal states of vessels present in a specific marine area, where these ships may represent a threat to, *inter alia*, the marine environment. Vessels subject to a particular SRS are at least required to transmit their name, call sign, IMO identification number and position<sup>306</sup>, while communication should generally “be limited to information essential to achieve the objectives of the system.”<sup>307</sup> Further information, for example on the category of hazardous cargo, may only be requested if the system could otherwise not be managed effectively.<sup>308</sup> As Regulation V/11(1) of SOLAS clarifies, an SRS may be adopted for “all ships or certain categories of ships or ships carrying certain cargoes.”

By virtue of Regulation V/11(2), IMO is the competent organisation to adopt SRSs, as well as to issue the regulations that these systems need to conform to. Over the course of the years, IMO has developed both SRS General Principles<sup>309</sup> and more specific SRS Guidelines and Criteria.<sup>310</sup> The latter elaborate on procedures and considerations governments are to follow in proposing mandatory SRSs for adoption by IMO. In particular, they clarify that SRSs should be considered for adoption only if supported by a demonstrated need to address concerns, such as the safety of life at sea, the safety and efficiency of navigation or the protection of the marine environment.<sup>311</sup> The SRS General Principles set

<sup>305</sup> Regulation V/11(1) of SOLAS.

<sup>306</sup> Para. 2.2.1.3 of the *Guidelines and Criteria of Ship Reporting Systems*, cf. Res. MSC.43(64), as amended by Res. MSC.111(73) and Res. MSC.189(79); hereafter SRS Guidelines and Criteria.

<sup>307</sup> Para. 1.1.1 of Res. A.851(20), *General Principles for Ship Reporting Systems and Ship Reporting Requirements, Including Guidelines for Reporting Incidents Involving Dangerous Goods, Harmful Substances and/or Marine Pollutants*, adopted on 27 November 1997. Hereafter SRS General Principles.

<sup>308</sup> Para. 2.2.1.4. of the SRS Guidelines and Criteria.

<sup>309</sup> Res. A.851(20), *supra*, note 307.

<sup>310</sup> See, *supra*, note 306.

<sup>311</sup> MSC/Circ.1060, *Guidance Note on the Preparation of Proposals on Ships' Routing Systems and Ship Reporting Systems for Submissions to the Sub-Committee on Safety of Navigation*, Annex, para. 3.4 et seqq.

out, in very broad terms, requirements that SRSs need to comply with, as well as standard reporting formats and procedures.<sup>312</sup>

Even though the term “mandatory” is avoided in the text, *adopted* SRSs are, in fact, mandatory systems, as they “*shall* be used by all ships.”<sup>313</sup> The wording deployed by paragraph (1) and (2) of the respective SOLAS regulation does not appear to exclude any SRS from the requirement to obtain IMO approval.<sup>314</sup> However, along the lines of reasoning applied, *supra*, with respect to routeing measures, it is sensible to contend that coastal states under Articles 21 et seqq. of UNCLOS do not have to submit to IMO SRSs envisaged for application in the territorial sea in order to gain approval.<sup>315</sup> Nevertheless, even these systems need to conform to rules laid down in the SRS General Principles and the SRS Guidelines and Criteria not to exceed the limits set by Articles 22(3) and 24(1) of UNCLOS.<sup>316</sup> Within IMO, member states have expressed different views on that question. For instance, plans by Spain to introduce unilaterally a mandatory SRS in its territorial sea were opposed by several IMO member states on the grounds that it was established before submission to IMO.<sup>317</sup> Some states, on the other hand, believe that such conduct is lawful.<sup>318</sup> In practice, all systems that should become mandatory are considered within IMO and most voluntary schemes are at least announced. Obviously, submission to IMO is the most convenient way for coastal states to make new regulations known to all interested parties.

Governments wishing to apply for the adoption of an SRS must be able to demonstrate the need for the proposed system and provide information pertaining to, amongst others, existing vessel traffic, hydrographical and meteorological factors, as well as its geographical coverage, which may be decisive for decision-making. In addition, they need to abide by the procedural requirements set forth by the SPS Guidelines and Criteria. Several PSSAs, including the Great Barrier

<sup>312</sup> The standard reporting format is contained in the appendix to the SRS General Principles, para. 2.

<sup>313</sup> Regulation V/11(7) of SOLAS (*italic emphasis added*). The origin of that phrase is elucidated by Henning Schult, *supra*, note 291, p. 190. For the wider implications of mandatory SRSs, see Christopher P. Mooradian, “Protecting ‘Sovereign Rights’: The Case for Coastal State Jurisdiction over Vessel-Source Pollution in the Exclusive Economic Zone”, 82 *B. U. L. Rev.* (2002), 767-816, at 808 et seqq.

<sup>314</sup> See Glen Plant, *supra*, note 292, p. 17. In note 38, referring to SOLAS Regulation V/11(4), he states that “this clumsily worded paragraph is merely to maintain the present legal position vis-à-vis systems that the operating state wishes to remain voluntary and does not bother to submit to IMO.” This view is supported by Henrik Ringbom, *Environmental Protection and Shipping – Prescriptive Coastal Jurisdiction in the 1990’s*, Marius No. 124 (Oslo: Nordisk Institutt for Sjørett 1996), p. 61.

<sup>315</sup> Similar Erik Jaap Molenaar, *supra*, note 229, p. 213.

<sup>316</sup> Henning Schult, *supra*, note 291, p. 191, in note 568.

<sup>317</sup> MSC 71/23, *Report of the Maritime Safety Committee on its Seventy-First Session*, 2 June 1999, para. 20.30; submission by Spain is contained in MSC 71/20/12, *New watch alarm systems and optimization of ship-to-shore communications*, 18 February 1999.

<sup>318</sup> Cf. statement by the Canadian delegation, MSC 63/23, *Report of the Maritime Safety Committee on its Sixty-Third Session*, 12 June 1994, para. 3.24.

Reef PSSA, the Canary Islands PSSA and the Western European PSSA, are protected by mandatory reporting systems as APMs. The last serves as a valuable example of how an SRS is implemented in practice. In 2004, proponents of the Western European PSSA suggested the adoption of a mandatory SRS (West European Tanker Reporting System [WETREP]) for parts of the area, which was eventually approved by MSC.<sup>319</sup> It was introduced to inform coastal state authorities of the presence of vessels carrying potentially hazardous oil cargoes. Accordingly, participation in WETREP is mandatory for oil tankers of more than 600 tonnes deadweight, carrying heavy crude oil, heavy fuel oils or bitumen and tar or their emulsions. Upon entry into the reporting area or immediately on departing within it, the respective vessels must report basic information, including the ship's call sign, its course, speed and destination. Additionally, vessels are obliged to transfer information to enable coastal-state authorities to carry out adequate search and rescue operations, such as the number of persons on board.

An SRS established for environmental purposes usually aims to protect the marine environment of respective areas in a rather broad manner. The only systems so far established solely to protect a single marine species from shipping impact have been approved as mandatory SRSs "off the northeastern and southeast coast of the United States" in the US EEZ.<sup>320</sup> Approval of these particular SRSs was unprecedented, because "[o]ther systems, in contrast, have been established for areas with known navigational hazards; they are aimed at preventing groundings, collisions, and spills from navigational hazards."<sup>321</sup> The SRS "off the northeastern and southeast coast of the United States" was designed to protect the North Atlantic Right Whale, which is at serious risk from ship strikes.<sup>322</sup> Consequently, the purpose of this particular SRS is to prevent ship strikes by notifying mariners upon entry into the area of whales that have been sighted in the area covered by the SRS.

Traditionally, communication with SRS authorities is carried out by means of radio. A technically more advanced alternative is the use of shipborne automatic identification systems (AIS). They are designed automatically to exchange information with shore stations and other equally equipped ships regarding the ship's identity, type, position, course, speed, navigational status and other safety-related information. In appreciating the constant progress in engineering, IMO decided in 2002 to facilitate the use of AIS by adopting respective guidelines

<sup>319</sup> Res. MSC.190(79), *Adoption of Mandatory Ship Reporting System in the Western European Particularly Sensitive Sea Area*, adopted on 6 December 2004.

<sup>320</sup> Res. MSC.85(70), *Mandatory Ship Reporting Systems*, adopted on 3 December 1998. Cf. Patricia Birnie, "Implementation of IMO Regulations and Oceans Policy Post-UNCLOS und Post-UNCED", in M.H. Nordquist and J.N. Moore (eds.), *supra*, note 104, pp. 361-390, at 376 et seq.

<sup>321</sup> Rachel Canty, "The Coast Guard and Environmental Protection – Recent Changes and Potential Impacts", *52 Naval War College Review* (1999) No. 4, pp. 77-89, at 77.

<sup>322</sup> Ship strikes are the largest source of human-related mortality. For more details, see, *supra*, Sec. III.3 of Chapter 2.

supplementing SOLAS Regulations V/11, 12 and 19.<sup>323</sup> The last contains general requirements for the operation of AIS in paragraph 2.4. It stipulates that “[a]ll ships of 300 gross tonnage and upwards engaged on international voyages and cargo ships of 500 gross tonnage and upwards not engaged on international voyages and [all] passenger ships [...] shall be fitted with an [AIS].” The various time limits set in that provision have now elapsed for all ships engaged in international shipping; other ships must be fitted with equivalent systems by 1 July 2008 at the latest. It is hoped that AIS will enhance the safety and efficiency of navigation and thereby contribute to the protection of the marine environment, even though its impact is limited, as some vessels are not subject to the equipment requirements. Although information submitted under SRSs pursuant to Regulation V/11 of SOLAS and information automatically provided by an AIS overlap to a great extent, it is unlikely that SRSs will become redundant in the near future. Under SRS regulations, coastal-state authorities may request information pertaining to the cargo and its potential hazardous nature, whereas paragraph 2.4.5.1 of Regulation V/19 does not expressly mention transmitting this kind of sensitive information.<sup>324</sup>

### c) Vessel Traffic Services

In contrast to SRSs, vessel traffic services (VTS) involve two-way communication to enable coastal-state authorities to facilitate vessel traffic by giving information, advice, or, if need be, instructions. By managing and planning vessel traffic, they contribute to safe and efficient navigation and to the protection of the marine environment. SOLAS Regulation V/12 provides for the legal basis for adopting VTS systems.<sup>325</sup> To flesh out these general rules, IMO has developed respective guidance documents.<sup>326</sup> The VTS Guidelines make a clear distinction between port VTSs, concerned with vessel traffic to and from a harbour, and coastal VTSs, concerned with vessels on voyage through the territorial sea.<sup>327</sup> Both types of VTS systems may include, according to the VTS Guidelines, information services (at fixed times or at the request of the vessel), navigational assistance services and traffic-organisation services. Whereas ships only transmit information to SRS shore stations once, usually upon entry into the covered area, communication with

<sup>323</sup> Res. A.917(22), *Guidelines for the Onboard Operational Use of shipborne automatic identification systems (AIS)*, adopted on 29 November 2001.

<sup>324</sup> Information on the cargo particulars cannot be subsumed under the term “other safety-related information”, as is rightly argued by Henning Schult, *supra*, note 291, p. 198.

<sup>325</sup> Res. MSC.65(68), *Adoption of Amendments to the SOLAS Convention*, adopted on 4 June 1997, as Regulation V/8-2, before being renumbered V/12. The legal issues involved prior to respective SOLAS amendments are spelt out by Glen Plant, “International Legal Aspects of Vessel Traffic Services”, 14 *Marine Policy* (1990), pp. 71-81, at 73 at seqq.

<sup>326</sup> IMO has adopted VTS Guidelines, see Res. A.857(20), *Guidelines for Vessel Traffic Services*, adopted on 27 November 1997, Annex 1 (hereafter VTS Guidelines), as well as Guidelines on Recruitment, Qualifications and Training of VTS operators, reproduced in Annex 2 of the same resolution.

<sup>327</sup> Res. A.857(20), *supra*, note 326, Annex 1, para. 2.1.2.

a VTS station is done “on a regular and periodic, as well as individual, basis and is more likely to involve a comprehensive system of surveillance.”<sup>328</sup> However, SRSs and VTSs may often be linked, since information provided by a vessel under a SRS may represent helpful data for a VTS.<sup>329</sup> The distinction has thus been said to become blurred<sup>330</sup>, an observation that may pose some difficulties.

Contrary to SOLAS Regulations V/10 and V/11, alluded to above, Regulation V/12 foresees neither mandatory application beyond the territorial sea<sup>331</sup> nor involvement of IMO in the establishment of VTS systems. Hence, unless established in an UNCLOS special area according to Article 211(6), the adoption of mandatory systems in the EEZ, but also in straits used for international navigation and in archipelagos, let alone the high seas, would contradict SOLAS. In referring to measures available from Article 211(6), PSSAs may thus provide a good opportunity for promoting the implementation of VTSs in maritime zones other than territorial sea, because SOLAS does not expand coastal states’ powers compared with their competences acquired by Article 21 et seqq. of UNCLOS.

With respect to missing references to IMO, it can be noted that SOLAS contracting parties must follow the VTS Guidelines<sup>332</sup>, as IMO’s contribution towards the efficient application of these systems is recognised. It is reasonable to contend that coastal states, when establishing VTS systems in their territorial sea, do not contradict innocent-passage rights as long as they stick to the guidelines. However, it has been maintained that it is unlawful to deploy traffic-organisation services – the most restrictive type of service – in VTS systems other than port VTSs.<sup>333</sup> Port VTSs may have additional features because their establishment is not only based on Part IV of UNCLOS but also on Article 211(3), that gives coastal states some leeway in determining conditions for entry into their ports.<sup>334</sup> This view is seemingly supported by paragraph 2.1.2 of the VTS Guidelines, which states that “in a port VTS a navigational assistance service and/or traffic organization service is provided for, while in a Coastal VTS usually (*sic!*) only an information service is rendered.” However, with a view to exceptional circumstances in PSSAs, it can be contended that in some areas covered by coastal VTS systems, characteristics are, in fact, unusual so that the introduction of traffic-organisation services may be warranted. One should be careful to utter absolute conclusions but rather consider the lawfulness of VTS systems on a case-by-case basis. Undue restrictions of innocent-passage rights can be avoided if the

<sup>328</sup> Glen Plant, *supra*, note 292, p. 20. According to the IMO’s VTS Guidelines, “the efficiency of a system will depend on the reliability and continuity of communications.” See Res. A.857(20), *supra*, note 326, Annex 1, para. 2.1.3.

<sup>329</sup> This is expressly envisaged in para. 1.1 of the SRS General Principles.

<sup>330</sup> Glen Plant, *supra*, note 292, p. 20. In addition, it should be noted that SOLAS Regulation V/11(6) requires any SRS to “have the capability of interaction”.

<sup>331</sup> Para. 3.

<sup>332</sup> SOLAS Regulation V/12(3).

<sup>333</sup> Henning Schult, *supra*, note 291, p. 200.

<sup>334</sup> See, *supra*, Sec. III.2.f) of Chapter 6.

requirements of paragraph 2.3.4 of the VTS Guidelines are taken seriously.<sup>335</sup> PSSAs may therefore be protected by port, as well as coastal, VTS systems that provide the full range of services.

#### d) Pilotage

Pilotage is one of the oldest means of facilitating vessel traffic. Generally, pilots with local knowledge may be employed by the shipmaster to guide a vessel in or out of harbours or through areas where navigation is possibly hazardous. Today, pilots are usually employed by coastal or port authorities and offer their services to shipmasters. Where pilotage schemes are introduced by coastal states, they can be either recommendatory or compulsory in character. It has proven to be a valuable way of reducing accidents in environmentally sensitive areas. For instance, after the introduction of mandatory pilotage in the inner route of the Great Barrier Reef PSSA in October 1991, the number of accidents was reduced by more than 50%, dropping from 1.667 to 0.727 a year.<sup>336</sup> However, no provision in SOLAS or any other international treaty expressly addresses pilotage.<sup>337</sup> Nevertheless, as early as 1968, IMO issued recommendations on pilotage by adopting Resolution A.159(ES.IV), highlighting circumstances in which the deployment of pilots is particularly useful. It should be noted that pilotage is not a CDEM standard, as the pilot is only temporarily on board the ship, is not a member of the crew and may merely give advice to the ship's master. Pilots resemble a VTS system, with the only notable difference that they communicate with the master in person and not just by means of radio.<sup>338</sup>

States usually seek to have IMO recommend the use of pilots for a particular area. Yet, as recommended pilotage schemes are not always followed by vessels<sup>339</sup> – due to various reasons, time and financial constraints being only two of them –, states may seek to establish mandatory pilotage schemes for certain areas under their control. Because there is no specific legal basis for pilotage in existing treaty law, mandatory schemes need to abide by general rules laid down in UNCLOS.

<sup>335</sup> It requires that instructions should be result-oriented only to ensure that encroachment upon the master's responsibility for safe navigation is kept to a minimum.

<sup>336</sup> NAV 50/3, *supra*, note 150, para. 5.2. Another example is IMO's recommendation to use pilotage in the Great Belt for vessels with a draught of 11m and more. 22 ships went aground between January 2002 and June 2005 – none of them had employed a pilot; cf. Danish Maritime Authority, *Safety Study – Groundings and Collisions 1997-2005 in the Great Belt* (2005), available from <<http://soefart.inforce.dk/graphics/Synkron-Library/Sofartsstyrelsen/Publikationer/OKE/Temaundersoegelser/Temaundersoegelsgroundingsandcollisions011005.pdf>>; (accessed on 30 September 2006), p. 14 et seq.

<sup>337</sup> SOLAS Regulation V/23 merely requires vessels likely to employ pilots to be provided with sufficient transfer arrangements. This provision is accompanied by several IMO resolutions on technical details, such as Res. A.889(21), *Pilot Transfer Arrangements*, adopted on 25 November 1999.

<sup>338</sup> Henning Schult, *supra*, note 291, p. 218.

<sup>339</sup> For instance, figures for compliance with recommended pilotage in the Torres Strait, approved by IMO Res. A.710(17), dropped from a rate of 70% in 1995 to about 35% in 2002; cf. NAV 50/3, *supra*, note 150, para. 5.6.

Accordingly, pilotage schemes in the territorial sea, the EEZ and in straits used for international navigation need to conform to Article 21 et seqq., Article 56 et seqq. and Article 38 et seqq. respectively. Hence, the establishment of mandatory pilotage schemes as APMs would be possible in both the territorial sea and the EEZ, as it is prohibited neither by Articles 21 and 24 of UNCLOS nor by Article 211(6).<sup>340</sup> Of course, the palpable difference is that for establishing a compulsory pilotage scheme in its EEZ, a coastal state is required to obtain approval by IMO.

A different situation arises with respect to international straits, since the transit passage regime leaves little leeway to strait states for implementing protective measures unilaterally. It is arguably reasonable to contend that mandatory pilotage, if endorsed by IMO, represents “generally accepted international regulations, procedures and practices” that vessels, according to Article 39(2) of UNCLOS, have to comply with when exercising transit passage. Nonetheless, the legal context is more complex, as a recent example shows. Establishing mandatory pilotage in straits designated as a PSSA has been a matter of controversy within IMO.<sup>341</sup> Australia and Papua New Guinea submitted an application to extend the existing Great Barrier Reef mandatory pilotage APM to cover the Torres Strait, that was awarded PSSA status in 2004.<sup>342</sup> As it was impossible for these states to introduce such a scheme unilaterally, they sought IMO approval as an APM. While several maritime states held the view that such a measure would contradict international law in the absence of any international treaty addressing the issue, the two proponents contended that it would be consistent with, in particular, Part III of UNCLOS.<sup>343</sup> They argued that mandatory pilotage approved by IMO would constitute a generally accepted international procedure as envisaged by Article 39(2) and may thus be implemented by respective strait states.<sup>344</sup> It would furthermore be a necessary complement to TSSs in the area, in order to foster compliance with these routing measures. In the event, IMO member states

<sup>340</sup> Art. 211(6) lit. (c), allowing for the designation of special areas in the EEZ (and providing a legal basis for APMs), permits for the prescription of “navigational practices”, under which pilotage can be subsumed. IMO’s secretariat has also mentioned compulsory pilotage as a possible APM in MEPC 46/6/1, *Additional Protection for Particularly Sensitive Sea Areas (PSSAs)*, 19 January 2001, para. 2.4.10.

<sup>341</sup> See MEPC 53/24, *supra*, note 28, para. 8.1 et seqq.

<sup>342</sup> The proposal submitted by Australia and Papua New Guinea is to be found in MEPC 49/8, *Extension of Existing Great Barrier Reef PSSA to include the Torres Strait Region*, 10 April 2003, in particular in para. 5.7 et seqq.; the GBR pilotage scheme applies to all vessels longer than 70m and all loaded oil tankers, chemical tankers or gas carriers, irrespective of size. The system would have replaced recommended pilotage, adopted by Res. A.710(17), *Use of Pilotage Services in the Torres Strait and the Great North East Channel*, adopted on 6 November 1991.

<sup>343</sup> The different viewpoints are reflected in NAV 50/19, *Report to the Maritime Safety Committee*, 28 July 2004, para. 3.14 et seqq., and LEG 89/16, *Report of the Legal Committee on the Work of its Eighty-Ninth Session*, 4 November 2004, para. 222 et seqq.

<sup>344</sup> Cf., in particular, LEG 89/15, *Torres Strait PSSA Associated Protective Measure – Compulsory Pilotage*, 24 August 2004, which contains an extensive legal analysis of the issue; and NAV 50/3, *supra*, note 150, para. 5.10 et seq.

merely agreed to “strongly recommend” the use of the pilotage scheme.<sup>345</sup> It will be seen in the future whether declining compliance rates will go up again thanks to express IMO endorsement. More generally, given the explicit opposition of many states to subject international straits to mandatory pilotage schemes, even if these straits are designated as PSSAs, it will be unlikely to see IMO moving beyond recommending the use of pilots. In my view, the use of pilots is not intended to hamper transit passage but to facilitate safe and efficient voyage. Opposition to extended strait states’ jurisdiction over vessels hence seems to be informed by arguments to do with principle. However, arguments brought forward to support compulsory pilotage in the Torres Strait PSSA are not compelling. First, given the contentious nature of compulsory pilotage, such a scheme cannot be considered to be included in “*generally accepted* international regulations, procedures and practices” (italic emphasis added) as mentioned in Article 39(2) of UNCLOS. Secondly, compulsory pilotage cannot be considered to be a necessary complement to TSSs that strait states are allowed to establish in waters under their jurisdiction: Article 42(1) lit. (b) limits strait states’ competence to adopting laws and regulations 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.” Recent developments indicate that the dispute over pilotage in the Torres Strait PSSA will continue, as Australia by means of domestic legislation now imposes severe penalties for non-compliance with the pilotage scheme.<sup>346</sup> In the event, the dispute is likely to be dealt with by one of the dispute-settlement mechanisms provided for by UNCLOS Part XV.

## **2. Discharge Restrictions**

A second category of protective measures are discharge restrictions. The PSSA Guidelines themselves, in paragraph 6.1.1, mention MARPOL special area or SECA standards to be approved as APMs. These standards may be made applicable by way of Article 211(6) lit. (c) of UNCLOS.<sup>347</sup> They exceed normal MARPOL requirements as far as the discharge of oil, noxious liquid substances and garbage, as well as SO<sub>x</sub> is concerned.<sup>348</sup> The apparent advantage of this approach is that marine areas, in order to qualify as PSSAs, only need to meet one criterion, while the designation of MARPOL special areas requires an area to meet

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<sup>345</sup> Res. MEPC.133(53), *Designation of the Torres Straits as an Extension of the Great Barrier Reef PSSA*, adopted on 22 July 2005, para. 3. Pilotage is also recommended by Res. MSC.138(76) for the Baltic Sea Area PSSA, which recommends that local pilotage services should be used by every ship with a draught of 11 metres or more, loaded oil tankers with a draught of 7 metres or more in the Sound, loaded chemical tankers and gas carriers, irrespective of size, and ships carrying INF cargoes, irrespective of size.

<sup>346</sup> Some shipping industry NGOs have informed IMO of the Australian Government’s conduct, see MEPC 55/8/3, *Torres Strait*, 10 August 2006.

<sup>347</sup> Cf., *supra*, in Sec. III.3 of Chapter 4.

<sup>348</sup> MARPOL special areas and SECAs are dealt with, *supra*, in Sec. I.1. of Chapter 5.



a set of criteria cumulatively.<sup>349</sup> Furthermore, while MARPOL special areas are designated by an amendment to the respective annexes (a process that can take years), PSSAs are designated by an MEPC resolution, which approves a standard that is established by domestic legislation.

An indirect way of achieving similar results, at least for PSSAs located near the coast, is to redefine the term “nearest land,” as deployed by MARPOL Annexes I, II, IV and V to mean the outward boundary of the designated area instead of “the baseline from which the territorial sea of the territory in question is established.”<sup>350</sup> This definition of “nearest land” serves as a basis for measuring the distances relevant for all MARPOL discharge restrictions. Thus, aligning the boundaries of the PSSA with the coordinates of the “nearest land” would prohibit discharges both inside the PSSA and in the waters adjacent to it. So far this has only been done for the GBR PSSA;<sup>351</sup> interestingly, the definition was also changed in Annex IV, that does not envisage the establishment of special areas, to protect the GBR from pollution by harmful substances carried by sea in packaged form.<sup>352</sup> Modifying the definition of “nearest land” for a PSSA is not an APM in the strict sense. It cannot be adopted by inclusion in the resolution establishing the PSSA; it rather needs to be incorporated by amending the text of the respective MARPOL annex.<sup>353</sup> But as its protective implications may be wider than applying stricter discharge standards, it may be worth considering for governments going down that route.

It should finally be noted that discharge restrictions may be contemplated not only for substances that are inherently dangerous, but also for ships’ ballast water. Ballast water is usually taken on board a ship to ensure that she is perfectly balanced and stable even when unloaded. The problem that arises with respect to ballast water is that it is taken on board in one place and discharged back into the sea in another place, possibly thousands of miles away from its place of intake.<sup>354</sup> Organisms living in the ballast water could prove to be harmful for the marine ecosystem they are discharged into. The international community has recognised the scale of the problem and, under the auspices of IMO, states adopted the Ballast

<sup>349</sup> For MARPOL special area requirements, see, *supra*, Sec I.1.a) of Chapter 5; for PSSA criteria, see, *supra*, Sec. II.1. of Chapter 7; for a comparison of the regimes, see, *infra*, Sec. I.1.b) of Chapter 9.

<sup>350</sup> Regulation I(9) of Annex I.

<sup>351</sup> MEPC 46/6/1, *supra*, note 340, para. 2.4.6. It was also suggested as a further protective measure for the Sabana-Camagüey Archipelago PSSA by Kristina M. Gjerde, “IMO approves Protective Measures for Cuba’s Particularly Sensitive Sea Area in the Sabana-Camagüey Archipelago”, 14 *IJMCL* (1999), pp. 415-422, at 420.

<sup>352</sup> Regulation I/1(9); II/1(4); IV/1(5); V/1(2).

<sup>353</sup> This is a comparatively complicated and time-consuming procedure. However, a proposal to make the definition of “nearest land” automatically applicable to all PSSAs has not been followed up, cf. Kristina M. Gjerde, *supra*, note 351, in note 21.

<sup>354</sup> An instructive overview is given by the Global Ballast Water Management Programme, “The Problem”, available from <<http://globallast.imo.org/index.asp?page=problem.htm&menu=true>>; (accessed on 30 September 2006).

Water Convention<sup>355</sup>, that has yet to enter into force, in 2004. The Convention consists of the main text and an annex, which includes technical standards and requirements. Parties are obliged to give full effect to the convention's regulations in order to prevent, minimise and ultimately eliminate the transfer of harmful aquatic organisms and pathogens.<sup>356</sup> Vessels must comply with the convention's regulations from 2009.<sup>357</sup> Minimum requirements stipulate that taking or discharging ballast water must usually be done at least 50 nm from the nearest land and at a depth of 50 metres. However, parties are given the right to take, "individually or jointly with other parties, [...] more stringent measures necessary to prevent, reduce or eliminate the transfer of harmful aquatic organisms and pathogens," consistent with international law.<sup>358</sup> Interpreting the respective provision of the annex, *Tsimplis* has observed that "the correct view is that Regulation C describes the method by which these additional measures should be imposed and the ways they will be communicated rather than conditions which if not satisfied will result in deprivation of the right prescribed in Article 2(3)."<sup>359</sup> Stricter standards are thus arguably consistent with international law if adopted as more stringent requirements for entry into ports pursuant to Article 211(3) of UNCLOS.<sup>360</sup> They also appear to conform to UNCLOS' regimes for the territorial sea and the EEZ – at least when endorsed by the IMO through the approval of an APM<sup>361</sup>, since the procedure for approving APMs would also conform to the requirement that a prior consultation should include all "states that may be affected."<sup>362</sup> APMs could thus address and prohibit ballast water exchange in a specific area. Where this is done, the coastal state is to notify mariners, indicate alternative routes and facilitate vessels' compliance by providing appropriate arrangements.<sup>363</sup> It appears that the PSSA Guidelines provide a basis for justifying measures that are based on an instrument which exists but has yet to enter into force. In this regard, it should be noted that a ballast water prohibition area would not force ships to comply with all BWC standards before its entry into force. Such

<sup>355</sup> International Convention for the Control and Management of Ships' Ballast Water and Sediments, adopted on 13 February 2004, reproduced in Michael Tsimplis, "Alien Species Stay Home: The International Convention for the Control and Management of Ships Ballast Water and Sediments 2004", 19 *IJMCL* (2004), pp. 411-482, at 446 et seqq. Hereafter BWC.

<sup>356</sup> Art. 2(1) of the BWC.

<sup>357</sup> It depends on the type of ship and the year of construction. A detailed table of the implementation dates is compiled by Michael Tsimplis, *supra*, note 355, p. 434.

<sup>358</sup> Art. 2(3) and annex, Regulation C-1(1) of the BWC.

<sup>359</sup> Michael Tsimplis, *supra*, note 355, p. 439. The wording of Regulation C-1 strictly allows only for the prohibition of ballast water uptake and discharge in areas representing a specific risk. The apparent approach of the BWC is primarily to enable the cleanup of polluted areas, rather than the protection of biodiversity in clean areas.

<sup>360</sup> Cf. contention of the United States uttered in BWM/Conf./12, *Consideration of the Draft International Convention for the Control and Management of Ships' Ballast Water and Sediment – Outstanding Issues*, 5 January 2004, p. 1.

<sup>361</sup> Michael Tsimplis, *supra*, note 355, p. 438 et seq.

<sup>362</sup> Annex, Regulation C-1(2) of the BWC.

<sup>363</sup> *Ibid.*, Regulation C-3 and C-1(3)(4).

a measure would thus not constitute an undue burden but rather a reasonable precautionary measure to protect areas vulnerable to alien organisms.

### **3. Standards concerning Construction, Design, Equipment and Manning of Ships**

Generally, the leeway for IMO to approve APMs requiring compliance with certain construction, design, equipment and manning (CDEM) standards is quite narrow. This is due to the fact that their implementation is eventually based on coastal states' jurisdictional rights in the territorial sea or in UNCLOS special areas of the EEZ, if they are not provided for in multilateral treaties. Nevertheless, it is worth considering the array of CDEM standards possibly available for application in a PSSA.

Several CDEM requirements that spring to mind concern equipment that would enhance the ship's ability to navigate safely, including AIS and ENC/ECDIS systems. As has been mentioned above, while AIS has already been introduced as a general binding requirement for most categories of ships, similar requirements for ENC/ECDIS are highly disputed.<sup>364</sup> Consent to an APM requiring their use is therefore very unlikely. In addition, the usefulness of area-specific requirements to equip vessels with any of these systems is limited. There is therefore no justification for such CDEM standards to be introduced under the terms of Article 211(6) of UNCLOS. Article 21 does not constitute an appropriate legal basis either, as it is restricted to the implementation of generally accepted international rules and standards.

Another CDEM standard is a ban on certain types of ships that are constructed in a manner possibly hazardous to the marine environment. A prominent example is the proposed ban on single-hull tankers carrying certain forms of crude oil in the Western European PSSA. As said above, this APM would have constituted either an ATBA for certain classes of ships or a CDEM standard requiring double hulls for certain classes of ships. Compared with an ATBA, the legal requirements for CDEM standards contained in UNCLOS are much stricter. To avoid confusion, ATBAs that are rather CDEM standards in disguise should be approved according to the rules applying for the latter. Otherwise, the APM would undermine the system of balanced right as reflected in UNCLOS, which subjects coastal states' CDEM standards to the tight limits of generally accepted international rules and standards to avoid the emergence of different standards a ship has to comply with during her voyage. Prohibiting the transit of a whole category of ships – whose use is still in line with respective MARPOL provisions<sup>365</sup> – clearly violates existing law of the sea rules. Banning certain types of ships from a PSSA is therefore impossible, at least if the PSSA covers an area as large as the Western European PSSA. That said, it should be noted that this finding is without prejudice to the establishment of ATBAs, which are necessary both from an environmental

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<sup>364</sup> See, *supra*, Sec. III.1. of Chapter 7.

<sup>365</sup> According to Regulation 13G of Annex I, the phase-out scheme for single-hull tankers has only just started.

and a shipping safety point of view and clearly conform to respective provisions of the GPSR.

Emergency towing arrangements are fitted on board ships to ease the deployment of tugs in case of distress.<sup>366</sup> SOLAS Regulation II-1/3-4 prescribes emergency towing arrangements for all tankers of not less than 20,000 tonnes deadweight. They must be fitted at both ends on board these ships. Whether this requirement should be extended to other categories of ships is currently the subject of discussion within MSC and the DE sub-committee.<sup>367</sup> Since an all-encompassing regulation is still lacking, emergency towing equipment requirements may be contemplated as an APM for vessels in a PSSA.<sup>368</sup> It would be a measure available under Article 211(6) of UNCLOS. When drawing up proposals for respective APMs, proposing states need to take account of problems identified by the DE working group.<sup>369</sup> However, in the light of the fact that IMO tends to focus on functional requirements for procedures rather than requiring additional equipment for ships other than those addressed by the existing SOLAS regulation<sup>370</sup>, it seems unlikely that an APM of the said manner is going to be approved.

A possible APM for ice-covered areas (always or at certain times) are ice-resistant hulls, as was contemplated for the Baltic Sea Area PSSA<sup>371</sup>, based on HELCOM Recommendation 25/7<sup>372</sup> addressing special requirements set for maritime traffic at low temperatures and in icy conditions in the winter. IMO has already adopted related IMO guidelines for ships in arctic waters that are

<sup>366</sup> Whilst during bad weather conditions the deployment of tugs without emergency towing equipment can last more than one hour, emergency towing equipment ensures that this operation is accomplished in fewer than five minutes.

<sup>367</sup> MSC 81/25, *Report of the Maritime Safety Committee on its Eighty-First Session*, 24 May 2006, para. 7.14. Discussions were triggered by a German proposal, as a result of recommendations developed by the Grobecker Commission in the aftermath of the *Pallas* accident off the German Coast, contained in MSC 76/20/3, *Mandatory emergency towing systems (ETS) in ships other than tankers greater than 20,000 tdw*, 20 June 2002; and DE 47/24/1, *Mandatory emergency towing systems (ETS) in ships other than tankers greater than 20,000 dwt*, 26 November 2003. A Formal Safety Assessment of the proposal is contained in MSC 77/23/7, *Mandatory emergency towing systems (ETS) in ships other than tankers greater than 20,000 dwt – supplementary information*, 28 January 2003.

<sup>368</sup> This APM was suggested for application in the Wadden Sea PSSA by WWF-Projektteam *Pallas*, *Schutz des Wattenmeeres vor Schiffsunfällen durch Einrichtung eines „PSSA Wattenmeer“* (Frankfurt am Main: WWF Deutschland 2000), p. 28 et seq.

<sup>369</sup> DE 49/WP.5, *Report of the Drafting Group*, 22 February 2006, para. 5.

<sup>370</sup> Discussions within DE on this topic are summarised in DE 48/25, *Report to the Maritime Safety Committee*, 5 March 2005, para. 14; and DE 49/20, *Report to the Maritime Safety Committee*, 8 March 2006, para. 7.6 et seqq.

<sup>371</sup> See Peter Ehlers, “Schiffssicherheit nach der Prestige”, 14 *ZUR* (2003), pp. 342-349, at 345.

<sup>372</sup> HELCOM Rec. 25/7, *Safety of Winter Navigation in the Baltic Sea Area*, adopted on 2 March 2004.

contained in MSC/Circ.1056<sup>373</sup> that could arguably be used as a blueprint for drafting an APM. Article 234 of UNCLOS gives coastal states considerable leeway for the enactment of laws relating to, *inter alia*, CDEM standards.<sup>374</sup> It does not, however, provide a legal basis for respective APMs adopted by IMO. Hence, they could only be based on Article 211(6) lit. (a) of UNCLOS. Whether APMs lawfully respect freedom of navigation must be ascertained by recourse to Article 234. Because this provision determines the threshold for acceptable interference with navigational rights in ice-covered areas, freedom of navigation is weakened to a “due regard to navigation” requirement. This may be understood as limiting the right to deviate from usual competences to reasonable measures in the light of the prevailing conditions.<sup>375</sup> Hence, the approval of special ice-resistant construction requirements is lawful, because they clearly increase the safety of ships to a considerable degree. Navigational rights, as modified in the said manner, cannot be construed as being impaired.

#### 4. Other Measures

Navigational aids, discharge restrictions and CDEM standards represent the bulk of measures applicable as APMs. In the following section, other measures should be looked at with a view to their possible application as an APM.<sup>376</sup>

One of those other measures to be contemplated is tug escort. Recommendaory tug escort schemes have been introduced by many countries and were contemplated as an APM, for instance, in the Baltic Sea Area PSSA.<sup>377</sup> Tug escort

<sup>373</sup> MSC/Circ.1056 (also MEPC/Circ.399), *Guidelines for Ships Operating in Arctic Ice-Covered Waters*, 23 December 2002, especially para. 2.1 and 2.2, setting forth construction provisions.

<sup>374</sup> See, *supra*, Sec. III.3. of Chapter 4.

<sup>375</sup> D.M. McRae and D.J. Groundey, “Environmental Jurisdiction in Arctic Waters: The Extent of Article 234”, 16 *U.B.C. L. Rev.* (1982), pp. 197-228, at 221 et seq.

<sup>376</sup> A broad array of instruments has been compiled by both the International Seminar on the Protection of Sensitive Sea Areas, held in Malmö, Sweden in 1990 (results are reproduced in Peter Ottesen, Stephen Sparkes, and Colin Trinder, *supra*, note 119, pp. 507-522, at 519 et seq.) and the First Meeting of Legal Experts on PSSAs in Hull, England in 1992, the report of which is reproduced in Kristina Gjerde and David Freestone, *supra*, note 125, pp. 431-468, appendix 1, in particular para. 7 et seq. Only few of these instruments, however, relate to the regulation of shipping in a strict sense. See also GAUSS, *Ausweisung eines PSSA in dem Seegebiet vor den Niederlanden, Deutschland und Dänemark, Gutachterliche Studie* (February 2000), available from <<http://194.94.25.228/rootcollection/gaussdoc/gutachten/pssa>>; (accessed on 30 September 2006), p. 29 et seq.

<sup>377</sup> MEPC 51/8/1, *Designation of the Baltic Sea Area as a Particularly Sensitive Sea Area*, 19 December 2003, p. 18, para. 5.13: “One of the measures that could be taken into account after a risk assessment is the use of escort tugs. A large ship with one engine and one rudder is exposed to the risk of machinery failure which could lead to a grounding with accompanying consequences. Connected in the stern with a special keel an escort tug can counter a blocked rudder on a large ship and steer it. Escort tugs could also be used in very narrow waters. Escort and escorting tugs are introduced in many

requirements do not constitute CDEM standards.<sup>378</sup> Nevertheless, it appears that tug escort has been made mandatory in very few places, e.g. in several states in the U.S. One example is the Californian Lempert-Keene-Seastrand Oil Spill Prevention and Response Act of 1990<sup>379</sup>, that requires tug escorts for vessels carrying oil products calling at a Californian port. Similar provisions can be found in Best Achievable Protection Regulations of the State of Washington<sup>380</sup>, which obliges vessels to be escorted by tankers in and out of ports if they do not comply with the law's safety requirements. Both examples concern tug escort in ports, for which states are free to set whatever entry requirements as a condition.

Further measures can address ships carrying ultra-hazardous nuclear material (INF Code materials). Compared with other cargoes, the shipment of INF code materials represents a much bigger threat, because rescue and salvage operations are extremely difficult. IMO and the International Atomic Energy Agency (IAEA) have developed instruments dealing with the shipment of nuclear cargoes: the INF Code and the IAEA Code on Transboundary Movement of Radioactive Waste respectively.<sup>381</sup> While blanket exclusion in PSSAs of ships carrying INF code material is arguably inconsistent with international law<sup>382</sup>, requirements for prior notification established by an APM are probably lawful, at least in the territorial sea, where they can be based on Article 21 of UNCLOS.<sup>383</sup> It makes it possible for the coastal state to prepare adequate response measures. However, notification requirements are part of SRSs that have already been addressed, *supra*, in Section II.1.b) of this chapter.

Consideration may also be given to the introduction of environmental fees, such as user charges, for transiting the PSSA. In operationalising the polluter pays

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countries around the world to avoid groundings." It was also suggested as a proposal for an APM for the Wadden Sea PSSA by WWF-Projektteam Pallas, *supra*, note 368, p. 24 et seqq.

<sup>378</sup> The U.S. Supreme Court, in examining the pre-emptive effect of federal laws on the Washington Tanker Law of 1975, in *Ray v. Atlantic Richfield Co.*, 6 March 1978, 435 U.S. 151 (1978), at p. 171, rightly held: "[a] tug-escort provision is not a design requirement, such as is promulgated under Title II. It is more akin to an operating rule arising from the peculiarities of local waters that call for special precautionary measures, and, as such, is a safety measure clearly within [the authority] to establish 'vessel size and speed limitations and vessel operating conditions' and to restrict vessel operation to those with 'particular operating characteristics and capabilities'".

<sup>379</sup> California Codes, Government Code, Sec. 8670.1 et seqq.; in particular Sec. 8670.17.2.

<sup>380</sup> See Wash. Rev. Code (RCW), 88.16.190; and Wash. Admin. Code (WAC), 363-116-500.

<sup>381</sup> See Jon M. Van Dyke, "The Legal Regime Governing Sea Transport of Ultrahazardous Radioactive Materials", 33 *ODIL* (2002), pp. 77-92; and Raul A.F. Pedrozo, "Transport of Nuclear Cargoes by Sea", 28 *J. Mar. L. & Com.* (1997), pp. 207-236.

<sup>382</sup> Raul A.F. Pedrozo, *supra*, note 381, p. 231, citing NAV 42/WP.7/Add.2 of 18 July 1996 and MEPC 38/WP.9 of 9 July 1996 reflecting discussions within IMO.

<sup>383</sup> Examples are given by Glen Plant, "Legal Environmental Restraints upon Navigation post-Braer", 10 *OGLTR* (1992) 245-268. For a detailed analysis see Jon M. Van Dyke, *supra*, note 381, p. 87 et seq. He holds that ships not complying with a prior consultation or notification scheme render their voyage non-innocent.

principle, user charges aim at ensuring that external (environmental) costs are internalised, i.e. reflected in the price of the product or service, in order to set economic incentives to minimise environmental impacts. For instance, the point of reference for calculating the charge could be based on the amount of a vessel's greenhouse-gas emissions or its construction date; vessels transiting a particular marine area are consequently more likely to be low-emission ships or of young age (and thus relatively safe) respectively. A study initiated by the German Federal Environmental Agency (*Umweltbundesamt* – UBA) has recently examined the admissibility of charges for the use of air and sea.<sup>384</sup> Findings of the study with regard to the oceans were generally positive; nonetheless, they were subject to a number of caveats derived from the UNCLOS framework. In the territorial sea, user charges for the mere passage of vessels are prohibited by Article 26(1). According to paragraph 2 of Article 26, charges may be levied for specific services, such as pilotage, but that does not constitute an adequate legal basis for environmental fees.<sup>385</sup> With respect to the EEZ and the high seas, a complementary conclusion can be drawn, inasmuch as in the absence of a provision similar to Article 26 no charges may be levied at all, even under the special circumstances set out by Article 211(6). The authors of the study contended that the only suitable point of reference for environmental fees is a ship's calling at a port, because states exercise unrestrained jurisdiction over their ports and their internal waters.<sup>386</sup> I concur with the contention that port fees are lawful under the UNCLOS regime. However, port fees are a matter solely for the port states (or the individual port authorities) to decide. They do not need approval by IMO and would not feature as an APM.

Even if one assumes that a legal basis could be established for introducing environmental fees in the territorial sea or the EEZ, it is doubtful, in my view, how a particularly protective effect for the marine environment could be established – given that the PSSA Guidelines stipulate that APMs may only be approved if they “provide the needed protection from the threats of damage posed by international maritime activities occurring in and around the area.”<sup>387</sup> Although the underlying economic rationale rightly assumes that the area subjected to a user-charge regime would be avoided by ships that pose a comparably high environmental risk, a fee scheme would make shipping as such neither easier to facilitate nor safer. Still, the fee scheme could conform to the guidelines' requirements if it is adjusted to the specific vulnerabilities of the PSSA in question by choosing an adequate point of reference, such as the emission of nitrogen dioxide or the type of anti-fouling paint used on the ship's hull. In addition, the money received through charges could probably be made available to support shipping management or conservation measures in the PSSA and thus foster compliance with respective APMs and

<sup>384</sup> ECOLOGIC, *Legal Aspects of User Charges on Global Environmental Goods*, UFOPLAN 2004, FKZ 204 14 105, (Berlin: Ecologic 2006). See also WBGU, *Entgelte für die Nutzung globaler Gemeinschaftsgüter* (Berlin: WBGU 2002).

<sup>385</sup> ECOLOGIC, *supra*, note 384, p. 171.

<sup>386</sup> Cf. Sec. III.2.f) of Chapter 4. Alternative options, including the adoption of a multilateral treaty on user charges, have been explored by WBGU, *supra*, note 384, p. 26 et seqq.

<sup>387</sup> Para. 7.5.2.1 of the PSSA Guidelines.

further secure the PSSA's integrity, especially in waters under the jurisdiction of developing countries.

However, another significant hurdle must be overcome. Even though it has been pointed out elsewhere that user charges would have very little impact on exports from developing countries<sup>388</sup>, I would argue that it is highly unlikely that an APM allowing for a fee scheme would gain sufficient support within IMO. As recent debates on the reduction of vessels' greenhouse-gas emissions have shown, developing countries would not approve of any scheme potentially tantamount to a competitive disadvantage for their ships.<sup>389</sup> To sum up, it can be noted that a user charge for PSSAs faces too many legal and political restrictions to be feasible for adoption as an APM, despite the theoretical suitability of PSSAs to be protected by this type of measure. IMO member states must seek to address the issue of user charges by the adoption or amendment of a treaty instrument that does away with the confines set by UNCLOS.

A further measure contemplated as an APM is a "reduced noise" requirement.<sup>390</sup> Because it constitutes a CDEM standard, its introduction would be unlawful, as there are no generally accepted international rules and standards regulating the reduction of vessel noise for environmental purposes. Thus, coastal states could not act unilaterally unless IMO has adopted an instrument to which they could give effect. However, reduced noise can also be achieved by requiring vessels to reduce their speed. Reduced-speed requirements are routing measures envisaged by the GPSR and thus within the purview of IMO to approve as an APM.<sup>391</sup> This measure can thus even be enacted as a binding requirement.

Finally, what should be examined as a protective measure are restrictions on cargo transfer. In some circumstances it may be necessary to prohibit the transfer of cargo from vessel to vessel to prevent hazardous substances from entering the marine environment by accident. In 2005, the matter came before MEPC 53<sup>392</sup>, after Spain and Mexico had proposed adding a new chapter and a new appendix to MARPOL Annex I to address risks posed by ship-to-ship transfer of oil cargoes.<sup>393</sup> Denmark concurred with the view expressed by Spain and Mexico<sup>394</sup>, highlighting

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<sup>388</sup> WBGU, *supra*, note 384, p. 31.

<sup>389</sup> Based on the author's experience as a member of the German delegation to MEPC 51. With respect to the specific case of greenhouse gas emissions, the developing countries repeatedly invoked the principle of common but differentiated responsibilities contained in the UN Framework Convention on Climate Change.

<sup>390</sup> See GAUSS, *supra*, note 376, *loc.cit.*

<sup>391</sup> For instance, the TSS "between Korsoer and Sprogø" (Denmark) was amended in 2003 to include a recommended speed reduction for ships to a maximum of 20 knots before they enter the appropriate lane of the scheme, see NAV 49/19, *Report to the Maritime Safety Committee*, 28 July 2003, para. 3.8.

<sup>392</sup> For a summary of the discussions, see MEPC 53/24, *supra*, note 28, para. 20.1 et seqq.

<sup>393</sup> MEPC 53/20, *Amendments to Annex I of MARPOL 73/78 intended to prevent the risk of pollution during oil transfer operations between ships at sea*, 23 November 2004.

<sup>394</sup> MEPC 53/20/2, *Comments on the proposed amendments to MARPOL Annex I intended to prevent the risk of pollution during oil transfer operations between ships at sea*, 27 May 2005.



the need to give coastal states additional competences to enable the establishment of authorisation or notification schemes.<sup>395</sup> In contrast, some shipping NGOs, while supporting in principle the proposal, raised doubts as to the applicability of such schemes and expressly referred to the ban of ship-to-ship operations in PSSAs.<sup>396</sup> In the event, MEPC agreed to forward the issue to the BLG sub-committee to be included as a priority item in their programme of work. The sub-committee is expected to present a proposal to MEPC in 2007.<sup>397</sup> Since efforts within IMO have not yet produced any result, there is no legal instrument available to IMO providing for such a measure. As the prohibition of cargo transfer is an operating rule rather than a CDEM standard, an APM can, however, be based on Article 21 of UNCLOS and may thus also be made applicable in the EEZ, assuming that it does not impact on navigation but on the operations of a ship that lies in a specific place, and, of course, in the internal waters of a coastal state, as was noted with respect to the GBR PSSA.<sup>398</sup>

### III. Establishment of APMs in Buffer Zones and Outside PSSAs

The PSSA Guidelines in paragraph 6.3 state that “[i]n some circumstances, a proposed PSSA may include within its boundaries a buffer zone, in other words, an area contiguous to the site-specific feature (core area) for which specific protection from shipping is sought. However, the need for such a buffer zone should be justified in terms of how it would directly contribute to the adequate protection of the core area.” Although thought was given to expanding the buffer-zone concept during the 2005 revision of the PSSA Guidelines<sup>399</sup>, paragraph 6.3 is still the only provision on buffer zones and it may therefore be asked whether

<sup>395</sup> *Ibid.*, para. 6.

<sup>396</sup> MEPC 53/20/3, *Proposed amendments to Annex I of MARPOL 73/78 intended to regulate oil transfer operations between ships at sea*, 13 May 2005, annex, para. 3.3.

<sup>397</sup> MEPC 53/24, *supra*, note 28, para. 20.6. BLG has not yet concluded its work on this issue. It established a correspondence group to continue work on the proposal, see BLG 10/19, *Report to the Maritime Safety Committee and the Marine Environment Protection Committee*, 30 May 2006, para. 15.9 et seqq. Regarding “the possibility of establishing a total ban for STS oil transfer operations within Special Areas or PSSAs, the Sub-Committee decided that this was not a suitable proposition and that any intended prohibition could rather be dealt with on a case-by-case basis, for instance as an Associated Protective Measure in a PSSA. The Sub-Committee agreed to task the correspondence group with exploring if additional generic requirements were necessary for Special Areas and PSSAs.” *Ibid.*, para. 15.13.

<sup>398</sup> Peter Ottesen, Stephen Sparkes and Colin Trinder, *supra*, note 119, p. 521, at note 26, report that the Australian Government refused to issue a permit for a transfer of nickel ore between vessels at sea. The cargo was destined for a refinery located adjacent to the GBR PSSA.

<sup>399</sup> MEPC 52/8/2, *Proposed amendments to Resolution A.927 (22) on the Identification and Designation of Particularly Sensitive Sea Areas (PSSA)*, 6 August 2004, para. 7 et seqq. ICS and INTERTANKO, who submitted the document held, in particular, that buffer zones should be used to link several smaller core areas.

APMs are confined to the core area or whether they can also be made applicable in buffer zones, or even outside PSSAs. Given the silence of the PSSA Guidelines on this issue, it would be reasonable to contend that APMs can also be established in buffer zones. It would make no sense to include a buffer zone in the area covered by the designation, but at the same time refrain from applying APMs outside the core area. Establishing an APM in a buffer zone is moreover the only way in which it can be proven that it “directly contribute[s] to the adequate protection of the core area”, as required for its inclusion. The argument for allowing approval of APMs outside the actual boundaries of a PSSA follows this line of reasoning. In some circumstances, areas adjacent to a PSSA may not meet the criteria for particular sensitivity. However, this does not render these areas insufficient for applying APMs. Quite on the contrary, in certain cases it is indeed necessary to adopt an APM for application outside the PSSA. An indication is given by paragraph 1.2.6 of the GPSR that reads: “The precise objectives of any routing system [...] may include [...] the organization of safe traffic flow in or around or *at safe distance from* environmentally sensitive areas” (emphasis added). The PSSA Guidelines envisage the most efficient protection of sensitive marine areas against the threats of international shipping. It would therefore be contrary to their purpose to prohibit the approval of APMs that are applied outside the designated area but that are effective for the area for which protection is sought.

#### IV. Procedural Requirements and Assessment of APM Proposals

General requirements for governments with respect to PSSA applications have been dealt with in the previous chapter. In the following section, I shall thus confine the description to those procedural aspects expressly related to the application for, and the assessment of, APMs.

An application, first, needs to clarify “steps that the proposing Member Government has taken or will take to have the measure approved or adopted by IMO pursuant to an identified legal basis”;<sup>400</sup> alternatively, it “should identify the threat of damage or damage being caused to the area by international shipping activities and show how the area is already being protected from such identified vulnerability by the [APMs].”<sup>401</sup> A brief summary of the APM should introduce its main features and demonstrate “how the identified vulnerability will be addressed by existing or proposed [APMs].”<sup>402</sup> It should furthermore include the reasons why a specific APM was given priority over other protective measures. Generally, a PSSA application consists of two parts, the second of which addresses APMs.

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<sup>400</sup> Para. 7.1 of the PSSA Guidelines.

<sup>401</sup> *Ibid.*, para. 7.2. In this case, there is no assessment procedure to be followed. Para. 7.2 and 7.3 were a matter of contentious discussions during the 2005 revision, because, as was argued by the Russian Federation, in particular, they retain the concept of “designation in principle”, which many states sought to abolish. Cf. MEPC 53/8/2, *supra*, note 157, para. 5 et seqq.

<sup>402</sup> Para. 7.4. of the PSSA Guidelines.

This part should include a description of the proposed APM and its contribution to protection from threats posed by international shipping;<sup>403</sup> identify its legal basis;<sup>404</sup> provide information with regard to its legal basis and/or the steps necessary for establishing a legal basis;<sup>405</sup> and specify the category/categories of vessels to which the proposed APM applies, including vessels entitled to sovereign immunity.<sup>406</sup> Moreover, the application should indicate possible impacts on the safety and efficiency of navigation, including consistency with the respective legal instrument, implications for vessel safety and vessel traffic.<sup>407</sup> According to paragraph 7.5.2.2 of the PSSA Guidelines, a draft of the proposed APM must be appended to the application.

After the PSSA application is submitted, the APM proposal(s) will be assessed separately. The assessment is performed by the (sub-)committee responsible for administering the legal instrument on which the APM is based. The respective application is forwarded by MEPC (see Chapter 7, Table 1). According to paragraph 8.3.3 of the PSSA Guidelines, the competent committee then “should review the proposal to determine whether it meets the procedures, criteria, and other requirements of the legal instrument under which the measure is proposed. The sub-committee may seek the advice of the MEPC on issues pertinent to the application.”<sup>408</sup> Apart from the specific requirements of the legal instrument, the organ-in-charge of IMO also needs to make recourse to the general requirements for the PSSA assessment when examining the APM proposal, namely (1) the appropriateness of the APM in the light of other measures available; (2) the potential for significant adverse effects by international shipping activities on the environment outside the proposed PSSA; and (3) a causal link between the PSSA’s attributes, the identified vulnerability and the APM’s potential to prevent, reduce or eliminate the vulnerability.<sup>409</sup>

Formally, as has been seen above, IMO assesses each proposal for an APM on the basis of requirements formulated by the respective legal instrument. It is not said in the PSSA Guidelines whether special circumstances in PSSAs should be taken into account in this assessment process. *Schult* has argued that “the designation of an area provides strong evidence that a particular traffic regulation measure is necessary for ecological reasons.”<sup>410</sup> IMO’s practice shows that the establishment of an APM is usually not contentious and thus appears to support *Schult*’s argument. It is, however, obvious that a PSSA has to be protected *somehow*, and states are therefore willing to grant protection to PSSAs by

<sup>403</sup> *Ibid.*, para. 7.5.2.1.

<sup>404</sup> *Ibid.*, para. 7.5.2.3.

<sup>405</sup> *Ibid.*, para. 7.5.2.2.

<sup>406</sup> *Ibid.*, para. 7.5.2.5.

<sup>407</sup> *Ibid.*, para. 7.6.

<sup>408</sup> It is sensible to assume that the last phrase is not confined to sub-committees but that requests for advice may also be made by the MSC or the Assembly.

<sup>409</sup> Para. 8.2.1 to .3 of the PSSA Guidelines.

<sup>410</sup> “[...] ist [die Ausweisung] ein starkes Indiz dafür, dass eine bestimmte Verkehrsregelungsmaßnahme aus Umweltgründen geboten ist.” Henning Schult, *supra*, note 291, p. 214. (own translation).

approving APMs. But practice within IMO shows that whenever a state – in particular, a state that perceives itself as an advocate of navigational rights – feels that an essential aspect of freedom of navigation is in danger of being impaired, it is likely to initiate notable opposition against the APM in question. The discussion then quickly goes beyond legal subtleties to address serious political questions regarding vessels' navigation rights. In this respect, the fact that an area has been designated as a PSSA does not seem progressively to push states to accept a measure.

Reflecting the fact that every marine environment is subject to changes over time, the PSSA Guidelines envisage the necessity that IMO provides a forum for the review and re-evaluation of any APM based on comments, reports and observations of the APM. Member governments of IMO are invited to bring forward any concern their ships encounter when complying with the respective APM and government(s) that had proposed the APM may “also bring any concerns and proposals for additional measures or modifications to any [APM] to IMO.”<sup>411</sup> Given that proposing governments, when applying for a new APM or an amendment to an existing APM, should direct a proposal to the appropriate committee in order to obtain approval for the protective measures<sup>412</sup>, a review of an APM will also be carried out by the (sub-)committee responsible for addressing the underlying instrument. The MEPC need not be involved, unless it itself is the competent committee with regard to a specific APM.

## **V. Similarities and Differences of Hitherto Designated Areas**

The main features of the PSSA concept have now been illuminated. In order to give a concise impression of the instrument, I shall complement theoretical considerations with IMO's and coastal states' practice regarding the designation of PSSAs and approval of APMs. It will be interesting to note the characteristics of those areas which have been designated so far and to compile an account with respect to APMs – those that have been approved by IMO, as well as those that were rejected.

### **1. Marine Areas Designated as PSSAs**

It was already mentioned that the first version of the PSSA Guidelines was adopted in 1991. Even before that, MEPC identified the first PSSA. Since then, ten further areas were designated. In the following section, these areas will be introduced in chronological order.

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<sup>411</sup> Para. 8.4.

<sup>412</sup> Para. 7.10. Note that NAV as a sub-committee often addresses the merits of an APM. Nevertheless, it is always the main committee that adopts a final decision.

The first PSSA to be designated was the *Great Barrier Reef* (GBR) off Queensland/Australia<sup>413</sup>, which was later extended to include the *Torres Strait*, of which Australia and Papua New Guinea are littoral states.<sup>414</sup> Interestingly, the GBR PSSA was not only applied for before the 1991 PSSA Guidelines were formally adopted by the Assembly<sup>415</sup>, but was also designated prior to the adoption of the Guidelines. As has been observed above, the GBR PSSA is today largely considered as the blueprint for the PSSA concept.<sup>416</sup> It is the largest coral reef in the world, providing a habitat for the world's greatest marine biological diversity, and has long been recognised as an area in need of conservation and protection.<sup>417</sup> The Torres Strait is located in the north of the GBR. It is about 90 nm wide and 150 nm long. However, as most parts of the strait are shallow waters, the navigable routes for international shipping do not exceed a few hundred metres in some places.<sup>418</sup> The Strait's environment is characterised by "extensive seagrass beds, resident dugong and turtle populations, coral reefs, sand cays, mangrove islands, inactive volcanic islands and granite continental islands."<sup>419</sup> All of the approximately 30,000 indigenous people inhabiting the islands and coastal areas of the PSSA extension depend on subsistence fishing and gathering.<sup>420</sup> The MEPC concluded that the Torres Strait meets several of the ecological criteria of the PSSA Guidelines, including "uniqueness or rarity" and "critical habitat."

Seven years after the first designation, a second PSSA was accepted.<sup>421</sup> Cuba's *Sabana-Camagüey Archipelago* comprises more than 2,515 beautiful islands and small keys, which nonetheless were opened for sustainable tourism.<sup>422</sup> A coral reef, about 400 kilometres long and stretching along the outer edge of the archipelago, is considered to be one of the most significant of the Wider Carib-

<sup>413</sup> Res. MEPC.44(30), *Identification of the Great Barrier Reef as a Particularly Sensitive Sea Area*, adopted on 16 November 1990.

<sup>414</sup> Res. MEPC.133(53), *Designation of the Torres Strait as an Extension to the Great Barrier Reef Particularly Sensitive Sea Area*, adopted on 22 July 2005. For a chart of the area, see *ibid.*, Annex 1, para. 1.3.1.

<sup>415</sup> The application can be found in MEPC 30/19/4 and MEPC 30/19/4/Add.1, *Identification of the Great Barrier Reef as a particularly sensitive sea area*, 19 September 1990.

<sup>416</sup> Peter Ottesen, Stephen Sparkes and Colin Trinder, *supra*, note 119, p. 519.

<sup>417</sup> Wendy Craik, "The Great Barrier Reef Marine Park: Its Establishment, Development and Current Status" 25 *MPB* (1992), pp. 122-132, at 122 et seq.; Australian Maritime Safety Authority, *Review of Ship Safety and Pollution Prevention Measures in the Great Barrier Reef* (July 2001), available from <[http://www.amsa.gov.au/Shipping\\_Safety/Great\\_Barrier\\_Reef\\_Review/GBR\\_Review\\_Report/Documents/gbr.pdf](http://www.amsa.gov.au/Shipping_Safety/Great_Barrier_Reef_Review/GBR_Review_Report/Documents/gbr.pdf)>; (accessed on 30 September 2006), p. 4.

<sup>418</sup> MEPC 49/8, *supra*, note 342, annex, para. 4.1.2.

<sup>419</sup> *Ibid.*, p. 2.

<sup>420</sup> *Ibid.*, p. 10.

<sup>421</sup> Res. MEPC.74(40), *Identification of the Archipelago of Sabana-Camaguey as a Particularly Sensitive Sea Area*, adopted on 25 September 1997. For sea charts, see Kristina M. Gjerde, *supra*, note 351, p. 416.

<sup>422</sup> Kristina M. Gjerde and J. Sian H. Pullen, "Cuba's Sabana-Camagüey Archipelago: The Second Internationally Recognised PSSA", 13 *IJMCL* (1998), pp. 246-262, at 246.

bean Region in terms of its size and the diversity of its species.<sup>423</sup> It fulfils important functions with regard to the protection of the archipelago. Most parts of the archipelago are particularly under threat from the debris of maritime operations.<sup>424</sup>

One year after the 2001 guidelines were adopted, two further PSSAs were designated, *Malpelo Island* (Colombia)<sup>425</sup> and the area around the *Florida Keys* (USA).<sup>426</sup>

Malpelo Island, situated between the Cocos Islands and the Galapagos Islands in the Colombian Pacific, is framed by coral formations and offers a great biological richness with an abundance of species of high value to the fishing industry.<sup>427</sup> It is the crest of an undersea mountain, about 500 kilometres away from the mainland of Colombia.<sup>428</sup> Although Colombia was requested by MEPC 43, after its scrutiny of the initial application<sup>429</sup>, to submit further information on the proposed area<sup>430</sup>, MEPC 44 could not approve the designation either as certain parts of the application were still missing, including a chart of the area and information on vessel traffic and its possibly hazardous impacts.<sup>431</sup> It was not until the 46<sup>th</sup> session that MEPC was able to approve the PSSA application in principle, pending the approval of an ATBA.<sup>432</sup> Following MSC's endorsement of the establishment of the ATBA, Malpelo Island was designated a PSSA at MEPC 47.

The Florida Keys PSSA includes all the islands comprising the Florida Keys<sup>433</sup>, which are a habitat for a huge variety of plants, fishes and corals. The boundaries of the PSSA are based on coral reefs that form the third largest barrier reef system in the world. It does not only serve as a critical habitat for numerous endangered and threatened species but also as an important breeding and spawning ground. To reflect ecological necessities, the designated area also includes seagrass meadows

<sup>423</sup> MEPC 38/19, *Designation of the Sabana-Camagüey Archipelago as a Particularly Sensitive Sea Area*, 31 January 1996, annex, para. III.

<sup>424</sup> Cf. MEPC 29/Inf. 27, *Pollution of Cuban Coasts by Dumping From Ships*, 18 January 1990. One of the main sources of marine debris are cruise ships; cf., *supra*, Sec. III.1. of Chapter 2.

<sup>425</sup> Res. MEPC.97(47), *Identification of the sea area around Malpelo Island as a Particularly Sensitive Sea Area*, adopted on 10 October 2002.

<sup>426</sup> Res. MEPC.98(47), *Identification of the sea area around the Florida Keys as a Particularly Sensitive Sea Area*, adopted on 10 October 2002.

<sup>427</sup> MEPC 44/7, *Designation of Malpelo Island as a Particularly Sensitive Sea Area*, 3 December 1999, annex; MEPC 46/6/3, *Additional Information for the designation of Malpelo Island as a PSSA*, 16 February 2001.

<sup>428</sup> MEPC 46/6/3, *supra*, note 427, annex, p. 5 and 6.

<sup>429</sup> MEPC 43/6/7, *Designation of Malpelo Island as a "particularly sensitive sea area"*, 30 April 1999.

<sup>430</sup> MEPC 43/21, *Report of the Marine Environment Protection Committee on its Forty-Third Session*, 6 July 1999, para. 6.33.

<sup>431</sup> Cf. MEPC 44/20, *supra*, note 132, para. 7.20 et seq.

<sup>432</sup> MEPC 46/23, *Report of the Marine Environment Protection Committee on its Forty-Sixth Session*, 16 May 2001, para. 6.9 et seq.

<sup>433</sup> Chartlet of the area in MEPC 46/6/2, *Designation of the marine area around the Florida Keys as a PSSA*, 19 January 2001, Annex 2.

and mangroves on which the health of the coral reef system depends.<sup>434</sup> Most of the PSSA is in the territorial sea of the U.S., with some parts extending into the EEZ. When the application was submitted to MEPC 46, it was unanimously praised as an excellent example of a coherent and well-prepared document that should serve as a model for future applications by other member states.<sup>435</sup> MEPC was thus able to consider all relevant issues at that session and, accordingly, designated the area in principle.<sup>436</sup> At its next session, final designation was granted.

In autumn 2002, MEPC designated the *Wadden Sea* of the Netherlands, Germany and Denmark a PSSA<sup>437</sup>, following a proposal submitted jointly by the three states.<sup>438</sup> The Wadden Sea is a unique “highly dynamic tidal ecosystem of global importance”.<sup>439</sup> It is characterised by, in particular, tidal flats and salt marsh systems, and a broad array of tidal channels and barrier islands that separate the Wadden Sea from the North Sea.<sup>440</sup> Its features represent a unique transitional environment between land and sea, which has created numerous ecological niches. The designated area covers approximately 15,000km<sup>2</sup> within the territorial sea and the internal waters of the proposing states.<sup>441</sup> Since no new APMs were proposed for adoption, MEPC was able both to review the environmental implications of the proposal<sup>442</sup> and to confer final designation upon the area at its 48<sup>th</sup> session in 2002.<sup>443</sup>

At the next session, the *Paracas National Reserve* (Peru) was designated a PSSA.<sup>444</sup> The marine part of the national reserve complements an exceptional coastal subtropical desert and is “one of the most biologically productive marine

<sup>434</sup> MEPC 46/6/2, *supra*, note 433, p. 3 et seqq.

<sup>435</sup> MEPC 46/23, *supra*, note 432, para. 6.8.

<sup>436</sup> *Ibid.*, para. 6.7.

<sup>437</sup> Res. MEPC.101(48), *Identification of the Wadden Sea as a PSSA*, adopted on 11 October 2002.

<sup>438</sup> MEPC 48/7/2, *Designation of the Wadden Sea as a Particularly Sensitive Sea Area*, 28 June 2002. The Trilateral Governmental Conferences on the Protection of the Wadden Sea had already contemplated a PSSA application in 1994 and in 1997; see relevant paragraphs of final statements reproduced in WWF-Projektteam Pallas, *supra*, note 368, Annex 1.

<sup>439</sup> Wadden Sea Secretariat, “The Wadden Sea designated as Particularly Sensitive Sea Area (PSSA)”, available from <<http://www.waddensea-secretariat.org/tgc/pssa/pssa-designation.html>>; (accessed on 30 September 2006).

<sup>440</sup> MEPC 48/7/2, *supra*, note 438, para. 2.4. See further Peter Schütte, *Der Schutz des Wattenmeers – Völkerrecht, Europarecht, nationales Umweltrecht* (Baden-Baden: Nomos Verlagsgesellschaft 2001), p. 23 et seqq.

<sup>441</sup> See nautical chart of the PSSA at <<http://www.waddensea-secretariat.org/news/documents/pssa/PSSA-appl-annex2.pdf>>; (accessed on 30 September 2006).

<sup>442</sup> Cf. MEPC 48/WP.14, *Outcome of the Informal Working Group*, 9 October 2002.

<sup>443</sup> See further Bettina Reineking, “The Wadden Sea Designated as a PSSA”, 27 *Wadden Sea Newsletter* (2002), No. 2, pp. 10-12.

<sup>444</sup> Res. MEPC.106(49), *Identification of the Archipelago of the Paracas National Reserve as a Particularly Sensitive Sea Area*, adopted on 18 July 2003.

areas in the world”.<sup>445</sup> The PSSA includes three islands and was internationally recognised, *inter alia*, as a Ramsar wetland site in 1992 as it is a habitat for an abundance of migratory bird species.<sup>446</sup> Furthermore, it has a large population of seals and other marine mammals. Its shallow waters – the Bay of Paracas ranges from 0 to 7 metres in depth – encourage the “photosynthetic processes or primary productivity of phytoplankton and algae which start the trophic chain.”<sup>447</sup> After having designated the PSSA in principle at MEPC 48, MEPC 49, following the approval of an ATBA by NAV/MSC, approved final designation of the area.<sup>448</sup>

MEPC 52 designated as a PSSA an area that is called *Western European Waters* and comprises parts of the Atlantic EEZs of Spain, Portugal, France, Belgium, the UK and Ireland.<sup>449</sup> Designating this particular area was probably one of the most contentious decisions taken by IMO.<sup>450</sup> It prompted opposition due to its large size and some IMO member states felt that the proposed area did not represent a single ecosystem but a set of biological units and that most ecological criteria were not met for the entire area but only for certain parts of it. In fact, the different parts of the Western European PSSA have few common features, the most important of which is the rich presence of marine mammals and (sea) birds. In the northern part, in Irish and British waters, some of the richest fishing grounds in Europe can be found.<sup>451</sup> This specific area is also home to many seabirds and the endangered Bottlenose Dolphin.<sup>452</sup> Further south, off the Belgian and French coasts, the water is very shallow, characterised by many sandbanks and several huge estuaries, which have a particular significance for marine biodiversity and represent essential spawning and breeding grounds for fish.<sup>453</sup> The peculiarity of the Spanish and Portuguese part derives from rich fauna and flora and the beautiful landscape that has a remarkable cultural, scientific and tourist value.<sup>454</sup> Many people still earn their living from fishing and the harvesting of shellfish.<sup>455</sup> In that respect, the coastal communities are dependent upon soundly managed and protected marine ecosystems. Despite opposition against the initial

<sup>445</sup> The Nature Conservancy, “Paracas National Reserve”, available from <<http://parksinperil.org/wherewework/southamerica/peru/protectedarea/paracas.html>>; (accessed on 30 September 2006).

<sup>446</sup> MEPC 48/7, *Designation of the marine area of the Paracas National Reserve as a “particularly sensitive sea area”*, 18 April 2002, annex, p. 2 et seqq.

<sup>447</sup> MEPC 48/7, *supra*, note 446, annex, para. 2.1.1.5.

<sup>448</sup> Cf. MEPC 49/22, *supra*, note 145, para. 8.7.

<sup>449</sup> Res. MEPC.121(52), *Designation of the Western European Waters as a Particularly Sensitive Sea Area*, adopted on 15 October 2004.

<sup>450</sup> See Markus Detjen, *supra*, note 140, pp. 442-453; and Julian Roberts et al., *supra* note 176, pp. 431-440.

<sup>451</sup> MEPC 49/8/1, *supra*, note 142, Annex 1, para. 3.1.3.

<sup>452</sup> *Ibid.*, para. 3.1.6.

<sup>453</sup> *Ibid.*, para. 3.1.9 et seq.

<sup>454</sup> *Ibid.*, para. 3.1.13.

<sup>455</sup> WWF, “The Prestige: One Year on – a Continuing Disaster”, available from <<http://www.panda.org/downloads/marine/finalprestige.pdf>>; (accessed 30 September), p. 6; MEPC 49/8/1, *supra*, note 142, Annex 1, para. 3.3.1.13.



application, it received approval in principle by MEPC 49.<sup>456</sup> MEPC 52 felt able to award final designation.

MEPC received three PSSA application prior to its 51<sup>st</sup> session concerning the designation of the *Canary Islands* of Spain, the *Galapagos Islands* of Ecuador and the *Baltic Sea Area*.

The Canary Islands form an archipelago of volcanic origin off the west coast of Africa, near or on some of the main routes for vessels sailing from Europe to Africa, Asia or South America. Some of the islands, such as La Palma and Lanzarote, have been declared a biosphere reserve. The waters around the islands host a wide variety of ecosystems. Over 12,000 species have so far been discovered on or around the Canary Islands, 64 per cent of which are flora, 29 per cent fauna and 7 per cent fungi.<sup>457</sup> The waters are both important habitats and breeding grounds for marine mammals, such as the bottlenose dolphin and the Atlantic loggerhead sea turtle, and many bird species. Fishing and fish farming are valuable industries, as the region is especially rich in tuna. MEPC has recognised the particular sensitivity of the Canary Islands and designated the PSSA in principle at its 51<sup>st</sup> session. MEPC 53 granted final designation.<sup>458</sup>

The Galapagos Islands are an archipelago comprising 19 islands and several islets of volcanic origin, which lie about 500 nm off the Ecuadorian mainland.<sup>459</sup> Due to their equatorial setting and geographical isolation, the Galapagos Islands have developed several unique features, including a rich flora and fauna, a high degree of endemism and high phyto- and zoogeographical affinity.<sup>460</sup> They provide a habitat for an abundant number of species; for many of them, for instance green turtles and marine iguana, as well as Galapagos penguins and flightless cormorants, the islands represent the only natural refuge and breeding ground. As many species are restricted to the islands, a shipping accident involving a spill of hazardous cargo would lead to disastrous consequences. The archipelagic waters are quite shallow, a fact that further increases the archipelago's vulnerability. The archipelago is not only protected by domestic law, but also by several international mechanisms, such as the UNESCO MAB Programme.<sup>461</sup> Since only IMO is able to provide protection against threats posed by global shipping, Ecuador came forward in 2003 with a proposal to MEPC 51 to have the Galapagos Islands designated as a PSSA. Upon recommendation by the

<sup>456</sup> Cf. MEPC 49/22, *supra*, note 145, para. 8.25.2.

<sup>457</sup> MEPC 51/8, *Designation of the Canary Islands as a Particularly Sensitive Sea Area*, 24 October 2003, annex, para. 3.1.2.1. More than 3,500 of these species are endemic.

<sup>458</sup> Res. MEPC.134(53), *Designation of the Canary Islands as a Particularly Sensitive Sea Area*, adopted on 22 July 2005.

<sup>459</sup> MEPC 51/8/2, *Designation of the Galapagos Archipelago as a Particularly Sensitive Sea Area*, 24 December 2003, para. 2.1. For a chart of the archipelago, see MEPC 51/8/2/Corr.1, *Designation of the Galapagos Archipelago as a Particularly Sensitive Sea Area – Corrigendum*, 17 February 2004, annex.

<sup>460</sup> MEPC 51/8/2, *supra*, note 459, para. 3.1.1. et seq.

<sup>461</sup> MEPC 51/8/2, *supra*, note 459, para. 5.2.

Informal Technical Group (ITG)<sup>462</sup>, MEPC 51 designated the area in principle. MEPC 53 granted final designation.<sup>463</sup>

The Baltic Sea Area PSSA comprises, to avoid any misunderstanding, the Baltic Sea except waters under Russian jurisdiction. Even though these parts share the ecological characteristics of the Baltic Sea as a whole, the Russian Federation refrained from having them included in the application. Accordingly, the proposal was submitted by the remaining littoral states of the Baltic Sea, i.e. Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland and Sweden.<sup>464</sup> The Baltic Sea is a cold, northern brackish-water eco-system, which is, especially because of its shallow waters, vulnerable to the impact of international shipping and other human activities.<sup>465</sup> It is a semi-enclosed sea with an exceptionally low salinity, especially in the eastern and northern parts. Its catchment area is four times larger than its basin area, thus freshwater inflow is high, while saline water inflow is constrained by the narrow Danish straits. The special salinity conditions result in low species diversity. Still, the Baltic Sea's biodiversity is considered to be unique, since only a small number of species have been able to adapt to the brackish-water conditions and form a fragile ecosystem.<sup>466</sup> In addition, the Baltic Sea coastal regions host important habitats for numerous sea birds and waterfowl.

The proponents introduced their application to the MEPC at its 51<sup>st</sup> session. The Russian Federation, in particular, voiced pronounced opposition, expanding on their views already expressed with respect to the Western European PSSA proposal. It reiterated its stance that PSSA designation should be limited to small areas.<sup>467</sup> Moreover, protection granted by both global and regional international law through MARPOL and HELCOM respectively was sufficient, especially in light of the fact that 90 per cent of the pollution of the Baltic Sea comes from land-based sources.<sup>468</sup> In addition, it felt that the proposing states were under the obligation to submit a joint application supported by all littoral states.<sup>469</sup> Nevertheless, members of MEPC felt able to grant designation to the proposed area. Approval in principle was given at MEPC 51 and final designation granted at MEPC 53.<sup>470</sup>

As has become apparent, the PSSAs designated to date differ considerably with respect to, *inter alia*, size and ecological attributes. The most contentious appli-

<sup>462</sup> Cf. MEPC 51/WP.9, *supra*, note 192, para. 2.4.

<sup>463</sup> Res. MEPC.135(53), *Designation of the Galapagos Islands as a Particularly Sensitive Sea Area*, adopted on 22 July 2005.

<sup>464</sup> MEPC 51/8/1, *supra*, note 377.

<sup>465</sup> MEPC 49/8/3, *The Baltic Sea – a globally unique and vulnerable sea area*, 8 May 2003, para. 2.4 et seq. and para. 3.

<sup>466</sup> MEPC 51/8/1, *supra*, note 377, para. 3.1.

<sup>467</sup> For an account of the Russian Federation's position on PSSA designations, see Hugh O'Mahony, *supra*, note 159, p. 3. I have commented on the Russian argument, *supra*, in Sec. II.3. of Chapter 7.

<sup>468</sup> MEPC 51/22, *supra*, note 148, para. 8.27.

<sup>469</sup> This issue has already been addressed, *supra*, in Sec. II.5.b) of Chapter 7.

<sup>470</sup> Res. MEPC.136(53), *Designation of the Baltic Sea Area as a Particularly Sensitive Sea Area*, adopted on 22 July 2005.

cations for PSSA status were the Western European PSSA and the Baltic Sea Area PSSA, where both vessel traffic intensity and environment protection interests are very high. Yet no application has been rejected entirely so far. Two proposals, however, have not been followed up by proposing states.

The first concerns a proposal to designate as a PSSA the Gulf of Aqaba and the Strait of Tiran (Egypt). Initially, Egypt submitted an application to the NAV sub-committee in 1994, which found itself not competent to deal with such a proposal and instructed Egypt to submit an application to MEPC.<sup>471</sup> The proposal that was submitted to MEPC five years later included three ATBAs and “precautionary measures” in the region “from Taba to Nuweiba Port, from Nuweiba Port to the Northern Limits of Abou Galum protected and Jazirat Tiran.”<sup>472</sup> MEPC instructed Egypt to provide more substantive information on the ecological characteristics of the area and Egypt promised to act accordingly.<sup>473</sup> However, instead of a further submission by Egypt, Israel responded in a document submitted to MEPC 45.<sup>474</sup> It argued that approval of the ATBAs would be an undue restriction on navigation and would hamper access to the Israeli Port of Eilat. The proposal would thus violate respective provisions of the 1979 Peace Treaty between Israel and Egypt.<sup>475</sup> Probably due to the political frictions it would have caused, the application was not followed up by Egypt within the context of IMO.

Another application concerns parts of the Argentinean coast, for which protective measures were sought at MEPC 43.<sup>476</sup> Even though Argentina clarified that its submission was based on the 1991 Guidelines and that the proposed areas “should not be interpreted as, nor are they intended to be, special areas as set out in MARPOL 73/78”, the exact purpose of the Argentinean initiative did not become clear immediately.<sup>477</sup> There seemed to be a misunderstanding on the side of Argentina as to what a PSSA is and what the application procedure was like. So far, Argentina has not initiated any further action.

Other states that have announced their interest in proposing further PSSAs over the course of the years<sup>478</sup> have not yet come forward with an application but it is

<sup>471</sup> Angelo Meriardi, *supra*, note 254, pp. 19-43, at 39, note 22, with reference to NAV 40/4/3 of 8 June 1994.

<sup>472</sup> MEPC 43/6/1, *Areas to be avoided and precautionary measures in particularly sensitive sea areas in the region of the natural protected areas from Taba to Nuweiba Port, from Nuweiba Port to the Northern Limits of Abou Galum protected and Jazirat Tiran*, 30 March 1999. The ATBAs were envisaged to apply to “any vessel carrying dangerous or toxic cargoes, or to any other vessel exceeding 500 gross tonnes”.

<sup>473</sup> Cf. MEPC 43/21, *supra*, note 430, para 6.26.

<sup>474</sup> MEPC 45/6/1, *Identification and Protection of Special Areas and Particularly Sensitive Sea Areas*, 3 July 2000.

<sup>475</sup> MEPC 45/6/1, *supra*, note 474, para. 4.

<sup>476</sup> MEPC 43/6/5, *Special protection areas on the Argentina coast, routing of ships carrying oil and noxious liquid substances (NLS)*, 1 April 1999.

<sup>477</sup> MEPC hence “requested Argentina to provide clarification [...] as to whether [it] is proposing an area to be avoided for oil tankers and chemical tankers.” See MEPC 43/21, *supra*, note 430, para. 6.28.

<sup>478</sup> See, e.g. J. Ashley Roach, “Particularly Sensitive Sea Areas: Current Developments”, in M. Nordquist, J.N. Moore and S. Mahmoudi (eds.), *The Stockholm Declaration and Law*

likely that further proposals will be submitted to MEPC in the future. The Norwegian Government, which had contemplated applying for large parts of the Barents Sea to be designated as a PSSA<sup>479</sup>, eventually did not submit a respective proposal to MEPC. Instead, Norway decided to apply for a mandatory TSS. This proposal did not receive approval at NAV 52; NAV merely agreed to several recommendatory routing measures.<sup>480</sup>

## 2. Approved APMs

Several APMs have been approved as ensuring appropriate protection of the designated areas from threats of damage posed by international shipping. In the following section, these APMs shall be introduced in varying detail, depending on their legal importance.

For the *Great Barrier Reef (GBR) PSSA*, two mandatory APMs were approved in 1991 alongside the designation. The first is compulsory pilotage for the inner route of the GBR, the other is a mandatory ship reporting system covering both the reef and the Torres Strait.<sup>481</sup> The latter applies to “all ships of 50 m or greater in overall length; [...] all ships, regardless of length, carrying in bulk hazardous and/or potentially polluting cargo, in accordance with the definitions at resolution MSC.43(64), paragraph 1.4; [...] and] ships engaged in towing or pushing where either the towing or pushing vessel or the towed or pushed vessel is a vessel prescribed within the [first two] categories.”<sup>482</sup> Furthermore, IMO recommended governments should encourage compliance with a pilotage scheme that Australia has introduced for the outer route of the GBR, which is located in the EEZ.<sup>483</sup> The *Torres Strait PSSA* extension is protected by a recommended two-way route<sup>484</sup> and by a pilotage scheme whose use IMO, after controversial debate<sup>485</sup>, agreed to recommend “strongly” instead of making it compulsory.<sup>486</sup> As a further APM,

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*of the Marine Environment* (The Hague Boston London: Kluwer Law International 2003), pp. 311-321, at 316 et seq.

<sup>479</sup> First Joint Ministerial Meeting of the Helsinki and Oskar Commissions, *Declaration*, Bremen, 25-26 June 2003, available from <[http://www.helcom.fi/ministerial\\_declarations/en\\_GB/ospardeclaration/](http://www.helcom.fi/ministerial_declarations/en_GB/ospardeclaration/)>; (accessed 30 September 2006), para. 30 lit. h.

<sup>480</sup> See documents cited in note 300 of this chapter.

<sup>481</sup> Res. MSC.52(66), *Mandatory Ship Reporting System “The Torres Strait and Inner Route of the Great Barrier Reef”*, adopted 30 May 1996, as amended by Res. MSC.161(78), *Amendments to the Existing Mandatory Ship Reporting System “The Torres Strait and Inner Route of the Great Barrier Reef”*, adopted on 17 May 2004.

<sup>482</sup> Res. MSC.52(66), *supra*, note 481, Annex 1, para. 1.3.

<sup>483</sup> Res. MEPC.45(30), *Recommended Use of Pilots*, adopted on November 1990. The use of pilots was made compulsory under domestic law and has since then been enforced accordingly.

<sup>484</sup> The coordinates defining the two-way route are set forth in Res. MEPC.133(53), *supra*, note 414, Annex 2. MSC approved the measure in 2004, cf. MSC 78/26/Add.2, *supra*, note 299, Annex 22, p. 1 et seq.

<sup>485</sup> See, *supra*, Sec. II.1.d) of this chapter and, *infra*, Sec. V.3. of this chapter.

<sup>486</sup> The application for compulsory pilotage is contained in NAV 50/3, *supra*, note 150.

MSC approved amendments to the existing mandatory SRSs of the GBR PSSA to allow for its application in the Torres Strait PSSA.<sup>487</sup>

The *Sabana-Camagüey Archipelago PSSA*, as the most important part of the Cuban MPA network, was already protected under domestic Cuban law, and it is covered by the MARPOL Annex V special area “Wider Caribbean Region.” As far as shipping activities are concerned, MSC 48 had already approved recommendatory TSSs to protect the area.<sup>488</sup> One year after the PSSA was identified without additional APMs, Cuba submitted a proposal for several new APMs to MEPC 42.<sup>489</sup> Cuba’s proposal primarily aimed to restrict discharges of any kind in and around the waters of the Sabana-Camagüey archipelago, all of which are either internal waters or territorial sea.<sup>490</sup> As became apparent during the review process at MEPC 42, most of the measures sought did not go beyond standards already available under MARPOL, such as the prohibition of all operational discharges from oil tankers within 50nm measured from the base line. Other proposed discharge restrictions, e.g. discharge of ships’ ballast water, were in line with IMO regulations in force at the time, or, like the prohibition of discharging TBT, within the competence of coastal states under Article 21 of UNCLOS.<sup>491</sup> MEPC thus did not forward these proposals to another committee for examination but granted immediate approval.<sup>492</sup> Another proposed APM was a voluntary ATBA between the access routes to the ports of Matanzas and Cárdenas.<sup>493</sup> The application was forwarded to NAV 45, where it received unanimous support.<sup>494</sup> The scope of the routeing measure was determined to apply to “all ships over 150 gross tonnage, for reasons of conservation of unique biodiversity, nature and beautiful scenery.”<sup>495</sup>

The sole APM of *Malpelo Island PSSA* is a recommendatory ATBA that applies to “all fishing vessels and all other ships in excess of 500 gross tonnage.”<sup>496</sup> Colombia thereby attempted to limit the impacts of illegal fishing, which had caused a significant decline in the size of fish stocks around Malpelo

<sup>487</sup> See Res. MSC.161(78), *Amendments to the Existing Mandatory Ship Reporting System in the Torres Strait and Inner Route of the Great Barrier Reef*, adopted on 17 May 2004, annex.

<sup>488</sup> See MEPC 43/6/4, *Revision of Resolution A.720(17)*, 2 April 1999, annex, para. IV.

<sup>489</sup> MEPC 42/10/3, *Measures of protection envisaged for the Sabana-Camagüey Archipelago*, 4 September 1998.

<sup>490</sup> Cf. Kristina M. Gjerde and J. Sian H. Pullen, *supra*, note 422, p. 250; and Kristina M. Gjerde, *supra*, note 351, p. 417 et seq.

<sup>491</sup> See, in more detail, Kristina M. Gjerde, *supra*, note 351, *loc.cit.*

<sup>492</sup> MEPC 42/22, *Report of the Marine Environment Protection Committee on its Forty-Second Session*, 16 November 1998, para 10.17.

<sup>493</sup> NAV 45/3/6, *Area to be avoided on the northern coast of Cuba*, 2 July 1999. A chart of the ATBA is reproduced in the annex of the document.

<sup>494</sup> NAV 45/14, *Report to the Maritime Safety Committee*, 25 October 1999, Annex 3.

<sup>495</sup> *Ibid.* Subsequent developments in the Sabana-Camagüey Archipelago PSSA are summarised in a statement by Cuba reproduced in MEPC 46/23, *supra*, note 432, Annex 13, para 4.

<sup>496</sup> Cf. MSC 75/24/Add.1, *Report of the Maritime Safety Committee on its Seventy-Fifth Session*, 31 May 2002, Annex 7, p. 2 et seq.

Island. The proposal for the ATBA had not been included in initial applications to MEPC 43 and 44.<sup>497</sup> As more information was requested by MEPC 44 on, *inter alia*, APMs for the area, to facilitate decision on the PSSA application, Colombia proposed establishing an ATBA to MEPC 46<sup>498</sup>, which was then forwarded to NAV 47. NAV considered the application, endorsed it and again forwarded it to MSC 75, where it received final approval.<sup>499</sup>

The *Florida Keys PSSA* is protected by several different routing measures: four recommendatory ATBAs and three mandatory no-anchoring areas. The ATBAs were already established by IMO in 1991 and were meant to protect vulnerable parts of the fragile coral reef system off the coast of Florida. Compliance was recommended “for all vessels carrying cargoes of oil and other hazardous material and all other vessels greater than 50 meters in length.”<sup>500</sup> During the process of preparing the PSSA application, the US reviewed the ATBA boundaries and, as a result, submitted a proposal to amend the northernmost ATBA to gain better protection against groundings.<sup>501</sup> This proposal was approved by NAV 47. The no-anchoring areas, proposed for application in the Tortugas Ecological Reserve<sup>502</sup>, represented an innovative instrument at the time they were contemplated. IMO had only amended the GPSR to allow for the establishment of no-anchoring areas a few months before the proposal was submitted. MSC 75 approved all proposed APMs<sup>503</sup> without extensive discussion.<sup>504</sup>

The *Wadden Sea PSSA* was approved without any additional APM. Existing protective measures include coverage of the area by MARPOL special-area designations restricting discharges according to standards contained in Annexes I and V.<sup>505</sup> Routing systems established in the area are several TSSs and a mandatory deep-water route in the German bight adjacent to the German and Dutch

<sup>497</sup> MEPC 43/6/7, *supra*, note 429; MEPC 44/7, *Designation of Malpelo Island as a “particularly sensitive sea area”*, 3 December 1999.

<sup>498</sup> MEPC 46/6/3, *supra*, note 427.

<sup>499</sup> Vladimir Kotliar, “Marine Protected Areas on the High Seas (some legal aspects)”, in H. Thiel and J.A. Koslow (eds.), *supra*, note 254, pp. 143-148, at 146, has expressed serious concerns about the approval given to the proposed ATBA. In his view (which unfortunately seems to be corroborated by wrong information), it represents a development that takes the trend to protection by a “broad, comprehensive and integrated approach [...] across all reasonable limits”.

<sup>500</sup> MSC 75/24/Add.1, *supra*, note 496, Annex 7, p. 2.

<sup>501</sup> NAV 47/3, *Amendment of the Northernmost area to be avoided off the Florida Coast*, 15 February 2001.

<sup>502</sup> NAV 47/3/1, *No anchoring areas in the Tortugas Ecological Reserve and the Tortugas Bank in the Florida Keys*, 15 February 2001.

<sup>503</sup> MSC 75/24/Add.1, *supra*, note 496, Annex 7.

<sup>504</sup> Cf. MSC 75/24, *Report of the Maritime Safety Committee on its Seventy-Fifth Session*, 29 May 2002, para. 6.7.

<sup>505</sup> Stricter air pollution standards for ships in SECAs pursuant to MARPOL Annex VI will become effective for the North Sea (and thus also for the Wadden Sea) by November 2007, cf. MEPC 53/24, *supra*, note 28, para. 5.11.

Wadden Sea (off the Frisian Islands in the North Sea).<sup>506</sup> Moreover, there are several VTSSs covering different parts of the area, and a voluntary deep-sea pilotage scheme from the North Hinder to the German Bight.<sup>507</sup>

Regarding protection of the *Paracas National Reserve PSSA*, four TSSs had already been approved prior to the PSSA designation for the approach to ports in the vicinity of the designated area.<sup>508</sup> When applying for PSSA status for the Paracas National Reserve, Peru proposed having parts of the area covered by an ATBA and applying strict discharge restrictions to the entire area.<sup>509</sup> As concerns the ATBA, Peru was requested to submit a separate proposal to the NAV sub-committee. It did so several years later; a respective application for a recommendatory ATBA was finally approved by MSC 78.<sup>510</sup> It applies to “ships of more than 200 gross tonnage carrying hydrocarbons and hazardous liquids in bulk.”<sup>511</sup> With respect to the second proposed APM, a “no-discharge area”, Peru was asked to provide more information, as MEPC considered the proposal to be inadequately corroborated by the presented data. No further action has been taken until today.

As has been said earlier, the designation of the *Western European Waters PSSA* caused considerable disturbance, due to the originally proposed APM, which would have effectively banned single-hull oil tankers from sailing through the area. In the event, only one APM application was retained: a mandatory SRS applicable to “[e]very kind of oil tanker of more than 600 tonnes deadweight” carrying certain specified oily cargoes. The system called WETREP (*West European Tanker Reporting System*) entails a reporting obligation for tankers carrying certain oily cargoes 48 hours before entering the area. It was approved by MSC 79.<sup>512</sup> Existing IMO measures already in place to protect the area from threats posed by international shipping comprise recommendatory routing measures, such as ATBAs, TSSs and deep-water routes and VTSSs/SRSs for some smaller parts of the PSSA.<sup>513</sup>

For the *Canary Islands PSSA*, three recommendatory TSSs were approved alongside accompanying routing measures, such as precautionary areas and in-shore traffic zones.<sup>514</sup> In addition, a mandatory SRS (CANREP) was established,

<sup>506</sup> See, *supra*, note 295 for relevant documents. The measure must be complied with by vessels of 10,000 tons gross tonnage and upwards, carrying oil, liquefied gases in bulk or noxious liquid substances falling under categories C or D of MARPOL Annex II. The threshold for ships carrying noxious liquid substances falling under categories A or B of MARPOL Annex II is reduced to 5,000 tons.

<sup>507</sup> For an overview of existing APMs, see Res. MEPC.101(48), *supra*, note 437, Annex 3.

<sup>508</sup> MEPC 48/7, *supra*, note 446, annex, para. 9.7.

<sup>509</sup> MEPC 48/7, *supra*, note 446, annex, para. 5 et seqq.

<sup>510</sup> MSC 78/26/Add.2, *supra*, note 299, annex 22, p. 3.

<sup>511</sup> *Ibid.*

<sup>512</sup> Res. MSC.190(79), *Adoption of Mandatory Ship Reporting System in the Western European Particularly Sensitive Sea Area*, adopted on 6 December 2004.

<sup>513</sup> For an overview, see Res. MSC.190(79), *supra*, note 512, p. 6 et seq.

<sup>514</sup> Res. MEPC.134(53), *supra*, note 458, Annex 2, para. 1 et seqq.; as approved by MSC, cf. MSC 81/25/Add.2, *Report of the Maritime Safety Committee on its Eighty-First Session*, 1 June 2006, Annex 27.

in which vessels of 600 deadweight tonnage and upwards carrying certain oil cargoes must take part.<sup>515</sup> IMO furthermore approved the establishment of four recommendatory ATBAs, two of which are breeding grounds for cetaceans and two are internationally recognised as biosphere reserves.<sup>516</sup> These areas should be avoided by transiting ships carrying oily or other hazardous cargo in bulk.

The *Galapagos Islands PSSA* was designated even before the Assembly decided on a recommendatory ATBA as its APM.<sup>517</sup> The ATBA should be avoided by “[a]ll ships and barges carrying cargoes of oil or hazardous material and all ships of 500 gross tonnage and above solely in transit should avoid the area.”<sup>518</sup> Interestingly, the ATBA’s limits exceed the boundaries of the PSSA.<sup>519</sup> Ecuador expressly referred to the buffer-zone concept of the PSSA Guidelines to justify the extended size.<sup>520</sup> In the initial application to IMO, Ecuador had requested the organisation also to approve a ban on discharges and dumping of any substance, as well as a ban on ballast-water exchange.<sup>521</sup> However, it seems that Ecuador has not followed up the establishment of this particular APM as an IMO measure. Its examination is not mentioned in any of the MEPC documents dealing with the PSSA application.<sup>522</sup> Ecuador’s submission to MSC, and NAV accordingly, may provide an explanation for that. While Ecuador retained its comprehensive bans on discharges, dumping and ballast-water exchange, it lists them as *domestic* measures – applied to both Ecuadorian and third-state ships – designed to support the ATBA’s efficiency.<sup>523</sup> IMO member states, in considering Ecuador’s submission, have probably tolerated this approach, since the geographical scope of application is limited to archipelagic waters and the territorial sea (where Ecuador has sufficient prescriptive competence), as was the case with

<sup>515</sup> CANREP was established by Res. MSC.213(81), *Mandatory Ship Reporting System for the Canary Islands*, adopted on 12 May 2006. For details, see Annex 1 of the Resolution.

<sup>516</sup> Cf. Res. MEPC.134(53), *supra*, note 458, Annex 2, Part B; and MSC 81/25/Add. 2, *supra*, note 514, Annex 28.

<sup>517</sup> Res. A.976(24), *Ships’ Routeing – Establishment of an Area to be Avoided in the Galapagos Archipelago*, adopted on 1 December 2005. Prior to the Assembly’s decision, the ATBA was approved by NAV 51 and forwarded to the Assembly, “as authorized by MSC 80”, cf. NAV 51/19, *supra*, note 223, para. 3.20 et seqq. and 3.48; a draft resolution is contained in Annex 5 of the said report.

<sup>518</sup> Res. A.976(24), *supra*, note 517.

<sup>519</sup> See charts of PSSA and ATBA, MEPC.135(53), *supra*, note 463, Annex 2.

<sup>520</sup> NAV 51/3/4, *Proposal by Ecuador to designate the Galapagos Archipelago as a Particularly Sensitive Sea Area (PSSA)*, 4 March 2005, Annex 5.

<sup>521</sup> These APMs were part of the original application, cf. MEPC 51/8/2, *supra*, note 459, para. 5.3.1.1.

<sup>522</sup> Cf. MEPC 51/22, *supra*, note 148, para. 8.45; The review form of the ITG of MEPC 51 merely examines the ATBA proposal: MEPC 51/WP.9, *supra*, note 192, Annex 2, para. 5.2.

<sup>523</sup> MSC 80/23/7, *Proposal by Ecuador to designate the Galapagos Archipelago as a Particularly Sensitive Sea Area (PSSA)*, 4 March 2005, annex, p. 2; NAV 51/3/4, *supra*, note 520, Annex 10, p. 2.



similar measures in the Sabana-Camagüey Archipelago PSSA.<sup>524</sup> Consequently, there was no discussion on this issue<sup>525</sup> and the final wording of the resolution approving the APM does not refer to anything else but the ATBA. Ecuador has furthermore submitted a proposal for a mandatory SRS (“GALREP”) for ships entering the PSSA to NAV 52<sup>526</sup>, where it received initial approval.<sup>527</sup> It also notified the sub-committee of the establishment of two mandatory TSSs for vessels approaching ports in the Galapagos archipelago.<sup>528</sup>

The *Baltic Sea Area PSSA* is primarily protected by measures that were already in place at the time the area was granted its special status by MEPC. Existing APMs include MARPOL special- area restrictions pursuant to Annexes I, II, V and VI, mandatory SRSs in some parts<sup>529</sup>, several routeing systems and localised compulsory pilotage schemes.<sup>530</sup> As the PSSA application did not include proposals for new APMs, proponents of the PSSA application had promised MEPC that they would come forward with further APMs at a later stage.<sup>531</sup> The 24<sup>th</sup> meeting of the Assembly was able to approve new and amended routeing measures, including several TSSs and accompanying routeing measures; a deep-water route off Gotland Island; and two ATBAs.<sup>532</sup> These measures were already included in the resolution designating the PSSA noting the necessity to gain approval of the assembly. Since several other measures were contemplated for

<sup>524</sup> See above in this section.

<sup>525</sup> NAV 51/19, *supra*, note 223, para 3.20 et seqq.

<sup>526</sup> NAV 52/3/1, *GALREP Mandatory Ship Reporting System for the Galapagos Area to be Avoided and PSSA*, 17 February 2006.

<sup>527</sup> Draft resolution is contained in NAV 52/18, *supra*, note 300, Annex 3. Formal approval will be given by MSC.

<sup>528</sup> NAV 52/3, *Ships' Routeing System for the Galapagos Area to be Avoided and PSSA*, 17 February 2006, annex 2. The sub-committee did not forget to note that Ecuador would be well-advised to submit a proposal for the adoption of these TSSs to IMO to have the measures marked on international charts and included in the GPSR appendix; cf. NAV 52/18, *supra*, note 223, para. 3.22.

<sup>529</sup> For instance, SRS “In the Great Belt Traffic Area”, recently amended by Res. A.978(24), *Amendments to the Existing Mandatory Ship Reporting System “In the Great Belt Traffic Area”*, adopted on 1 December 2005.

<sup>530</sup> For an overview, see MEPC 51/8/1, *supra*, note 377, para. 5.2 et seqq.

<sup>531</sup> In fact, as was mentioned at MSC 80, proponents of the PSSA designation had realised “that proposed Associated Protective Measures had been submitted directly to NAV 51 (NAV 51/3/6), but unfortunately without being submitted to the Committee.” Cf. MSC 80/24, *Report of the Maritime Safety Committee on its Eightieth Session*, 24 May 2005, para. 23.23. MSC instructed and authorised NAV to consider the proposed measures and to forward them directly to the Assembly.

<sup>532</sup> Res. A.977(24), *Ships' Routeing*, adopted on 1 December 2005. A proposal to make the ATBAs mandatory was rejected by MSC and NAV. See, *infra*, sec. V.3. of this chapter. The Assembly also amended the existing mandatory SRS “In the Great Belt Traffic Area”; cf. Res. A.978(24), *Amendments to the Existing Mandatory Ship Reporting System “In the Great Belt Traffic Area”*, adopted on 27 January 2006.

future initiatives<sup>533</sup>, it is highly likely that Baltic Sea riparian states will come forward with further APM proposals in the near future.

### 3. Rejected APMs

While no PSSA application has yet been entirely rejected, some APM proposals have, for different reasons, in fact been turned down. In the following section I shall briefly illuminate the background of these incidents, which have already been mentioned earlier in this treatise. Looking at APMs for which approval was not granted, it is apparent that they were always addressed by a mixture of open opposition and diplomatic compromise.

Rejected APMs encompass Compulsory Pilotage for the Torres Strait PSSA, a single-hull oil tanker ban for the Western European PSSA, “no-discharge areas” for the Sabana-Camagüey Archipelago PSSA, as well as for the Paracas National Reserve PSSA, and mandatory ATBAs for the Baltic Sea Area PSSA. The compulsory pilotage scheme and the single-hull tanker ban were fiercely opposed by those interested in unimpeded freedom of navigation. Despite opposition at MEPC 49, the former proposal was upheld by Australia and Papua New Guinea to have it scrutinised by both MSC and NAV. On this occasion, it became apparent that neither proponents nor opponents of the measure would give up their positions. Hence, it was informally agreed to consent to “strong recommendation” of the instrument. In notable difference, the latter proposal was withdrawn at the same MEPC session at which it was proposed.<sup>534</sup> By threatening unilateral enforcement of the ban, proponents of the application brought IMO member states to agree to tougher global MARPOL regulations addressing the phase-out of single-hull tankers. Since they had achieved an adequate substitute, proposing states felt able to withdraw their APM proposal.

Two mandatory APMs were proposed for the Baltic Sea Area PSSA, both of which would have been located in the Swedish EEZ. It was jointly proposed by all proponents of the Baltic Sea Area PSSA, who argued for approval because of the exceptional sensitivity of the two areas.<sup>535</sup> Despite information assembled for the

<sup>533</sup> Cf. MEPC 51/8/1, *supra*, note 377, para. 5.10 et seqq. Environmental NGOs have also suggested further APMs, cf. MEPC 51/8/5, *Designation of the Baltic Sea area as a PSSA – Comments on Document 51/8/1*, 6 February 2004, submitted by WWF; and MEPC 51/8/6, *Comments on the submission by Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland and Sweden*, 6 February 2004, submitted by Greenpeace International. Refer furthermore to plans pronounced by Poland, NAV 52/Inf.5, *Information about planned new routeing measures in the southern part of the Baltic Sea*, 12 May 2006.

<sup>534</sup> It should be noted that the proposal may have been based on a single-hull tanker ban, which was contemplated for application in the GBR PSSA, see Peter Ottesen, Stephen Sparkes and Colin Trinder, *supra*, note 119, p. 521.

<sup>535</sup> NAV 51/3/6, *New traffic separation schemes in Bornholmsgat and North of Rügen, recommended deep-water route in the eastern Baltic Sea, amendments to the traffic separation schemes Off Gotland Island and South of Gedser and new areas to be avoided at Hoburgs Bank and Norra Midsjöbanken*, 8 June 2005, para. 23 et seqq. Note

proposal, NAV's Working Group on Ships' Routeing and Related Matters merely held "that the proposal did not justify the establishment of such areas."<sup>536</sup> The sub-committee approved results of the WG without further comment.<sup>537</sup> Sweden, on behalf of the sponsors of the APM proposal, offered to come back with more information in support of the need to attach binding force to the routeing measures.<sup>538</sup> Apparently this did not happen at NAV 52 in June 2006.

Cuba's and Peru's proposal to have their PSSAs designated as "no-discharge areas" have been dealt with in a slightly different way. As regards the Cuban proposal, MEPC 42 did not forward the proposal to any other committee because it agreed to interpret the proposed ban as being in line with relevant MARPOL regulations after the Bahamas, in particular, objected to some of the rules.<sup>539</sup> By accepting this approach, Cuba's rules may have less force than was envisaged. Peru's proposal to prohibit any kind of discharge from ships within the sea area of the reserve, "including discharge of sewage and waste"<sup>540</sup> was examined at MEPC 48.<sup>541</sup> The IWG, after reviewing the proposal, contended that "the information provided was not sufficient to justify the approval of such an area at this session of the Committee."<sup>542</sup> There was no further submission of Peru on this matter at MEPC 49 or any of the following sessions. Peru had probably realised that the proposal had no chance of being approved.

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that in so doing, sponsoring states identified areas of *particularly sensitivity* within a *Particularly Sensitive Sea Area*. This conduct and its impact on the PSSA concept as a whole will be examined, *infra*, in Sec. II.1.a) of Chapter 11.

<sup>536</sup> NAV 51/WP.2, *Report of the Working Group*, 8 June 2005, para. 8.11.

<sup>537</sup> NAV 51/19, *supra*, note 223, para. 3.51.

<sup>538</sup> *Ibid*, para. 3.50.

<sup>539</sup> See Kristina M. Gjerde, *supra*, note 351, p. 418. The same procedural approach was deployed with respect to a comprehensive discharge and dumping ban in the Galapagos PSSA. However, no state had voiced any concerns with respect to the Ecuadorian proposal before.

<sup>540</sup> MEPC 48/7, *supra*, note 446, annex, para. 6.

<sup>541</sup> See MEPC 48/WP.14, *Report of the Informal Working Group*, 10 October 2002.

<sup>542</sup> MEPC 48/21, *Report of the Marine Environment Protection Committee on its Forty-Eighth Session*, 24 October 2002, para. 7.8.4.

#### 4. Particularly Sensitive Sea Areas – Overview

Particularly Sensitive Sea Area	Date approved	Associated Protective Measures
Great Barrier Reef (Australia)	16 November 1990	Compulsory Pilotage (inner route) Recommended Pilotage (outer route) Mandatory Ship Reporting System
Torres Strait (Australia and Papua New Guinea)	2 July 2005	Recommended Pilotage Scheme Recommended Two-Way Route Mandatory Ship Reporting System
Sabana-Camagüey Archipelago (Cuba)	25 September 1997	MARPOL Annex V Special Area Recommended ATBA Two recommended Traffic-Separation Schemes
Malpelo Island (Colombia)	10 October 2002	Recommended ATBA
Florida Keys (Florida)	10 October 2002	Four recommended ATBAs Three mandatory No-Anchoring Areas
Wadden Sea (The Netherlands, Germany, Denmark)	11 October 2002	MARPOL Annex I and V Special Area Several recommended TSSs Mandatory Deep-Water Route Several Vessel Traffic Services Voluntary Deep-Sea Pilotage Scheme
Paracas National Reserve (Peru)	18 July 2003	Four recommended Traffic-Separation Schemes Recommended ATBA
Western European Waters (Portugal, Spain, France, Belgium, UK, Ireland)	15 October 2004	Several recommended Traffic-Separation Schemes and Vessel-Traffic Services Several recommended ATBAs Several recommended Deep-Water Routes Mandatory Ship Reporting System (WETREP)
Canary Islands (Spain)	22 July 2005	Three recommended Traffic Separation Schemes (with precautionary areas and inshore traffic zones) Mandatory Ship Reporting System Four recommended ATBAs
Galapagos Islands (Ecuador)	22 July 2005	Mandatory Ship Reporting System Several mandatory Traffic Separation Schemes Recommended ATBA
Baltic Sea Area (Denmark, Germany, Poland, Latvia, Lithuania, Estonia, Finland, Sweden)	22 July 2005	MARPOL Annex I, II, and V Special Area SO <sub>x</sub> Emissions Control Area Localised mandatory Ship Reporting Systems Several recommended Traffic Separation Schemes Recommended Deep-Water Route Localised recommended pilotage schemes

## **Part 4: The PSSA Concept – Analysis and Assessment**

In the light of the broader ecological and legal context explored in Part 2, the final part of this treatise is devoted to an in-depth analysis of the PSSA model, in particular IMO's guidelines and the range of associated protective measures. I will focus on three main issues. First, the PSSA notion shall be compared with other international legal regimes introduced in Chapter 5. Secondly, I shall emphasise the implications of PSSAs for coastal-state jurisdiction on vessel-source pollution in the territorial sea, the EEZ, as well as on the high seas. Thirdly, I will attempt to examine to what extent a PSSA is a progressive environment protection tool and whether it may need to be revised to continue to be an innovative concept in the light of recent challenges it has faced.

### **Chapter 9: Comparison between PSSAs and other Regimes in International Law**

This chapter aims to examine the relationship between the PSSAs and other concepts in international law for the protection of vulnerable marine areas. My intention is to examine to what extent the PSSA regime is unique. An accompanying question is if and how the different regimes may effectively combined. This endeavour should not only lead to theoretical systematisation – as this is not a means to an end – but moreover increase the appreciation of the PSSA concept's peculiarities.

#### **I. Protecting Vulnerable Marine Areas in International Law: Synopsis**

As has become apparent in Chapter 5, several multilateral treaties, expanding on the current law of the sea-governance framework, provide for the protection of vulnerable marine areas. In two further chapters (7 and 8), I have highlighted the main aspects of IMO's PSSA concept. It is the purpose of the following section to explore how and to what extent this concept is distinguished from other regimes.

##### **1. Particularities of Protective Regimes**

Whereas Chapter 5 generally introduced the various regimes within their legal, environmental and political contexts, the following section will focus on three

specific issues in a comparative manner.<sup>1</sup> First, institutional responsibilities and designation procedures; second, ecological criteria and other prerequisites that an area has to meet in order to qualify for protection under the instrument; and third, potential protective measures employed and enforced against foreign vessels. References to the Nairobi SPA Protocol are omitted, as to date its contracting parties have not adopted any instrument specifying criteria for the selection and establishment of MPAs or MPA networks.

### **a) Procedural Issues**

In focussing on procedural matters and, in particular, institutional competence in approving protective status, attention should be given to the type of entity that is responsible for administering the procedure and the manner in which the designation is formally carried out.

As has been detailed in the previous chapters<sup>2</sup>, following a proposal by one or more of its member states, the Marine Environment Protection Committee (MEPC) of IMO considers the overall and, in particular, the scientific aspects of a PSSA proposal. The latter are pre-examined in a technical group (TG), which is established by MEPC for this purpose. The outcome is usually affirmed by the committee but may be modified for reasons of a political nature. APMs are considered within the appropriate committee of IMO, which can be MEPC itself. The designation is adopted as a resolution by MEPC. APMs are mentioned in the resolution, but are formally adopted in separate resolutions by the respective organ of IMO.

Because MARPOL is an instrument administered by IMO, the designation of MARPOL special areas very much resembles the PSSA designation procedure.<sup>3</sup> Special-area status must be sought by one or more parties to MARPOL. The proposed amendment to the respective annex of MARPOL is considered within the MEPC of IMO, which acts as a meeting of the parties to the MARPOL convention. The TG responsible for examining PSSA proposals also deals with special-area proposals. Parties to MARPOL approve the designation by way of amending the respective annex. Using the tacit acceptance procedure<sup>4</sup>, it automatically enters into force at a date specified by MEPC unless one third of the parties or parties representing more than 50 per cent of the gross tonnage of the world's merchant fleet expressly object.<sup>5</sup> The same procedure applies to SECAs.

Wetlands under the Ramsar Convention are designated by inclusion in the "List of Wetlands of International Importance", maintained by the Ramsar Convention Bureau. While the COP is allowed to discuss sites proposed for listing, inclusion in the list is solely based on the contracting party's decision to do so.<sup>6</sup> World

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<sup>1</sup> In this comparative section, reference to treaties and protocols will only be made in short form. Full sources are to be found in Chapter 5.

<sup>2</sup> Cf. Sec. II.5. of Chapter 7.

<sup>3</sup> A detailed account of the procedure is given, *supra*, in Sec. I.1.a)aa) of Chapter 5.

<sup>4</sup> On the tacit-acceptance procedure, see, *supra*, Sec. III.1. of Chapter 6.

<sup>5</sup> Cf. Art. 16(f) of MARPOL.

<sup>6</sup> Cf. Sec. I.2. of Chapter 5.

Heritage Sites are also designated by inclusion in a list (the World Heritage List), established and administered by the World Heritage Committee<sup>7</sup>, which consists of twenty-two states. However, in contrast to the Ramsar Convention, proposals by individual states are subject to scientific review. Once submitted to the Secretariat, they are forwarded – in the case of a proposed *natural* heritage site – for original examination to IUCN, that is assigned with carrying out a thorough, year-long evaluation process.<sup>8</sup> Its recommendations are reviewed at the annual session of the World Heritage Committee. Immediately following the Committee meeting, the Secretariat gives notification to the proposing states and distributes an updated World Heritage List.<sup>9</sup>

For marine areas to be designated as a so-called SPA under the Kingston SPAW Protocol<sup>10</sup>, an elaborate procedure needs to be followed. SPAs are included in a list maintained by the Caribbean Environment Programme (CEP) of UNEP.<sup>11</sup> The listing procedure is governed by Article 7(3) of the SPAW Protocol. First of all, a contracting party has to nominate a site to be included in the list. This submission has to be carried out in accordance with the guidelines and criteria adopted by the parties pursuant to Article 21<sup>12</sup> and must include supporting documents in accordance with Article 19(2). Every site is subsequently evaluated against the scientific criteria by the Scientific and Technical Advisory Committee (STAC).<sup>13</sup> It advises the CEP accordingly. CEP passes on the recommendation to the MOP that, in the event, has to approve inclusion of the nomination in the list of protected areas.

As for SPAMIs under the Barcelona Protocol, the body responsible for governing the selection process is the Regional Activity Centre for Specially Protected Areas (RAC/SPA), created within UNEP.<sup>14</sup> Parties making proposals for the inclusion of sites in the list have to submit all relevant information on the area, including its geographical features and its legal status.<sup>15</sup> The Centre then forwards

<sup>7</sup> Cf. Sec. I.3. of Chapter 5.

<sup>8</sup> For details, see IUCN, “The IUCN Process for Evaluating World Heritage Nominations”, available from <<http://www.iucn.org/themes/wcpa/wheritage/nomination.htm>>; (accessed on 30 September 2006).

<sup>9</sup> For the procedure, see para. 144 et seqq. of the Operational Guidelines. A comprehensive timetable is produced at para. 168.

<sup>10</sup> See further, *supra*, Sec. II.1. of Chapter 5.

<sup>11</sup> CEP is known as the “Organisation”, a term used throughout the Cartagena Convention and its protocols, cf. Art. 2(2) of the convention.

<sup>12</sup> Those were adopted in 1996, cf. Caribbean Environment Programme, *Common Guidelines and Criteria for Protected Areas in the Wider Caribbean Region: Identification, Selection, Establishment and Management*, published as CEP Technical Report No. 37; available from <<http://www.cep.unep.org/pubs/Techreports/tr37en/content.html>>; (accessed on 30 September 2006).

<sup>13</sup> According to Art. 20(2) of the SPAW Protocol, each party is to nominate a scientific expert as its representative on the STAC.

<sup>14</sup> In abbreviated form referred to as the Centre; cf. Art. 1 lit. (i) of the Barcelona Protocol and Art. 17 of the Barcelona Convention.

<sup>15</sup> Art. 9 of the Barcelona Protocol.

these documents to the National Focal Points<sup>16</sup> for an assessment of the application. As has been outlined in Section II.2 of Chapter 5, the consequences of the Focal Points' assessment differ depending on the location of the site. With respect to sites wholly within areas over which parties to the protocol exercise jurisdiction, the MOP does not have any margin of appreciation to deviate from the assessment's outcome. In all other cases, the MOP is free to adopt any decision it considers appropriate.

Many MPAs in the Baltic Sea had already been included in the BSPA network when it was set up by HELCOM Recommendation 15/5 in 1994. However, HELCOM, which is comprised of plenipotentiaries of parties to the Helsinki Convention, is working towards the inclusion of further sites in the network.<sup>17</sup> Applications for designation may be received from contracting parties, which have to take account of the requirements set by paragraph 7 of the Guidelines for Designating Marine and Coastal Baltic Sea Protected Areas (BSPA) and Proposed Protection Categories.<sup>18</sup> Upon the decision of HELCOM, the proposed area is included in the BSPA network. Similarly, within the OSPAR Convention's regime, the OSPAR Commission oversees the designation process. States, individually or jointly, may apply for areas to be designated as an OSPAR MPA by using a set form.<sup>19</sup> Candidate sites may also be presented by governmental and non-governmental organisations that have observer status within the OSPAR Commission.<sup>20</sup> The selection procedure consists of two stages. In the first stage, ecological criteria<sup>21</sup> are applied to identify all areas that qualify as components of the OSPAR network of MPAs. A second stage tries to prioritise areas by applying "practical criteria"<sup>22</sup>, taking account of the fact that some areas lack the support of interested parties, as well as political acceptance. Assistance in this process is provided by the Commission's Biodiversity Committee and its WG on Marine

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<sup>16</sup> Established pursuant to Art. 24 of the Barcelona Protocol.

<sup>17</sup> HELCOM Rec. 15/5 was aware of the need to expand the network. Lit. b reads: "[...] Special attention shall be paid to including additional coastal terrestrial areas and to including marine areas outside the territorial waters. To reach this aim, the Contracting Parties shall jointly and individually take all necessary steps. Appropriate guidelines for the selection of further areas shall be elaborated by the expert working group EC NATURE [...]"

<sup>18</sup> Guidelines for Designating Marine and Coastal Baltic Sea Protected Areas (BSPA) and Proposed Protection Categories, adopted by the meeting of the heads of delegation, 25-26 March 2003, available from <[http://www.helcom.fi/Recommendations/guidelines/en\\_GB/guide15\\_5/](http://www.helcom.fi/Recommendations/guidelines/en_GB/guide15_5/)>; (accessed on 30 September 2006)

<sup>19</sup> This form is to be found in Appendix 3 of OSPAR Agreement 2003-17, *Guidelines for the Identification and Selection of Marine Protected Areas in the OSPAR Maritime Area*, adopted on 27 June 2003.

<sup>20</sup> For instance, WWF proposed to designate a hydrothermal vent field off the Azores as an OSPAR MPA, cf., *infra*, Sec. III.1. of Chapter 10, in note 182. Organisations possessing observer status are listed at <<http://www.ospar.org/eng/html/omou/welcome.html>>; (accessed on 30 September 2006).

<sup>21</sup> Listed in OSPAR Agreement 2003-17, *supra*, note 19, Appendix 1.

<sup>22</sup> Cf. *ibid.*, Appendix 2.



Protected Areas, Species and Habitats (MASH). The final decision is taken by the OSPAR Commission at its annual meeting.

ASPAs in the Antarctica may be proposed by any party to the protocol, the Committee for Environmental Protection<sup>23</sup>, the SCAR or the CCAMLR.<sup>24</sup> This is done by submission of a proposed management plan to the ATCM, because these plans form the basis for all activities relating to the protection and management of the ASPA, including the granting of permits. Proposed management plans are subsequently forwarded to the Committee for Environmental Protection, the SCAR “and, as appropriate, to the [CCAMLR].”<sup>25</sup> The latter two may give advice to the Commission on Environmental Protection, which in turn advises the ATCM. It must be noted that with respect to *marine* areas, Article 6(2) strengthens the position of CCAMLR, insofar as its approval rather than mere advice is required. If adopted by a recommendation of the ATCM, a management plan is deemed to be accepted 90 days after the close of the ATCM session, unless one or more parties object.

### **b) Criteria and Prerequisites for Protection**

This section is intended to take a closer look at the various instruments with respect to criteria that expert bodies are to apply when assessing marine areas proposed for inclusion in the regime, including the extent to which additional prerequisites may alter findings derived from ecological necessities. It may be recalled that an area, in order to be designated as a PSSA, has to meet at least one of several *ecological* criteria (or socio-economic or scientific criteria).<sup>26</sup> Further requirements are related to the vulnerability of the area to impacts from international shipping as well as to hydrographical, meteorological and oceanographic factors.

Proposals for special areas under MARPOL have to fulfil oceanographic and ecological conditions and must feature specific vessel traffic characteristics.<sup>27</sup> Oceanographic conditions are defined as those causing “the concentration or retention of harmful substances in the waters or sediments of the area” and include, *inter alia*, “particular circulation patterns or temperature or salinity stratification.”<sup>28</sup> Ecological conditions must indicate that protection of the area from harmful substances is needed to preserve, amongst others, “depleted, threatened or endangered marine species”, “rare or fragile ecosystems such as coral reefs, mangroves, seagrass beds and wetlands” and “critical habitats for marine resources including fish stocks and/or areas of critical importance for the support of

<sup>23</sup> Established by virtue of Art. 11 of the Protocol to the Antarctic Treaty.

<sup>24</sup> Art. 5(1) of Annex V to the Protocol.

<sup>25</sup> Art. 6(1) of Annex V to the Protocol.

<sup>26</sup> See, *supra*, Sec. II.1. of Chapter 7.

<sup>27</sup> Cf. para. 2.3 of Res. 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*, adopted on 29 November 2001, Annex 1.

<sup>28</sup> *Ibid.*, para. 2.4.

large marine ecosystems.”<sup>29</sup> As for the vessel traffic characteristics, the traffic must be so intensive that even when all vessels navigating in the area conform to MARPOL’s standard regulations, the impact of discharges of harmful substances “would be unacceptable in the light of the existing oceanographic and ecological conditions.” All three criteria have to be met cumulatively by a proposed special area. As has been outlined in Chapter 5<sup>30</sup>, MEPC may consider additional issues, such as threats to amenities, influences of land-based sources of pollution to the integrity of the area and the existence of management regimes. Due to the particular approach of MARPOL, special-area status can be granted if adequate reception facilities are provided for ships. SECAs pursuant to MARPOL Annex VI have a vague basic requirement, inasmuch as they need to be “supported by a demonstrated need to prevent, reduce, and control air pollution from SO<sub>x</sub> emissions from ships.” Nevertheless, two further requirements may amount to a considerably high threshold.<sup>31</sup> First, proposing states need to demonstrate that they have in place measures that effectively reduce SO<sub>x</sub> emissions from land-based sources. Secondly, the costs for implementing the SECA requirements need to be taken into account, together with the economic impacts on international shipping.

For listing areas in the Ramsar List of Wetlands of International Importance, the COP has developed “Criteria for the designation of Wetlands of International Importance”.<sup>32</sup> There are two broad categories of criteria: sites containing representative, rare or unique wetland types (criterion 1); and sites of international importance for conserving biodiversity (criteria 2-9). The latter group is divided into criteria based on species and ecological communities (criteria 2-4) and specific criteria based on waterbirds, fish and other taxa respectively (criteria 5-8). Criteria 2-4 focus on areas that support rare and endangered types of habitat, flora or fauna and thereby resemble the “critical habitat” criterion of the PSSA Guidelines, whereas criteria 5-8 do not have an equivalent in the guidelines. Reflecting the approach of the Convention, which leaves identification and assessment of candidate sites up to the individual states, each of the nine criteria is supplemented by guidelines for their application, detailing considerations that should be given priority when assessing a proposed site against a specific criterion. To grant further assistance in the process, long-term targets are set out for each of the criteria.

According to the purpose of the World Heritage Convention, criteria for areas to be put on the World Heritage List address the protection of outstanding universal value.<sup>33</sup> With respect to environmental protection, subparagraphs (ix) and

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<sup>29</sup> *Ibid.*, para. 2.5.

<sup>30</sup> Sec. I.1.a)aa) of Chapter 5.

<sup>31</sup> Cf. criticism noted in Sec. I.1.b) of Chapter 5.

<sup>32</sup> Ramsar Convention Secretariat, *Strategic Framework and Guidelines for the Future Developments of the List of Wetlands of International Importance of the Convention on Wetlands*, Third Ed. (2006), available from <[http://www.ramsar.org/key\\_guide\\_list\\_2006\\_e.pdf](http://www.ramsar.org/key_guide_list_2006_e.pdf)> (accessed on 30 September 2006), para. 55 et seqq.

<sup>33</sup> Doc. WHC.05/2, *Operational Guidelines for the Implementation of the World Heritage Convention*, 2 February 2005, available from <[http://whc.unesco.org/archive/opguide\\_05-en.pdf](http://whc.unesco.org/archive/opguide_05-en.pdf)>; (accessed on 30 September 2006), para. 77.

(x) are of particular importance. They require areas to “be outstanding examples representing significant ongoing ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals” or to “contain the most important and significant natural habitats for in-situ conservation of biological diversity [...]” Echoing this strict approach, the operational guidelines furthermore stipulate that for an area to be listed it must also “meet the conditions of integrity and/or authenticity” and must have in operation an adequate management system.<sup>34</sup> To meet the integrity requirement, sites proposed under criterion (ix), should have “sufficient size and contain the necessary elements to demonstrate the key aspects of processes that are essential for the long-term conservation of the ecosystems and the biological diversity they contain.”<sup>35</sup> Sites proposed under criterion (x) only meet the requirement if they are the most biologically diverse with respect to “the bio-geographic province and ecosystems under consideration.”<sup>36</sup> Even though the PSSA Guidelines urge proposing states to consider whether a proposed PSSA may also be included in the World Heritage List<sup>37</sup>, formulation of the criteria for world natural heritage sites appear to be much stricter in their emphasis on the “most important and significant natural habitats.”<sup>38</sup>

The basic criteria for SPAs under the Kingston Protocol are laid down in Article 4 of the protocol and have been fleshed out by guidelines adopted by the MOP.<sup>39</sup> Based on these criteria, the guidelines envisage a two-step approach of identification and selection. For the identification of potential SPAs, the guidelines state that “the most important factors to be used in identifying protected areas are significance, representativeness and feasibility.”<sup>40</sup> Even though these terms are spelled out in some detail, the exact relationship to the criteria of Article 4 remains unclear. In practice, “significance” and “representativeness” are likely to guide parties in prioritising their proposals. The “feasibility” criterion arguably constitutes a corrective to extensive designation practices, because it lists several factors that would complicate designation procedures, such as land ownership, ancestral rights and economic interests in the area.<sup>41</sup> For the selection of candidate areas, governments should, first of all, ensure that SPAs have the support of their potential constituents.<sup>42</sup> They are furthermore asked to apply a wide range of biological criteria for selecting their sites. Although these criteria, factors and requirements already amount to a considerable accumulation of issues to be considered, the guidelines contain additional sections on the identification of priority

<sup>34</sup> *Ibid.*, para. 78. Details on authenticity and integrity are spelled out in para. 79 et seqq. and para. 87 et seqq, respectively.

<sup>35</sup> *Ibid.*, para. 94.

<sup>36</sup> *Ibid.*, para. 95.

<sup>37</sup> Para 6.2 of the PSSA Guidelines.

<sup>38</sup> For current developments indicating that World Heritage Sites could be notified to IMO for protection by APMs against shipping threats, see, *infra*, Sec. II.2. of this chapter.

<sup>39</sup> Caribbean Environment Programme, *supra*, note 12.

<sup>40</sup> *Ibid.*, para. 20.

<sup>41</sup> *Ibid.*, para. 27.

<sup>42</sup> *Ibid.*, para. 36.

areas<sup>43</sup> and – in Appendix IV – “factors or criteria that can be used” when deciding upon the establishment of an SPA. Since the guidelines lack adequate allocation of these sections to specific steps within the designation procedure, the wide array of criteria used in the guidelines may turn out to be a mixed blessing and arguably lead to eclectic decision-making.

The designation of SPAMIs under the Barcelona Protocol is guided by so-called Common Criteria that parties have agreed to.<sup>44</sup> Generally, “the conservation of the natural heritage is the basic aim that must characterise a SPAMI.”<sup>45</sup> SPAMIs must therefore fulfil at least one of the general criteria set out in Article 8(2) of the Protocol.<sup>46</sup> More specific scientific/ecological criteria, such as uniqueness, diversity and naturalness are to be found in paragraph B(2) of the Common Criteria. Additionally, each area – to be eligible for inclusion in the SPAMI List – must have particular value for either scientific research or environmental education/awareness-raising.<sup>47</sup> Several additional requirements are enumerated that “should be considered as favourable for the inclusion of the site in the list”, e.g. the existence of integrated coastal management plans.<sup>48</sup>

With respect to the designation of BSPAs, the underlying guidelines<sup>49</sup> set out very broad terms in the light of the aims of the BSPA network “to conserve biological and genetic diversity and to protect ecological processes.” Areas may be considered for proposal if they boast a high biodiversity, critical habitats, or “rare or unique or representative geological or geomorphological structures or processes.”<sup>50</sup> Potential areas must be characterised by a high degree of naturalness and representativeness for a Baltic Sea (sub-)region and must be free from pollution to a large extent. Their minimum size is set at 3000 ha. Criteria for the designation of Ospar MPAs are contained in the Guidelines for the Identification and Selection of Marine Protected Areas in the OSPAR Maritime Area.<sup>51</sup> Their division into “Ecological Criteria/Considerations” (Appendix 1) and “Practical Criteria/Considerations” (Appendix 2) resembles the approach of the Kingston SPAW Protocol. However, practical considerations, such as the degree of acceptance and the potential success of management measures, should not be used to exclude sites from being submitted from the designation procedure, but to develop a prioritised list of those areas whose designation is less contentious and easier to implement. Finally, ASPAs should generally be designated “to protect outstanding

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<sup>43</sup> *Ibid.*, para. 49 et seqq.

<sup>44</sup> Cf. Barcelona Protocol, Annex I, *Common Criteria for the Choice of Protected Areas that could be Included in the SPAMI List*.

<sup>45</sup> Common Criteria, para. A lit. a.

<sup>46</sup> The general criteria relate to (1) the importance for conserving the Mediterranean biodiversity; (2) specific Mediterranean ecosystems; and (3) special scientific, aesthetic, cultural or educational values.

<sup>47</sup> *Ibid.*, para. B(3).

<sup>48</sup> *Ibid.*, para. B(4).

<sup>49</sup> See, *supra*, note 18.

<sup>50</sup> *Ibid.*, para. 2.2.

<sup>51</sup> See, *supra*, note 19.

environmental, scientific, historic, aesthetic or wilderness values.”<sup>52</sup> In line with this general provision, criteria for the designation of ASPAs contained in Article 3(2) do not only include biodiversity-related criteria, but also references to sites of aesthetic, wilderness and historical value. Furthermore, a “catch-all” provision relating to “the values set out in paragraph 1”<sup>53</sup> makes clear that the enumeration of criteria is not exhaustive.

### c) Availability and Enforcement of Protective Measures

In the third part of this section, I would like to highlight the availability, implementation and enforcement of protective measures that the different instruments allow for. Of course, with respect to the scope of this study, the account is focused on measures that can be deployed to prevent harm to the environment caused by vessels navigating in or near respective areas. As this issue has already been dealt with in Chapter 5, I shall summarise the main findings here and put them into context.

As has been mentioned in Chapter 8, PSSAs can be protected by a wide range of measures, such as navigational aids, discharge restrictions and CDEM standards. These measures may be adopted according to conventions and other legal instruments governed by IMO. Because the PSSA Guidelines also allow for protective measures whose legal basis is either Article 21 or 211(6) of UNCLOS, it is possible to tailor specific measures for addressing threats to the area. Enforcement rests with either the flag state or the coastal state, depending on the maritime zone the vessel is navigating in and the degree of its wrong conduct.<sup>54</sup>

In contrast, protective measures in MARPOL special areas are confined to discharge restrictions that – depending on the annex in which the special area is listed – are limited to oil, noxious liquid substances or litter respectively. Enforcement is done by both flag states and port states. The rights of the latter include inspections of vessels that voluntarily call at one of their ports to ensure compliance with MARPOL regulations. By having established networks of port-state controls, port states in various areas of the world have joined forces to ensure effective enforcement of, *inter alia*, special-area discharge restrictions. Because MARPOL regulations constitute “generally accepted international rules and standards”, they have to be complied with by all vessels regardless of the flag they are flying. Implementation and enforcement of SECA rules is similar, albeit complicated by the fact that the number of parties is still too low to consider it being part of generally accepted international rules and standards.<sup>55</sup>

The Ramsar Convention’s “wise use” obligation creates duties primarily aimed at domestic legislators and domestic enforcement authorities. As has already been

<sup>52</sup> Art. 3(1) of Annex V to the Madrid Protocol.

<sup>53</sup> Art. 3(2) lit. (i) of Annex V to the Madrid Protocol.

<sup>54</sup> Whether enforcement competencies as laid down in UNCLOS Part XII are modified by the PSSA regime will be addressed, *infra*, in Sec. II.1. and II.2.b) of Chapter 10.

<sup>55</sup> To foster compliance of vessels, port states that border SECAs may provide reception facilities for exhaust-gas cleaning-system residues and adequate amounts of low-sulphur fuel; cf. Regulation 17 of MARPOL Annex VI.

mentioned in Chapter 5, the convention's provisions do not provide any competences for coastal states to prohibit shipping in or adjacent to Ramsar sites; other contracting parties are merely obliged to ensure that ships flying their flag do not actively violate the integrity of the Ramsar sites. The same applies to sites listed on the World Heritage List – its regime is primarily directed at domestic uses and merely ensures that contracting parties prohibit potentially damaging “deliberate measures” by their ships on other parties' territory.

As for the regional instruments allowing for protected areas to be designated, they either envisage certain protective measures (Kingston SPAW Protocol, Barcelona Protocol, OSPAR Convention, Protocol on Environmental Protection to the AT), whose implementation is subject to non-interference with the freedom of navigation as reflected in UNCLOS, or they completely rely on extra-conventional protective measures to pursue their conservation aims, such as the BSPA regime.<sup>56</sup> None of the instruments even seeks to test the limits of UNCLOS Part XII.

## 2. Comparative Remarks

The account given above shows to what extent the PSSA concept is similar to other instruments aiming at the protection of marine ecosystems – and how it differs and stands out. It may be noted that procedural provisions in the PSSA Guidelines dealing with the examination and designation of proposed PSSAs provide for a thorough scientific review that resembles procedures of all other instruments with the notable exception of the Ramsar Convention. Even though IMO is not assisted by a truly independent organisation, such as IUCN, the expertise cumulated within MEPC and its technical groups in the review process satisfies requirements for a thorough scientific assessment procedure.<sup>57</sup>

With respect to criteria and prerequisites that marine areas have to meet in order to qualify for being designated as an MPA, it would not make much sense to compare the various factors in every detail. In fact, all regimes – to varying extents and tailored in the light of their respective purpose – build upon the scientific criteria developed by IUCN<sup>58</sup> for the identification of MPAs, including

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<sup>56</sup> Enforcement and protection measures cannot be derived from an area being designated as a BSPA but only from its protection under other regimes, cf. Guidelines for Designating Marine and Coastal Baltic Sea Protected Areas (BSPA) and Proposed Protection Categories, *supra*, note 18, para. 1.1 and 1.2. In addition, the Guidelines for Management of Baltic Sea Protected Areas do not list shipping as “activities and threats [that] should be regulated”. See HELCOM HABITAT 5.2/8, *Guidelines for Management of Baltic Sea Protected Areas*, adopted on 12 October 2005, available from <[http://www.helcom.fi/Recommendations/guidelines/en\\_GB/guidel\\_15\\_5\\_mgt/](http://www.helcom.fi/Recommendations/guidelines/en_GB/guidel_15_5_mgt/)>; (accessed on 30 September 2006), para. 6. In fact, by having the Baltic Sea (almost completely) designated as a PSSA, member states of the Helsinki Convention have set the stage for protecting BSPAs by specifically tailored APMs.

<sup>57</sup> This view is supported by the observation that MEPC has so far turned down PSSA proposals only on the grounds of insufficient information; cf., *supra*, in Sec. V.1. of Chapter 8 (last paras.). Well-documented proposals have always been approved so far.

<sup>58</sup> See, *supra*, Sec. II.1. of Chapter 3.

uniqueness, representativeness and the existence of fragile ecosystems.<sup>59</sup> Whether the actual regime specifies the basic scientific prerequisites in seven, nine or twelve criteria is not important from a legal point of view. It should be noted that other regimes do not include any criterion that would add vigour to the protection of PSSAs. However, some regimes particularly aim to develop objective-based networks, including the Barcelona and the Helsinki Convention. In these particular regimes, areas are predominantly designated with a view to being included in the network. Within the PSSA regime, no emphasis is placed on the notion of MPA networks, either in the criteria for selection or in its provisions on management and enforcement. An additional significant fact is that, in contrast to the PSSA Guidelines, two instruments, the OSPAR MPA Guidelines and the implementation rules of the Kingston SPAW Protocol, expressly allow for the consideration of so-called practical criteria. While this arguably constitutes a pragmatic approach, there is a danger that environmental aims are spoilt by overemphasising aspects that are inherently contentious in most, if not all, conservation endeavours.

Obviously, the PSSA Guidelines and the MARPOL Special Area Guidelines are unique in their focus on threats posed by shipping activities. Under both instruments, areas that meet the scientific criteria do not qualify for designation unless their proposal is corroborated by evidence concerning the danger of being harmed by the impact of shipping activities. Nevertheless, as far as the individual areas' design is concerned, PSSAs and MARPOL special areas differ, even though PSSAs may be identified in MARPOL special areas and *vice versa*. In line with a progressive zoning approach, the PSSA Guidelines, contrary to the MARPOL Special Area Guidelines allow for designated areas to consist of a core area, or several core areas, alongside a surrounding buffer zone.<sup>60</sup> The buffer-zone concept, deployed in a similar manner by, amongst others, the biosphere reserve regime, aims to reconcile human activities and environment protection concerns to the furthest possible extent by promoting sustainable development in areas adjacent to the core area. Buffer zones do not necessarily meet the requirements to be protected under the terms of the instruments, but may be covered by the geographical scope of protective measures if this contributes to the protection of the core area.

As far as protective measures are concerned, it should be noted that the PSSA concept's regulatory approach allows it to be flexible in meeting the specific threat patterns triggered by vessels in a particular area. This observation is probably all too obvious, since the PSSA concept has been deliberately designed to address environmental problems related to shipping activities. It is thus hardly surprising that only MARPOL special area and SECA standards can be applied to foreign vessels in the same manner. While at least some regional instruments at least

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<sup>59</sup> Cf. Gerold Janssen, *Die rechtlichen Möglichkeiten der Einrichtung von Meereschutzgebieten in der Ostsee* (Baden-Baden: Nomos-Verlag 2002), p. 80. Note that the World Heritage Convention's focus on (heritage) value is strikingly different and arguably represents an outdated approach. On the four phases in the development of objectives for the protection of specific marine areas, see, *supra*, Sec. I.2. of Chapter 3.

<sup>60</sup> PSSA Guidelines, para. 6.3.

notify ships as a potential source of peril for marine ecosystems (and, consequently, as a potential object to be addressed by protective measures), none of them includes any reference to specific measures that might lawfully be taken under international law in those areas that are within the coastal states' jurisdiction. In addition, as I have already stressed in my concluding remarks in Chapter 5, none of the instruments provides for utilising Article 211(6) of UNCLOS to strive for the international approval of certain measures against foreign ships. Two further issues should finally be highlighted. First, most regimes – MARPOL, the Barcelona SPAMI Protocol and the OSPAR Convention – allow for application in areas beyond national jurisdiction; the same is true for PSSAs that may also be designated on the high seas. Somewhat curiously, evidence of high-seas MPAs is rather scarce and it will be seen whether the increasing use of the PSSA concept could remedy this shortcoming.<sup>61</sup> Secondly, several instruments envisage the application of a precautionary approach for managing the area.<sup>62</sup> The PSSA Guidelines do not expressly address the precautionary principle; whether they may be said to reflect its main thrust is to be assessed in Chapter 11.<sup>63</sup>

## **II. Relationship of the Protective Regimes: Progression towards Collaboration**

The differences identified in the previous section trigger the need for further examination of how PSSAs relate to other protective regimes. To this end, two issues may be distinguished, namely whether existing regimes can be systematised and how PSSA can most effectively be combined with other protective approaches.

### **1. Attempt to Systematise Protective Approaches: Are PSSAs Marine Protected Areas?**

From the observations summarised in the previous section, it is apparent that the instruments represent three different protective rationales. The MPA concepts primarily differ because they echo the scope and purpose of their underlying instrument.

The first category contains instruments that aim to establish MPAs to protect comprehensively an area from all possible sources of pollution or environmental degradation, and to provide facilities and infrastructure for its advantageous ecological development. They envisage the establishment of objective-based MPA networks for the further protection of inter- and intra-ecosystem dependencies. The prime examples of instruments that fall into this category are the regional

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<sup>61</sup> See, *infra*, Sec. III. of Chapter 10.

<sup>62</sup> E.g., the Kingston SPAW Protocol. See, *supra*, note 535 in Chapter 5 and accompanying text.

<sup>63</sup> For an assessment of the PSSA Guidelines' implementation of the precautionary principle, see, *infra*, Sec. I.4. of Chapter 11.



treaty regimes examined above. ASPAs, also rooted in a regional instrument, represent a special case: the ASPA regime merely provides for entry permits to regulate activities in a particular area. Obvious reasons are the low human activity in Antarctica and the difficulties in implementing comprehensive management efforts in the absence of state authorities. There is no global treaty to be mentioned in this category, as no MPA instrument has yet been developed on a world-wide level. Thus, while instruments of this category deploy a progressive ecological approach towards protection, they face a gap when it comes to issues that are best regulated on a global level, most notably shipping.

A second category comprises instruments envisaging the designation of MPAs that have a specified object of protection. Both the Ramsar Convention, aiming at the protection of wetlands, and the World Heritage Convention, protecting world heritage values, fall into this category.<sup>64</sup>

As a third category, one can identify source-specific MPAs, which focus on environmental threats from a particular source: PSSAs, as well as MARPOL special areas and SECAs. In that these regimes place emphasis on the source of pollution, their approach is more reactive than proactive; protective measures are particularised according to the prevailing vessel traffic patterns. They lack any provision dealing with conservation or management measures/authorities – this observation applies to both the protection of the physical features of the area, as well as to the conservation of living resources. In contrast, MPA regimes of the first two categories reflect their focus on a specific area (either all-encompassing or with respect to specific features) by stipulating the set-up of management authorities. Furthermore, they entail obligations with a view to carrying out conservation and management measures.<sup>65</sup>

As a consequence, it can legitimately be asked whether PSSAs are truly Marine Protected Areas.<sup>66</sup> While most scholars do not address this issue<sup>67</sup>, *Czybulka*<sup>68</sup> and

<sup>64</sup> Arguably this category also encompasses marine areas that states seek to protect under the terms of the CMS Convention and the Berne Convention; for details, see Katharina Castrangius, *Meeresschutzgebiete – Die völkerrechtliche Zulässigkeit mariner Natura 2000-Gebiete* (Baden-Baden: Nomos-Verlagsgesellschaft 2006), p. 164 et seqq.

<sup>65</sup> Doc. WHC.05/2, *supra*, note 33, para. 108 et seqq.

<sup>66</sup> Of course, this question may also be asked in respect of MARPOL areas. With a view to the scope of this study, reference is only made to the PSSA concept.

<sup>67</sup> PSSAs are usually considered to be a category of MPAs amongst others. Cf. Tundi Spring Agardy, *Marine Protected Areas and Ocean Conservation* (Georgetown and San Diego: R.G.Landes Company and Academic Press 1997), p. 99 et seq.; Rainer Lagoni, “Die Errichtung von Schutzgebieten in der Ausschließlichen Wirtschaftszone aus völkerrechtlicher Sicht”, 24 *NuR* (2002), pp. 121-133, at 126; Angelo Merialdi, “Legal Restraints on Navigation in Marine Specially Protected Areas”, in T. Scovazzi (ed.), *Marine Specially Protected Areas* (The Hague Boston London: Kluwer Law International 1999), pp. 29-43, at 36 et seqq. *De La Fayette* labelled PSSAs “a special type of MPA devised to protect sensitive areas from international shipping activities”; see Louise de la Fayette, “The Marine Environment Protection Committee: The Conjunction of the Law of the Sea and International Environmental Law”, 16 *IJMCL* (2001), pp. 155-226, at 191.

Janssen<sup>69</sup> have argued that PSSAs – as well as other specially protected areas within the purview of IMO – are *maritime* protected areas rather than *marine* protected areas (“Maritime Schutzgebiete” instead of “Meeresschutzgebiete”).<sup>70</sup> Even though a distinction by way of terms seems rather nit-picking and too focused on the wording used, I would like to concur with this view, albeit with a different emphasis.

As has been highlighted above, PSSAs do not allow for the implementation of conservation measures that proactively develop the protected area. Moreover, their designation does not provide for any management structure that addresses other sources of pollution. The concept’s sole purpose is to offer a management tool that is essentially an “empty vessel” and may house several different protective measures that are necessary for meeting the needs of the respective area. Hence, the PSSA notion is rather an additional – potentially powerful and flexible – layer of protection for MPAs but not an MPA in itself.<sup>71</sup> An illustrative example to be applied in favour of this hypothesis is the Baltic Sea Area PSSA. While the PSSA designation includes the whole Baltic Sea (except for the part under the jurisdiction of the Russian Federation), APMs have only been approved for application in small areas.<sup>72</sup> Apparently, coastal states in the Baltic Sea area are using the elevated protective status of the whole sea to get approval for measures that mainly impact on a local or regional scale. In this respect, the relationship of the PSSA and areas for which specific APMs are approved very much resembles the core area/buffer zone concept, inasmuch as PSSA designation raises awareness for

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<sup>68</sup> Detlef Czybulka, “Meeresschutzgebiete in der Ausschließlichen Wirtschaftszone”, 14 *ZUR* (2003), pp. 329-337, at 331.

<sup>69</sup> Gerold Janssen, *supra*, note 59, p. 78.

<sup>70</sup> *Maritime* is related to “the sea, ships or sailing”, while *marine* denotes something “of, near, found in, or produced by the sea”; cf. *Oxford Advanced Learner’s Dictionary*, s.v. “maritime” and “marine”. The difference may thus not be as clear-cut as in German.

<sup>71</sup> In the run-up to the 2001 revision process, it was suggested that the PSSA concept’s relationship with other MPA regimes be clarified by the inclusion of a draft paragraph (1.9) that read: “While a PSSA is not a Marine Protected Area, the level of protection for the marine environment is similar in some respect [...] A PSSA differs in that it is specifically designed to protect a sea area only from the harmful effects of maritime (shipping and shipping-related) activities.” As cited by Hans Gerd Knopp, “Das Instrument PSSA – eine Bestandsaufnahme”, in GAUSS (ed.), *Umweltaspekte der Seeschifffahrt/Environmental Aspects of Shipping* (Bremen: FORUM 1999), pp. 61-64, at 63, note 4. Interestingly, the term MPA was expressly used in the original 1991 PSSA GL in the introductory notes to the PSSA concept; cf. Res. 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*, adopted on 29 November 2001, para. 1.2. This reference was deleted in the 2001 Guidelines, when the introduction was substantially shortened.

<sup>72</sup> In particular, this is true for routeing measures. See, *supra*, Sec. V.2. of Chapter 8.

the sensitivity of a large area and APMs address individual problems in specific vulnerable ecosystems.<sup>73</sup>

While this interpretation suggests one should perceive PSSAs as an expansion to existing protection, it should also be noted that the PSSA Guidelines do not prohibit contemplating the case that PSSA status represents the *basic* protective layer that is supplemented by other regimes, inasmuch as paragraph 6.2 of the PSSA Guidelines states that “consideration should *also* be given” (italic emphasis added) to a listing in the World Heritage List or a designation as a Biosphere reserve. Still, in my contention this only applies to international designations; the PSSA Guidelines inherently assume that the marine area in question is already protected under domestic law and that effective protection against shipping activities needs the global endorsement of IMO. This view is supported by the PSSA Guidelines, that require “the application [to] contain a summary of steps taken, if any, by the proposing Member Government to date to protect the proposed area.”<sup>74</sup>

## 2. Synergies of the PSSA Concept and other Regimes

Expanding on the contention that PSSAs are rather an additional layer of protection for a specific marine area than true MPAs, I shall investigate how the PSSA concept could be linked to other instruments and to what extent the designation of a PSSA could be strengthened by additional designations under other regimes and *vice versa*.

First of all, it should be noted that none of the MPA instruments examined above prohibits collaborative action, even though most forms of cooperation are not conducted in a formal manner.<sup>75</sup> Indeed, the PSSA Guidelines in paragraph 1.3 introduce the concept by reference to other “instruments [that] further call upon their Parties to protect such vulnerable areas from damage or degradation, including from shipping activities.” And paragraph 6.2 stresses that “[c]onsideration should also be given to the potential for the area to be listed on the World Heritage List, declared a Biosphere Reserve, or included on a list of areas of international, regional, or national importance.” The latter provision seems to corroborate the view that PSSAs are literally an “on-top” approach. Apart from those instruments aimed at expressly protecting marine areas from vessel-source pollution, i.e. MARPOL special areas and SECAs, all other types of MPAs would benefit from an additional designation as a PSSA.<sup>76</sup> And the ecological criteria set forth in

<sup>73</sup> Note that the designation of the Baltic Sea PSSA and the approval of APMs applicable in smaller areas within the PSSA gives rise to general criticism, which will be addressed, *infra*, in Sec. II.1. of Chapter 11.

<sup>74</sup> Para 7.8.

<sup>75</sup> See UNEP/CBD/SBSTTA/9/INF/28, *Protected Areas: Looking for Synergies in the Implementation of Site-Based International Agreements and Programmes*, 10-14 November 2003, para. 38. For examples of cooperative ties IMO has with other international bodies, see, *supra*, last para. of Sec. I. of Chapter 6.

<sup>76</sup> Indeed, one observer has noted that the “World Heritage Convention Secretariat has requested the IMO to consider a cooperative program to develop PSSA proposals for

paragraph 4.4 of the PSSA Guidelines appear broad enough to accommodate all other relevant mechanisms. Nevertheless, some difficulties arise: for instance, eleven PSSAs have been designated compared with several thousand MPAs worldwide that are subject to domestic or international law, yet concerns have already been voiced that the number of PSSA designations amount to a proliferation of the concept.<sup>77</sup> The numbers constitute a palpable discrepancy, given that the scientific criteria deployed are virtually the same. The difference cannot only be explained by recourse to additional shipping-related criteria that PSSAs need to fulfil but rather by highlighting the intensive lobbying within IMO conducted by the shipping industry.

A related problem is evident from practice in the Baltic Sea, to which I already drew attention in the previous section. Whereas virtually the whole Baltic Sea is designated as a PSSA, BSPAs merely cover a fraction of it. It is reasonable to ask why there was no attempt to harmonise the designations of BSPAs and PSSAs. Put simply, it would arguably have been too time-consuming an effort to have every single BSPA examined by MEPC.<sup>78</sup> However, the flexibility of a PSSA designation allows for adaptation to this situation. Because the Baltic Sea has now been granted PSSA status, additional APMs may be approved by IMO (for instance, routing measures) that are specifically applied to protect a part of the Baltic Sea PSSA, which has also been recognised as a BSPA. Indeed, APMs proposed by the Baltic Sea states and approved by IMO were particularly tailored to protect certain areas that are under serious threat.<sup>79</sup>

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marine World Heritage sites that are vulnerable to shipping” at MEPC 51; see Kristina M. Gjerde, “Report on PSSAs at MEPC 51”, available from <[http://www.iucn.org/themes/marine/Word/PSSA\\_MEPC%2051\\_report.doc](http://www.iucn.org/themes/marine/Word/PSSA_MEPC%2051_report.doc)>; (accessed on 30 September 2006), p. 3. However, there is no evidence that cooperation between IMO and the World Heritage Convention Secretariat has progressed on this issue, even though the chair of MEPC indicated his interest in pursuing an agreement with the WHC to that end and ICS promised to provide “expert technical assistance” on request for marine World Heritage Sites; cf. *ibid.*

<sup>77</sup> See, for instance, MEPC 51/8/4, *Comments on the Guidelines for the Designation of Special Areas under MARPOL 73/78 and the Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas*, 4 February 2004, p. 3. The matter was consistently raised by some members of IMO alongside shipping industry groups, who also tried to add a phrase to para. 1.2 of the PSSA Guidelines in the course of the 2005 revision process that read: “to avoid proliferation of such areas”; cf. MEPC 53/8/2, *Report of the Correspondence Group*, 15 April 2005, annex, p. 4, annotation in para. 2 to para. 1.2 of the draft guidelines. This proposal was eventually rejected by MEPC; see MEPC 53/24, *Report of the Marine Environment Protection Committee on its Fifty-Third Session*, 25 July 2005, para. 8.25.7.

<sup>78</sup> Several states, such as Sweden, had already thought about having some of their MPAs designated as PSSAs. However, it was eventually decided to include the whole Baltic Sea in the proposal.

<sup>79</sup> Res. A.977(24), *Ships’ Routing*, adopted on 1 December 2005; see further NAV 51/3/6, *New traffic separation schemes in Bornholmssgat and North of Rügen, recommended deep-water route in the eastern Baltic Sea, amendments to the traffic separation schemes Off Gotland Island and South of Gedser and new areas to be avoided at*

What is apparent from this account is that PSSAs could easily be utilised to protect from shipping threats certain areas that are already subject to legal regimes that do not allow for protection against these particular threats. In practice, however, PSSA status has only been granted to very few areas compared with the number of MPAs existing all over the world. In the light of the criticism voiced within IMO that the designation of eleven sites so far has already overused the concept, it is highly unlikely that MEPC will ever accept more than two or three proposals per session – in fact, the current assessment procedure is not designed to handle many more. The additional protection of certain MPAs by having them approved as a PSSA will arguably remain an exception, unless patterns of assessment within IMO, or the concept as a whole, are considerably modified.

### III. Summarising Remarks

This chapter has duly evidenced that PSSA status is the only way to provide an adequate means of protection of vulnerable marine ecosystems against vessel-source pollution and other threats posed by international shipping. It refers to a widely accepted set of scientific criteria for the designation of marine protected areas, but additionally provides flexible mechanisms which can be implemented and enforced without violating international law. As has been argued above, in their focus on a specific source of pollution (shipping), PSSAs are rather an additional protective layer for MPAs than a MPA concept in itself. This further layer of protection is necessary, as no other international regime to date allows for the imposition of such a plethora of restrictions on shipping activities in the interest of marine biodiversity protection.

Governments are well-advised to seek additional PSSA status for marine areas already protected by another regime provided for under global or regional international law or domestic law. While granting these sites elevated protection would obviously strengthen their environmental integrity, a PSSA designation also contributes to merging domestic and international protective efforts.

In the light of the observations made in this chapter, and given that two of the latest designations (Baltic Sea Area PSSA and Western European PSSA) comprise large, highly diverse areas that are considerably influenced by human impact, it should be contemplated whether PSSAs still represent the most adequate means by which coastal states could subject foreign vessels to protective measures in areas that are particularly vulnerable and where shipping has potentially harmful consequences. This issue is left for consideration in Chapter 11. There is another important issue to keep in mind: one may argue that seeking PSSA status for an MPA is hardly worth the effort if PSSAs only provide for measures already available under IMO instruments and do not entail extended coastal-state jurisdiction over foreign vessels. In the following chapter, I will thus attempt to

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*Hoburgs Bank and Norra Midsjöbanken*, 3 March 2005. At least the two ATBAs aim to protect sites that are proposed BSPAs.

examine, in particular, the implications of a PSSA designation on the jurisdictional competences of coastal states.

## **Chapter 10: Legal Quality of the PSSA Guidelines and their Effect on Jurisdiction to Implement and Enforce Protective Measures**

This treatise so far has highlighted the international legal framework for the protection of vulnerable marine areas and, in particular, the designation of PSSAs. From the point of view of coastal states, however, seeking designation of PSSAs is only worth the effort if it results – compared with the basic UNCLOS regime – in an expansion of their prescriptive and enforcement competences regarding the protection of the marine environment against threats posed by shipping activities. The issue of coastal states' competences is closely connected to the legal quality of the PSSA Guidelines. This chapter thus addresses both questions; first, what legal quality do the PSSA Guidelines possess, and secondly, to what extent, if any, do they entail implications for the balance of coastal states' rights and the freedom of navigation.

### **I. IMO Assembly Resolution A.982(24)**

The PSSA Guidelines are contained in Resolution A.982(24), which was adopted by the Assembly on 1 December 2005. As has been detailed in Chapter 6, international organisations are competent to issue legal acts addressing matters within the purview set out by the respective organisation's constitution. These acts are only binding to the extent provided for by the underlying instrument, as well as in some exceptional cases. With respect to the PSSA Guidelines, I shall explore their legal basis and whether or not they must be complied with.

#### **1. Legal Basis and Character of the PSSA Guidelines**

There are three different ways by which the competence of IMO to adopt the PSSA Guidelines can be established. First, according to Article 2 lit. (a) in conjunction with Article 1 of the IMO Convention,<sup>80</sup> IMO has the competence to consider and make recommendations on, *inter alia*, “technical matters of all kinds affecting shipping engaged in international trade; [... and] the highest practical standards in matters concerning the maritime safety, efficiency of navigation and

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<sup>80</sup> Convention on the International Maritime Organization, adopted on 6 March 1948, in force as from 7 January 1959, 289 *UNTS* 48. The text, as modified by amendments adopted by the Assembly, is reproduced in IMO, *Basic Documents*, Vol. I (London: IMO Publication 2004), pp. 7-25.

prevention and control of marine pollution from ships.”<sup>81</sup> Article 15 lit. (j), more specifically, lists as one of the Assembly’s function “[t]o recommend to Members for adoption, regulations and guidelines” concerning, amongst others, the effects of shipping on the marine environment. As no provision of the treaty attaches binding force to these recommendations, they generally do not entail legal obligations for IMO member states.

Secondly, autonomous decision-making competences have been introduced by MARPOL, COLREG, SOLAS and other IMO Conventions, which envisage the adoption of IMO resolutions to flesh out or amend their regimes.<sup>82</sup> However, these resolutions may only take effect within and for the regime they are adopted under. Thirdly, UNCLOS refers to IMO’s recommendations and instruments both *expressis verbis* (for instance, Article 22(3) lit. (a)) and through its *rules of reference*, which have been mentioned earlier in this treatise.<sup>83</sup> Yet neither approach vests any express legislative competences with the IMO.

As identified by the preamble to the PSSA Guidelines, it is apparent that they were adopted pursuant to Article 15 lit. (j) of the IMO Convention.<sup>84</sup> Accordingly, they are not binding upon IMO member states and cannot be considered as belonging to the body of international treaty law. The further legal character has to be determined in the light of the peculiarities of international institutional law. As has been mentioned in Chapter 6<sup>85</sup>, IMO, as well as other international institutions, may adopt legal acts that are directed either at the external sphere (i.e., member states) or at the internal sphere. Apparently, the PSSA Guidelines belong to the latter category, because they do not recommend any action to be taken by the member states, but primarily aim to determine IMO’s conduct for the identification and protection of sensitive areas.<sup>86</sup> Hence, they are of mandatory character, but only as far as they establish criteria and procedural requirements that MEPC and other committees of IMO have to adhere to.<sup>87</sup> Where the guidelines contain rules to be followed by the member states, these rules may be qualified as an adjunct to the internal rules of procedure of MEPC. Still, they are formally non-mandatory, even though they arguably acquire *de facto* binding

<sup>81</sup> Cf. Art. 1(a) of the IMO Convention. This provision does not prevent IMO from addressing vessel-related threats to the marine environment other than pollution. It is commonly accepted that as the UN specialised agency responsible for international shipping, IMO has the competence to develop regulations on these problems as a necessary adjunct to its original duties.

<sup>82</sup> See Sec. III.1. of Chapter 6.

<sup>83</sup> Sec. III.4. of Chapter 4.

<sup>84</sup> The first recital of the guidelines’ preamble refers to Art. 15(j) of the IMO Convention mentioned above. Indeed, the scope of the IMO Conventions, such as MARPOL and SOLAS, is too narrow to accommodate sufficiently the broad approach of the PSSA Guidelines.

<sup>85</sup> Sec. I.2. of Chapter 6.

<sup>86</sup> This view is shared by Gerold Janssen, *supra*, note 59, p. 87.

<sup>87</sup> As far as MEPC is concerned, the PSSA Guidelines represent an “other instrument” (as opposed to “any international convention”) to whose provisions the committee must conform, “particularly as regards the rules governing the procedures to be followed”. See Art. 41 of the IMO Convention.

force. For instance, requirements for the documentation to be submitted in support of a PSSA proposal use recommendatory language (“should”) in the relevant paragraphs of the guidelines. However, MEPC is likely (and, of course, allowed) to reject a proposal which is not corroborated by sufficient information. Therefore the procedural requirements, and possibly other provisions, effectively amount to mandatory rules.

As far as the legal quality of APMs is concerned, it is obvious that binding force does not derive from the PSSA Guidelines. With respect to APMs that are not based on binding international law, their mandatory character therefore does not exist *prima facie*; it may only be construed if exceptional circumstances, as alluded to, *supra*, in Chapter 6, can be established.<sup>88</sup> Whether and how exceptional circumstances for these APMs can be identified will be addressed in the following section.

## **2. Binding Force of PSSAs and their Associated Protective Measures**

Although, as has been seen in the previous section, the IMO Convention does not enable the Assembly (or any other organ of IMO) to adopt legal acts that obtain binding force for IMO member states, APMs may nevertheless turn out to be compulsory by virtue of UNCLOS. I have mentioned above that no UNCLOS provision directly authorises IMO to adopt mandatory regulations such as protective measures for certain specially protected areas. Even so, UNCLOS may provide for them to become mandatory – insofar as the APMs can be linked to an UNCLOS provision, they share its legal quality.<sup>89</sup> An express link could be established if the PSSA concept were to be construed as fleshing out Article 211(6), implementing broader obligations of Articles 192 and 194(5) or representing so-called “generally accepted international rules and standards.” In the ensuing sections, I shall thus examine whether one of these exceptional cases applies with respect to the PSSA Guidelines.

### **a) PSSAs and Article 211(6) of UNCLOS**

It has already been outlined in Chapter 4<sup>90</sup> that in order to combat vessel-source pollution, Article 211(6) lit. (a) and (c) allow coastal states to subject navigation in certain marine areas of their EEZ to tighter measures than those available under “generally accepted international rules and standards” in the sense of Article 211(5). Since both subparagraph (a) and (c) are of a framework character, the PSSA concept may be regarded as implementing Article 211(6).<sup>91</sup> At least with respect to the EEZ, APMs would be binding regardless of the legal quality of their underlying instrument.

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<sup>88</sup> Sec. II.1. of Chapter 6.

<sup>89</sup> See further, *supra*, Sec. II.1.b) and III.2. of Chapter 6.

<sup>90</sup> Sec. III.3.

<sup>91</sup> This view was voiced by Liberia, Panama, the Russian Federation and certain shipping industry NGOs, see LEG 87/16/1, *Designation of a Western European PSSA – Comments on MEPC 49/8/1*, 15 September 2003, para. 8.



The concepts of PSSAs and UNCLOS special areas are very similar with respect to purpose, criteria, flexibility and the broad array of instruments available. However, a few critical differences remain.<sup>92</sup> First, PSSAs are designated by IMO, whereas areas under Article 211(6) are designated by the coastal state with IMO's endorsement; secondly, the criteria for designation under 211(6) must be met cumulatively, while it is sufficient for a potential PSSA to meet just one of the PSSA criteria; thirdly, the scope of Article 211(6) is confined to vessel-source pollution, whereas PSSAs address a broader range of threats; fourthly, in contrast to Article 211(6), the PSSA Guidelines deploy a buffer-zone approach to enhance the protection of marine areas.<sup>93</sup> Furthermore, it should be borne in mind that the PSSA Guidelines themselves refer to Article 211(6) as *one* of the legal bases for APMs, thus offering a broader set of protective measures.

These differences have been associated with the prevailing approaches on marine environment protection at the time the different instruments were drafted.<sup>94</sup> The extent to which PSSAs and UNCLOS special areas differ signifies that the PSSA Guidelines have not been developed to implement Article 211(6).<sup>95</sup> Hence, PSSA designations and APMs cannot be construed as acquiring mandatory character for the EEZ of coastal states by being linked to Article 211(6) of UNCLOS.

#### **b) Implementation of General Obligations Contained in Part XII of UNCLOS**

In preliminary thoughts on this topic, I have advanced the opinion that a PSSA designation and its APMs acquire binding force, because they can be construed as fulfilling broader obligations of Part XII of UNCLOS, namely Articles 192 and 194(5).<sup>96</sup> While Article 192 obliges states to protect and preserve the marine environment, Article 194(5) more specifically calls for the protection of fragile ecosystems and threatened habitats. In a similar vein, the WWF held that "IMO has [a] legal competence to adopt measures based on the general provisions of

<sup>92</sup> Cf. Louise de la Fayette, *supra*, note 67, pp. 155-226, at 190 et seqq.; Henning Schult, *Das völkerrechtliche Schiffsicherheitsregime* (Duncker&Humblot: Berlin 2005), p. 210 et seq.

<sup>93</sup> Rainer Lagoni, "Marine Protected Areas in the Exclusive Economic Zone", in A. Kirchner (ed.), *International Marine Environmental Law* (The Hague New York London: Kluwer Law International 2003), pp. 157-167, at 163.

<sup>94</sup> Louise de la Fayette, *supra*, note 67, p. 191 et seq.

<sup>95</sup> Cf. Rainer Lagoni, *supra*, note 93, p. 163 et seq.; Julian Roberts, "Compulsory Pilotage in International Straits: The Torres Straits PSSA Proposal", 37 *ODIL* (2006), pp. 93-112, at 95; Erik Jaap Molenaar, *Coastal State Jurisdiction over Vessel-Source Pollution* (The Hague Boston London: Kluwer Law International 1998), p. 441 et seqq. *Contra* Angelo Meriardi, *supra*, note 67, pp. 29-43, at 39.

<sup>96</sup> Markus Detjen, "The Western European PSSA – Testing a Unique International Concept to Protect Imperilled Marine Ecosystems", 30 *Marine Policy* (2006), pp. 442-453, at 446 et seqq.

UNCLOS and the authority conveyed on the IMO by that instrument.”<sup>97</sup> This view has been contested within IMO.<sup>98</sup> Yet the opponents’ reasoning was based on the ill-defined assumption that Article 211(6) rather than Article 194(5) is the legal basis for PSSAs; this interpretation has already been rebutted in the previous section.

A more compelling counter-argument can be produced by looking at the legal character of the programmatic norms of Part XII. They undoubtedly oblige each UNCLOS party to protect and preserve the marine environment, in particular rare or fragile ecosystems.<sup>99</sup> IMO is recognised by UNCLOS as a competent international organisation. As a consequence, it is responsible for contributing to the furtherance of UNCLOS’ objectives, although it is not a party. However, these observations only explain why IMO should become active in developing policies aimed at preserving vulnerable marine areas and why it has the competence to act. Accordingly, Articles 192 and 194(5) may be fleshed out by the IMO. Yet the means at IMO’s disposal do not go beyond what the IMO Convention provides for, i.e. non-binding resolutions of one of its organs. Apparently, relying on UNCLOS’ broad environmental obligations cannot explain how a PSSA designation and APMs become legally binding. The binding force of an act of an international organisation can only be construed if it is based on, or can be linked to, an express treaty provision providing for certain acts to become mandatory.

### **c) APMs as Generally Accepted International Rules and Standards**

As I have already explained, *supra*, in Section III.4 of Chapter 4, UNCLOS incorporates rules and standards that have been developed outside its regime through so-called rules of reference. The most important category of regulations referred to by UNCLOS are so-called “generally accepted international rules and standards,” which encompass international treaties that have gained widespread ratification, IMO conventions that are in force and non-binding resolutions adopted by IMO with at least a great majority. These rules and standards may form a basis for coastal states’ laws that apply to foreign vessels navigating in waters under their jurisdiction. The rules of reference may thus contribute to expanded coastal states’ prescriptive competences, inasmuch as generally accepted international rules and standards for a particular activity exist. With regard to these observations, it must be examined whether APMs could be considered as representing generally accepted international rules and standards. As has been mentioned before, this issue is only relevant for APMs that do not acquire binding force by virtue of, for instance, a multilateral treaty. PSSA designations as such cannot represent generally accepted international rules and

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<sup>97</sup> MEPC 52/8/4, *Proposed Amendments to Assembly Resolution A.927(22) to Strengthen and Clarify the Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas (PSSAs) – Comments on MEPC 52/8*, 18 August 2004, para. 13. Louise de la Fayette, *supra*, note 67, p. 186, appears to share this view.

<sup>98</sup> LEG 87/16/1, *supra*, note 91, *loc.cit.*

<sup>99</sup> For details, see, *supra*, Sec. III.1. of Chapter 4.

standards, since a designation does not entail any instrument that coastal states could implement.

#### aa) Feasibility of this Interpretation

Obviously, it is neither the PSSA Guidelines nor the actual IMO designation of an area which coastal states implement in waters under their jurisdiction, but APMs adopted in accordance with the guidelines. It could be argued that the term “rules and standards” refers to globally applicable, uniform vessel standards rather than to IMO measures that have been adopted for a specific area. However, the wording of the rules of reference does not support this assumption. The crucial issue is general acceptance within the IMO as the competent international organisation. If the international community, through IMO, agrees on certain instruments, UNCLOS incorporates these instruments into its regulatory regime, regardless of their geographical scope. Besides, individual measures aimed at regulating shipping in specific areas are a common phenomenon. Routeing measures, for instance, are always applied for clearly delineated parts of the sea by way of an IMO resolution. For a vessel’s master, it makes no difference why he or she needs to adhere to certain rules in certain areas. Hence, if coastal states transpose APMs into their domestic regimes, they can base their laws on these resolutions, because they represent generally accepted international rules and standards. As has been said above<sup>100</sup>, for parties to UNCLOS, APMs thereby also represent “applicable international rules and standards”, because through inclusion by UNCLOS’ rules of reference they become part of treaty law.

Given the above arguments, it can be concluded that APMs, adopted by IMO either unanimously or with an overwhelming majority, constitute generally accepted international rules and standards.<sup>101</sup> Inasmuch as marine areas are designated by IMO and are protected by APMs, coastal states are allowed to give effect to these APMs to the extent provided for by UNCLOS.<sup>102</sup> This conclusion is

<sup>100</sup> Sec. III.4. of Chapter 4.

<sup>101</sup> A similar interpretation is suggested by Louise de la Fayette, *supra*, note 67, p. 186, who acknowledges that “[t]he designation of PSSAs may also be considered as a response by IMO to the obligations set out in Article 211(1) for states acting through the competent international organisation to establish rules and standards to prevent pollution from vessels [...]” Likewise Julian Roberts, *supra*, note 95, p. 94 et seq. Surprisingly, neither author refers to the adoption of APMs, even though they are at the core of the PSSA concept, or considers whether APMs become binding by virtue of UNCLOS’ rules of reference. Veronica Frank, “Consequences of the *Prestige* Sinking for European and International Law”, 20 *IJMCL* (2005), pp. 1-64, at 35, implicitly supports the interpretation argued for here, as she emphasises that “[a]ny additional measure will have to be assessed by the competent IMO committees (e.g. MEPC, MSC and NAV) and its adoption will always require the consent of the international community through the approval of the MEPC.”

<sup>102</sup> That said, it must be acknowledged that generally accepted international rules and standards first and foremost oblige flag states, by way of Art. 211(2) of UNCLOS, to give effect to the regulations’ content with respect to vessels flying their flag. However, with a view to the scope of this study and in the light of identified deficiencies in flag-

strongly consistent with general international law, that requires a soft-law instrument to become mandatory to be expressly linked to a multilateral treaty.<sup>103</sup> It is also consistent with the overall dynamic approach of UNCLOS: a PSSA would hardly have any positive effect were it merely to allow for measures to become mandatory that are already mandatory by virtue of other treaties.<sup>104</sup> This interpretation is supported by the fact that the use of rules of reference within UNCLOS is largely limited, as far as the balance between marine environment protection and navigation are concerned, to the EEZ and the territorial sea. UNCLOS' provisions dealing with coastal states' competences in straits used for international navigation<sup>105</sup> and archipelagic waters<sup>106</sup>, i.e. areas where navigational rights are still considered to be particularly delicate, include similar, albeit limited, references to regulations established outside the UNCLOS regime.<sup>107</sup> In this context, it should be noted that even if APMs are considered to constitute generally accepted international rules and standards, not all IMO measures obtain mandatory character. While the PSSA Guidelines address all environmental threats posed by international shipping and envisage the adoption of respective APMs, some UNCLOS provisions (e.g. Article 211(5)) exclusively focus on vessel-source *pollution* of the marine environment. States are not permitted to give effect to APMs addressing forms of environmental degradation that the rules of reference do not cover.

As a further consequence of this reasoning, it can be noted that the remaining scope of application of Article 211(6) becomes virtually non-existent. By virtue of Article 211(5), coastal states may enact laws for their EEZ (binding upon all vessels navigating in the PSSA) that conform to APMs. The PSSA status as a prerequisite for an APM requires fewer conditions to be met than Article 211(6). Hence, a coastal state acquires the same competences from having a specific area of its EEZ designated as a PSSA as from having it approved as a special area under Article 211(6). Whether these observations amount to a violation of UNCLOS will be addressed below.

As a result, compulsory measures that do not have a legal basis in a multilateral treaty become binding if they can be said to be allowed by either Article 21 or Article 211(6) and if they are incorporated in the regulatory regime of UNCLOS

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state compliance control, emphasis is placed here on coastal states as necessary complementary monitoring and enforcement entities.

<sup>103</sup> Philippe Sands and Pierre Klein, *Bowett's law of International Institutions*, Fifth ed. (London: Sweet & Maxwell 2001), para. 11-051.

<sup>104</sup> Likewise Nihan Ünlü, "Particularly Sensitive Sea Areas: Past, Present and Future", 3 *WMU Journal of Maritime Affairs* (2004), pp. 159-169, at 168 et seq.

<sup>105</sup> Art. 42.

<sup>106</sup> Art. 52 to 54.

<sup>107</sup> DOALOS, "'Competent or relevant international organizations' under the United Nations Convention on the Law of the Sea", 31 *LOSJ* (1996), pp. 79-95, at 81. For coastal states' jurisdiction in international straits, reference is made to "applicable" international regulations. For a definition of this term, see, *supra*, Sec. III.4. of Chapter 4.

by one of its rules of reference.<sup>108</sup> As far as these APMs are concerned, it has become apparent in this section that the adoption of APMs follows a *three-tier approach*. First, measures can be chosen from those available under Articles 21 and 211(6) of UNCLOS. Secondly, IMO has the competence to adopt these measures as APMs by virtue of the PSSA Guidelines. Thirdly, they become legally binding if incorporated in the UNCLOS regime through a rule of reference.

### bb) Legality of this Interpretation

IMO devised the PSSA Guidelines as a distinct concept to encompass a broader range of concerns – in terms of criteria, protective approach and geographical scope – than is possible under Article 211(6) lit. (a) and (b): PSSAs are not confined to tackling pollution, they are not limited to the EEZ and they require fewer criteria to be met. The PSSA Guidelines effectively provide for at least the same measures that are available under Article 211(6). However, if these protective measures are allowed to become effective by virtue of Article 211(5), they actually render paragraph 6 void. Although IMO is free to adopt any instrument it considers necessary for, *inter alia*, the protection of the marine environment and that falls within the ambit set by the IMO Convention, it must be asked, in the light of this observation, whether the PSSA Guidelines violate UNCLOS. It may be argued that UNCLOS as a “constitution of the oceans” providing a governance framework has not only been fleshed out by the PSSA concept, but has been disproportionately exceeded.

As regards the PSSA Guidelines’ broader protective approach, it must be stressed that APMs other than those addressing pollution of the marine environment cannot take effect in the EEZ through reference to Article 211(5), because its context confines coastal states to the adoption of “laws and regulations for the prevention, reduction and control of pollution from vessels.” It does not allow for coastal states to transpose any (compulsory) APMs that are concerned with other forms of vessel-source impairment of the marine environment. Although the PSSA concept aims to reconcile UNCLOS’ zonal approach with ecological needs not confined to arbitrary marine boundaries, the implementation of APMs must still take account of legal requirements in the various zones. The limitation of UNCLOS to special areas designated in the EEZ does not prohibit the designation of protected areas in other maritime zones, as long as protective measures do not trifle with the regulatory regime applied there.

Another issue that needs to be considered is the concept’s origin. Although adopted a year before the CBD, the guidelines respond to the same concern, loss of biodiversity, which became increasingly serious in the late 1980s.<sup>109</sup> It is not

<sup>108</sup> A similar conclusion was drawn by the First International Meeting of Legal Experts on PSSAs (Hull/UK, 1992): “[...] UNCLOS Articles 211.5 and 211.6 provide a good basis for further development of PSA as a concept of international law and for the development of ‘special mandatory’ measures for PSAs.” See Kristina M. Gjerde and David Ong, “Protection of Particularly Sensitive Sea Areas Under International Environmental Law”, 26 *MPB* (1993), pp. 9-13, at 11.

<sup>109</sup> Cf. Louise de la Fayette, *supra*, note 67, p. 186.

based on Article 211(6), but on the recognition that an instrument was needed for the proper implementation of broader obligations contained in Articles 192 and 194(5). At the time the PSSA concept was developed, discussions on the spatial protection of vulnerable marine areas had substantially progressed.<sup>110</sup> It became apparent that the special-areas concept of Article 211(6) was ineffective in terms of its restriction to the EEZ and to pollution – and did not adequately meet the needs of the international community to protect marine areas under their jurisdiction. Because an amendment or a revision of UNCLOS was an impossible notion<sup>111</sup>, the international community had to rely on the PSSA Guidelines. While the Guidelines have the disadvantage of being limited to what the rules of reference allow for, they entail some improvement in comparison with special areas according to Article 211(6) of UNCLOS.

### **3. Preliminary Remarks**

From the observations made in this section, the fact should be highlighted that the PSSA Guidelines have been adopted by the IMO Assembly as a resolution in furtherance of the organisation's purpose to facilitate the adoption of rules aimed at preventing vessel-source pollution of the marine environment. As rules primarily aimed at governing procedural issues, they are part of the internal law of IMO. For the protection of designated areas, they envisage the adoption of APMs. According to the PSSA Guidelines, APMs may also be adopted if they do not have an express treaty-law basis. These APMs are nevertheless binding, insofar as they represent generally accepted rules and standards, a term used by certain UNCLOS rules of reference to incorporate in its regulatory regime regulations developed outside the convention. As the scope of these rules of reference differs, this categorisation is purely related to the APMs' legal quality. It does not imply any conclusion with respect to implications for the balance of coastal-state jurisdiction over foreign vessels. This issue remains to be explored in the next section.

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<sup>110</sup> These developments are reflected in the longish text on MPA concepts that precedes the first PSSA Guidelines. See Res. A.720(17), *Guidelines for the Designation of Special Areas and the Identification of Particularly Sensitive Sea Areas*, adopted on 6 November 1991, para. 1.1 et seqq.

<sup>111</sup> UNCLOS had only come into force in 1994. Besides, according to Art. 312 of UNCLOS, a formal revision process could not have been instigated before the expiry of a period of 10 years after entry into force. See further, David Freestone and Alex G. Oude Elferink, "Flexibility and Innovation in the Law of the Sea – Will the LOS Convention Amendment Procedures ever be used?", in A.G. Oude Elferink (ed.), *Stability and Change in the Law of the Sea: The Role of the LOS Convention* (Leiden Boston: Martinus Nijhoff Publishers 2005), pp. 169-221, at 173 et seqq.; and, *infra*, Sec. II.2.a) of Chapter 11.

## II. Implications for the Balance between Environment Protection and Freedom of Navigation

After having investigated the legal character of PSSAs and their APMs, I shall now examine the consequences for the delicate balance between coastal states' jurisdiction on foreign vessels in environmental matters and the freedom of navigation. I will do so by reference to the different maritime zones – with respect to both prescriptive and enforcement jurisdiction. The PSSA concept's impact on international law may have immediate effects within the UNCLOS framework, but may, however, also have long-term implications. Hence, I shall also investigate to what extent the guidelines are reflective of the emergence of new customary international law relating to the prevention of vessel-source pollution of the marine environment.

It is obvious from what was noted earlier in this treatise that the high-seas governance regime is characterised by the absence of coastal states as regulating and enforcing entities. The following account will therefore omit references to areas beyond national jurisdiction. Instead, I shall address the issue in a separate section of this chapter, III., and more broadly examine whether and how the PSSA concept can be implemented on the high seas and how the protection of designated areas may be ensured in this particular part of the oceans.

### 1. Modification of the Status Quo – Legislation and Enforcement

UNCLOS sets forth the prevailing framework for coastal states' protective measures against pollution of the marine environment by foreign vessels. Its specific prerequisites, limits and legal consequences depend on the maritime zone in which the vessel navigates.<sup>112</sup> Bearing this in mind, it should be asked to what extent the PSSA Guidelines contribute to a modification of UNCLOS' coastal-state jurisdiction regime. Could APMs contribute to an expansion of coastal-state competences? As has become apparent, the *status quo* in the law of the sea is difficult to depict. Several framework provisions allow for the dynamic integration of IMO instruments into the UNCLOS governance mechanisms, which can thus be particularised according to the needs of the international community.

Several authors, mostly in a rather broad manner, have suggested that the PSSA concept entails the possibility “to establish higher standards rather than to apply the ones which are already available in an existing instrument,”<sup>113</sup> offering “the tantalising option of stretching the strict limitations imposed by the LOS Convention on coastal states to protect discrete areas of their marine environment from the impact of foreign vessels,”<sup>114</sup> because apparently “[s]tates are willing to give the IMO the power to authorise [...] special anti-pollution measures in their

<sup>112</sup> See, *supra*, Sec. III.2. of Chapter 4.

<sup>113</sup> Nihan Ünlü, *supra*, note 104, p. 168.

<sup>114</sup> Kristina M. Gjerde and J. Sian H. Pullen, “Cuba’s Sabana-Camagüey Archipelago: The Second Internationally Recognised PSSA”, 13 *IJMCL* (1998), pp. 246-262, at 247 et seq.

coastal zones.”<sup>115</sup> In the following section, I wish to consider whether these expectations can be met. Because the balance between environmental protection rights and navigational freedom is struck differently in each of the maritime zones that UNCLOS recognises, I will examine the impact of the PSSA concept separately for each of them.

To recall conclusions developed in Section I.1 of Chapter 8, it may be noted that specific measures for APMs may be chosen from Articles 21 and 211(6) to allow proposing coastal states to adapt adequately to the needs of the area. Nevertheless, chosen measures must not derogate from the basic UNCLOS system. In the light of the conclusions drawn in Section I.2 above, it must be examined whether and to what degree APMs can bring about an expansion of coastal states’ rights by utilising the rules of reference without violating UNCLOS. In so doing, special attention must be paid to the inherent limitations of the respective rules of reference.

### **a) Territorial Sea**

#### **aa) Legislative Jurisdiction**

With respect to prescriptive jurisdiction of coastal states in the territorial sea, Article 211(4) of UNCLOS stipulates that laws concerning the prevention, reduction and control of marine pollution from foreign vessels must not hamper the right of innocent passage as shaped by Articles 17 to 26. To that end, Article 21(1) lit. (a) provides for the coastal state to adopt laws relating to the safety of navigation and the regulation of maritime traffic, while lit. (f) relates to “the preservation of the environment of the coastal State and the prevention, reduction and control of pollution thereof.” Where laws adopted in accordance with these rules constitute CDEM standards, they need to give effect to generally accepted international rules or standards.<sup>116</sup> The coastal state is thus not competent to enact protective measures that provide for, e.g., certain mandatory construction requirements for vessels that have not been incorporated in an instrument that can be considered to be generally accepted. In addition, the state is given no possibility to submit to IMO for approval any specific measure it wants to implement.

The PSSA concept significantly modifies these rights, inasmuch as it allows for measures to be based on Article 211(6). With respect to vessel-source pollution, this provision allows for exceptional measures to be adopted even when there is no IMO instrument that expressly addresses this measure. It does not contradict international law if a measure is based, by virtue of the PSSA Guidelines, on Article 211(6) and applied in the territorial sea. As has been shown, *supra*, in Section I.1.b) of Chapter 8, the legal bases mentioned in Section (iii) of paragraph 7.5.3 of the PSSA Guidelines do not confine APMs to the respective maritime zone, either territorial sea or EEZ. This interpretation is in line with the holistic approach of the PSSA concept that seeks to decouple protection of the marine environment from the rather artificial zonal approach deployed by UNCLOS.

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<sup>115</sup> Angelo Meriardi, *supra*, note 67, p. 39.

<sup>116</sup> Art. 21(2) of UNCLOS.



The resolution by which an APM, based on paragraph 7.5.3.(iii) of the Guidelines in conjunction with Article 211(6), is approved, would conform to “generally accepted international rules and standards” if adopted unanimously or with a great majority. Eventually, if it addresses CDEM standards, coastal states can implement the APM content in their territorial seas by recourse to Article 21(2).

### bb) Enforcement Jurisdiction

Turning to enforcement jurisdiction for territorial sea regulations, it will be seen whether the PSSA Guidelines also have an expanding impact on UNCLOS’ provisions. The term “enforcement”, not defined in UNCLOS or any other convention, is usually taken to encompass the means deployed by a (coastal) state to ensure the effective application of its laws and regulations.<sup>117</sup> To that end, it may adopt measures to induce compliance or sanction non-compliance by way of administrative action or judicial proceedings.<sup>118</sup> The key UNCLOS provision dealing with enforcement rights against vessel-source pollution in the territorial sea is Article 220(2). States’ authorities “may undertake physical inspection of the vessel relating to the violation and may, where the evidence so warrants, institute proceedings, including detention of the vessel [...]” if the vessel has violated coastal states’ rules “adopted in accordance with this Convention [...] for the prevention, reduction and control of pollution from vessels.” Because regulations giving effect to APMs of a PSSA are “adopted in accordance with this Convention,” coastal state are allowed, subject to safeguards in Article 223 et seq., to enforce them against foreign vessels.<sup>119</sup>

Practical implications can be duly illustrated by recourse to the intended Ecuadorian enforcement practice concerning the mandatory ATBA of the Galapagos PSSA. The IMO Assembly approved this routing measures after consideration in MSC and NAV. In its submission to NAV, Ecuador explained how it would enforce the ATBA rules.<sup>120</sup> In particular, it was stated that “[s]hips in transit through the PSSA that infringe the procedures will be subject to the relevant laws and regulations, and may be detained at an island port pending payment of a bond set by the Maritime Authority in accordance with the relevant sanctions.”<sup>121</sup> Furthermore, “[a]ny ship that causes pollution through the illegal discharge of oil

<sup>117</sup> Gerhard Hafner, “Meeresumwelt, Meeresforschung und Technologietransfer”, in W. Graf Vitzthum (ed.), *Handbuch des Seerechts* (München: C.H.Beck 2006), pp. 347-460, para. 156 et seq.

<sup>118</sup> DOALOS, *Enforcement by Coastal States – Legislative History of Article 220 of the United Nations Convention on the Law of the Sea* (New York: United Nations 2005), p. 2.

<sup>119</sup> Examples of actions aimed at enforcing APMs are to be found in MEPC 46/6/1/Add. 1, *Additional Protection for Particularly Sensitive Sea Areas*, 14 February 2001, Annex, para. 3.6 et seqq.

<sup>120</sup> NAV 51/3/4, *Proposal by Ecuador to designate the Galapagos Archipelago as a Particularly Sensitive Sea Area (PSSA)*, 4 March 2005, Annex 11.

<sup>121</sup> *Ibid.*, para. 1.

or any other contaminant into the sea will be escorted to port and detained pending application of the relevant sanctions in accordance with the appropriate national legislation, and will not be allowed to leave until the bond has been paid.”<sup>122</sup>

Although these phrases were neither considered by the sub-committee nor approved, they were not objected to and may thus be reflective of what states consider to be lawful conduct with respect to the enforcement of APMs. As for the former provision, it is in line with Article 220(2) of UNCLOS, provided that “procedure” is intended to include the regulations concerning the ATBA. The same is true for the latter, even though it addresses pollution, whereas the ATBA rules are concerned with navigation rather than discharges.<sup>123</sup> Ecuador apparently did not consider it necessary to contemplate the exertion of milder measures. Since Article 220(2) provides for the detention of a vessel only “where the evidence so warrants,” a detention may not always conform to this requirement.

### **b) Exclusive Economic Zone**

In the EEZ, coastal states, according to Article 211(5) of UNCLOS, may “adopt laws and regulations for the prevention, reduction and control of pollution from vessels conforming to and giving effect to generally accepted international rules and standards [...]” Accordingly, coastal states can implement APMs in their EEZ, because they constitute generally accepted international rules and standards. To that end, however, a minor drawback should not be forgotten. APMs can be based on Article 21 to include instruments contributing to “the preservation of the marine environment of the coastal state.” In contrast, the scope of application of Article 211(5) is limited to the adoption of laws and regulations concerning vessel-source pollution – other forms of vessel-related impacts on the marine environment are not within the provision’s scope of application. If APMs go beyond pollution prevention, they cannot be implemented as mandatory requirements for foreign vessels unless they have a treaty-law basis. However, since most forms of non-pollution environmental degradation, e.g. grounding, occur in shallow waters and reefs that are often located within the territorial sea, this difference arguably does not amount to a substantial weakness.

As I have touched upon earlier, the application of the PSSA concept, if applied in a manner that follows the interpretation advanced here, leaves little room for Article 211(6). First, the protective measures of PSSAs can already be implemented by way of Article 211(5). Secondly, the protective level of APMs arguably exceeds that of Article 211(6) and PSSAs, in addition, have fewer prerequisites that must be met.

With respect to the enforcement of APMs in the EEZ, several paragraphs of Article 220 are relevant, namely paragraphs 3, 5, and 6. There is a major difference between the enforcement regimes applicable in the territorial sea and in the EEZ. Whereas coastal states are allowed to enforce all of their laws regardless

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<sup>122</sup> *Ibid.*, para. 3.

<sup>123</sup> It can be assumed that an area in which certain types of ships may not navigate is *a fortiori* also protected from vessel-source discharges.

of the result of the breach that has occurred, the enforcement of EEZ laws faces two substantial hurdles. Generally, only those laws that conform and give effect to “applicable international rules and standards” can be enforced. In addition, the intensity of the enforcement measures is linked to the environmental impact of the vessel’s conduct. As regards the latter, I have already set out the details of Article 220 in Chapter 4.<sup>124</sup> More importance must be attached to the former issue, which may influence the enforcement of APMs in PSSAs. Only if protective measures are based on applicable international rules and standards can compliance be enforced and breaches prosecuted. “Applicable” refers to treaty law and customary international law; it does not encompass soft-law instruments.<sup>125</sup> Hence, there seems to be an apparent gap between legislative and enforcement jurisdiction in the EEZ. However, as I have said earlier<sup>126</sup>, generally accepted international rules and standards are incorporated into the UNCLOS regime, they are always “applicable” between parties to UNCLOS. Consequently, coastal states are allowed to enforce a violation of APMs they have transposed into their domestic legislation against vessels flying the flag of an UNCLOS party. As to the means available, they are confined to graded limitations set by Article 220(3), (5), and (6). To that end, the PSSA status of an area does not have an immediate impact on coastal states’ enforcement competences.

However, it should be noted that mandatory SRSs, deployed in many PSSAs, already exceed the powers of coastal states under Article 220(3) of UNCLOS, in that they require ships to give certain information even without “clear grounds for believing that a vessel [...] has [...] committed a violation of applicable [environment protection rules].”<sup>127</sup> With respect to the application of Article 220 by coastal states, it may thus be reasonably argued that they should always be given powers granted under paragraphs 5 and 6.<sup>128</sup>

### c) Straits and Archipelagic Waters

Other critical maritime zones that have already played a crucial role in debates revolving around PSSA designations are straits used for international navigation and archipelagic waters. UNCLOS deploys unique regulatory approaches for both zones, which are characterised by transit passage and ASL passage respectively, as has been explained in some detail in Chapter 4.<sup>129</sup>

<sup>124</sup> See, *supra*, Sec. III.2.b) of Chapter 4.

<sup>125</sup> Cf., *supra*, Sec. III.4. of Chapter 4.

<sup>126</sup> *Ibid.*

<sup>127</sup> Henning Schult, *supra*, note 92, p. 191.

<sup>128</sup> Note that, in addition, some terms used by Art. 220(5) and (6) may be interpreted differently in the light of a PSSA designation; see, *infra*, Sec. II.2.b) of this chapter.

<sup>129</sup> Sec. III.2.d) and e) of Chapter 4. With respect to the straits regime, UNCLOS builds on long-standing customary international law.

What needs to be explored in this section is the legal yardstick for APMs to apply within PSSAs covering international straits or archipelagic waters.<sup>130</sup> There is an obvious difference between strait states' legislative competencies to give effect to "applicable international regulations regarding the discharge of oil, oily wastes and other noxious substances," as is codified in Article 42(1) lit. (b) of UNCLOS, and certain mandatory APMs that employ a considerably wider approach. The critical question is whether these APMs comply with UNCLOS' requirements for international straits. As I have explained earlier, in Section I.1.b) of Chapter 8, APMs that rely on non-binding IMO instruments – Article 21(2) of UNCLOS or Article 211(6) – must not contradict the specific design of the balance between coastal states' rights and navigational rights in the maritime area where the PSSA is located. The fact that Article 42(1) lit. (b) incorporates "applicable" instead of "generally accepted" international rules and standards does not bring any APM outside its scope. However, because the discharge of oil, oily wastes and other noxious substances is largely governed by MARPOL, there is little room for other measures to become applicable in international straits as a mandatory APM. Although coastal states therefore are limited in adopting mandatory laws and regulations applicable to foreign vessels in straits under their jurisdiction, they are free to adopt these measures on a voluntary basis. This approach duly reflects the importance that the international community has attached to the freedom of navigation in international straits ever since. In the light of these observations, it must be noted that APMs in international straits can only be introduced if they relate to the discharge of "oil, oily wastes and other noxious substances." This view is corroborated by the outcome of disputes triggered by an APM for the Torres Strait PSSA. Pilotage as a protective means chosen by Australia and Papua New Guinea was available as such, but only on a voluntary basis. A compulsory design would have contradicted transit passage rights, as it is an instrument which coastal states cannot adopt by reference to Article 42(1) lit. (b) of UNCLOS.<sup>131</sup>

It must be noted, however, that where PSSAs partly or wholly cover an international strait, a compulsory measure which may not be introduced in international straits (such as pilotage in the Torres Strait PSSA) could be implemented by it requiring all ships transiting the strait, for the purpose of entering or leaving a port of either state, to comply with the respective regulation.<sup>132</sup> This approach

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<sup>130</sup> Hereafter, I shall omit references to archipelagic seas, since – by virtue of Art. 54 of UNCLOS – the key provisions of the straits regime apply *mutatis mutandis* to passage through archipelagic sea lanes.

<sup>131</sup> Australia and Papua New Guinea, which took the opposite view, argued that compulsory pilotage could be based on Art. 211(6) and did not violate the transit passage rules, because the APM would have been necessary to complement traffic separation schemes prescribed in conformity with Art. 41; cf. NAV 50/3, *Torres Strait PSSA Associated Protective Measure – Compulsory Pilotage*, 22 March 2004, para. 5.10 et seq. I would contend that this interpretation stretches the wording of Art. 41 beyond any reasonable limit.

<sup>132</sup> Likewise Julian Roberts, *supra*, note 95, p. 105.

conforms to port-state jurisdiction as fleshed out by UNCLOS.<sup>133</sup> Otherwise, compliance with mandatory regulations is purely based on consent within the international community but is not a consequence of current international law.<sup>134</sup>

In Chapter 4, I alluded to Article 43 of UNCLOS, which requires user and strait states to co-operate by agreement “in the establishment and maintenance in a strait of necessary navigational and safety aids or other improvements in aid of international navigation; and for the prevention, reduction and control of pollution of ships.” Apparently, this provision promotes the progressive development of the UNCLOS’ straits regime through multilateral action within and outside IMO. Whether the purpose of Article 43 could be achieved by means of specifically designed PSSAs is doubtful. The use of the term “agreement” strongly suggests that it is not by soft-law mechanisms that the straits regime could be altered. In addition, “agreement” also indicates that an arrangement must be negotiated of which all interested parties expressly approve. Hence, acceptance with a great majority is not sufficient for creating duties for all user states, i.e. flag states.

With respect to enforcement jurisdiction, Article 233 clarifies that strait states, in enforcing measures they are allowed to adopt according to Article 42(1) lit. (b) of UNCLOS, may only take action if a ship causes or threatens major damage to the marine environment of the strait; warships are exempted from the scope of this provision. These competences are not altered by the PSSA concept.<sup>135</sup>

It should finally be noted that, by virtue of Article 39(2) of UNCLOS, ships in transit passage shall comply with “generally accepted international rules and standards, procedures and practices” with respect to both safety at sea and the prevention, reduction and control of vessel-source pollution. As far as anti-pollution measures are concerned, APMs are undoubtedly included, because the provision lacks any qualifier similar to the one in Article 42(1) lit. (b).<sup>136</sup> Even though strait states are not allowed to transpose into domestic law some APMs and are thus hindered from enforcing them, vessels are legally obliged to adhere to these measures.<sup>137</sup> This may be the reason why many maritime states within IMO are reluctant to approve any protective measures for PSSAs in straits at all.

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<sup>133</sup> As Louise de la Fayette, “Access to Ports in International Law”, 11 *IJMCL* (1996), pp. 1-22, at 4, rightly notes that “there is no right of entry into ports”. Cf., *supra*, Sec. III.2.f) of Chapter 4.

<sup>134</sup> Kristina M. Gjerde and J. Sian H. Pullen, *supra*, note 114, p. 247. Similar Julian Roberts, *supra*, note 95, p. 104 et seq. Whether the PSSA concept could be construed as being a forerunner of emerging customary law with respect to coastal states’ jurisdiction in sensitive marine areas under their jurisdiction is addressed, *infra*, in Sec. II.3. of this chapter.

<sup>135</sup> However, the PSSA status of a strait may contribute to an altered interpretation of the term “major damage”; see, *infra*, Sec. II.2.b) of this chapter.

<sup>136</sup> Even those who argue that generally accepted international rules and standards do not encompass IMO resolutions would not contest this conclusion. Cf., *supra*, Sec. III.4. of Chapter 4.

<sup>137</sup> In the case of a violation, enforcement as usual rests with the flag state.

## 2. Summarising Remarks

As has become apparent throughout this chapter, the PSSA Guidelines' interaction with UNCLOS and, in particular, its rules of reference is crucial for assessing the concept's benefits for marine environment protection. In this section, I would like to summarise the main findings above and examine whether the PSSA concept is a valuable asset for coastal states. Furthermore, I shall attempt to explore whether PSSA status additionally strengthens coastal states' protection efforts by influencing the interpretation of some indefinite terms used in UNCLOS.

### a) PSSA Status: Additional Rights or Added Value?

To begin with, it should be recalled that, for the identification of APMs, proposing states are allowed to rely on multilateral treaties and IMO instruments, as well as on Articles 21 and 211(6) of UNCLOS. The excessive designation and use of APMs is prohibited by the PSSA Guidelines, insofar as they clearly state that the implementation of APMs must not amount to derogation from the basic UNCLOS framework. While this stipulation seems to confine coastal states to enacting measures that would have been available even without PSSA status, it must be considered that some UNCLOS provisions have a certain dynamic character. In this context, the legal status of APMs is of vital importance. If they do not have a legal basis in an existing multilateral treaty, they are approved by an IMO resolution adopted by the Assembly or one of IMO's committees. As far as this is done unanimously or with a great majority of votes, the respective APMs are encompassed by the notion of "generally accepted international rules and standards", on which UNCLOS relies to incorporate regulations agreed to by the international community. The same applies to individual APMs adopted by an IMO organ. When designing their laws for the territorial sea and the EEZ, coastal states may thus rely on APMs as a maximum level of interference with the navigational rights of foreign vessels. Deploying the PSSA concept, therefore, does not rescind the balance of coastal-state jurisdiction over foreign vessels and freedom of navigation, but pushes coastal-state jurisdiction to the furthest extent possible within the current UNCLOS framework. Hence, the PSSA concept may provide for protective measures for certain marine areas that are otherwise not available.<sup>138</sup> However, as has been seen above, the progressive impact of PSSA status is confined to the territorial sea and the EEZ. The impact on jurisdiction in international straits and archipelagic waters is limited, since strait states must not legislate on matters other than discharge restrictions on certain substances.

The general views expressed here are shared by some scholars, although no one deploys lengthy arguments in support of their contention<sup>139</sup> or specifies implica-

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<sup>138</sup> Note that in Chapter 7, several additional "protective effects" of PSSAs have been identified, such as raising awareness of the need to navigate cautiously and increasing political pressure on governments to develop and propose further APMs for the area.

<sup>139</sup> See Kristina M. Gjerde, "Protecting Particularly Sensitive Sea Areas From Shipping: A Review of IMO's New PSSA Guidelines", in H. Thiel and J.A. Koslow (eds.), *Managing Risks to Biodiversity and the Environment on the High Sea, Including Tools*

tions for different maritime zones. In contrast, other scholars have negated any legal effect of the UNCLOS system and have merely attached added intrinsic value to a PSSA designation, limiting its character to a purely awareness-raising instrument. For *Lagoni*, PSSAs are a management tool which is used to house all sorts of existing protective measures under a single roof, supporting their efficient application;<sup>140</sup> *Warren and Wallace* consider a PSSA to be a mere symbol for the environmental sensitivity of an area;<sup>141</sup> and *Molenaar* contends that “coastal States gain little in acquiring a PSSA identification, except perhaps for some ill-defined recognition of the area’s special character.”<sup>142</sup> *Roberts*, while stating that “[t]he designation of a PSSA may also be considered to be giving effect to obligations under Article 211(1) of the LOSC, which requires states acting through the competent international organisation to establish rules and standards to prevent pollution from vessels and to adopt routeing measures to minimise the risk of accidents resulting in pollution,”<sup>143</sup> is reluctant to acknowledge that the PSSA concept has more than intrinsic value, because “[t]he limits of what may be adopted by the IMO as an APM are not clearly defined in the PSSA Guidelines.”<sup>144</sup> I would like to maintain that, in the light of the arguments set out in this treatise, the argument that PSSAs possess only intrinsic value is not compelling. Coastal states, by having parts of the waters under their jurisdiction designated as a PSSA, are allowed to implement more stringent measures – provided that proposals are approved by IMO – than in waters without PSSA status.

Nevertheless, some coastal states have refrained from having parts of their territorial sea protected by PSSA status. Instead, they have chosen only to apply for a single routeing measure.<sup>145</sup> New Zealand’s approach, in particular, spurred questions as to the benefits of PSSA status for vulnerable marine ecosystems, given that the GPSR deploy almost the same language as the PSSA criteria.<sup>146</sup> The case of the Poor Knights Islands shows that PSSA status is most adequately

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*such as Marine Protected Areas – Scientific Requirements and Legal Aspects* (Bonn-Bad Godesberg: BfN-Skripten 2001), pp. 123-131, at 126; Angelo Meriardi, *supra*, note 67, p. 37; Nihan Ünlü, *supra*, note 104, p. 168.

<sup>140</sup> Rainer Lagoni, *supra*, note 67, pp. 121-133, at 126.

<sup>141</sup> Lynda M. Warren and Mark W. Wallace, “The Donaldson Inquiry and its Relevance to Particularly Sensitive Sea Areas”, 9 *IJMC* (1994), pp. 523-534, at 528 et seq.

<sup>142</sup> Erik Jaap Molenaar, *supra*, note 95, p. 443.

<sup>143</sup> Julian Roberts, *supra*, note 95, p. 94 et seq.

<sup>144</sup> *Ibid.*, p. 97. In fact, he does not attempt to explore these limits, apart from stating that conformity with UNCLOS and non-interference with the freedom of navigation must be ensured. Identical reasoning is applied in Julian Roberts et al, “The Western European PSSA Proposal: a ‘politically sensitive sea area’”, 29 *Marine Policy* (2005), pp. 431-440, at 434.

<sup>145</sup> New Zealand applied for an ATBA around the Poor Knight Islands, as well as for a precautionary area off the West coast of its North Island; see Sec. II.1.a) of Chapter 8 and Sec. III.3. of Chapter 7, respectively. The US deployed two SRSs to protect the North Atlantic Right Whale against ship strikes in areas off the northeast and southeast coast without having it proposed as a PSSA; cf. Sec. II.1.b) of Chapter 8.

<sup>146</sup> Julian Roberts, “Protecting sensitive marine environments: the role and application of ships’ routeing measures”, 20 *IJMC* (2005), pp. 135-159, at 151 et seq.

sought for areas that need multiple protective measures to be put in place. Where states only seek implementation of one specific instrument, they arguably need not go through the sometimes longish designation procedure. However, a PSSA designation keeps open the door for further measures and may thus still be preferred by coastal states to allow for flexibility with respect to future developments in and around the vulnerable area.

Another observation made in this section is that PSSA status tends to result in aligning the protective regimes of the EEZ and the territorial sea to facilitate uniform application of protective measures. The PSSA mechanism thereby promotes the implementation of a protective approach that is a more ecosystem-based approach, enabling the determination of the type of APM with a view to the specific needs of the area rather than the allocation of jurisdiction.<sup>147</sup> However, UNCLOS does not permit the inter-zonal approach of the PSSA concept to encompass often fragile straits, if used for international navigation pursuant to Part III of UNCLOS, and archipelagic waters. Strait states and archipelagic states have to adhere to the rather rigid limitations set by UNCLOS for these particular zones.

### **b) Modified Interpretation of Indeterminate Legal Terms**

As has become apparent from the observations made so far, the balance between coastal states' jurisdiction and foreign vessels' enjoyment of navigational rights is only slightly altered by the application of the PSSA concept if, and to the extent to which, coastal states can make use of UNCLOS' rules of reference. The overall framework is left unaltered. However, an additional argument could possibly be produced to further strengthen coastal states' enforcement competences while not changing the basics of the UNCLOS system. As *Schult* has indicated, without going into details, "the PSSA status of an area can become important for the interpretation of certain UNCLOS rules. A state may argue, for instance, that even small discharges in a PSSA render the passage of a vessel non-innocent, because they constitute an act of 'wilful and serious pollution' in accordance with article 19(2) lit. (h). Hence, PSSA status increases the scope of application of existing environment protection measures."<sup>148</sup> A similar line of reasoning could be applied to the interpretation of indeterminate legal terms relevant for enforcement juris-

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<sup>147</sup> Similarly Henning Schult, *supra*, note 92, p. 213. As has been rightly mentioned, "[t]raditional jurisdictional zones [...] were designed to give interested states control over what was deemed a suitable section of the ocean, not to ensure the sustainable use of ecosystems. The result is a mismatch of jurisdictional zones and ecosystems." See Elizabeth Kirk, "Maritime Zones and the Ecosystem Approach: A Mismatch", 8 *RECIEL* (1999), pp. 67-72, at 69.

<sup>148</sup> Henning Schult, *supra*, note 92, p. 214: ("Zudem kann die PSSA-Eigenschaft eines Gebietes Bedeutung bei der Auslegung von Vorschriften des [SRÜ] gewinnen. Ein Staat könnte beispielsweise argumentieren, dass selbst geringe Einleitungen von Schiffen in einer PSSA die Durchfahrt dieser Schiffe unfriedlich machen, weil sie eine vorsätzliche schwere Verschmutzung im Sinne von Art. 19(2) (h) SRÜ darstellen. PSSAs vergrößern folglich die Anwendungsmöglichkeiten existenter Umweltschutzmaßnahmen.") [own translation].



diction in the EEZ, i.e. paragraphs 5 and 6 of Article 220.<sup>149</sup> Whether a vessel's discharge amounts to a "substantial discharge causing or threatening significant pollution of the marine environment" or even "a discharge causing major damage or threat of major damage to the coastline or related interests of the coastal State, or to any resources of its territorial sea or [EEZ]" is a question of vital concern for the coastal state's enforcement authorities. The quantity and the result of a discharge is intrinsically tied to the extent of coastal states' enforcement rights over foreign vessels.

These observations merit a closer look at how these UNCLOS terms are usually defined. The *Virginia Commentary* notes: "The expression 'major damage to the coastline or related interests of the coastal State' is not explained, but the legislative history taken in its historical context, following the Amoco Cadiz and other similar incidents, illustrates the kind of problem addressed by this provision. [...] Obviously this is first a matter for the subjective interpretation of the coastal State, but if a dispute arises it would come within the scope of Part XI [on settlement of disputes]."<sup>150</sup> This statement is a reasonable appraisal, given that neither fixed requirements nor guidance as to what parameters to apply for an interpretation exist.<sup>151</sup> It is thus not far-fetched to contend that the aforementioned indeterminate legal terms must be interpreted on a case-by-case basis, taking account of the prevailing characteristics of the area. One of these characteristics is international recognition of an area's sensitivity by conferral of PSSA status: enforcement competences of coastal states against vessel-source pollution must be extended where the international community explicitly recognises a particular vulnerability to exactly these threats. This approach duly conforms to the requirements of Article 31(1) of the Vienna Convention on the Law of Treaties<sup>152</sup> to interpret a legal term "in light of its object and content." Since environmental terms, such as "significant pollution" or "major damage", are inherently vague, their concrete meaning must be determined by recourse to the objective of Part XII to "protect and preserve the

<sup>149</sup> A modified interpretation of "major damage" for areas identified pursuant to Art. 211(6) of UNCLOS, without reference to PSSAs, is suggested by Lindy S. Johnson, *Coastal-State Regulation of International Shipping* (Dobbs Ferry: Oceana Publications 2004), p. 121, in note 438.

<sup>150</sup> Myron H. Nordquist, Satya N. Nandan and Shabtai Rosenne, *United Nations Convention on the Law of the Sea 1982, A Commentary*, Vol. IV (Dordrecht: Martinus Nijhoff Publishers 1991), para. 220.11(j).

<sup>151</sup> Similarly Robin Churchill and Vaughan Lowe, *The Law of the Sea*, Third Ed. (Manchester: Manchester University Press 1999), p. 349, take the view that the power of interpretation lies with the coastal states leading them to "assume that any significant discharge will fall into [art. 220(6)], thus endowing themselves with greater enforcement competence." Jon M. Van Dyke, "The Disappearing Right to Navigational Freedom in the Exclusive Economic Zone" 29 *Marine Policy* (2005), pp. 107-121, at 109, observed that "state practice appears to have expanded this right [of enforcement in article 220(3)-(6)] dramatically during the past year after the disastrous breakup of the oil tanker *Prestige*".

<sup>152</sup> Convention on the Law of Treaties, adopted on 22 May 1969, in force as from 27 January 1980, 8 *ILM* (1969) 679.

marine environment.”<sup>153</sup> The same is true for the interpretation of “wilful and serious pollution” as used in Article 19(2) lit. (h), as well as for the interpretation of “major damage” contained in Article 233 on strait states’ enforcement jurisdiction. Therefore, a strong argument could be produced that, in the light of PSSA status, indefinite terms describing the state of the marine environment ought to be interpreted so as to allow coastal states to act decisively in pollution incidents.<sup>154</sup> *Schult*’s suggestion should be affirmed whole-heartedly.

If certain environment-related terms in UNCLOS are to be interpreted with a view to the characteristics of the area in question, the same might be said about the interpretation of environment-related requirements for, e.g., routing measures, such as those contained in the General Provisions on Ship’s Routing.<sup>155</sup> Evidence of practice within IMO is scarce. Recently, NAV 51 refrained from approving two mandatory ATBAs in the Baltic Sea Area PSSA but did not give any reason for its conduct, apart from stating that “the proposal did not justify the establishment of such areas;”<sup>156</sup> instead, the ATBAs were adopted as non-mandatory routing measures.<sup>157</sup> Of course, the term “essential in the interest of [...] protection of the marine environment” is not only more vague than the UNCLOS terms referred to above, but also does not relate to the status of the marine environment. Hence, a PSSA designation does not automatically render every proposal admissible. Whether or not a mandatory routing measure is adopted for a PSSA is still largely left to the success or failure of diplomatic negotiations within IMO.

An example from German domestic law more closely resembles the UNCLOS provisions examined above. A few years ago, in the aftermath of the *Pallas* accident in the German bight, the Central Command for Maritime Emergencies Germany (CCME – *Deutsches Havariekommando*) was established.<sup>158</sup> It is a task force on stand-by 24 hours a day, designed to bypass the complex federal structures for rescue and emergency services at sea in the case of a shipping accident triggering the need to deploy one-stop urgent action. The relevant point of reference for an intervention is a “complex damage situation at sea” (*komplexe Schadenslage*), i.e. a danger of a serious threat to the environment, as required by paragraph 1(4) of HKV.<sup>159</sup> Since most German North Sea coastal areas are

<sup>153</sup> Art. 192 of UNCLOS.

<sup>154</sup> The same may arguably be said with respect to other regimes in international law, such as an inclusion of an area in the Ramsar List of Wetlands of International Importance.

<sup>155</sup> For instance, para. 6.17 of the GPSR stipulates that “[t]he extent of a mandatory routing system should be limited to what is essential in the interest of safety of navigation and the *protection of the marine environment*.” (italic emphasis added)

<sup>156</sup> NAV 51/WP.2, *Report of the Working Group*, 8 June 2005, para. 8.11.

<sup>157</sup> See Sec. V.2. and V.3. of Chapter 8 for details.

<sup>158</sup> Gert-Jürgen Scholz, “Das Havariekommando – Probleme gelöst?“, 140 *Hansa* (2003) No. 3, pp. 32-36; Boris Klodt, “Havariekommando – gemeinsame Einrichtung des Bundes und der Küstenländer“, Vortrag über das Havariekommando im Rahmen der 16. Sitzung des Hafenrechtsausschusses, 13 Mai 2004. See further information available from <<http://www.wsv.de/cis/main.htm>>; (accessed on 30 September 2006).

<sup>159</sup> Bund/Küstenländer-Vereinbarung über die Errichtung des Havariekommandos (HKV), adopted on 23 December 2002, BAnz No. 16, 24 January 2003, pp. 1170-1171. The

covered by the Wadden Sea PSSA and, indeed, the whole German Baltic Sea is part of the Baltic Sea Area PSSA, it can be asked whether this status has an impact on the conduct of CCME. According to paragraph 9 of HKV, the head of CCME may deploy emergency services and resources to respond effectively to an accident. Along the lines of reasoning applied above, it may be argued that the CCME has to step in earlier if parts of a PSSA are under threat.<sup>160</sup> However, a striking difference is that the Wadden Sea, as well as parts of the Baltic Sea, are already protected by a plethora of domestic legal instruments. At least with respect to these areas, it is doubtful whether PSSA status additionally lowers the threshold above which action is necessary for averting damage to marine and coastal ecosystems. While the international recognition of an area's vulnerability, for instance, by bestowing PSSA status, has an impact on the interpretation of certain multilateral treaties, this does not automatically apply to domestic law in the same manner. Because PSSAs are very likely to have already been granted legal protection by the proposing state pursuant to its nature conservation laws, PSSA status is merely an add-on that may not yield significant further consequences with respect to the interpretation of indeterminate legal terms in domestic law.

To sum up, it can be noted that a PSSA designation does not only provide protection, inasmuch as it allows for APMs to be adopted by IMO and notifies mariners of the area's fragility. Even though UNCLOS, in its provisions on the enforcement of coastal state environmental legislation, does not expressly refer to the ecological state of an area, a PSSA designation is very likely also to strengthen coastal states' competences with respect to interference with ships on voyage through the territorial sea, as well as the enforcement of APMs (and, indeed, other environmental protection regulations enacted in conformity with international law) against foreign vessels in the EEZ.

### **3. Long-term Implications: Contribution to Customary International Law?**

While the previous section dealt with the PSSA concept's immediate effects on the jurisdiction of coastal states over foreign vessels, PSSAs may also have implications for the development of international law in the long run. *Gjerde* and *Freestone* recognised that "the PSSA concept offers the opportunity to enable the development of common jurisdictional and enforcement regimes for environ-

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German text reads: "Eine komplexe Schadenslage im Sinne dieser Vereinbarung liegt vor, wenn [...] die Umwelt [...] gefährdet [ist] oder eine Störung bereits eingetreten ist und zur Beseitigung dieser Gefahrenlage die Mittel und Kräfte des täglichen Dienstes nicht ausreichen oder eine einheitliche Führung mehrerer Aufgabenträger erforderlich ist." By virtue of para. 9 of HKV, the director of CCME decides personally whether complex damage is impending.

<sup>160</sup> This argument is maintained by WWF Germany; e-mail by Dr. Hans-Ulrich Rösner, Head of Wadden Sea Project Office, 5 October 2006, on file with the author. WWF Germany also criticised the slow working pace of the CCME in the aftermath of the *Maritime Lady* accident in the mouth of the River Elbe; see *press release* of 10 December 2005, "Riskante Verzögerungen".

mentally significant marine areas.”<sup>161</sup> More generally, some authors claim that PSSAs, amongst other developments within IMO, contribute to a significant change of perception of coastal-state jurisdiction over environmental matters.<sup>162</sup> These assumptions merit a closer look at the long-term implications of PSSAs. I shall examine whether the PSSA Guidelines could be said to make a progressive impact on customary international law governing coastal-state jurisdiction over foreign vessels aimed at protecting the marine environment.

To recollect the main features of customary international law, it is largely characterised by two elements: state practice and *opinio juris*.<sup>163</sup> The relationship of these elements was aptly summarised by the ICJ, which held that “not only must the acts [of a state] concerned amount to a settled practice, but they must also be such, or be carried out in such a way, as to be evidence of a belief that this practice is rendered obligatory by the existence of a rule of law requiring it.”<sup>164</sup> States must feel that what they do is necessary for conforming to a legal obligation, whereas the frequency of carrying out these acts is not adequate evidence in itself.<sup>165</sup> The qualification of the PSSA Guidelines as soft law does not alter these findings: soft law can be a precursor to new customary international law; the existence of treaties is not a necessary element of customary law. While traditionally customary law was often thought to encompass only rules that have existed for a long time or even “from time immemorial,”<sup>166</sup> it is today generally accepted that a short period of time suffices to evidence the existence of a customary rule, provided that a widespread and representative conduct of states can be verified.<sup>167</sup>

Turning to the status of rules governing coastal-state jurisdiction over vessel-source pollution, state practice shows that provisions contained in Part XII of UNCLOS are widely believed to reflect customary international law, or at least those provisions that envisage broad obligations (Articles 192, 194(5), 197, and 206)<sup>168</sup> and those which set out the overall prescriptive and enforcement regime for coastal states (Articles 211 and 220) in the territorial sea and arguably in the

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<sup>161</sup> Kristina M. Gjerde and David Freestone, “Particularly Sensitive Sea Areas – An Important Environmental Concept at a Turning-Point”, 9 *IJMCL* (1994), pp. 431-468, at 432.

<sup>162</sup> Jon M. Van Dyke, *supra*, note 151, p. 109 et seq.; and Robert Nadelson, “After MOX: The Contemporary Shipment of Radioactive Substances in the Law of the Sea”, 15 *IJMCL* (2000), pp. 193-244, at 237 et seqq.

<sup>163</sup> For an overview, see Rudolf Bernhardt, “Customary International Law”, *EPIL* (1995), Vol. I, pp. 898-905.

<sup>164</sup> *North Sea Continental Shelf Cases (Federal Republic of Germany/Denmark; Federal Republic of Germany/The Netherlands)*, ICJ, 20 February 1969, *I.C.J. Reports* 1969, pp. 3-54, para. 77.

<sup>165</sup> *Ibid.*

<sup>166</sup> *Jurisdiction of the European Commission of the Danube between Galatz and Braila Advisory Opinion*, PCIJ, Dissenting Opinion of Judge Negulesco, *PCIJ*, Ser. B, No. 14 (1927), pp. 84-134, at 98.

<sup>167</sup> *North Sea Continental Shelf Cases*, *supra*, note 164, para. 73 et seq.

<sup>168</sup> These provisions represent marine specifications of broader environmental principles considered to be customary international law. Cf. Gerhard Hafner, *supra*, note 117, para. 33 et seqq.

EEZ.<sup>169</sup> That said, a different conclusion may be drawn from an examination of provisions concerning the protection of specific vulnerable areas. Whether the only UNCLOS rule addressing specially protected areas, Article 211(6), can be considered to have evolved into customary international law is highly doubtful, because – although no state has so far expressly objected to its content – states have not yet utilised its potential.<sup>170</sup> In addition, similar provisions for the territorial sea, international straits or archipelagic waters do not exist. Yet customary international law need not have a precursor in a treaty instrument. It must therefore be asked if sufficient state practice can be identified with respect to the protection of certain marine areas against threats posed by shipping. In fact, coastal states have developed a variety of marine protected area regimes. An analysis of regional treaties indicates the same inference, as the account in Chapter 5 has shown. However, coastal states appear to take careful account of the general governance regime set by UNCLOS and, indeed, customary international law. They do not seem to expand their rights in order to enact a common jurisdictional and enforcement regime. Likewise, as has been shown above in Chapters 5 and 9, regional MPA regimes do not infringe upon the freedom of navigation for the purpose of protecting vulnerable marine areas.

In my opinion, the PSSA concept should not be considered as signifying the emergence of specific customary international law relating to the protection of vulnerable marine ecosystems. While it is partly innovative in aligning the protective regimes of the territorial sea and the EEZ, it does not bring about radical changes. It merely uses UNCLOS dynamic rules of reference but does not go beyond what is admissible under the environment protection rules of Part XII. Moreover, virtually all APMs approved so far would have been available without PSSA status, since they were based on MARPOL, SOLAS or an instrument incorporated in one of these two regimes. Nevertheless, it has been maintained that PSSAs are in the centre of an evolutionary process, in which “navigational freedoms appear to be disappearing.”<sup>171</sup> This assertion is largely based on the contentious proposal to designate the Western European Atlantic as a PSSA with an APM that would have, in effect, banned single-hull oil tankers from entering

<sup>169</sup> Erik Jaap Molenaar, *supra*, note 95, p. 241 (territorial sea) and p. 397 et seqq. (EEZ); Patricia Birnie and Alan E. Boyle, *International Law and the Environment*, Second Ed. (Oxford: OUP 2002), p. 353. Robin Churchill and Vaughan Lowe, *supra*, note 151, p. 352 et seq. are rather reluctant to attach customary status to rules relating to the EEZ. In contrast, recent ILA studies suggest that “states tend to rely on the new regime provided by the 1982 Convention with respect to [prescriptive] coastal state jurisdiction in the EEZ.” Cf. Erik Franckx, “Exclusive Economic Zone, State Practice and the Protection of the Marine Environment”, in *id.* and Ph.Gautier (eds.), *The Exclusive Economic Zone and the United Nations Convention on the Law of the Sea, 1982-2000: A Preliminary Assessment of State Practice* (Brussels: Bruylant 2003), pp. 11-30, at 30.

<sup>170</sup> Indeed, several states have ignored the restraints of Article 211(6) in their efforts to protect their EEZ: see Robin R. Churchill, “The Impact of State Practice on the Jurisdictional Framework contained in the LOS Convention”, in A.G. Oude Elferink (ed.), *supra*, note 111, pp. 91-143, at 130.

<sup>171</sup> Jon M. Van Dyke, *supra*, note 151, p. 121.

the area. Whether proponents of the designation actually believed in the lawfulness of this APM and whether they believed that the freedom of navigation in the EEZ could really be impaired by this means is hard to verify. Because this specific APM aimed at preventing the passage of single-hull oil tankers was eventually withdrawn, not least because of the opposition it was facing, the practice of states within IMO does not provide evidence that PSSAs contribute to a departure from the traditional UNCLOS approach of coastal-state jurisdiction over vessel-source pollution that can (yet) be considered to signify the emergence of corresponding customary international law.

Given that the PSSA Guidelines allow for the application of an inter-zonal approach towards the protection of vulnerable marine ecosystems, it is probably indicative of the preparedness of the international community to go further down this road. Moreover, it may provide evidence of a general momentum that coastal states increasingly assert rights over the EEZ to foster the utilisation of natural resources (fisheries and seabed mining, as well as wind and tidal energy) and to protect their security interests. Eventually, states may be willing to agree to a treaty on MPAs in the future that disposes of arbitrary maritime zones. However, this is an issue to be addressed in the next chapter.

### III. PSSAs on the High Seas – Competences and Responsibilities

While the PSSA concept, as has been noted above, can be applied to international straits and archipelagic waters, it does not create additional prescriptive jurisdiction for protective instruments in these particular zones. The issue of jurisdiction is even more challenging on the high seas. By its very nature, the status of the high seas implies the absence of coastal-state competences. Consequently, the observation that APMs represent generally accepted international rules and standards appears to have very little consequence, since UNCLOS rules of reference are largely limited to areas under national jurisdiction. Of course, flag states are obliged, by virtue of Article 211(2) of UNCLOS, to ensure that their laws on vessel-source pollution at least have the same effect as that of generally accepted international rules and standards – and most do not cease to apply on the high seas. Still, one of the most persistent problems of contemporary ocean governance is sub-standard shipping due to a lack of adequate flag-state resources to monitor and enforce their fleet's compliance. If flag states fail to live up to their obligations, no corrective seems to exist on the high seas, because other states do not have any regulatory power.

Bearing this in mind, I shall examine, as indicated above, whether and how the PSSA concept can be implemented on the high seas and how the protection of designated areas may be ensured in this particular part of the oceans. PSSAs are said to possess features that make their application possible even in areas beyond national jurisdiction<sup>172</sup>, although challenges are obvious. First, in the absence of

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<sup>172</sup> Robin Warner, "Marine Protected Areas Beyond National Jurisdiction – Existing Legal Principles and Future Legal Frameworks", in H. Thiel and J.A. Koslow (eds.), *supra*, note 139, pp. 149-168, at 167.

any coastal-state jurisdiction, the understanding of traditional freedom on the high seas makes it necessary to ascertain the extent to which protected areas may be designated and their protective measures enforced. Secondly, usually governments of coastal states are those able to apply for an area under the state's jurisdiction to be designated a PSSA. They are also responsible for enforcing and monitoring compliance with APMs once they are approved. Apparently, where no state other than the flag state has any jurisdiction, it is difficult to determine which state or entity could claim responsibility for applying for a PSSA, as well as for the subsequent monitoring and enforcement of APMs. In the following part, I shall highlight the legal framework for high seas marine protected areas (HSMPAs) and its possible development, as well as existing aerial regulations for environmental purposes. Subsequently, I shall consider how, in the light of these observations, the PSSA regime may be implemented on the high seas.

### **1. Preliminary Considerations and Political Initiatives**

In Chapter 1, various features were identified that render it essential to protect the environment of the high seas. Areas beyond national jurisdiction accommodate, amongst others, a wealth of vulnerable deep-sea ecosystems, as well as habitats for marine mammals. A continuously growing intensity and range of human activities on the high seas triggered debates in diverse fora on possible ways of protecting the biodiversity of the high seas. The international community realised that urgent action is crucial to avoid a "tragedy of the commons" like in other environment-related instances.<sup>173</sup>

While Agenda 21, adopted at UNCED in 1992, merely included generally worded paragraphs on the protection of the vulnerable marine habitats<sup>174</sup>, the Johannesburg Plan of Implementation (JPOI), adopted in 2002 at the World Summit on Sustainable Development (WSSD) in Johannesburg<sup>175</sup> particularised these commitments for high-seas areas, inasmuch as it called for states to "promote the conservation and management of the oceans through actions at all levels, giving due regard to the relevant international instruments to maintain the productivity and biodiversity of important and vulnerable marine and coastal areas, including within and beyond national jurisdiction."<sup>176</sup> Marine protected areas are among the tools to reach this objective; a representative network should

<sup>173</sup> Kristina M. Gjerde and Graeme Kelleher, "High Seas Marine Protected Areas on the Horizon: Legal Framework and Recent Progress", 15 *Parks* (2005), No. 3, pp. 9-18, at 13 et seqq.

<sup>174</sup> The relevant Chapter 17 on the protection of the oceans is included in Section II (Conservation and management of resources for development), cf. A/CONF.151/26 (Vol. II). As para. 17.86 sets out, "[s]tates should identify marine ecosystems exhibiting high levels of biodiversity and productivity and other critical habitat areas and provide necessary limitations on use in these areas, through, inter alia, designation of protected areas." High-seas ecosystems are not listed among the priorities.

<sup>175</sup> Doc. A/CONF.199/20, *Report of the World Summit on Sustainable Development*, 4 September 2002, p. 6 et seqq.

<sup>176</sup> *Ibid.*, para. 32(a).

be established by 2012.<sup>177</sup> Furthermore, parties to the CBD at COP 2 in 1995 adopted the so-called *Jakarta Mandate on Coastal and Marine Biodiversity*.<sup>178</sup> Within the institutional framework of the CBD, its Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) was asked to keep the programme under review. In its review for COP 7, later adopted as a COP decision, it concluded that “there is an urgent need for international cooperation and action to improve conservation and sustainable use of biodiversity in marine areas beyond the limits of national jurisdiction, including the establishment of further marine protected areas consistent with international law, and based on scientific information.”<sup>179</sup> This impetus led a newly established CBD *ad hoc* Open-ended Working Group on Protected Areas to choose as one of their main agenda items the question of biodiversity protection in areas beyond national jurisdiction through the establishment of HSMPAs. The WG started its work by exploring the legal requirements and potential benefits of HSMPA designation, as well as options for the cooperation of states to further these issues.<sup>180</sup> The outcome of these efforts is, however, not yet predictable. In a parallel development, UNICPOLOS has also commenced to delve into examining legal aspects related to HSMPAs.<sup>181</sup> Within OSPAR, negotiations commenced on whether and how certain high-seas areas could be included in the OSPAR MPA network.<sup>182</sup>

<sup>177</sup> *Ibid.*, para. 32(c).

<sup>178</sup> CBD Dec. II/10. See further, *supra*, Sec. IV. of Chapter 4.

<sup>179</sup> CBD Dec. VII/5, para. 30.

<sup>180</sup> Cf. UNEP/CBD/WG-PA/1/6, *Report of the First Meeting of the ad hoc open-ended Working Group on Protected Areas*, 20 June 2005, para. 38 et seqq.

<sup>181</sup> See A/58/95, *Report on the work of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea*, 26 June 2003, para. 70; see also submissions to the meeting in A/Ac.259/8, *The need to protect and conserve vulnerable marine ecosystems in areas beyond national jurisdiction*, 22 May 2003; and A/Ac.259/10, *Protection and conservation of vulnerable marine ecosystems in areas beyond national jurisdiction*, 4 June 2003. So far, discussions have not progressed considerably; cf. A/61/156, *Report on the Work of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea at its Seventh Meeting*, 17 July 2006, para. 99.

<sup>182</sup> MASH 05/8/1-E, *Summary Record*, 3-7 October 2005, para. 5.6. At the 2005 Meeting of the OSPAR Biodiversity Committee’s WG on Marine Protected Areas, Species and Habitats, WWF proposed the designation of the “rainbow field”, a cluster of hydrothermal vents off the Azores, as an OSPAR MPA, see *ibid.*, para. 5.8 et seq. Decision on the matter was first postponed. Portugal then declared that the rainbow field was located on its continental shelf and is thus, as far as protection of the seabed rather than the water column is concerned, no longer encompassed by the high-seas regime. See OSPAR Commission, *2005/2006 Report on the Status of the OSPAR Network of Marine Protected Areas* (2006), available from <[http://www.ospar.org/documents/dbase/publications/p00268\\_First%20status%20of%20the%20OSPAR%20Network%20of%20MPAS.pdf](http://www.ospar.org/documents/dbase/publications/p00268_First%20status%20of%20the%20OSPAR%20Network%20of%20MPAS.pdf)>; (accessed on 30 September 2006), p. 7. More generally, cf. Daniel Owen, *The Powers of the OSPAR Commission and Coastal State Parties to the OSPAR Convention to Manage Marine Protected Areas on the Seabed Beyond 200 nm from the Baseline*, A Report for WWF Germany (Frankfurt: WWF 2006), p. 12 et seqq.



## 2. Legal Framework for High-Seas MPAs

Although political declarations such as the 2002 JPOI and action programmes like the Jakarta Mandate are of quite recent nature, it should not be forgotten that, as early as 1982, states had already agreed to similar obligations enshrined in Part XII of UNCLOS, formulated only slightly differently. And in contrast to the former, UNCLOS' general provisions on the protection and preservation of the marine environment possess binding legal force. Even though Articles 192 and 194(5) do not expressly provide for HSMPAs, they universally oblige parties to protect and preserve the marine environment, including rare or fragile ecosystems. This obligation is not confined to areas over which states exercise jurisdiction. Of course, it is qualified by other UNCLOS provisions; in particular those contained in Part VII on the high seas.

According to Article 87 of UNCLOS, the high seas are open to all states and all states are eligible to enjoy its freedoms, which they may exercise, in turn, under the conditions laid down in UNCLOS. As put frankly by one author, "the establishment or designation of marine protected areas is *prima vista* a substantial interference with the regime of the high seas, unless proven to the contrary or tolerated by all States."<sup>183</sup> It may seem that relying on Articles 192 and 194(5) would constitute such a proof, but its existence merely indicates that the freedom of the high seas does not amount to a freedom of pollution. Articles 192 and 194(5) do not warrant the designation of specially protected zones in which all vessels could be subject to anything else than flag-state enforcement. The jurisdictional regime established by UNCLOS permits no interference with this quasi-sacrosanct principle by third states.<sup>184</sup> Yet, in the light of the fact that UNCLOS' general provisions in Part XII reflect international customary law, it can be ascertained that all states are under the obligation to provide for appropriate mechanisms to ensure that these rules are not violated by ships flying their flag. Article 197 furthermore requires them multilaterally to address identified problems also on the high seas. Nevertheless, many deficiencies remain, not least because many states do not seriously live up to their responsibilities. Most of these states – unable or unwilling to adequately enforce compliance with globally agreed rules and standards – would hardly tolerate any encroachment on their jurisdictional supremacy. In addition, there is no international organisation or institution whose competences could counterbalance the absence of coastal states' powers in areas beyond their jurisdiction.<sup>185</sup>

<sup>183</sup> Renate Platzöder, "The United Nations Convention on the Law of the Sea and Marine Protected Areas on the High Seas", in H. Thiel and J.A. Koslow (eds.), *supra*, note 139, pp.137-142, at 139.

<sup>184</sup> A few exceptions to that general rule exist, cf. Doris König, *Durchsetzung internationaler Bestands- und Umweltschutzvorschriften auf Hoher See im Interesse der Staatengemeinschaft* (Berlin: Duncker & Humblot 1989), p. 97 et seqq.

<sup>185</sup> Alfonso Ascencio and Michael Bliss, "Conserving the biodiversity of the high seas and deep oceans: Institutional gaps in the international system", contribution to the Cairns High Seas Biodiversity Workshop, 16-20 June 2003, available from <<http://www>>

The international community has realised that current law of the sea rules impede the establishment of HSMPAs and that a voluntary approach would be prone to “free riders” by possibly exempting the most dangerous users of the area from any commitment. Therefore, as shown in the previous section, states in various fora have commenced talks on how to develop a sufficient legal framework for the designation and protection of HSMPAs. Whatever route this process will go down – one may contemplate the adoption of either an amendment of UNCLOS or an implementation agreement – broad participation will be vital to ensure that the outcome will not be perceived as an instrument designed to accommodate the interests of only a few powerful players. UNCLOS itself can certainly not be seen as an obstacle to an agreement as it encourages its parties to develop further its general provisions.<sup>186</sup> Moreover, the adoption of the 1995 Straddling Stocks Agreement already provides vital evidence of the possibility of introducing mechanisms aimed at governing and protecting high-seas resources.<sup>187</sup> Still, as it stands today, the outcome of negotiations aimed at adopting a HSMPA Convention is uncertain. It is thus essential to study the legal rationale of existing specially protected high-seas areas and whether PSSAs may fill the current legal and institutional gap, at least as regards threats to vulnerable marine areas posed by international shipping.

### **3. Existing High-Seas Specially Protected Zones**

Despite the identified shortcomings in the UNCLOS regime, several types of protected areas have already been introduced on the high seas. Some were established for specific purposes or activities. Two whaling sanctuaries were introduced a long time ago in the Indian and Southern oceans under the International Whaling Convention and three seal reserves under the Antarctic Seals Convention and additional seasonal closures are in operation in Antarctic waters.<sup>188</sup> With respect to vessel-source pollution, two MARPOL special areas in the Southern

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[highseasconservation.org/documents/bliss-ascencio.pdf](http://highseasconservation.org/documents/bliss-ascencio.pdf); (accessed on 30 September 2006), p. 26 et seqq.

<sup>186</sup> Cf. Art. 230 and 311(3); see also, *supra*, Sec. III.5. of Chapter 4.

<sup>187</sup> Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, adopted on 4 December 1995, in force as from 11 December 2001, 34 *ILM* (1995) 1542. Most importantly, it envisages a critical role for regional fisheries established to manage particular fish stocks. States need to become members of these bodies in order to be eligible to fish for the stock governed by it. Most commentators argue that this agreement “has the consequence, in effect, of departing from traditional principles reflecting absolute rights of high seas fisheries freedoms, even for those states which are not parties to regional agreements.” Philippe Sands, *Principles of International Environmental Law*, Second Ed. (Cambridge: CUP 2003), p. 576.

<sup>188</sup> UNEP/CBD/WG-PA/1/INF/2, *The International Legal Regime of the High Seas and the Seabed beyond the Limits of National Jurisdiction and Options for Cooperation for the Establishment of Marine Protected Areas (MPAs) in Marine Areas beyond the Limits of National Jurisdiction*, Note by the Executive Secretary, 28 April 2005, para. 104.

Ocean (Antarctic area [south of latitude 60 degrees south]) and the Mediterranean were designated pursuant to Annex I and Annexes I and V respectively; furthermore, a marine mammals sanctuary was established in the Mediterranean Sea by a trilateral agreement between France, Monaco and Italy<sup>189</sup>, which was included in the SPAMI list.<sup>190</sup> Finally, six fully marine protected areas under the Antarctic Treaty and CCAMLR have been agreed by parties to the ATS, while there are additional sites that are partially marine.<sup>191</sup> It may prove helpful to analyse those features that made it possible for these areas to be implemented on the high seas. In the context of vessel-source pollution, it is sensible to limit the assessment to the MARPOL special areas and the Mediterranean marine mammals sanctuary under the Barcelona Protocol. In both cases, principal flag-state jurisdiction is complemented by the jurisdiction of third states, which is due to the peculiarities of the MAROL concept, as well as to the unique status of the Mediterranean Sea.

As regards the former, MARPOL provisions on the enforcement of its standards take account of the shortcomings that have been observed with respect to certain “flags of convenience”. In addition to flag-state powers, it grants port states a special role in the enforcement procedure; participation of the coastal state is not envisaged.<sup>192</sup> The enforcement of MARPOL provisions applicable in special areas therefore need not rely on the jurisdiction of coastal states. Port-state authorities may prosecute a MARPOL violation regardless of where it has occurred. And as MARPOL standards (at least those contained in Annexes I and II) have crystallised into customary international law, the designation of special areas – as a legal basis for prescribing higher standards in parts of the high seas – cannot be construed as constituting an encroachment on the freedoms of the high seas.

With respect to the second example, it should be noted that protective rules applicable for the Mediterranean marine mammals sanctuary provide for enforcement by coastal states despite its extension to areas beyond national jurisdiction. Pursuant to Article 14(2) of the sanctuary agreement, “any of the States Parties is entitled to ensure the enforcement of the provisions of the present agreement [...] within the limits established by the rules of international law, with respect to ships flying the flag of third States.”<sup>193</sup> If the parenthesis “within the limits established by the rules of international law” is to be understood as being more than just a waiver of any enforcement rights on the high seas, this provision seems to

<sup>189</sup> Adopted on 25 November 1999, in force as from 21 February 2002. For an overview, see Tullio Scovazzi, “The Mediterranean Marine Mammals Sanctuary”, 16 *IJML* (2001), pp. 132-141, at 132.

<sup>190</sup> Tullio Scovazzi, “Marine Protected Areas on the High Seas: Some Legal and Policy Considerations”, 19 *IJML* (2004), pp. 1-17, at 13 et seq. and *Id.* “New Instruments for Marine Specially Protected Areas in the Mediterranean”, in H. Thiel and J.A. Koslow (eds.), *supra*, note 139, pp. 185-191, at 187. For an introduction to the SPAMI mechanism, see Sec. II.2. of Chapter 5.

<sup>191</sup> UNEP/CBD/WG-PA/1/INF/2, *supra*, note 188, *loc.cit.*

<sup>192</sup> Cf. Sec. I.1.a) of Chapter 5.

<sup>193</sup> The English translation of Art. 14 is taken from Tullio Scovazzi, *supra*, note 189, appendix.

contradict the law of the sea framework outlined above. However, it may well be argued that it conforms to these rules. The states bordering the Mediterranean Sea have so far refrained from proclaiming exclusive economic zones (EEZs). The Mediterranean thus only consists of territorial seas and high seas. In addition, had France, Monaco and Italy established EEZs, the sanctuary would be situated wholly in the territorial sea and in the EEZ of these states. On the basis of this observation, a compelling argument can be produced allowing France, Monaco and Italy to enforce measures protecting the sanctuary even against third-state vessels. One may reasonably argue that by ratifying the sanctuary agreement, the parties chose to exercise exclusively one of the sovereign rights they gain under the EEZ concept, namely legislative and enforcement competences with respect to environmental protection, without actually proclaiming an EEZ. *Scovazzi* has aptly narrowed it down to the “simple but sound argument that those who can do more can also do less.”<sup>194</sup> Hence, if coastal states do not exceed powers they enjoy under the EEZ concept, they do not violate international law, even though they may interfere with foreign vessels on what are formally high seas.

It is obvious from those two cases that, in certain instances, constraints placed on the designation of HSMPAs by the traditional model of UNCLOS’ enforcement jurisdiction may be overcome. In the subsequent question, I shall apply these findings to a possible designation of high-seas PSSAs and consider if and how they could come into existence.

#### **4. Options for the Implementation of the PSSA Concept on the High Seas**

The PSSA Guidelines do not prohibit the designation of high-seas areas. In fact, they merely state that “[t]he criteria [used to identify particular sensitivity] relate to PSSAs within and beyond the limits of the territorial sea.”<sup>195</sup> It follows from the legal framework set out above that two main problems must be considered. First, one must determine the entity responsible for applying for and subsequently monitoring the PSSA, as there is no obvious institution which would automatically attain that competence. In contrast to the EEZ, there is no obvious *de facto* or *de jure* connection to any coastal state. Secondly, it needs to be established what sort of APMs could be set up on the high seas. With respect to the latter, it suffices to note that any APM could be chosen to be applied on the high seas. However, APMs whose legal basis does not expressly provide for application on the high seas obtain mandatory character by virtue of Article 211(2) of UNCLOS only with respect to the flag state. In an examination of the first problem, three scenarios for high-seas PSSAs may be differentiated from a legal and institutional point of view.

The first category includes PSSAs within the 200 nm zone of a coastal state, or several coastal states, where no EEZ has been proclaimed. In this case, the line of reasoning used for the enforcement powers of state parties to the Mediterranean

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<sup>194</sup> Tullio Scovazzi, *supra*, note 190, p. 15.

<sup>195</sup> Para. 4.3.

Marine Mammals Sanctuary Agreement can be followed. If IMO approves the designation of an area, as well as of protective measures, these measures may be enforced by the coastal state(s) to the extent provided for by UNCLOS' rules of reference governing the EEZ.<sup>196</sup>

The second category comprises PSSAs that cover areas within national jurisdiction but that stretch into the high seas, thus lying partly in areas beyond national jurisdiction. If IMO member states agreed to the designation of this kind of area, the decision as such would not violate international law. It is, however, doubtful whether APMs for the high-seas part of the PSSA could have anything else but a recommendatory character. As far as the monitoring and enforcement of APMs is concerned, it would be reasonable to vest powers with the state in whose EEZ parts of the PSSA are. This state could, for instance, provide for vessel traffic services or other navigational aids to those mariners that wish to comply with recommendatory APMs.

PSSAs that are completely high-seas PSSAs fall in the third category, in which all problems associated with HSMPAs culminate. Questions that need to be answered include the entity responsible for the PSSA application, as well as for subsequent monitoring and enforcement. The most appropriate, and arguably the only possible, way to approach the establishment of a high-seas PSSA is for interested states to negotiate a cooperation agreement aimed at setting up an administering body to govern the PSSA.<sup>197</sup> Subsequently, this body would need to seek consensual appointment by IMO member states to manage the area. Management would include the coordination and implementation of protective measures, as well as their enforcement. As one author has rightly pointed out, "[t]his would not be an extension of sovereignty or sovereign rights for the respective States. Instead, the allocation of a special stewardship role to these States would be on the basis of maintaining freedom of the high seas while discouraging ecologically harmful activities. These States could observe, report, and/or prevent activities such as pollution not in accordance with MARPOL; illegal, unregulated or unreported fishing; and dumping of certain wastes at sea. Similarly, the States with stewardship for respective areas of the high seas could coordinate pro-active international efforts aimed at protecting the biodiversity of that area."<sup>198</sup> This approach would not violate UNCLOS provisions on the high seas, as long as all states agree to it. Moreover, nothing in the PSSA Guidelines prohibits such a limited transfer of authority; they envisage applications to be submitted by any "proposing Member Government,"<sup>199</sup> which hence need not be a coastal state. Further assessment and designation procedures within IMO, as described in Chapter 7, are not dependent upon the maritime zone in which the proposed PSSA is located. With respect to APMs, it should be noted that they could be chosen

<sup>196</sup> Cf., *supra*, Sec. I.2. of this chapter.

<sup>197</sup> Regional Fisheries Management Organisations (RFMOs) could be a role model for such a body.

<sup>198</sup> David Osborn, "Challenges to Conserving Marine Biodiversity on the High Seas Through the Use of Marine Protected Areas – An Australian Perspective", in H. Thiel and J.A. Koslow (eds.), *supra*, note 139, pp. 103-112, at 103.

<sup>199</sup> Para. 7.1.

from all measures available under Article 211(6) of UNCLOS, although the most important measures are arguably routing systems, such as ATBAs, as well as discharge restrictions. Their implementation would lie solely with the flag state by virtue of Article 211(2).<sup>200</sup> In the absence of coastal states, the enforcement actions of other states would not conform to UNCLOS.<sup>201</sup> Still, interested states could use their port-state jurisdiction and modify port-entry requirements so as to foster compliance with APMs. An alternative would be an amendment of SOLAS or other IMO Conventions to allow for the enforcement of protective measures on the high seas.

On a more general note, it needs to be stressed that, despite various difficulties, the designation of high-seas PSSAs as such is feasible. Even if very few APMs could be considered for adoption, the awareness-raising character of PSSAs could thus be used in a broader manner, since the designation of high-seas areas by IMO may exhibit a catalytic role. Once parts of the high seas are recognised by the international community as being particularly sensitive with respect to dangers posed by international shipping activities, further protection awarded within other fora may follow: for instance, proactive activities to protect high-seas biodiversity by international institutions, such as the International Seabed Authority or FAO.<sup>202</sup>

#### IV. Main Findings

The PSSA Guidelines, adopted as Resolution A.982(24), are an instrument of IMO to provide for the coordinated protection of marine areas that are sensitive to threats posed by international shipping. This chapter has revealed their main implications for jurisdiction, in particular the jurisdiction of the coastal state, over foreign vessels in these areas.

Although the resolution is not binding upon IMO member states, it envisages the employment of certain APMs that do not have a legal basis in existing multilateral treaties. These specific APMs, nevertheless, become binding insofar as they constitute “generally accepted international rules and standards,” a term used by UNCLOS in so-called rules of reference to oblige flag states to maintain regulations at a certain standard and to enable coastal states to enact and enforce internationally agreed standards in areas under their jurisdiction. It must be noted, however, that the mandatory character of APMs derived by incorporation into the

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<sup>200</sup> *Allan Simcock*, General Secretary, OSPAR Commission and Professor *Rainer Lagoni*, Law of the Sea Institute, Hamburg University, in a discussion in the OSPAR Commission’s headquarters on 21 July 2005 argued that mandatory protective measures for high-seas PSSAs may be introduced by IMO on the basis of general obligations in UNCLOS, such as Articles 192 and 194(5). I do not concur with this view.

<sup>201</sup> WBGU, *The Future Oceans – Warming Up, Rising High, Turning Sour* (Berlin: WBGU 2006), p. 29, thus concludes that protected areas on the high seas aimed at preventing vessel-source pollution are impossible to implement. This reasoning is based on the assumption that flag states do not have the capacity to implement adequately their international obligations on vessels flying their flag.

<sup>202</sup> Robin Warner, *supra*, note 172, p. 167.

UNCLOS regime is limited in several ways. First, it is only in respect of the territorial sea and the EEZ that UNCLOS fully provides for this category of reference. In international straits and archipelagic waters, reference is limited to rules and standards related to the discharge of oil, oily wastes and other noxious substances. Furthermore, in their EEZ, states are restricted to enacting laws dealing with the pollution of the marine environment – excluding measures aimed at preventing the physical destruction of habitats. As far as the enforcement jurisdiction of coastal states is concerned, the PSSA status of an area may have the most notable impact in the EEZ, insofar as it contributes to a modification of certain indeterminate legal terms which govern the extent to which coastal states are allowed to interfere with the navigational rights of foreign vessels. Because the high seas are void of any coastal-state jurisdiction, implementation responsibilities wholly rest with the flag state. An additional problem is that no relevant instrument to date provides for the application of protective measures on the high seas. It needs to be stressed, however, that despite various difficulties the designation of high-seas PSSAs as such is feasible. As in other respects, PSSAs could play a catalytic role for the protection of high-seas habitats.

## **Chapter 11: PSSAs and Ocean Governance: Current Interdependencies and Prospects for Future Developments**

Perceptions of scientifically and politically sound ocean governance have undergone tremendous changes during the last decades. Chapter 3 has highlighted the major prerequisites for the adequate protection of sensitive marine areas. In Chapter 4, I have drawn attention to the main components, requirements and limitations of the current governance regime for the world's seas. It has become apparent that scientific necessities are not always easy to align with, and implement under, the law of the sea regime. The PSSA concept, as a legal means to protect vulnerable marine ecosystems, is both part of the prevailing ocean-governance regime and a vehicle for transposing scientific requirements into the legal sphere. It has already been highlighted in Chapter 10 that the PSSA concept may, in some circumstances, expand coastal state jurisdiction over foreign vessels. In this chapter, I would like to embark on a broader approach by exploring whether PSSAs may be said to possess also a catalysing effect with regard to ocean-governance issues.

Against this backdrop and in the light of the development and the application of the PSSA concept, I shall, in the second part of this chapter, examine prospects for the future development of the PSSA concept. Its effective use as a protective means is tested, in particular, by recent designations that have, as we will see, significantly complicated a coherent application of the PSSA Guidelines and threaten its innovative character. It remains to be considered whether there is a need to contemplate modifications to the concept or rather an entirely new regime.

## I. Past Achievements: the PSSA Concept's Impact on Ocean Governance

While the previous chapters have stressed the relationship of the PSSA concept to other protective regimes and its impact on coastal-state jurisdiction over foreign vessels, very little has so far been said about the interdependencies of the PSSA concept and broader matters of international ocean governance. It is worthwhile exploring to what extent the PSSA concept has influenced the development of certain elements of the law of the sea regime. In the following section, I shall refer to the approximation of protective regimes in different maritime zones, the cooperation of adjoining coastal states, the evolution of IMO routing measures and the application of the precautionary principle.<sup>203</sup> In particular, my aim is to examine whether PSSAs have transcended some of the limitations inherent in the law of the sea governance regime.

### 1. *Interzonal Approach to Coastal State Jurisdiction for Marine Environment Protection*

As has become apparent throughout this treatise, the boundaries of maritime zones established by UNCLOS hardly match ecological necessities.<sup>204</sup> While the CBD and regional marine environment protection treaties envisage an integrated approach to protecting the world's oceans from pollution, the traditional governance regime of the law of the sea, as reflected in UNCLOS, relies on various different zones in which coastal states possess varying competences to protect fragile areas.<sup>205</sup>

As has come to light in Chapter 10, the PSSA concept, while developed in conformity with UNCLOS, contributes to an approximation of coastal-state jurisdiction over foreign vessels in the territorial sea and the EEZ, as is called for by the ecosystem approach.<sup>206</sup> Although PSSAs do not provide for the uniform prescription and enforcement of all protective measures, their impact is noticeable.<sup>207</sup> They are in the midst of a process in which coastal states increasingly assert competences in order to enact legislation to protect and use the resources of their EEZ. There is growing evidence that coastal states consider the EEZ to be an area which resembles the territorial sea. Many states have commenced to pave the

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<sup>203</sup> I shall only allude to issues which have not been mentioned before. Thus, reference to the implementation of PSSAs on the high seas is omitted.

<sup>204</sup> See further Elizabeth Kirk, *supra*, note 144, pp. 67-72, at 68 et seqq.

<sup>205</sup> See, *supra*, Sec. III.2. of Chapter 4 for details.

<sup>206</sup> See A/61/156, *Report on the Work of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea at its Seventh Meeting*, 17 July 2006, para. 38: "The representative of the [IMO] indicated that several IMO instruments and activities were contributing to the implementation of an ecosystem approach, including [...] the establishment of particularly sensitive sea areas, where additional protective measures could be applied to protect vulnerable ecosystems".

<sup>207</sup> In that respect, criticism was voiced by Jon M. Van Dyke, *supra*, note 151, pp. 107-121, at 109



way for a process which is effectively equivalent to regional planning on state territory. The German government, for example, after a recent revision of the federal *Raumordnungsgesetz (ROG)*<sup>208</sup> has introduced the possibility of developing objectives and basic principles for a regional development plan for the German EEZ.<sup>209</sup> The Federal Maritime and Hydrographic Agency is entrusted with the realisation of these plans. They are designed to allocate the various uses that occur in the German EEZ of the North and the Baltic Sea, including shipping and seabed mining, as well as wind energy plants, and to balance them with environmental-protection interests. In effect, these plans will confine vessel traffic to carefully delineated shipping lanes. Less than twenty years ago, no one would have thought such developments possible. Even though PSSAs do not expressly promote regional planning in or near designated sites, the PSSA concept as a means to foster and promote the establishment of routeing measures, even if they straddle different maritime zones, undoubtedly contributed to advancing this process.

## 2. Cooperation between States

A related development concerns the management of areas that cover the territorial sea or the EEZ of two or more states. Recent experience within the OSPAR Commission shows that coastal states rarely come to an agreement on how to manage jointly marine protected areas.<sup>210</sup> For instance, one of the first OSPAR MPAs, the so-called Doggerbank in the North Sea, a shallow sea area composed of soft sediments, straddling the boundaries of the Netherlands, the UK, Germany and Denmark, will not be managed by a single body. As it stands now, the protection and preservation of the Doggerbank MPA will be overseen by each country individually, i.e. by four separate authorities<sup>211</sup> – despite the fact that studies have evidenced the feasibility of a concerted endeavour.<sup>212</sup> The lack of cooperative management of transboundary MPAs can arguably be traced back to the limitations that UNCLOS places on the joint implementation and enforcement of protective measures.<sup>213</sup>

<sup>208</sup> BGBl. I (1997) 2081.

<sup>209</sup> § 18a of ROG; introduced by an amendment of 24 June 2004, BGBl. I (2004) 1359, Article 2 Nr. 7.

<sup>210</sup> The joint management of transboundary *marine* protected areas basically faces the same difficulties as terrestrial protected areas, which have been detailed in Trevor Sandwith et al, *Transboundary Protected Areas for Peace and Co-operation* (Gland Cambridge: IUCN Publication 2001), p. 7 et seqq.

<sup>211</sup> Private information obtained from *Stephan Lutter*, International WWF Centre for Marine Conservation, *Hamburg*, Director North-East Atlantic Marine Ecoregion Programme.

<sup>212</sup> Sebastian Unger, *Managing Across Boundaries – The Dogger Bank: a Future International Marine Protected Area* (Frankfurt am Main: WWF Germany 2004), p. 31 et seqq.

<sup>213</sup> *Ibid.*, p. 6 et seqq.

Several PSSAs cover areas under the jurisdiction of at least two states.<sup>214</sup> Riparian states of these PSSAs do not seem to be reluctant to cooperate in the protection of the respective areas. Of course, the PSSA guidelines strongly promote continuous cooperation: states are urged to submit joint proposals, although they are not legally obliged to do so; the establishment of navigational aids in PSSAs, such as SRSs and VTSSs, postulate close cooperation; and the exchange of relevant data on vessel traffic is essential for the adequate enforcement of APMs. It is thus not surprising that among the few examples of successful transboundary MPA cooperation, there are two PSSAs, namely the Wadden Sea PSSA (The Netherlands, Germany, Denmark) and the Torres Strait PSSA (Australia and Papua New Guinea).<sup>215</sup> Hence, pushing states to increased cooperation is one of the foremost characteristics of the PSSA concept. Nevertheless, its impact with respect to states' conduct outside the PSSA regime seems to be very limited.

### **3. Influence on other IMO Instruments: Evolution of Routeing Measures**

I have already touched upon the importance of the PSSA concept for the increased application of routeing measures. Apart from an impact on the establishment of routeing measures as such, PSSAs have also had an express influence on their scope. Routeing measures, as envisaged in SOLAS and the General Provisions on Ship's Routeing (GPSR)<sup>216</sup>, were originally initiated as a means solely to increase the safety of vessel traffic. Their explicit application for the protection of the marine environment was not recognised.

In the course of the development of the PSSA Guidelines, it was realised within IMO that routeing measures could prove to be a valuable instrument for the protection of the marine environment. Therefore, Resolution A.720(17)<sup>217</sup>, which approved the 1991 Guidelines, also requested the MSC "to incorporate relevant provisions of these Guidelines into the [GPSR]".<sup>218</sup> The subsequent process within IMO comprised two steps. First, the objectives of the GPSR, enumerated in its paragraph 1.1, were augmented by the 1992 amendments to include "the purpose of preventing or reducing the risk of pollution or other damage to the marine environment caused by ships colliding or grounding in or near environmentally sensitive sites."<sup>219</sup> More important amendments were adopted in 1995<sup>220</sup>, follow-

<sup>214</sup> Wadden Sea PSSA, Torres Strait PSSA, Western European PSSA, Baltic Sea Area PSSA.

<sup>215</sup> WWF, *supra*, note 212, p. 14 et seqq.

<sup>216</sup> For an overview of relevant provisions of SOLAS and GPSR, see, *supra*, Sec. II.1.a) of Chapter 8.

<sup>217</sup> Res. A.720(17), *Guidelines for the Designation of Special Areas and the Identification of Particularly Sensitive Sea Areas*, adopted on 6 November 1991.

<sup>218</sup> *Ibid.*, fourth recital.

<sup>219</sup> Text reproduced in IMO, *1992 Amendments to Ships' Routeing – 1993 Edition* (London: IMO Publication 1993).

<sup>220</sup> Reproduced in Res. A.827(19), *Ships' Routeing*, adopted on 23 November 1995, Annex 3.

ing an amendment to SOLAS, which modified Regulation V/8(1) (now V/10(1)) of the annex to allow for the application of routing measures to protect the marine environment.<sup>221</sup> The amendments to the GPSR added a new specific objective dealing with “the organisation of traffic flow in or around or at safe distance from environmentally sensitive areas.”<sup>222</sup> Moreover, it implemented a procedure to address the adoption of “a routing system which is intended to protect the marine environment.”<sup>223</sup>

Further amendments to the GPSR in 2000, not related to the request exhibited by the 1991 PSSA Guidelines, concern an extension to their objectives to echo environmental threats posed by anchors, as well as the implementation of “no-anchoring areas.”<sup>224</sup> These amendments to the instrument’s text can be traced back to the United States’ desire to protect certain sensitive reefs within the Florida Keys PSSA from damage by anchors. Prior to submitting their PSSA proposal, the US firmly pushed for no-anchoring areas to be incorporated in the GPSR within NAV and MSC.<sup>225</sup> After MSC had approved the amendments, they tabled an APM proposal to establish two mandatory no-anchoring areas. Without express provisions in the GPSR allowing for this particular routing measure, it would have been difficult to identify a legal basis for the APM. No-anchoring areas are not within the ambit of Article 211(6) of UNCLOS, as damage by anchors is not caused by “pollution”; and relying on a broad interpretation of Article 21(2) as an alternative option would have arguably caused opposition within IMO. The US therefore forced a progressive development of an existing instrument to utilise it for the increased protection of a PSSA in waters under their jurisdiction.

It is apparent that the PSSA concept in several different ways impacted on the development of routing measures.<sup>226</sup> It thus contributed a great deal to catalysing IMO’s safety-related instruments for environment protection measures. In fact, it remains to be seen whether routing measures tailored for environmental purposes will impact in turn on the PSSA concept. Recent approval for the establishment of

<sup>221</sup> Res. MSC.46(65), *Adoption of Amendments to the International Convention for the Safety of Life at Sea*, adopted on 16 May 1995.

<sup>222</sup> Para. 1.2.6 of the GPSR.

<sup>223</sup> *Ibid.*, para 3.6.

<sup>224</sup> MSC 73/21/Add.3, *Report of the Maritime Safety Committee on its Seventy-Third Session*, 12 December 2000, Annex 20. Para. 1.2.6 of the GPSR, as amended, refers to “damage to the marine environment caused by ships colliding or grounding or anchoring in or near environmentally sensitive sites.” (emphasis added). Provisions on no-anchoring areas were inserted in para. 2.1.14, 4.6.4, and 5.6.

<sup>225</sup> The draft proposal contained in the annex to NAV 46/3/2, *Proposed Amendment to the General Provisions on Ships’ Routing to provide for a no anchoring routing measure*, 5 April 2000, called for a more extensive definition of no-anchoring areas, which was rejected by the sub-committee. It eventually agreed to a modified draft, cf. NAV 46/16, *Report to the Maritime Safety Committee*, 11 August 2000, Annex 4.

<sup>226</sup> Likewise Henrik Ringbom, *Environmental Protection and Shipping – Prescriptive Coastal Jurisdiction in the 1990’s*, Marius No. 124 (Oslo: Nordisk Institutt for Sjørett 1996), p. 81; Julian Roberts, “Protecting sensitive marine environments: the role and application of ships’ routing measures” 20 *IJMCL* (2005), pp. 135-159, at 143 et seq.; Henning Schult, *supra*, note 92, p. 214.

a “precautionary area” pursuant to paragraph 4.5.3 of the GPSR<sup>227</sup> in waters under the jurisdiction of New Zealand will arguably lead some states to refrain from initiating the rather lengthy PSSA procedure. Provided that New Zealand reports positive experience, they may instead rely on this particular routing system, where the prime importance is to notify mariners of the value of an area and to call for prudent navigation.

#### **4. Application of a Precautionary Approach to Marine Environment Protection**

The precautionary principle today is a key element of decision-making in most areas of international law and policy, including the law of the sea.<sup>228</sup> As has been elucidated in Chapter 4<sup>229</sup>, it obliges states to incorporate uncertainties into decision-making processes rather than to ignore them as a disturbing factor – scientific uncertainty has thus ceased to be an argument for inaction. In the aftermath of the 1992 UNCED, where it featured prominently in Principle 15 of the Rio Declaration, IMO member states agreed to implement the precautionary principle for decision-making in IMO.<sup>230</sup> It is, however, doubtful whether the PSSA concept takes account of the precautionary principle to the fullest possible extent and whether its implementation may yield repercussions in other areas of ocean governance.

Several elements linked to the existence of a state of uncertainty can be identified as playing a role in an assessment of the PSSA concept: the formulation of ecological criteria; alleged future deterioration of an area; and the implementation and enforcement of APMs in the case of unclear evidence. Since the implementation and enforcement of protective measures rely on the individual instrument’s legal basis and UNCLOS enforcement provisions, they shall not be assessed here. I will concentrate on the two former issues, which are closely associated.

I have already stressed in Chapter 5 that a problem linked with protective regimes for specific vulnerable ecosystems is the alleged future deterioration of

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<sup>227</sup> Refer to Sec. III.3. of Chapter 7.

<sup>228</sup> Cf. Simon Marr, *The Precautionary Principle in the Law of the Sea* (The Hague: Martinus Nijhoff Publishers 2003), p. 203 et seqq.

<sup>229</sup> Sec. II.5. of Chapter 4.

<sup>230</sup> Res. MEPC.67(37), *Guidelines on Incorporation of the Precautionary Approach in the Context of Specific IMO Activities*, adopted 15 September 1995; see further Res. A.832(19), *Follow-up Action to the United Nations Conference on Environment and Development*, adopted on 23 November 1995 and Res. A.968(23), *Follow-up Action to UNCED and WSSD*, adopted on 5 December 2003. For a critical review of IMO’s approach to the implementation of the precautionary principle, see Patricia Birnie, “Implementation of IMO Regulations and Oceans Policy Post-UNCLOS und Post-UNCED”, in M.H. Nordquist and J.N. Moore (eds.), *Current Maritime Issues and the International Maritime Organization* (The Hague Boston London: Martinus Nijhoff Publishers 1999), pp. 361-390, at 370 et seqq.

marine areas.<sup>231</sup> No MPA concept at present expressly allows for taking into account damage to marine habitats that has not yet occurred but is likely to in view of the existing patterns of use. Designation criteria usually refer to habitats that *are* demonstrably threatened, and protective measures are justified only if certain perils *do* exist and *are* verifiable. Therefore, a justification for designation and protection is solely determined by recourse to the actual state. Looking at the PSSA Guidelines, it is apparent that ecological criteria for PSSAs differ in their ability to accommodate precautionary considerations. Most criteria elaborations begin with “an area that is...” or “an area that has...”, implying the existence of concrete scientific evidence; for instance, an area meets the *integrity* requirements if it “*is* a biologically functional unit, an effective, self-sustaining ecological entity.”<sup>232</sup> Of course, obtaining hard scientific evidence is very difficult with respect to most marine areas, especially for developing countries that often lack both adequate financial and human resources to conduct complex research programmes. Nevertheless, it should be noted that three criteria are formulated differently: *critical habitat* (“an area that may be...”), *diversity* (“an area that may have...”), and *spawning or breeding grounds* (“an area that may be...”).<sup>233</sup> Interestingly, the precautionary-minded wording was expressly maintained for these criteria in the 2005 revision process<sup>234</sup> (contrary to a US proposal to align the wording<sup>235</sup>) after an intervention by WWF.<sup>236</sup> In contrast, other criteria that were neither characterised by “that is” *nor* “may be” in the 2001 Guidelines now use the terms “that is” and “that has” respectively.<sup>237</sup> The practice of producing evidence in PSSA proposals suggests, however, that states do not seem to address these criteria differently;<sup>238</sup> likewise, the informal technical groups entrusted with assessing the proposals do not seem to treat the criteria differently, either.<sup>239</sup> A

<sup>231</sup> Sec. III. of Chapter 5. Reference is made there to Erik Jaap Molenaar, *supra*, note 95, p. 431.

<sup>232</sup> Res. A.982(24), *Revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas*, adopted on 1 December 2005, para. 4.4.9.

<sup>233</sup> *Ibid.*, para. 4.4.2, .5, and .7.

<sup>234</sup> Cf. MEPC 53/24, *Report of the Marine Environment Protection Committee on its Fifty-Third Session*, 25 July 2005, para. 8.25.3.

<sup>235</sup> MEPC 52/8, *Proposed Amendments to Assembly Resolution A.927(22) to Strengthen and Clarify the Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas*, 9 July 2004, annex, para. 4.4.1 to .11 of the draft guidelines.

<sup>236</sup> MEPC 52/8/4, *supra*, note 97, 18 August 2004, para. 8. WWF stressed that “[t]he suggested use of terms, ‘that is’ [...] may conflict with the precautionary approach as called for by Principle 15 of the Rio Declaration and the Guidelines of this Committee, as it may infer the need for definitive/conclusive evidence before action can be taken”.

<sup>237</sup> Examples include *representativeness* (para. 4.4.4) and *fragility* (para. 4.4.10).

<sup>238</sup> See Western European PSSA proposal, MEPC 49/8/1, *Designation of a Western European Particularly Sensitive Sea Area*, 11 April 2003, annex 1, para. 3.2; as well as the Florida Keys PSSA proposal, MEPC 46/6/3, *Designation of the Marine Area around the Florida Keys as a Particularly Sensitive Sea Area*, 19 January 2001, p. 3.1.

<sup>239</sup> For instance, MEPC 51/WP.9, *Report of the Informal Technical Group*, 1 April 2004, Annex 1 and 2. These observations may fuel the impression that the assessment pro-

proposed “draft review form” to be considered at the forthcoming 55<sup>th</sup> session of MEPC uses a uniform questionnaire for all criteria in a similar manner.<sup>240</sup>

Further criteria related to vessel traffic characteristics again require threats posed by shipping activities to be imminent, impeding a proactive and precautionary approach. Thus, summing up the PSSA concept’s implementation of the precautionary principle, it can be noted that the PSSA Guidelines to some extent take account of precautionary considerations; but they fall short of acknowledging the implications of the precautionary principle with respect to information provided in the assessment procedure, as well as assumed future threats to an area. Hence, the PSSA concept cannot be considered to implement progressively the precautionary principle in a manner that may serve as a prime example for other regimes. Nor does it seem to have an impact on the promotion of a precautionary approach in other areas of marine environment protection policy.

## II. Perspectives for Future Developments of the Concept

From what has been observed in the previous section, it is apparent that the PSSA concept was able to give fresh impetus to some areas of the law of the sea regime. It is thus worthwhile examining whether the concept will remain an innovative and, not least, attractive regime that coastal states seek to apply in order to protect vulnerable marine ecosystems in waters under their jurisdiction. As we shall see, its application in recent years by individual states, as well as the international community as a whole, suggests otherwise: the development of the concept has reached an impasse. Against that backdrop, it is sensible to consider the prospects for the further development of a protective regime for sensitive marine areas.<sup>241</sup> These reflections may eventually lead to the fundamental question of whether the existing guidelines should be modified or even complemented or substituted by a completely new regime.

### 1. Recent Challenges to the Concept

The application of the PSSA concept has already been sketched out in Chapter 8.<sup>242</sup> While IMO only designated two PSSAs in the 1990s, several additional areas

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cedure is dominated by political pressure and diplomatic skills rather than scientific considerations. Refer to Sec. II.1. of this chapter.

<sup>240</sup> MEPC 55/8, *Particularly Sensitive Sea Area Proposal Review Form*, 16 June 2006, annex, para. 3: “Is the proposal based on this criterion? If so, is the criterion met, why, and based on what information?”

<sup>241</sup> Angelo Meriardi, *supra*, note 67, pp. 19-43, at 38, contemplating on whether the PSSA concept should be included into a pre-existing treaty regime or a new treaty, argued that it “could probably become a concept of international law through the practice of states within the IMO, regardless of its inclusion in an IMO convention.” I would argue that this was a premature conclusion which did not hold true.

<sup>242</sup> For PSSAs designated so far, see, *supra*, Sec. V. of Chapter 8.

were designated between 2001 and 2004. Three PSSA proposals<sup>243</sup> triggered contentious debates as to their legality. While discussions with respect to the Torres Strait PSSA largely revolved around a single APM designed to establish a compulsory pilotage regime, designation of the Western European and the Baltic Sea Area PSSA faced opposition in principle. Nevertheless, both areas eventually received approval. It is worthwhile contemplating the implications of IMO's endorsement, as well as the opponents' reasoning, since it sheds some light on the problems that the PSSA concept faces. Based on this account, I shall move on to consider the consequences for the future application of the PSSA Guidelines.

### a) Designations of Large and Disparate Marine Areas

Recent designations of the Baltic Sea Area PSSA<sup>244</sup> and the Western European PSSA<sup>245</sup> prompted disputes over their legality, because their characteristics differed notably from those of areas that had been previously granted PSSA status. As has become apparent from the account given in Section V.1 of Chapter 8, PSSAs, such as the Great Barrier Reef, Malpelo Island or the Florida Keys, are coherent ecosystems perceived as representing ecological units that in many ways are pristine. In contrast, the Baltic Sea, as well as the Western European Atlantic, is a large sea area that lacks coherence, but instead consists of a number of specifically vulnerable areas within a cultural landscape that has long been shaped by human activities.

As far as the wording of the PSSA Guidelines is concerned, these designations have been perfectly lawful. I have shown earlier in this treatise that the guidelines do not require a PSSA either to be of a certain size or to represent a coherent ecosystem. Yet the "spirit" of the guidelines may suggest otherwise: in line with other regimes already in force at the time the PSSA concept was devised, such as the Ramsar Convention or the MAB Programme, and also in line with domestic designations of MPAs, it arguably envisages PSSA status to be given to areas that are cohesive and represent a biological functional unit.<sup>246</sup> The application of the guidelines to the contrary may yield problems whose repercussions are potentially far-reaching. These observations merit a more detailed examination of the reasons that led MEPC to approve the designations. An answer must necessarily address two broader issues.

First, the ecological criteria of the PSSA Guidelines include a broad array of characteristics and paragraph 4.4 stipulates that while at least one criterion must exist throughout the entire proposed area, it need not necessarily be the same. The wording of the criteria is vague and the lack of any guidance documents, such as

<sup>243</sup> Western European PSSA, Baltic Sea Area PSSA, and Torres Strait PSSA.

<sup>244</sup> Res. MEPC.136(53), *Designation of the Baltic Sea Area as a Particularly Sensitive Sea Area*, adopted on 22 July 2005.

<sup>245</sup> Res. MEPC.121(52), *Designation of the Western European Waters as a Particularly Sensitive Sea Area*, adopted on 15 October 2004.

<sup>246</sup> I have argued elsewhere that the discussions on the Western European PSSA proposal were primarily prompted by different perceptions of PSSA characteristics rather than by legal problems: see Markus Detjen, *supra*, note 96, pp. 442-453, at 452.

unified interpretations of certain terms, gives MEPC a significant leeway in deciding whether or not a proposal meets a criterion. Even though – as I have argued in Chapter 7<sup>247</sup> – the criteria need to be interpreted restrictively with a view to a *particular* sensitivity on a global scale, it has been contended that almost every marine area in the world meets one of the PSSA criteria.<sup>248</sup> In fact, MEPC's decisions on the Baltic Sea Area PSSA and the Western European PSSA support this assumption: after it had carried out a scientific review, the Informal Technical Group concluded that both areas met most of the ecological criteria, including naturalness; in other words, both areas, or at least parts of them, are characterised by a relative lack of human-induced disturbance or degradation!<sup>249</sup> In approving the areas, MEPC changed its traditional approach to the purpose of the PSSA Guidelines. It seems that it is no longer particularly sensitive sea areas that are protected<sup>250</sup>, but large sea areas that are subject to spacious surveillance measures and, for certain parts, to specifically tailored routeing measures.<sup>251</sup> It is hardly

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<sup>247</sup> Sec. II.1.

<sup>248</sup> Lynda M. Warren and Mark W. Wallace, *supra*, note 141, pp. 523-534, at 529 maintained: "A perceived weakness of the PSSA criteria, however, is that the suite of qualifying criteria is so broad that a case could be made for almost any area". This view was concurred with by experts of the International WWF Center for Marine Conservation, *Hamburg*, in a discussion with the author on 25 July 2006.

<sup>249</sup> For the Western European PSSA, see MEPC 49/WP.10, *Report of the Informal Technical Group*, 17 July 2003, annex 2. For the Baltic Sea Area PSSA, see MEPC 52/WP.9, *Report of the Informal Technical Group*, 1 April 2004, Annex 3. It should be emphasised that proposing states did not primarily choose to pursue the PSSA application because the area immediately comes to mind as a PSSA, but rather as a way of assuring the public of their tough stance on coastal protection against oil pollution; cf. Markus Detjen, *supra*, note 96, p. 453.

<sup>250</sup> Even proponents of the Baltic Sea Area PSSA proposal acknowledge that some areas of the Baltic Sea are more sensitive than others: "The delegations of Denmark and Sweden expressed concern that the proposal for routeing measures in the southern part of the Baltic Sea would increase the number of ships that cross the traffic flow in the Bornholmstrait, thus increasing the risk of collisions beyond an acceptable level *in a region with a number of particularly vulnerable environmental areas*." (emphasis added); cf. NAV 52/18, *Report to the Maritime Safety Committee*, 15 August 2006, para. 3.30. Note that initial plans within HELCOM focused on applying for PSSA status for several smaller parts of the Baltic Sea; cf. MEPC 49/22, *Report of the Marine Environment Protection Committee on its Forty-Ninth Session*, 8 August 2003, para. 8.18; and HELCOM HOD 11/2003, 5.2/1, *Particularly Sensitive Sea Areas*, 25-26 March 2003, para. 7 and 10-11.

<sup>251</sup> Interestingly, both WWF (MEPC 49/8/4, *Designation of a Western European Particularly Sensitive Sea Area: comments on document MEPC 49/8/1*, 23 May 2003, para. 5) and the Russian Federation in a joint submission with Panama and Liberia, alongside shipping industry groups (LEG 87/16/1, *Designation of a Western European Particularly Sensitive Sea Area*, 15 September 2003, para. 15) favoured the designation of small specific areas in the Western European PSSA, complemented by more rigorous measures, rather than the designation of the whole area with no more than a reporting obligation. Julian Roberts et al, *supra*, note 144, pp. 431-440, at 438, held that "[t]here would seem to be considerable merit in such an approach, which would serve to



disputed that within, for instance, the Baltic Sea, there are several sites that would justify a designation as PSSAs.<sup>252</sup> Nevertheless, I would argue that even a large number of areas eligible to be designated as PSSAs does not make the sea in which these small areas are located eligible for designation, too.

Another reason for MEPC's conduct is the level of political pressure exerted within IMO. This issue must not be underestimated. During negotiations on the designation of the Western European PSSA proposal at MEPC 51, in particular, the EU threatened IMO member states with robust unilateral action against vessels it considered unsafe.<sup>253</sup> Eventually, MEPC not only agreed to the PSSA designation, but EU member states also managed to reach agreement on tighter MARPOL rules, which they had proposed for accelerating the phase-out of single-hull oil tankers. Whilst this may not be seen as a problem, it signifies an asymmetry in how IMO decides on PSSAs. Despite their contentious nature, the Baltic Sea Area PSSA and the Western European PSSA were designated in due course – they were proposed to the same session of MEPC at which they were designated in principle. In contrast, the Malpelo Island PSSA proposal<sup>254</sup> was initially rejected by MEPC 43, because information corroborating the proposal was considered to be insufficient.<sup>255</sup> MEPC 44 could not approve the designation either, as certain parts of the application were allegedly still missing, such as a chart of the area and information on vessel traffic and its possibly hazardous impacts.<sup>256</sup> It was not until MEPC 46 that IMO was able to approve the PSSA application in principle.<sup>257</sup> The lengthy course of procedure with respect to Colombia's proposal and IMO's continuing requests to submit additional information on the prevailing characteristics of the area give ample evidence of the problems developing coun-

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highlight the areas of greatest risk and would dedicate specific measures to those risks. [... The Russian submission] would seem to very much support the earlier submission of the WWF”.

<sup>252</sup> Even the Russian Federation, strongly opposed to the designation of the whole Baltic Sea, acknowledged the need to deploy protective measures. At NAV 51, the Russian delegation, commenting on proposals for routing measures as APMs for the Baltic Sea Area PSSA “informed the Sub-Committee that it was actively involved in the development of these proposals for routing systems and fully supported them. The Russian Federation was not in the list of co-sponsoring countries as they were not in favour of establishing large sea areas as PSSA. However, in their opinion, the APMs proposed were conventional routing systems; similar systems already existed in the eastern part of the Baltic Sea; like these they would enhance maritime safety and protect the marine environment and should therefore be supported as such.” NAV 51/19, *Report to the Maritime Safety Committee*, 4 July 2005, para. 3.28.

<sup>253</sup> See Veronica Frank, *supra*, note 101, pp. 1-64, at 21 et seqq.

<sup>254</sup> MEPC 43/6/7, *Designation of Malpelo Island as a “particularly sensitive sea area”*, 30 April 1999.

<sup>255</sup> MEPC 43/21, *Report of the Marine Environment Protection Committee on its Forty-Third Session*, 6 July 1999, para. 6.33.

<sup>256</sup> Cf. MEPC 44/20, *Report of the Marine Environment Protection Committee on its Forty-Fourth Session*, 12 April 2000, para. 7.20 et seq.

<sup>257</sup> MEPC 46/23, *Report of the Marine Environment Protection Committee on its Forty-Sixth Session*, para. 6.16.

tries are faced with in assembling adequate information to convince IMO member states of the area's ecological value.<sup>258</sup> The other PSSAs in waters under the jurisdiction of developing countries (Cabana-Samagüey, Galapagos Archipelago, Paracas National Reserve) have all long since been recognised for their particular ecological significance and protected under national and international law. However, even Cuba and Peru were faced with difficulties when they submitted their proposals. *Gjerde* and *Pullen* have noted that “the adoption of Cuba's PSSA was neither quick nor simple. Although the Sabana-Camagüey archipelago met the criteria for identification of a PSSA, Cuba's proposal [submitted to MEPC 38] fell short of the full requirements.”<sup>259</sup> A second application had to be submitted to MEPC 40. As has been touched upon in Chapter 8, Peru, when proposing the Paracas National Reserve PSSA, intended to have parts of the area covered by an ATBA and to apply strict discharge restrictions for the entire area.<sup>260</sup> Regarding the ATBA, Peru was requested to submit a separate proposal to the NAV sub-committee – and did so two and a half years later; a corresponding application for a recommendatory ATBA was finally approved by MSC 78.<sup>261</sup>

It is my contention that areas such as the Western European PSSA or the Baltic Sea Area PSSA would have hardly gained PSSA status had they been proposed by a developing country. Developed countries, especially where they join forces to instigate concerted action, are capable of producing a large amount of information in a concise and compelling manner.<sup>262</sup> Given their political power and the vagueness of the PSSA criteria, approval by IMO is virtually certain. The obvious dominance of developed countries not least runs counter to the principle of sustainable development, since one of its sub-principles stipulates the aiming at intragenerational equity.<sup>263</sup> As is obvious, the PSSA Guidelines are seriously flawed. Reasons can aptly be summed up: where almost every marine area fulfils at least one criterion of the guidelines, an assessment by scientists (whether or not

<sup>258</sup> Even within IMO these problems are recognised. In the 2005 revision of the PSSA Guidelines, it was finally agreed to give MEPC the possibility not to reject a proposal entirely, but also to request the member government to submit additional information. Note that “such language [does not exist] in any other IMO instrument”; cf. MEPC 53/8/2, *Report of the Correspondence Group*, 15 April 2005, annex, p. 38, annotation to para. 8.3.6 of the draft guidelines. It was felt that the inclusion of this possibility was necessary due to the “the potential difficulties for developing States in providing such information”; *ibid.*

<sup>259</sup> Kristina M. Gjerde and J. Sian H. Pullen, *supra*, note 114, pp. 246-262, at 249. It failed to include information on prevailing vessel traffic patterns and protective measures already employed in the area.

<sup>260</sup> MEPC 48/7, *Designation of the marine area of the Paracas National Reserve as a “particularly sensitive sea area”*, 18 April 2002, annex, para. 5. et seq.

<sup>261</sup> MSC 78/26/Add.2, *Report of the Maritime Safety Committee on its Seventy-Eighth Session*, 4 June 2004, Annex 22, p. 3.

<sup>262</sup> Note that the Florida Keys PSSA proposal, when it was presented at MEPC 46, was unanimously praised as an excellent example of a coherent and well-prepared document that “should serve as a model by Member States when proposing their PSSAs in the future.” See MEPC 46/23, *supra*, note 432, para. 6.8.

<sup>263</sup> See, *supra*, Sec. II.3. of Chapter 4.

a criterion is met) must necessarily be complemented by political considerations, which undermines the rationale of an inherently science-based concept.

### **b) Consequences: Redesign of the PSSA Concept**

From what was said in the previous section, it is obvious that the PSSA concept, as it is currently reflected in the PSSA Guidelines, should not and cannot be maintained unchanged. There are two ways of dealing with this apparent dilemma. Ecological criteria, in particular, could be either significantly strengthened or completely discarded, so that the requirements for a designation would only refer to shipping activities.

As regards the former option, scientific assessment and the persuasiveness of its conclusions would be reinforced by decoupling science and politics. This would restore the *prima facie* primacy of science over politics in a process that ought to be essentially scientific.<sup>264</sup> However, the development of the PSSA regime has already started to go down a different route. It would be highly problematic to deal with APM proposals for existing areas that would not meet strengthened criteria. In addition, coastal states will arguably be reluctant to agree to more restrictive criteria if they only gain marginal jurisdictional benefits. This is evidenced by the 2005 revision of the guidelines: despite its intention to the contrary, it addressed problems identified during the designation procedure for the Western European and the Baltic Sea Area PSSA, but did not succeed in clarifying or strengthening the wording of the guidelines. In addition, stricter requirements for the use of the PSSA concept will probably lead many states to refrain from utilising the PSSA regime and instead to pursue the implementation of other protective measures, such as routeing systems.

Hence, the second option should be preferred. PSSA status should be awarded to all marine areas that are threatened by the activities of international shipping. In one way or another, every marine area has a feature that renders it worthy of protection. Based on the recognition that all marine areas can be considered to be “sensitive sea areas”, it may readily be concluded that those that are threatened by specifically dangerous vessel traffic patterns are “particularly sensitive.” Hence, the criteria for a PSSA should be limited to “vessel traffic characteristics” and “natural factors”, currently contained in paragraph 5 of the PSSA Guidelines. Several advantages of this approach may be identified. It reasonably echoes the fact that IMO’s core area of expertise is the regulation of international shipping. MEPC would not have to deal any longer with information solely related to the ecological state of an area, but could focus on potentially hazardous conditions for shipping. It would also enhance coastal states’ prescriptive jurisdiction in conformity with UNCLOS where vessel traffic so warrants. Furthermore, it could easily be supplemented by a multilateral MPA treaty (whose requirements and implications are to be considered below). This approach would address flaws of

<sup>264</sup> To facilitate administration of the process, IMO could contemplate the establishment of a separate advisory body (for instance, within or in conjunction with IUCN) that could assess proposals at intersessional meetings and prepare recommendations for every proposal.

the current guidelines inasmuch as it prevents the PSSA concept from becoming the standard protective regime for waters under the jurisdiction of developed countries. On the contrary, it may in the event be used more widely in many places of the world. In view of a marginal expansion of coastal-state jurisdiction<sup>265</sup>, the fragility of oceanic ecosystems and alleged increases in world-wide vessel traffic, a redesign of the PSSA concept in the proposed manner is undoubtedly justified, as it is essential to use the UNCLOS framework in a progressive way. Of course, if PSSA status were granted regardless of ecological criteria, the argument voiced in the previous chapter<sup>266</sup> that enforcement rights in the EEZ would be strengthened following a modified interpretation of Article 220(5) and (6), could probably not be upheld.

Further efforts to improve the concept should aim at reflecting the ubiquitous importance of the precautionary principle. It would be appropriate to ensure that the PSSA concept in determining a “particular sensitivity” takes account of the fact that an area is already under serious stress from other marine activities (for instance, fishing, mariculture installations or sewage from a nuclear power plant) resulting in a need to control and, if necessary, curtail shipping activities in the respective area. In the event, coastal states would be encouraged to consider which uses of the area should be accorded priority.

## **2. Initial Suggestions for a Future Protective Regime**

I have argued in the previous section that the PSSA concept has reached an impasse and should be modified to reflect the necessity of enhanced coastal-state control over vessel traffic in areas that are characterised by particularly dangerous traffic patterns. These considerations have been inherent in the current protective system. On a more radical note, one may also contemplate the development of a multilateral treaty regime for PSSAs to be negotiated under the auspices of IMO. As early as 1992, at the First Meeting of Experts on PSSAs, it was noted that “[f]uture consideration of the PS[S]A concept should also address whether it should be further developed, possibly through [a] new international legal instrument, so as to provide a basis for uniform enforcement capabilities throughout areas straddling various jurisdictional zones.”<sup>267</sup> While it cannot be denied that a multilateral treaty on PSSAs could possibly reconcile the jurisdictional limitations of UNCLOS, it would still be limited to just one sector of ocean governance: shipping.

From my point of view, it seems more appropriate to maintain the PSSA Guidelines (modified as proposed in the previous section) as the basic protective regime for marine areas largely overseen by coastal states, and complement them

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<sup>265</sup> See, *supra*, Sec. II.2.a) of Chapter 10.

<sup>266</sup> Sec. II.2.b) of Chapter 10.

<sup>267</sup> Kristina M. Gjerde and David Ong, *supra*, note 108, pp. 9-13, at 12. This view is shared by Peter Ottesen, Stephen Sparkes, and Colin Trinder, “Shipping Threats and Protection of the Great Barrier Reef Marine Park – The Role of the Particularly Sensitive Sea Area Concept”, 9 *IJMC* (1994), pp. 507-522, at 522.

with a comprehensive MPA regime that must amalgamate different regulatory approaches. What is more, from the perspective of the users of an area, whether seafarers, fishermen or operators of industrial installations, it would be preferable to have a single instrument providing for diverse measures necessary for protecting an area. While it is an adequate first step to augment several different instruments, the international community should aim at a single agreement on an MPA regime to govern comprehensively all relevant activities occurring in vulnerable areas in order to protect marine biodiversity.<sup>268</sup> I shall try to outline the basic features of such a regime and its interfaces with the PSSA concept in the following section.

### **a) Determining the Adequate Instrument to Develop a Multilateral MPA Regime**

Before addressing more specific issues, it is sensible to highlight some general considerations with respect to treaties augmenting the Law of the Sea regime.<sup>269</sup> There are several different means by which an MPA regime could be established. All of them have specific strengths and weaknesses. Three options are to be considered: an amendment to UNCLOS, an UNCLOS implementation agreement and a separate convention.

As far as a formal amendment is concerned, UNCLOS contains several provisions setting forth procedural requirements. According to Article 312(1), after the expiry of a period of ten years after entry into force of UNCLOS (November 2004), a party may propose amendments. The UN Secretary-General is to convene a conference to negotiate the proposal. If an amendment is adopted, it enters into force if two-thirds of the state parties to UNCLOS ratify, or accede to, the amendment.<sup>270</sup> A simplified procedure is laid down in Article 313, which allows for the adoption of an amendment without convening a conference. Parties may propose an adoption to the UN Secretary-General, who must circulate the proposal. If only one party expressly opposes the amendment, it “shall be considered rejected.”<sup>271</sup> Otherwise it is considered adopted after the expiry of a period of 12 months.<sup>272</sup> It has been rightly stated that an “amendment using either procedure is

<sup>268</sup> Certain remedies could possibly also be achieved through the enhanced cooperation of regional regimes. Still, most elaborate forms of instruments and cooperation between them exist in developed regions. This approach would thus widen the governance gap between developed and developing countries.

<sup>269</sup> David Freestone and Alex G. Oude Elferink, “Flexibility and Innovation in the Law of the Sea – Will the LOS Convention Amendment Procedures ever be used?”, in A.G. Oude Elferink (ed.), *supra*, note 111, pp.169-221.

<sup>270</sup> Art. 316(1) of UNCLOS. As David Freestone and Alex G. Oude Elferink, *supra*, note 111, p. 179 et seq., point out, not even the 1995 Implementation Agreement on the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks would have come into force had it been adopted as an amendment to UNCLOS. They contend that “any amendment, to stand a chance of entry into force, would need to be uncontroversial and beneficial to all of the major law of the sea interest groups”.

<sup>271</sup> Art. 313(2) of UNCLOS.

<sup>272</sup> Art. 313(3).

likely to prove an unattractive option.”<sup>273</sup> Whether these procedures will ever be used in the near future is thus highly doubtful. Attempts to incorporate an MPA regime into UNCLOS by amendment should not be initiated.

Another way to amend UNCLOS that may be termed “informal amendment” could be achieved by recourse to Article 311(3) and (4). This procedure shares features with the formal amendment procedure but allows for instruments to enter into force more easily and may thus exert a greater influence on the further development of the UNCLOS regime.<sup>274</sup> Article 311(3) provides that two or more state parties conclude an agreement “modifying or suspending the operation of provisions of this Convention.” These states are obliged to notify their intention to the other parties to UNCLOS. However, these agreements have certain obstacles to overcome. The requirements set by Article 311(3) are rather strict, inasmuch as the instrument will become applicable between the parties “provided that such agreements do not relate to a provision derogating from which is incompatible with the effective execution of the object and purpose of this Convention, and provided further that such agreements shall not affect the application of the basic principles embodied herein, and that the provision of such agreement do not affect the enjoyment by other states parties of their rights or the performance of their obligations under this Convention.” If a supposed MPA regime envisages, for instance, surpassing the restrictive enforcement rights of Article 220 with respect to vessels flying the flag of UNCLOS parties that are not parties to the new instrument, it would arguably be inconsistent with Article 311(3). Hence, although Article 311(3) lessens procedural requirements, it puts severe limitations on the content of a potential regime that aims to develop certain UNCLOS rules. It is ill-suited to accommodate a treaty regime for MPAs.

An implementation agreement is a separate multilateral instrument building upon existing treaty provisions which it aims specifically to flesh out and supplement. It is difficult to characterise implementation agreements further, as they do not exist as a genuine category in international law. Significant examples only exist in the law of the sea. In 1994 and 1995, two implementation agreements were concluded to supplement the UNCLOS regime.<sup>275</sup> Despite their title, they not

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<sup>273</sup> Alan E. Boyle, “Further Development of the Law of the Sea Convention: Mechanisms for Change”, 54 *ICLQ* (2005), pp. 563-584, at 564 and 577 for more details. It was for this reason that European states eventually refrained from using the amendment procedure to enhance coastal state controls over unsafe vessels in the wake of the *Prestige* accident; cf. Veronica Frank, *supra*, note 101, p. 15 et seqq.

<sup>274</sup> Cf. Bernard H. Oxman, “Tools for Change: The Amendment Procedure”, in UN (ed.), *Proceedings of the Twentieth Anniversary Commemoration of the Opening for Signature of the United Nations Convention on the Law of the Sea 2002* (New York: UN Publication 2003), pp. 195-207, at 198 et seq.

<sup>275</sup> Agreement Relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea, done at New York, adopted on 28 July 1994, in force as from 28 July 1996, 33 *ILM* (1994) 1309; Agreement for the Implementation of the Straddling and Highly Migratory Fish Stocks Provisions of the United Nations Convention on the Law of the Sea, done at New York, adopted on 4 August 1995, in force as from 11 December 2001, 34 *ILM* (1995) 1542.

only implemented certain provisions (Part XI and in Section 2 of Part VII respectively) but brought about some radical changes.<sup>276</sup> That said, it should be noted that modification through implementation agreements was not expressly envisaged in any UNCLOS provision. Implementation agreements are therefore not subject to the restrictions of Articles 312, 313 or 311(3). As a result, they only change the law between the parties, but do not change UNCLOS' regime as such – and may possibly conflict with UNCLOS Articles 237 and 311.<sup>277</sup> Nevertheless, implementation agreements are confined to the ambit of UNCLOS (and probably related areas) or any other treaty instrument they aim to specify.<sup>278</sup> Despite UNCLOS addressing marine environment protection in a rather broad manner, it does not seem to accommodate appropriately an MPA regime which must address the conservation of biodiversity and the proactive management of threatened marine areas, possibly along with terrestrial parts.<sup>279</sup> In this context, I should stress that an instrument supplementing the CBD, for example as a protocol to the convention, is equally ill-suited to accommodate an MPA regime, since it would also be limited to specific policy sectors.

Hence, it seems that the most adequate way to establish a treaty regime for MPAs is to develop a stand-alone treaty on MPAs that does not expressly interpret, implement or revise UNCLOS. Earlier examples such as the Underwater Cultural Heritage Convention<sup>280</sup> have shown that ocean-related matters need not be developed under the roof of UNCLOS. A separate treaty would provide the

<sup>276</sup> David Freestone and Alex G. Oude Elferink, *supra*, note 111, p. 184 et seqq.; Erik Franckx, "Pacta Tertii and the Agreement for the Implementation of the Straddling and Highly Migratory Fish Stocks Provisions of the United Nations Convention on the Law of the Sea", 8 *Tul J. Int'l & Comp. L.* (2000), pp. 49-81, at 60; see further Edward D. Brown, "The 1994 Agreement on the Implementation of Part XI of the UN Convention on the Law of the Sea: Breakthrough to Universality?", 19 *Marine Policy* (1995), pp. 5-20, at 9 et seq.; and John M. Van Dyke, "Modifying the 1982 Law of the Sea Convention: New Initiatives on Governance of High Seas Fisheries Resources: the Straddling Stocks Negotiations", 10 *IJMC* (1995), pp. 219-227, at 226 et seq.

<sup>277</sup> Whether in some circumstances implementation agreements may become binding for non-parties that are parties to UNCLOS has been explored by Erik Franckx, *supra*, note 276, p. 62 et seqq.; and Rüdiger Wolfrum, "The Legal Order for the Seas and the Oceans", in M.H. Nordquist and J.N. Moore (eds.), *Entry into Force of the Law of the Sea Convention* (The Hague Boston London: Martinus Nijhoff Publishers 1995), pp. 161-185, at 166 et seqq.

<sup>278</sup> Note, however, that the international community may decide otherwise, as has been the case with the 1995 Implementation Agreement that mainly addresses issues related to the CBD but was negotiated as an instrument implementing UNCLOS; cf. Alan Boyle, *supra*, note 273, p. 580.

<sup>279</sup> *Contra* WBGU, *The Future Oceans – Warming Up, Rising High, Turning Sour* (Berlin: WBGU Publication 2006), p. 29 et seq. that argues for the development of an UNCLOS implementation agreement, in particular with a view to HSMPAs; however, it also maintains that CBD should be expanded to include rules (possibly by means of a protocol) on protected areas. As I shall argue in the next paragraph, it is more sensible to establish a separate instrument.

<sup>280</sup> UNESCO Convention on the Protection of the Underwater Cultural Heritage, adopted on 2 November 2001, not in force, 41 *ILM* (2002) 40.

possibility to widen UNCLOS' approach in terms of protective measure and maritime zones, in particular the high seas. In addition, other issues such as biodiversity protection, fisheries and offshore mining could be addressed more appropriately. That does not exempt negotiators from ensuring that a new regime incorporates expertise developed within relevant bodies, e.g. IMO, UNICPOLOS, and CBD. Of course, a separate MPA treaty would share some of the drawbacks and shortcomings of other options: like implementation agreements, they only change the law between their parties – a possibly slow pace and a low number of ratifications might therefore initially lead to a rather weak regime.

### **b) Material Legal Prerequisites**

If the PSSA concept is maintained as suggested above, a complementary MPA regime needs to be significantly different to justify its existence. In the following paragraphs, I shall attempt to sketch out the design parameters for this regime, as well as its relationship with the law of the sea framework.

With respect to the design parameters, the chance should not be lost of drawing up an instrument that incorporates as many issues as possible to ensure a comprehensive one-stop approach to protecting vulnerable marine ecosystems. Therefore, the inclusion of all relevant policy sectors (fishing, environmental protection, shipping, seabed mining, energy production) is of vital importance. Equally critical is the application of an ecosystem approach to the designation of MPAs, i.e. MPAs must be designated according to ecological necessities rather than according to jurisdiction in UNCLOS maritime zones. Of course, a comprehensive approach must also dispose of UNCLOS' limited focus on pollution to cover all types of ecological damage that vessels and other human activities may cause.

Where the scope of application is wide-ranging, the criteria that marine areas have to meet to qualify for designation must be more stringent so as not to allow for too much political leeway. Criteria could possibly be established in the style of those used in the EU Habitat Directive, pursuant to which the EU Natura 2000 system is set up.<sup>281</sup> Sites only qualify for inclusion in this regime if they “[contribute] significantly to the maintenance or restoration at a favourable conservation status of [certain habitat types or species] and may also contribute significantly to the coherence of Natura 2000.”<sup>282</sup> Furthermore, annexes provide for the kind of species and habitat type that indicate an inclusion of the site, if they are identified in an area. Of course, it is highly difficult to establish lists of threatened floral and faunal species or habitat types for all parts of the world. Recourse may thus be made, *inter alia*, to the IUCN Red List. However, what is obvious is that additional qualifiers are crucial for making the regime work in practice. Where criteria are strict, scientific approval of their fulfilment is a *prima facie* indication of political approval, which in turn is very difficult to refuse. MPA do not necessarily need to be of small size, but should be confined to biologically func-

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<sup>281</sup> See, *supra*, Sec. II.7. of Chapter 5.

<sup>282</sup> Article 1 lit. (k) of the Habitat Directive. The term “significant” is considered to be crucial for limiting the instrument's scope; cf. Katharina Castrangius, *supra*, note 64, p. 208.



tional units, such as reefs. If several fragile parts within a larger area of the sea merit protection, this should primarily be done by means of establishing MPA networks, jointly administered in order to reflect, maintain and strengthen interdependencies between protected sites. To that end, a new regime should refer to the valuable work that has already been undertaken within the institutional framework of CBD.<sup>283</sup>

On the subject of implications of the CBD regime, attention should be given as to whether states should be obliged to designate MPAs. Expanding on Article 8 of CBD and other obligations already existing in international law<sup>284</sup>, it may well be argued that international law already contains an obligation to establish, “as far as possible and as appropriate, [...] a system of protected areas or areas where special measures need to be taken to conserve biological diversity.”<sup>285</sup> This obligation should be given fresh impetus and fleshed out by respective provisions in a new MPA regime<sup>286</sup>, inasmuch as contracting parties should be compelled – again, similar to obligations under the EU Habitat Directive – to submit sites to the assessment procedure that may fulfil designation criteria. An issue that has also been addressed within CBD is the positive development of marine protected areas. It merits particular attention, since the mere protection of an area from dangers and the management of its uses cannot be considered to be sufficient. If an area’s ecological quality is to be maintained, proactive measures must be deployed. At best, parties are obliged to implement appropriate instruments; an alternative option is the establishment of good-practice guidelines towards which the conduct of the state parties should be geared.

Finally, we must consider the means by, and the extent to, which restrictions can be placed on international shipping in order to protect an MPA. Even a regime that is more restrictive in terms of criteria and broader in its protective approach would undoubtedly benefit from the broad array of measures available for PSSAs. From a nature conservation point of view, the most comfortable way of protection is to adopt automatically mandatory ATBAs for every MPA. However, this may be neither feasible nor desirable for every area. Protective measures have to be determined on a case-by-case basis, albeit without being restricted to means available under IMO instruments. Compared with the PSSA concept, a treaty instrument provides a valuable chance to allow for all measures that are necessary without being confined to measures available from existing treaties or IMO instruments. Enforcement in these specifically designated areas must dispose with the limitations of Article 220 to ensure coherent and prompt action.

This approach will certainly evoke criticism and opposition. In particular, disputes over politically sensitive areas, such as straits, are likely to emerge during

<sup>283</sup> See documents referred to, *supra*, in Sec. IV. of Chapter 4.

<sup>284</sup> For an instructive account of respective obligations in international law, see Katharina Castringius, *supra*, note 64, p. 161 et seqq.

<sup>285</sup> Art. 8 lit. (a) of CBD.

<sup>286</sup> This is in line with the general perception that the CBD is of a framework character that needs to be filled out by other instruments; cf. Nele Matz, *Wege zur Koordinierung völkerrechtlicher Verträge – Völkervertragsrechtliche und institutionelle Ansätze* (Berlin Heidelberg New York: Springer 2005), p. 113.

negotiations. The international community would be ill-advised automatically to sacrifice environmental protection for the sake of freedom of navigation. While it must undoubtedly be ensured that shipping as such is still possible in designated sites, in the long run, at least in MPAs, environmental protection must prevail over navigational interests. Still, the question of how an MPA regime of this kind would fit into the current ocean governance framework merits attention. Although it should be kept in mind that a new treaty is only applicable between its parties and hence does not violate third-state rights in this respect, it must conform to UNCLOS provisions on the adoption of treaties in furtherance of its principles. Relevant provisions are to be found in Articles 237 and 311(3). The crucial question is what requirements UNCLOS sets for treaties which modify its Part XII. According to Article 237, multilateral instruments relating to the protection of the marine environment may be concluded if they contribute to the “furtherance of the general principles set forth in this Convention.”<sup>287</sup> As long as agreements fulfil this criterion, they do not have to conform to Part XII of the Convention.<sup>288</sup> Article 237 therefore allows for greater latitude to depart from the terms of Part XII than from other parts of the Convention, since as *lex specialis* it overrides Article 311(3). As a result, the adoption of an MPA treaty aimed at comprehensively protecting the biodiversity of highly vulnerable and particularly valuable marine ecosystems would arguably be permissible. UNCLOS’ objectives already include the protection and preservation of “rare and fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life.”<sup>289</sup>

Whether an approach such as the one outlined here would be successful in terms of ratification and implementation cannot be predicted in a serious manner. Interestingly, the Russian Federation, a consistent advocate of freedom of navigation within IMO, contended that the obligation contained in the CBD should be fleshed out to award greater protection to specifically endangered marine areas. Its official statement read: “We believe that an approach of this kind, [...] that would be all-embracing and multilateral, and not simply politically inspired, is completely reasonable.”<sup>290</sup> Even though this statement was made to convince proposing governments not to pursue further the proposal for the Western European PSSA, it may be indicative of the preparedness of the majority of states to subject certain clearly defined areas to rigorous protection, even at the expense of traditional navigation rights.

### **c) Institutional Arrangements**

An MPA regime must ultimately provide for adequate institutional arrangements. Hence, I shall explore the preferable features of an institution entrusted with governing a multilateral MPA regime.

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<sup>287</sup> Para. 1.

<sup>288</sup> Alan Boyle, *supra*, note 273, p. 578. See also, *supra*, Sec. III.5. of Chapter 4.

<sup>289</sup> Art. 194(5).

<sup>290</sup> MEPC 51/22, *Report of the Marine Environment Protection Committee on its Fifty-First Session*, 22 April 2004, Annex 8, p. 2.

Before addressing this topic specifically, it is sensible to identify the tasks that an institution may need to monitor or carry out to ensure proper implementation of the regime. Three procedural stages can be identified in which it should become involved: the proposal; scientific assessment; and the designation, management and protection of sites. With respect to the submission of proposals, an institution must receive and govern relevant data. However, it may also be given the right to propose areas for designation itself.<sup>291</sup> Regarding the second stage, the proposal must be assessed by scientific experts as to whether it qualifies as an MPA. Moreover, necessary and appropriate protective and conservation measures are to be determined. Finally, after the MPA is designated, the area must be managed; in other words, protective measures need to be enforced, permissions for human activities need to be issued; and proactive development measures need to be implemented. In areas under the jurisdiction of coastal states, they may preferably fulfil this role and possibly report to the governing body of the treaty.

If an area is located on the high seas, competences and responsibilities become more difficult to allocate, as I have already mentioned in the previous chapter.<sup>292</sup> Questions revolving around institutional competences on the high seas have already received a lot of attention. Most recently and very profoundly, the First International Marine Protected Areas Conference (IMPAC1, Geelong/Australia 2005) has called on countries to consider establishing a “Global Oceans Commission” to enable a strategic approach to governance and ocean conservation with effective enforcement modalities.<sup>293</sup> This plea was endorsed by WBGU.<sup>294</sup> In addition, IMPAC1 recommended the establishment of “Marine Ecosystem and Resource Management Organisations” (“MERMOS”, similar to but broader than RFMOs) to balance fishing, shipping and conservation under the same umbrella.<sup>295</sup>

<sup>291</sup> Proposal rights should also be given to NGOs as within OSPAR. This would strengthen their responsibilities compared with their weak role in IMO. On the latter issue, see generally Gerard Peet, “The Role of (Environmental) Non-Governmental Organizations at the Marine Environment Protection Committee of the International Maritime Organization and at the London Dumping Convention”, 22 *Ocean and Coastal Management* (1994), pp 3-18.

<sup>292</sup> See, *supra*, Sec. III. of Chapter 10.

<sup>293</sup> Cf. Kristina M. Gjerde and Graeme Kelleher, “Broader Cooperation with Industry sought to save ‘The Least Protected Area in the World’ – A Summary of the High Seas Debate at IMPAC1”, available from <[http://www.iucn.org/themes/marine/pdf/highseas\\_at\\_impac\\_dec05.pdf](http://www.iucn.org/themes/marine/pdf/highseas_at_impac_dec05.pdf)>; (accessed on 30 September 2006), p. 2.

<sup>294</sup> WBGU, *supra*, note 279, p. 29. In a similar vein, the *Defying Ocean’s End* Conference, organised by various NGOs, including IUCN and The Nature Conservancy, alongside the US and other governments in 2003, embraced the call to establish a World Ocean Public Trust (WOPT) as a governance approach to high-seas resources; cf. Montserrat Gorina-Ysern, Kristina Gjerde and Michael Orbach, “Ocean Governance: A New Ethos through a World Ocean Public Trust”, in L.K.Glover and S.A.Earle (eds.), *Defying Ocean’s End – An Agenda for Action* (Washington Covelo London: Island Press 2004), pp. 197-212, at 208 et seq.

<sup>295</sup> Kristina M. Gjerde and Graeme Kelleher, *supra*, note 293, *loc.cit.*

These considerations have met with approval.<sup>296</sup> Indeed, there is a lot to be said for this view. Moreover, it seems reasonable to pick – as a starting point – an institutional framework that is workable on the high seas to oversee the implementation of the regime in other marine areas.

With respect to the design of an institutional framework, it can be noted that it should principally be put in the hands of a governing body of the MPA treaty. While suggestions have been made to strengthen the role towards a global organisation to protect the marine environment<sup>297</sup> and thus to govern a global MPA regime, it seems more appropriate to establish a separate institution. It should be responsible for awarding the designation, as well as for monitoring implementation by receiving reports from parties. Still, further sub-bodies are necessary. Regarding assessment, as within other regimes<sup>298</sup>, at least one separate sub-body comprised of scientific experts should deal with the proposal. Another expert group may be created to consider the necessary protective measures. Subsequent implementation may be monitored by regional bodies modelled on the governance system of the southern ocean.<sup>299</sup>

The final question relates to IMO's role in this suggested MPA regime, as well as the institutional relationship with the PSSA concept. Obviously, MPAs will need to be protected against threats posed by international shipping and IMO is the only organisation in the current ocean-governance system which can provide the required protection. An obvious solution would be to award PSSA status to all areas that have been designated as an MPA, along with the approval of APMs necessary for protecting the area. This approach would, however, complicate institutional responsibilities. An alternative option is to have the coastal states apply for the IMO's approval for certain protective measures that the MPA regime's expert group on protective measures considers necessary. On the high seas, this task may be fulfilled by a group of states which have set up an administering body<sup>300</sup>, acting as a trustee for a particular area. Where IMO is not in the position to grant approval, the MPA regime itself should be the basis for those measures. The PSSA concept would thus not play a decisive role in the protection of MPAs. However, as has been noted, in future "it will be important to adopt a proactive precautionary approach that targets geographical areas and high risk ship types, owners and charterers. In this respect, PSSAs should continue to

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<sup>296</sup> UNEP, *Ecosystems and Biodiversity in Deep Waters and High Seas*, UNEP Regional Seas Reports and Studies No. 178 (Geneva: UNEP Publication 2006), p. 45 et seq.; and Elizabeth Foster et al, "Improved Oceans Governance to Conserve High Seas Biodiversity", 15 *Parks* (2005), No. 3, pp. 19-23, at 21 et seq.

<sup>297</sup> Ling Zhu, "Do We Need a Global Organisation for the Protection of the Marine Environment?", in P. Ehlers and R. Lagoni (eds.), *International Maritime Organisations and their Contribution towards a Sustainable Marine Development*, (Münster: LIT 2006), pp. 157-180, at 178 et seq.

<sup>298</sup> See, *supra*, Sec. I.1.a) of Chapter 9.

<sup>299</sup> As suggested in UNEP, *supra*, note 296, *loc.cit.*

<sup>300</sup> See, *supra*, Sec. III.4. of Chapter 10 for details.

have an important role but they must be more closely linked to associated MPAs and embrace a risk management regime that delivers effective protection.”<sup>301</sup>

### III. Concluding Remarks

Decades ago, the international community recognised the need to establish an instrument aimed at protecting specifically vulnerable marine ecosystems from the dangers posed by international shipping. Since its introduction by IMO in 1991, the PSSA concept has elevated the protective status of several unique marine areas around the world. Furthermore, it has had an impact on broader aspects of ocean governance, most notably on the evolution of IMO’s routeing measures. Nevertheless, the PSSA concept cannot be considered a complete success story. Recent designations adopted by IMO have taken the application of the PSSA Guidelines to a decisive stage. There is compelling evidence that it must be redesigned to prevent it from being consistently undermined by political pressure that will eventually, amongst others, favour the interests of developed countries over those of developing countries. I have agreed that the most appropriate reaction would be to dispose of ecological criteria and instead base PSSA designations only on vessel traffic patterns in the area. In the light of international obligations to protect marine biodiversity, enshrined in the CBD, a supplementary regime must be established to attach stringent and inter-sectoral protection to those marine areas which are both highly vulnerable and present the core sites on which attention must be focused in the ongoing struggle to conserve the biological diversity of the world’s oceans.

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<sup>301</sup> David E. Johnson, Nickie Butt, Simon Walmsley, “Protecting MPAs from Threats posed by International Shipping”, lecture delivered to the First International Marine Protected Areas Congress 2005, extended abstract available from <<http://www.impacongress.org/IMPAC%20orals%20final.pdf>>; (accessed on 30 September 2006), pp. 104-106.

## Summary

### Oceans in Danger

1. The oceans are a vital source of life on Earth. They host a plethora of both floral and faunal species, some of which, in particular deep-sea species, still need to be properly identified and described. 140 different species of marine mammals occupy marine habitats, more than 20,000 species of pelagic fish, around 5,000 species of larger zooplankton, and almost 1,000,000 benthic species. The most productive and fragile ecosystems are coastal areas and deep-sea environments; they are both very sensitive, even to natural changes in their predominant ecological conditions. Oceans play a crucial role in maintaining the climate cycle and in providing food for billions of people all over the world. Despite the obvious need for continuous protection, the world's oceans are increasingly under threat. An increasingly diversified range of uses today competes for limited marine space, including activities, such as mining and energy production, that were once largely confined to terrestrial areas. Shipping is still the most important use in terms of both economic and ecological impact.

2. Human activities are leaving their marks on the oceans, with the pollution of seawater and degradation of marine habitats being the most evident. Detrimental environmental effects depend upon the nature of human interference with nature. Two types may broadly be distinguished: pollution and physical destruction. Sources of pollution are coastal sources, both point sources and diffuse sources, atmospheric deposition and offshore inputs. A broad array of substances may be said to have polluting characteristics. Among the most prominent are hydrocarbon compounds (including oil, polycyclic aromatic hydrocarbons and halogenated hydrocarbons), persistent toxic substances, heavy metals, radioactive materials and nutrients. Although the majority of sources of these pollutants is land-based, vessels also significantly contribute to the pollution of the oceans. Most pollutants are released while the ship is under way. This so-called operational pollution comprises the chronic discharge of sewage, tank residues, bunker oils and garbage, as well as the exchange of ballast water, emissions from the vessel's engines and pollution due to anti-fouling paints on ships' hulls. Accidental pollution occurs after collisions, groundings, explosions, cargo transfer failures and sinking or loss of cargo. Ships may also be responsible for the destruction or deterioration of ocean habitats and harm to marine wildlife by direct physical impact. Certain types of habitats, such as reefs, are in danger of being severely damaged or completely destroyed by anchors or swinging anchor cables. The grounding of ships may similarly impact on fragile habitats. Furthermore, marine mammals are

likely to suffer badly from collisions with the ship itself or with the ship's propellers.

### **Spatial Protection as a Means to Counter Threats to Vulnerable Marine Ecosystems**

3. Individual states and the international community as a whole realised early that certain marine areas are more vulnerable to environmental threats or more important for maintaining the oceans' habitat functions than others and thus require a higher level of protection. The designation of protected areas was triggered by the observation that the most adequate way to protect sensitive habitats is not just by individually regulating specific sources of deterioration, but by enacting sets of abstract rules to prohibit, control and coordinate all uses that may possibly occur in an area. This concept is today mostly referred to as marine protected area (MPA), which is an all-encompassing term whose definition is not standardised between states. Protective approaches may range from the mere coordination of human activities to a total closure for certain activities – several different categories exist, labelled by around 80 different terms. Around 4,000 MPAs are recorded today. Current approaches to the protection of marine areas are characterised by the attempt to preserve whole functional ecosystems. This so-called ecosystem approach is informed by the recognition that organisms in an ecosystem work together to survive rather than live in deadly competition with one another for evolutionary survival. The location, size and scientific criteria of MPAs may differ according to the objective of the respective protected site. While there is the overriding objective of all marine conservation efforts, which is the protection of critical ecological processes to sustain life-supporting functions of the oceans, many sub-goals have an impact on the concrete implementation of an MPA. However, the most important prerequisite for a successful implementation of an MPA regime is effective management and administration to ensure compliance with all regulations. Research into the practical application of MPAs has evidenced that conservation efforts in individual areas are considerably strengthened if these areas are part of an MPA network. Networks reflect interdependencies between separate oceanic ecosystems; for instance, where different areas are habitats for endangered species in different stages of their lives.

4. Various international documents and political declarations, including Agenda 21 and the WSSD Johannesburg Plan of Implementation, set out obligations of states to identify marine ecosystems exhibiting high levels of biodiversity and productivity and other critical habitat areas. Although MPAs are used in many places, the total expanse of designated sites must still be substantially increased. Various political programmes aim to promote the proliferation of protected areas and further boost the effectiveness of protective regimes for existing areas, as well as to establish and maintain networks. While these initiatives appear to be extremely important, it should be noted that individual governments and the international community as a whole have to act within the confines set by domestic and, in particular, international law. Another topical issue concerns the protection of ocean areas beyond national jurisdiction. Some high-seas areas host

unique and extremely vulnerable ecosystems but still lack an adequate legal framework through which their protection could be addressed.

### **Legal Framework for the Protection of Endangered Marine Ecosystems**

5. International approval for the domestic protection or international designation of certain areas should prevail over mere domestic action, since the governance framework for the world's oceans does not envisage adequate coastal-state jurisdiction over foreign vessels for unilateral action. It is only by international law that states acquire the necessary competences to enforce universally measures ensuring sound protection of the marine environment in general and vulnerable marine areas in particular. The international legal framework for marine environmental governance is shaped by legal principles, as well as by rules, most of which are codified in the United Nations Convention for the Law of the Sea (UNCLOS).

6. Five partly competing legal principles are relevant for the determination of coastal states' competences in protecting certain marine areas from the dangers posed by international shipping. Since the 17<sup>th</sup> century, it has been widely accepted that any vessel should be free to navigate through the oceans without being impeded. In the light of overfishing and marine pollution, this principle of freedom of navigation is today subject to a number of limitations. A complementary principle, the principle of flag-state enforcement, stipulates that laws and regulations relating to vessels should primarily be applied and enforced by the flag state. Even so, numerous international rules provide for deviations from the principle of flag-state enforcement to ensure compliance with laws designed to, *inter alia*, prevent vessel-source pollution. Since it was taken up by the international community in the late 1980s, the principle of sustainable development has become a fundamental paradigm for international environmental policy. The concept of sustainable development usually requires states to meet the needs of the present without compromising the needs of future generations. Although no precise definition has yet received widespread acceptance, given the omnipresence and general acceptance of sustainable development, it is an important guiding principle, not least for ocean governance. The principle of preventive action and the principle of precautionary action both oblige states to take action to protect the environment from potentially harmful activities based on an *ex ante* assessment of the activities' risk. The principle of preventive action requires sovereign intervention, where evidence shows that action is warranted. Where hard evidence cannot be produced, the precautionary principle seeks to contribute to the development of tools responding to a "risk". Very broadly, it stipulates that states must not misuse scientific uncertainty as an argument for inaction. On the contrary, states need to have in place a procedure to identify risks and to develop response strategies to address the identified risks.

7. As far as treaty law is concerned, the United Nations Convention for the Law of the Sea (UNCLOS), in particular its Part XII on "protection and preservation of the marine environment", sets out broad environmental obligations for states. Articles 192 to 196 transpose the main environmental principles into the law of



the sea context. While Article 192 states generally that “[s]tates have the obligation to protect and preserve the marine environment”, Article 194(5) specifies that protective activities must encompass “those necessary to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life.” Together with Articles 197 and 237, that both address the cooperation of states in furtherance of the principles of Part XII, they frame the overall regime in which other provisions of Part XII are applied. Several rules within Part XII also reflect the importance of navigational rights. The broad balance of rights and duties of coastal states and vessels transiting areas under national jurisdiction is detailed in Article 211, on prescriptive jurisdiction, and Articles 217-221, on enforcement jurisdiction. These provisions rely on maritime zones, whose regimes are detailed in Parts II-VII of UNCLOS.

8. Apart from zones traditionally recognised in the customary law of the sea, namely the territorial sea, straits used for international navigation and high seas, UNCLOS has codified prerequisites and limitations for two other zones: the Exclusive Economic Zone (EEZ) and archipelagic waters, of which the former, in particular, has gained tremendous importance. The territorial sea, which has a breadth of 12 nm, is part of the territory of a state. Vessels transiting the territorial sea enjoy innocent passage, but are subject to coastal states’ laws and regulations, if adopted in accordance with UNCLOS. The EEZ, an area beyond and adjacent to the territorial sea, is not established by virtue of UNCLOS, but must be claimed by every coastal state for a breadth of up to 200 nm. Coastal states do not enjoy sovereignty over their EEZ, but rather certain sovereign rights with respect to, *inter alia*, natural resources, while other states enjoy, in particular, the freedom of navigation and overflight. Navigational freedoms may be restricted only to the extent provided for by relevant UNCLOS provisions; for instance, Article 211(5) on the reduction and control of vessel-source pollution. For both the territorial sea and the EEZ, enforcement jurisdiction is particularised in Article 220. Whilst in the territorial sea, coastal states are free to choose the means to enforce their environment protection laws against foreign vessels, strict enforcement measures may only be deployed in the EEZ if the environment is threatened with significant damage. UNCLOS’ regime for international straits, which also largely governs archipelagic waters, leaves comparably little leeway for coastal states. Restricted coastal-state powers are traditionally recognised, because of the strategic character that many maritime states attach to straits. Coastal states may enact regulations addressing vessel-source pollution, but only if they give effect to applicable international regulations regarding the discharge of oil, oily wastes and other noxious substances in the strait. Parts of the sea that are not included in one of the aforementioned maritime zones are considered to be high seas. As they are characterised by the absence of any coastal-state jurisdiction, the enforcement of vessel-related rules lies wholly with the respective flag state. This observation complicates the protection of vulnerable high-seas ecosystems.

9. UNCLOS includes a specific provision on the protection of vulnerable marine ecosystems against threats posed by international shipping. Article 211(6), albeit only applicable in the EEZ, provides for additional measures to be approved by

IMO if protective measures in conformity with generally accepted international rules and standards do not adequately protect the area in question. Although Article 211(6) uses the term “special area”, reference in paragraph 6 lit. (a) to “special mandatory measures” and “international rules and standards or navigational practices” does not appear to confine coastal states to the prescription of discharge restrictions applicable in MARPOL special areas. The measures adopted may also relate to specific navigational aids and even to rules on CDEM standards. Since rules, standards and navigational practices may be applied “as are made applicable” through IMO, recommendatory acts are not excluded from the scope of this provision. Article 211(6) lit. (c) authorises coastal states to enact additional laws and regulations for the same area. These additional laws need to be determined on a case-by-case basis and arguably need not be based on existing IMO instruments. The practical value of special areas pursuant to Article 211(6) of UNCLOS suffers from a lack of elaborate guidelines implementing its framework. IMO has not yet sought to establish a corresponding instrument.

10. UNCLOS provisions throughout Part XII include references to the “competent international organization” with respect to the establishment of “generally accepted international rules and standards” or “applicable international rules and standards”, setting either minimal or maximum standards for laws of flag states and coastal states respectively. These rules of reference change UNCLOS from a static treaty structure to a dynamic framework that takes account of rules and standards that have been established outside its regime. The extent to which IMO is involved in this development of UNCLOS is not obvious, because it depends on the types of acts encompassed by the phrase “international rules and standards.” As I have argued in this treatise, non-binding instruments, including resolutions of IMO, are encompassed by the notion of international rules and standards. First, the distinction made between rules and standards seems to suggest that reference is not only made to clearly mandatory rules but also to instruments of a recommendatory character, because rules are generally thought to indicate binding (treaty and customary) law. Secondly, extended references to recommended practices and procedures, that for some scholars indicate a limitation of “rules and standards” to binding law, are used in a completely different context than generally accepted international rules and standards, since they relate to pollution from land-based sources and pollution from sea-bed activities, which are both outside IMO’s purview. Thirdly, it would be unnecessary to include treaty law only by reference, as it is already binding without being referred to. Furthermore, it is awkward to limit the rules of reference to treaty rules elaborated under the auspices of IMO, while its work is mainly reflected in recommendatory instruments. The qualifier “generally accepted” signifies that not all international rules and standards become binding through rules of reference; to be “generally accepted”, IMO instruments should at least be adopted by an overwhelming majority. While this interpretation limits the freedom of states to refuse to be bound by instruments they have not expressly consented to, it ensures coherent application and enforcement of uniform standards.

11. On a more general level, the interplay of UNCLOS and other regimes in international law is governed by Articles 237 and 311. Article 311 broadly notes that UNCLOS does not alter the rights and duties states have acquired through international agreements as long as the other agreement is compatible with UNCLOS and does not affect the rights of third states derived from UNCLOS. Article 237, a *lex specialis* solely applicable to Part XII, transposes the content of Article 311 into the context of marine environment protection. It accords priority to the obligations of states assumed under special environmental treaties, provided that they are carried out in a manner consistent with the general principles and objectives of the convention. Thus, treaties concluded in furtherance of the general objectives of Part XII of UNCLOS may substantially flesh out its content. Still, it is clear that any additional rule cannot modify the essence of the law of the sea framework. UNCLOS' relationship with other international treaties is evidently characterised by its dominance over other regimes, even though that can contradict Article 237(1), inasmuch as parties may be hindered from meeting their obligations under "special conventions and agreements" towards third states for whom UNCLOS is *res inter alios acta*.

12. Environmental ocean governance is not only shaped by UNCLOS but also by the Convention on Biological Diversity (CBD). One of the aims of the CBD is to protect and conserve biodiversity, which includes diversity within species, between species and ecosystems, both terrestrial and marine. Article 8 lit. (a) includes an obligation to establish, as far as possible and appropriate, a system of protected areas or areas where special measures need to be taken to conserve biological diversity; moreover, Article 8 lit. (l) obliges parties to regulate or manage any processes or categories of activities determined to have significant adverse impacts on protected areas. The protection of vulnerable marine ecosystems has become one of the focal points of work within CBD. COP Decision II/10, which has become known as the *Jakarta Mandate*, has identified marine and coastal protected areas (MCPAs) as issues for further action. In case the implementation and enforcement of potentially strict conservation measures collides with UNCLOS' balance of rights between coastal and flag state, the CBD contains a collision clause in Article 22, according to which the CBD must be implemented consistently with the rights and obligations of states under the law of the sea, provided that it does not cause serious damage or is a threat to biological diversity. A careful reading of the provision suggests that UNCLOS Part XII can be complemented and environmentally strengthened by the objectives of the CBD. However, even though its provisions on marine biodiversity protection in vulnerable areas can be applied by coastal states, they must not impair innocent passage rights and navigation rights in the EEZ.

#### **Existing Instruments to Protect Marine Ecosystems**

13. The PSSA concept, devised by IMO, is not the first instrument to aim for protection of vulnerable marine areas. Several instruments, both in global and regional international law, provide for the designation of protected areas, in which specific sets of protective rules apply. On the global level, the MARPOL

Convention, which aims to prevent vessel-source pollution of the marine environment, contains the concept of special areas. Its Annexes I, II, and V allow for the designation of special areas in which the adoption of mandatory discharge restrictions for the prevention of sea pollution by oil (or by noxious liquid substances or by garbage respectively) is required. In a similar manner, MARPOL Annex VI, designed to moderate air pollution from ships, sets forth requirements for so-called SO<sub>x</sub> Emissions Control Areas (SECAs), where the use of low-sulphur fuel oil is required to reduce air pollution from SO<sub>x</sub>. In contrast to special areas, the SECA notion entails a more holistic approach, because impacts on the terrestrial part need to be considered as well. It is distinct in its focus on CDEM standards to reach its ecological targets. The Ramsar Convention is designed to protect important wetlands, in particular waterfowl habitats, by including them in a “List of Wetlands of International Importance”, which may also include areas of marine water. The contracting parties are under the obligation to apply a wise-use concept for the management of listed sites. The implementation of protective measures is principally confined to the domestic level. Even though parties are obliged to cooperate in the implementation of the convention’s obligations, the designation of an important wetland site under the Ramsar Convention does not attach any additional legal protection to it against possible threats of international shipping in or near the area. The World Heritage Convention aims to protect properties forming part of the cultural heritage and natural heritage. Nothing in the convention precludes marine areas from being listed as natural heritage; the convention cannot, however, be applied beyond the territorial sea. Despite stringent conservation obligations, coastal states do not acquire additional jurisdictional competence to interfere with vessels navigating through or near designated heritage sites.

14. On the regional level, reflecting the call in Article 197 of UNCLOS for cooperative efforts on environmental protection, states have negotiated various treaties to govern jointly the marine environment of respective sea regions. Many treaty regimes envisage the establishment of protected areas. The most elaborate in providing guidance for the selection and protection of fragile sites are the 1992 Kingston SPAW Protocol, the 1995 Barcelona SPAMI Protocol, the 1992 OSPAR Convention, the 1992 Helsinki Convention and the 1985 Nairobi SPA Protocol, as well as the 1991 Protocol on Environmental Protection to the Antarctic Treaty. As for the regional treaties, the MPA mechanisms are embedded in an overall legal structure whose purpose is to coordinate and strengthen environmental protection for a clearly defined marine region. For most regimes, deploying an MPA concept is just one of several different means. These MPA concepts have several elements in common. They introduce certain types of criteria against which prospective protected areas are assessed and that provide for uniform implementation on the domestic level. Whereas the concrete procedures for evaluating the sites’ potential differ, scientific advisory bodies to assist in these processes have been established within all regimes. In one way or another, their goal is to establish an interdependent network of representative habitats and ecosystems, which clearly

represents a move away from MPAs based on narrow scientific or national interests towards a holistic ecological approach.

15. Whereas the global instruments concentrate on specific concerns such as pollution from ships or the protection of particular habitats and species, the regional conventions are designed as comprehensive marine environment protection treaties addressing all issues relevant for the sound management of a particular ocean region. The characteristics of their MPA concepts are reflective of this approach. While regional instruments aim at establishing MPAs in a coherent manner, global MPA regimes are restricted pursuant to the scope of their underlying instruments: MARPOL special areas are confined to addressing specific vessel-source pollution, Ramsar sites are designated for the sole purpose of protecting waterfowl habitats and World Heritage sites must represent a part of the world's natural heritage. Their narrow scope of application precludes each of them from constituting a major global MPA treaty.

16. Regional instruments face similar drawbacks. The most obvious is the relation of regional instruments to freedom of navigation. All instruments contain collision clauses stipulating the supremacy of freedom of navigation in conflicts between ecological and shipping-related concerns; they do not attempt to derogate from the given law of the sea framework in order to attain MPAs with a more robust protective status. Even the global instruments are designed not to contradict the UNCLOS rules. Neither the Ramsar Convention nor the World Heritage Convention provide for the designation of marine areas beyond the 12-mile territorial sea, thus avoiding any issues related to navigational freedoms; only MARPOL envisages the designation of protected areas beyond the territorial sea. Against this backdrop, it is rather irritating that none of the instruments, whether global or regional, incorporates a reference to Article 211(6) lit c of UNCLOS, which would allow – at least for some areas designated under the various regimes – for a considerably higher protective standard with respect to the dangers posed by international shipping.

17. In view of the shortcomings in addressing environmental threats posed by international shipping, it appears reasonable to contend that there is little potential for changes to the existing framework in the near future. On the global level, it is unlikely that new (or amendments to existing) multilateral instruments will emerge which could supplement the current canon of treaties. This is particularly true of the regional instruments, as most of them have either been adopted or substantially revised after the 1992 UNCED, which brought significant changes to the mainstream of thinking on how international environmental law should be designed. Most treaties will still have to stand the test of time, because they have only been in force since the late 1990s. Changes are more likely to occur on the institutional level. In some institutional contexts, the issue of cooperation is increasingly stressed. It is not yet possible to say whether respective statements will be followed up appropriately and will actually lead to an innovative form of cooperation. On a more general level, it can be argued that by exploring new ways of linking different protective approaches in different regions, states might one

day come to a more holistic management of MPAs, and be able to overcome the arbitrary barriers currently dominating international law. If ambitious environmental protection rules are implemented and applied on a regional level, they may in the event trigger a change to the basic rules on the global level.

### **Competences of IMO**

18. The PSSA concept is just one of an abundance of instruments that IMO has devised over the course of the years. They cover almost every aspect relevant for the regulation of international shipping. Among its various committees, the Marine Environment Protection Committee (MEPC) is responsible for initiating and maintaining the mechanisms that IMO deploys in order to prevent, reduce and minimise damage to the environment caused by vessels. IMO instruments are either enshrined in multilateral treaties or adopted as resolutions of the Assembly or one of the committees. Ocean governance is characterised by an agglomeration of several international institutions. Even though the areas of concern of these organisations may overlap, IMO is the only UN specialised agency which has a mandate to regulate international shipping. Nevertheless, efforts to cooperate can be identified in many of the matters IMO addresses in its work, usually by means of establishing inter-agency bodies.

19. Public international law is governed by the consent principle rather than the majority principle. Therefore, a state is never bound by a multilateral instrument unless it has given its consent. As international organisations are established by multilateral treaties, it is within the framework of international law that they acquire competences to enact rules and standards aiming at universal applicability. By consenting to the constituent treaty of an international organisation, states waive certain sovereign rights, as they cede specific powers to the institutions authorised to act on their behalf. Where international organisations act as a forum for diplomatic negotiations aimed at adopting a treaty instrument, member states retain complete freedom as to the approval or disapproval of this treaty. As regards those legal acts international organisations are authorised to adopt through their organs, elements of the consent principle are being gradually replaced by parliamentary features. Three different types that may be identified are quasi-legislation, resolutions and legislative fact-finding. Although these acts may in some circumstances become binding without the consent of individual states, in particular if the organisation's constitution so provides, international institutions are not in the position to rescind the fundamentals of public international law. They largely depend on their member states to reach agreement on disputed issues and subsequently to implement and enforce the agreed rules in good faith.

20. The legal basis for IMO's work is laid down in the IMO Convention. Article 1 orders IMO to provide machinery for cooperation among governments in the field of governmental regulation and practices relating to shipping matters. Article 2 stipulates that in order to achieve these aims, IMO should either facilitate and convene diplomatic conferences or make recommendations to be adopted by one of its organs as resolutions. Other treaties also make recourse to decisions by IMO and thereby incorporate its expertise in global shipping into their regimes. IMO

today oversees the implementation and further development of more than 40 treaties and a plethora of soft-law instruments. Among the latter, codes enjoy a prominent status, as they constitute comprehensive documents, many of which have become incorporated into binding treaties. Since the IMO Convention does not provide for mandatory resolutions either of the Assembly or the committees, their resolutions usually lack a binding character. However, they may become binding in exceptional cases: for instance, if incorporated into UNCLOS through its rules of reference. While the number and the scope of IMO instruments is impressive, sub-standard shipping is still a persistent problem. However, non-compliance with international standards is not necessarily to be associated with a reluctance to comply; often, flag states are not able to achieve full compliance due to a lack of financial capacity, technical expertise or human resources.

#### **PSSA – Basic Principles**

21. A PSSA is defined as “an area that needs special protection through action by IMO because of its significance for recognized ecological, socio-economic or scientific attributes where such attributes may be vulnerable to damage by international shipping activities.” Details concerning the proposal, assessment and designation of a site are set forth by guidelines that have been adopted by the IMO Assembly in Resolution A.982(24), entitled “Revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas.” The PSSA Guidelines resemble the text of an international convention with a preamble-like first section, followed by two sections dealing with the substantive and the procedural aspects of the subject matter. They also indicate the three main elements of a PSSA, which are inextricably linked: the attributes of the area; the vulnerability of the area to damage by international shipping; and the so-called associated protective measures (APMs) available to address identified threats. The original guidelines were adopted in 1991. After several years, only two areas had been designated, since the text was said to be too long and too complicated. It was hoped that the updated instrument would lead to an increasing number of PSSA applications. To that end, the instrument may have proven to be *too* successful. After 2001, nine additional PSSAs were designated within four years. A second revision was initiated in 2004, after the designation of two large and diverse areas, namely the Western European PSSA and the Baltic Sea Area PSSA. These developments led to allegations that loosely drafted terms in the 2001 Guidelines could be easily misused, may lead to a proliferation of PSSAs and, in the event, would devalue the whole concept. At its 51<sup>st</sup> session, MEPC agreed to instigate a review process. At the next session, the US presented draft revised guidelines as a basis for discussions. MEPC 53 agreed on a revised text, which was forwarded to the 24<sup>th</sup> Assembly, meeting in late November 2005, for adoption.

22. To be designated a PSSA, an area has to meet certain criteria that render it particularly sensitive. The Guidelines list 17 criteria, which are compartmentalised into three different sub-sections: ecological, socio-economic and cultural criteria. While at least one criterion must exist throughout the entire proposed area, it need not necessarily be the same. Ecological criteria consist of (1) Uniqueness or rarity;

(2) Critical habitat; (3) Dependency; (4) Representativeness; (5) Diversity; (6) Productivity; (7) Spawning or breeding grounds; (8) Naturalness; (9) Integrity; (10) Fragility; (11) Bio-geographic importance. What is noticeable is the absence of any detailed guidelines in terms of exactly what information needs to be assembled by states so as to prove the proposed area's sensitivity. States interested in having parts of their waters designated as PSSAs are left with a very brief description of every criterion, which is open to interpretation. Proposed areas must furthermore be at risk from international shipping ("vulnerability"). This requirement is amplified by seven factors, relating to operational and natural factors respectively, which should be taken into account in determining the area's vulnerability. Although some states have argued to the contrary, a systematic reading of the PSSA Guidelines shows that size or biogeographical features, such as a "coherent ecosystem", do not determine whether a site is eligible to become designated as a PSSA.

23. The designation procedure is governed by MEPC. It deploys a two-step approach. First, the committee approves the designation of the area "in principle". This term reflects IMO's identification of the area's particular sensitivity, while indicating that approval of the APMs is still pending. Secondly, APMs must be identified and referred to the competent committee, which may be the Maritime Safety Committee (MSC), MEPC itself, the Sub-Committee on Navigation (NAV) or the Assembly – depending on the responsibility for the instrument pursuant to which the APM should be introduced. The respective organ examines whether the instrument's prerequisites are met and informs MEPC accordingly. If at least one APM is approved, the PSSA receives final designation. The PSSA Guidelines set out various obligations for governments with respect to the drawing up and submission of applications. An application generally consists of two parts. As concerns the first part, it should encompass a description of the area's location by stating, amongst other things, why the area is significant with respect to the criteria set out in the guidelines. The second part should address the APMs proposed, especially IMO's competence to adopt these measures. Further documentation that needs to be provided includes the possible impacts of proposed measures on the safety and efficiency of navigation. Contrary to arguments brought forward within IMO, the cooperation of countries bordering a maritime area that is covered by a proposal is not mandatory under the terms of paragraph 3.1 of the PSSA Guidelines, which stipulates that governments that have a common interest in an area "should formulate a co-ordinated proposal."

24. As has been said, APMs need to be determined by IMO for the adequate protection of a PSSA. Still, a designation may also trigger an immediate effect of altering perceptions of the area, raising awareness among mariners of the need to navigate with particular caution. Additionally, it has been noted that many shipping companies tend not to permit their ships to sail through PSSAs, since they are aware of the fragility of their reputation in the context of the transport of oil by sea and possible spills. Furthermore, a PSSA designation may strongly increase the political pressure on coastal states to develop and propose additional APMs for implementation in the respective PSSA. It is doubtful whether recent



attempts to raise environmental awareness for marine areas by the designation of “precautionary areas”, a routing measure to be approved by IMO, will prove to be equally successful. With regard to those arguing that the mapping of PSSAs on charts serves to notify mariners of the environmental vulnerability of the area and hence of the rationale for the applicable protective measures, it must be noted that charting standards for PSSAs have only been adopted very recently. Although the PSSA Guidelines call on proposing governments to use IHO standards for the charting of PSSAs and APMs, IHO in September 2005 adopted revised INT-1 regulations for paper charts. As far as electronic charts are concerned, revised charting standards in document S-52 and S-57 were not adopted until September 2006.

25. The obligations of proposing states to grant additional protection to PSSAs in waters under their jurisdiction are not substantially increased upon approval of IMO. Although the environmental criteria enshrined in paragraph 4.4 of the Guidelines indicate a *general* particular sensitivity, paragraph 4.1 constitutes a safeguard clause to protect states from being bound by their submissions outside the PSSA regime in that it stipulates that – in a legal sense – the criteria *do not* indicate a general particular sensitivity. Since the criteria are only to be taken into account “with respect to adoption of measures to protect such areas against damage [...] from international shipping”, it implies that they may not be relied upon in other circumstances to the same extent. But in the light of the precautionary principle, states have a responsibility to act in a prudent manner when carrying out certain potentially hazardous activities in the respective area. However, with respect to obligations regarding the prevention of pollution threats from shipping activities, a different conclusion can be drawn. Where additional measures are necessary to protect the area sufficiently from shipping threats, the acknowledgment of *particular sensitivity* places an obligation on the applying state to ensure that these measures are actually implemented.

#### **Deployment of Associated Protective Measures to Protect PSSAs**

26. APMs are the essential part of every PSSA. As a central criterion, the PSSA Guidelines require every APM to have an identified legal basis. Paragraph 7.5.3 of the PSSA Guidelines lists three options, namely any measure that is already available under an existing IMO instrument; any measure that does not yet exist but could become available through amendment of an IMO instrument or adoption of a new IMO instrument; or any measure proposed for adoption in the territorial sea, or pursuant to Article 211(6) of the United Nations Convention on the Law of the Sea. While the first two options allow for all measures under both IMO recommendatory instruments and multilateral treaties (even though the legal basis is included in an instrument that is still pending approval), it is the third option that provides most flexibility. As a consequence, every PSSA – regardless of the maritime zone it covers – may therefore be protected by measures that states are normally only allowed to adopt for application in their territorial sea or in special areas of their EEZ. The relevant provisions, in particular Article 211(6), thereby appear to have a toolbox character. In that respect, the scope for potential APMs is

considerably expanded. While measures may be identified that specifically address the protective needs of the respective area, they effectively contribute to levelling the differences between the regimes traditionally envisaged for the EEZ and the territorial sea to facilitate the uniform application of protective measures. The PSSA mechanism thereby promotes the application of an ecosystem approach, enabling the *prima facie* determination of the type of APM with a view to the specific needs of the area rather than to the allocation of jurisdiction. However, APMs must conform to the balance of jurisdiction introduced by UNCLOS.

27. The most relevant APMs include navigational aids, discharge restrictions and CDEM standards. Since the prevention of ship accidents apparently bears advantageous effects for the marine environment, states have long since recognised a large number of measures to help ships navigate safely. Respective measures are provided for in the COLREG Convention, the SOLAS Convention and in several IMO instruments. Most importantly, IMO has developed the General Provisions on Ships' Routeing (GPSR), which, in fleshing out provisions of the SOLAS Convention, contain elaborate guidelines for a variety of routeing systems, such as traffic separation schemes (TSSs), areas to be avoided (ATBAs) and deep-water routes. The GPSR take account of the fact that safety of navigation and marine environment protection are inextricably linked and that environmental concerns may even constitute a stand-alone justification for routeing measures. As reflected in the objectives, measures may be specifically introduced to address "the organisation of safe traffic flow in or around or at a safe distance from environmentally sensitive areas." Routeing measures may be recommendatory or mandatory. As far as mandatory rules are concerned, according to UNCLOS' general jurisdictional rules, coastal states are free to enact sea lanes or TSSs in their territorial sea unilaterally. Foreign vessels need to abide by them as long as they do not amount to an undue restriction of innocent passage. With respect to the EEZ, in contrast, UNCLOS does not envisage any competence for coastal states to establish routeing measures which third-state vessels need to conform to. When augmenting existing rules, IMO provided for the adoption of mandatory routeing measures in 1997 after a long and controversial discussion through the amendment of Regulation V/8 of the annex of SOLAS, as well as the GPSR. While it expanded coastal states' legislative jurisdiction, it left enforcement jurisdiction unaltered. To date, only a few mandatory routeing systems have been adopted by IMO; most of them in or adjacent to PSSAs.

28. Other navigational aids are ship reporting systems (SRSs) and vessel traffic services (VTSs). An SRS aims to give notice to coastal states of vessels present in a specific marine area, where these ships may represent a threat to, amongst others, the marine environment. Vessels subjected to a particular SRS are at least required to transmit their name, call sign, IMO identification number and position. The legal basis for SRSs is to be found in Regulation V/11 of the annex of SOLAS and two accompanying IMO guidelines. Even though the term "mandatory" is avoided in the text of Regulation V/11, *adopted* SRSs are, in fact, mandatory systems, as they "shall be used by all ships." A VTS involves two-way communication to enable the coastal-state authorities to facilitate vessel traffic by

giving information, advice, or, if need be, instructions. By managing and planning vessel traffic, VTSs contribute to safe and efficient navigation and to the protection of the marine environment. SOLAS Regulation V/12 provides for the legal basis for adopting VTS systems, alongside VTS Guidelines developed by IMO. In contrast to SOLAS Regulation V/10 and V/11, Regulation V/12 foresees neither mandatory application beyond the territorial sea nor involvement of IMO in the establishment of VTS systems. Unless established in an UNCLOS special area according to Article 211(6), the adoption of mandatory systems in the EEZ, but also in straits used for international navigation and in archipelagos, let alone the high seas, would contradict SOLAS. PSSAs may thus provide a good opportunity to promote the implementation of VTSs in maritime zones other than the territorial sea. A further means is pilotage. States usually seek to have IMO recommend use of pilots for a particular area. Where they aim to adopt mandatory schemes, they need to abide by general rules laid down in UNCLOS, because there is no specific legal basis for pilotage in existing treaty law. Accordingly, pilotage schemes in the territorial sea, the EEZ and in straits used for international navigation need to conform to Article 21 et seqq., Article 56 et seqq., and Article 38 et seqq. respectively. Hence, the establishment of mandatory pilotage schemes as APMs would be possible in both the territorial sea and the EEZ, as it is neither prohibited by Articles 21 and 24 of UNCLOS nor by Article 211(6). The UNCLOS international straits regime, however, does not permit mandatory pilotage.

29. Discharge restrictions may be introduced as APMs by virtue of relevant annexes of MARPOL. As is expressly envisaged by the PSSA Guidelines, PSSAs can be designated as MARPOL special areas or SECAs. Another form of discharge restriction could be applied to ships' ballast water, since organisms living in the ballast water could prove to be harmful for the marine ecosystem they are discharged into. The 2004 Ballast Water Convention has yet to enter into force. However, a thorough analysis of the UNCLOS framework suggests that APMs could address and prohibit ballast-water exchange by determining ballast-water prohibition areas. Furthermore, with respect to standards concerning the construction, design, equipment and manning (CDEM) of ships, the leeway for coastal states to enact respective provisions is limited. For instance, the ban on certain types of ships or the prescription of high-tech navigation equipment not yet required by IMO regulations is arguably unlawful. In contrast, where APMs expand the scope of application of certain SOLAS standards, e.g. on emergency towing arrangements, coastal states may possibly proceed. Similarly, if coastal states aim to respond to harsh conditions in ice-covered areas, APMs may stipulate more stringent requirements, insofar as they can be based on Article 234. Consideration should finally be given to measures that do not fall under one of the aforementioned categories. APMs may require, for instance, tug escort without violating UNCLOS. In contrast, it does not appear lawful to charge transit fees, unless they are enforced as port-entry requirements.

**PSSAs Designated so far**

30. IMO has so far designated eleven PSSAs: the first PSSA, the Great Barrier Reef off Queensland/Australia, was adopted in 1990 and later supplemented by the Torres Strait PSSA (Australia and Papua New Guinea) in 2005; the Sabana-Camagüey Archipelago (Cuba), designated in 1997; Malpelo Island (Colombia) and the area around the Florida Keys (USA), both designated in 2002; later in the same year, IMO designated the Wadden Sea of the Netherlands, Germany and Denmark; Paracas National Reserve (Peru), 2003; the Western European PSSA, comprising parts of the Atlantic EEZs of Spain, Portugal, France, Belgium, the United Kingdom and Ireland, designated in 2004; the Canary Islands (Spain), the Galapagos Islands (Ecuador), and the Baltic Sea Area (Baltic Sea coastal states except Russian Federation), all of which were designated in 2005. No PSSA proposal has yet been rejected by IMO, although some proposals submitted to IMO have not been followed up by the proposing governments after MEPC raised doubts as to their legality. APMs employed in PSSAs vary widely. Those approved by IMO are based on treaty law and accompanying IMO instruments without exception. Certain APM proposals have proven to be very contentious and were thus rejected by the competent committee. Examples of rejected APMs include a compulsory pilotage scheme in the Torres Strait PSSA and a “no-discharge area” for the Paracas National Reserve PSSA. Another contentious APM proposal, a ban on single-hull oil tankers, contemplated for adoption in the Western European PSSA, was eventually withdrawn by its proponents in the face of fierce opposition within MEPC.

**PSSAs and their Relationship with other MPA Instruments**

31. The PSSA concept shares similarities with other instruments aiming at the protection of marine ecosystems, but it also differs and stands out. With respect to the examination and designation of proposed PSSAs, it may be noted that the PSSA Guidelines provide for a thorough scientific review that resembles procedures of other instruments with the notable exception of the Ramsar Convention. Expertise cumulated within MEPC and its technical groups satisfies requirements for a thorough scientific assessment procedure. As far as ecological criteria are concerned, all regimes – to varying extents and tailored in the light of their respective purpose – build upon the scientific criteria developed by IUCN for the identification of MPAs (apart from the World Heritage Convention, which arguably deploys an outdated approach focussing on value), including uniqueness, representativeness and the existence of fragile ecosystems. To that end, it should be noted that other regimes do not include any criterion that would strengthen the protection of PSSAs. Regarding protective measures, the PSSA concept’s regulatory approach allows it to be flexible in meeting the specific threat patterns triggered by vessels in a particular area. This observation is probably all too obvious, since the PSSA concept has been deliberately designed to address environmental problems related to shipping activities. It is thus hardly surprising that only MARPOL special area and SECA standards can be applied to foreign vessels in the same manner. While some regional instruments at least notify ships as a potential source of peril for marine ecosystems (and, consequently, as a potential

object to be addressed by protective measures), none of them includes any reference to specific measures that might lawfully be taken under international law in those areas that are within the coastal states' jurisdiction. Hence, PSSAs are exceptional in their express focus on vessel-related sources of environmental degradation, which makes it a unique instrument in international law.

32. Their flexibility and their restricted scope make PSSAs a unique category of MPAs. In fact, their characteristics, as well as their broad ecological criteria, suggest that they are rather a further layer of protection for areas that are already subject to another MPA regime, whether under domestic or global/regional international law. While this interpretation suggests perceiving PSSAs as an expansion to existing protection, it should also be noted that the PSSA Guidelines do not prohibit contemplating the case that PSSA status represents the *basic* protective layer that is supplemented by other regimes, inasmuch as paragraph 6.2 of the PSSA Guidelines states that "consideration should *also* be given" to a listing in the World Heritage List or a designation as a biosphere reserve. Nonetheless, it is my contention that this only applies to international designations; the PSSA Guidelines inherently assume that the marine area in question is already protected under domestic law and that effective protection against shipping activities needs global endorsement by IMO. This view is supported by the PSSA Guidelines, that require "the application [to] contain a summary of steps taken, if any, by the proposing Member Government to date to protect the proposed area."

33. While the PSSA Guidelines permit and promote collaborative efforts, linking the PSSA concept to other regimes will cause problems in practice. Eleven PSSAs have been designated compared with several thousand MPAs worldwide that are subject to domestic or international law, yet concerns have already been voiced that the number of PSSA designations amount to an unreasonable proliferation of the concept. These numbers constitute a palpable discrepancy, given that scientific criteria deployed are virtually the same. The difference cannot only be explained by recourse to additional shipping-related criteria that PSSAs need to fulfil, but rather by highlighting the intensive lobbying of the shipping industry within IMO. In the light of criticism voiced within MEPC that the concept has already been overused, it is highly unlikely that the committee will ever accept more than two or three proposals per session – in fact, the current assessment procedure is not designed to handle many more. The additional protection of certain MPAs by having them approved as a PSSA will arguably remain an exception, unless the process of assessment within IMO, or the concept as a whole, is considerably modified. In addition, as can be illustrated by the Baltic Sea Area PSSA, issues of size may become a problem. Whereas virtually the whole Baltic Sea is designated as a PSSA, Baltic Sea Protected Areas (BSPAs) only cover certain parts of it. Initial attempts to harmonise the designations of BSPAs and PSSAs were not pursued. However, the flexibility of a PSSA designation means that this situation can be adapted to. Because the Baltic Sea has now been granted PSSA status, additional APMs may be approved by IMO that are specifically applied to protect a part of the Baltic Sea PSSA, which has also been recognised as a BSPA.

However, this approach is not envisaged by the PSSA Guidelines and may cause problems for the concept as a whole (see below).

#### **Impact of PSSAs on Coastal State Jurisdiction over Foreign Vessels**

34. The PSSA Guidelines were adopted pursuant to Article 15 lit. (j) of the IMO Convention as a resolution of the Assembly. They are internal law of IMO, because they primarily aim to determine IMO's conduct in the identification and protection of sensitive areas. Hence, they are of a mandatory character, as far as they establish criteria and procedural requirements that MEPC and other committees of IMO have to adhere to. With a view to their legal quality in the external sphere, it should be noted that they are not binding upon IMO member states and cannot be considered as belonging to the body of international treaty law. As far as the legal quality of APMs is concerned, it is obvious that binding force does not derive from the PSSA Guidelines. Moreover, neither does it derive from Article 211(6) of UNCLOS nor from the general environment protection obligations of Part XII of UNCLOS. If APMs do not have a treaty-law basis, they may nevertheless be binding, insofar as they represent generally accepted international rules and standards for the purpose of UNCLOS rules of reference. This conclusion is strongly consistent with general international law, that requires a soft-law instrument to become mandatory for it to be expressly linked to a multilateral treaty. It is also consistent with the overall dynamic approach of UNCLOS, and a PSSA would hardly entail any positive effect were it merely to allow for measures to become mandatory that are already mandatory by virtue of other treaties. The qualification of APMs as generally accepted international rules and standards that may become effective by virtue of Article 211(5) of UNCLOS actually renders Article 211(6), on special areas in the EEZ, void. The limitation of UNCLOS to special areas designated in the EEZ does not prohibit the designation of protected areas in other maritime zones, as long as protective measures do not trifle with the regulatory regime applied there. Furthermore, it should be borne in mind that when the PSSA concept was developed, discussions on the spatial protection of vulnerable marine areas had substantially progressed compared with the time when UNCLOS Part XII was drafted. It had become apparent that the special-area concept of Article 211(6) was ineffective in terms of its being restricted to the EEZ and to pollution – and did not adequately meet the needs of coastal states to protect marine areas under their jurisdiction.

35. The use of rules of reference within UNCLOS is largely limited, as far as the balance of marine environment protection and navigation is concerned, to the EEZ and the territorial sea. UNCLOS' provisions dealing with coastal states' competences in straits used for international navigation and archipelagic waters, i.e. areas where navigational rights are still considered to be particularly delicate, include similar, albeit limited, references to regulations established outside the UNCLOS regime. In this context, it should be noted that even if APMs are considered to constitute generally accepted international rules and standards, not all IMO measures obtain a mandatory character. While the PSSA Guidelines address all environmental threats posed by international shipping and envisage the

adoption of respective APMs, some UNCLOS provisions (e.g. Article 211(5)) exclusively focus on vessel-source *pollution* of the marine environment. States are not permitted to give effect to APMs addressing forms of environmental deterioration that the rules of reference do not cover. The impact of the interpretation developed in this treatise on coastal-state legislative competences differs according to the maritime zone. In the territorial sea, it is expanded as far as the prescription of CDEM standards is concerned, because generally accepted international rules or standards constitute a limit beyond which coastal states may not go (Article 21(2) of UNCLOS). In the EEZ, coastal states, according to Article 211(5) of UNCLOS, may adopt laws and regulations if they give effect to generally accepted international rules and standards. In utilising this provision, coastal states can implement APMs in their EEZ. To that end, an exception are APMs based on Article 21(1) that include instruments contributing to “the preservation of the marine environment of the coastal state.” The scope of application of Article 211(5) is limited to the adoption of laws and regulations concerning vessel-source pollution – other forms of vessel-related impacts on the marine environment are not within the provision’s scope of application. Hence, if APMs go beyond pollution prevention, they cannot be implemented as mandatory requirements for foreign vessels, unless they have a treaty-law basis. As for international straits and archipelagic waters (the straits regime largely applies to the latter, too), there is an obvious difference between the legislative competences of strait states to give effect to “applicable international regulations regarding the discharge of oil, oily wastes and other noxious substances”, as is codified in Article 42(1) lit. (b) of UNCLOS, and certain mandatory APMs that employ a considerably wider approach. Because the discharge of oil, oily wastes and other noxious substances is largely governed by MARPOL, there is little room for other measures to become applicable in international straits as a mandatory APM. Results with respect to coastal-state legislative jurisdiction are in accordance with UNCLOS. Coastal-state legislative jurisdiction is not expanded to an extent that would violate the provisions of Part XII of UNCLOS. PSSA only marginally align coastal states’ jurisdiction in the territorial sea and in the EEZ. Hence, the PSSA concept may provide for protective measures for certain marine areas that are not available otherwise.

#### **Enforcement of Associated Protective Measures**

36. Since legislative jurisdiction is not equivalent to enforcement jurisdiction, the PSSA concept’s impact on the latter has to be determined separately. For the territorial sea, the key UNCLOS provision dealing with enforcement rights against vessel-source pollution is Article 220(2). State authorities may enforce protective measures if the vessel has violated the rules of coastal states “adopted in accordance with this Convention [...] for the prevention, reduction and control of pollution from vessels.” Because regulations giving effect to APMs of a PSSA are “adopted in accordance with this Convention,” coastal state are allowed, subject to safeguards in Section 7 of Part XII, to enforce them against foreign vessels. The enforcement of coastal states’ laws and regulations in the EEZ is governed by Article 220 (3), (5), and (6), that provide for the enforcement of “applicable”

international rules and standards. Since generally accepted international rules and standards are incorporated into the UNCLOS regime, they are always “applicable” between parties to UNCLOS. However, coastal state powers are not expanded. The narrow enforcement jurisdiction of strait states is not expanded either.

37. Even though a PSSA does not change the overall framework of enforcement jurisdiction as set out mainly in Article 220 of UNCLOS, the designation of a specific area is able to modify the interpretation of certain indeterminate legal terms relevant for enforcement powers in the EEZ. Whether a vessel’s discharge amounts to, for instance, a “substantial discharge causing or threatening significant pollution of the marine environment” is a question of vital concern for the coastal state’s enforcement authorities, because the quantity and the result of a discharge is intrinsically tied to the extent of coastal states’ enforcement rights over foreign vessels. The terms – the same applies to “wilful and serious pollution” as used in Article 19(2) lit. (h) and for the interpretation of “major damage” contained in Article 233 on strait states’ enforcement jurisdiction – must be interpreted on a case-by-case basis taking account of the prevailing characteristics of the area. One of these characteristics is international recognition of an area’s sensitivity by conferral of PSSA status: the enforcement competences of coastal states against vessel-source pollution must be extended where the international community explicitly recognises a particular vulnerability to exactly these threats. This approach duly conforms to the requirements of Article 31(1) of the Vienna Convention on the Law of Treaties to interpret a legal term “in light of its object and content.” Since environmental terms, such as “significant pollution” or “major damage”, are inherently vague, their concrete meaning must be determined by recourse to the objective of Part XII to “protect and preserve the marine environment.”

38. The PSSA concept should not be considered as signifying the emergence of specific customary international law relating to the protection of vulnerable marine ecosystems. While it is partly innovative in aligning the protective regimes of the territorial sea and the EEZ, it does not bring about radical changes. It merely uses UNCLOS’ dynamic rules of reference but does not go beyond what is admissible under the environment protection rules of Part XII. Moreover, virtually all APMs approved so far would have been available without PSSA status, since they were based on MARPOL, SOLAS or an instrument incorporated in one of these two regimes. Assertions that PSSAs are in the centre of an evolutionary process in which navigational freedoms are disappearing are largely based on the contentious proposal to designate the Western European Atlantic as a PSSA with an initial APM that would have, in effect, banned single-hull oil tankers from entering the area. As this specific APM aimed at preventing the passage of single-hull oil tankers was eventually withdrawn, not least because of the opposition it faced, the practice of states within IMO does not provide evidence that PSSAs contribute to a departure from the traditional UNCLOS approach of coastal-state jurisdiction over vessel-source pollution that can already be considered as signifying the emergence of respective customary international law. Nonetheless, the PSSA concept is probably indicative of the preparedness of the international



community to pursue MPA concepts that especially tackle vessel-source deterioration of the marine environment.

#### **PSSAs in the High Seas: A Special Case**

39. The PSSA Guidelines do not prohibit the designation of high-seas areas. However, in the absence of any coastal-state jurisdiction, there is a need to determine the entity responsible for proposing and managing PSSAs. To that end, three different scenarios may be distinguished. If a PSSA is located within the 200 nm zone of a coastal state, or several coastal states, where no EEZ has been proclaimed, IMO can approve the designation of an area, as well as of protective measures, because these measures may be enforced by the coastal state(s) to the extent provided for by UNCLOS' rules of reference governing the EEZ. If a PSSA extends into areas beyond national jurisdiction, IMO member states could agree to the designation, since the decision as such would not violate international law. It is, however, doubtful whether APMs for the high-seas part could have anything else but recommendatory character. As far as the monitoring and enforcement of APMs is concerned, it would be reasonable to vest powers with the state in whose jurisdiction parts of the PSSA are. Finally, for PSSAs located wholly on the high seas, several problems have to be overcome. The most appropriate and arguably the only possible way to approach the establishment of a high-seas PSSA is for interested states to negotiate a cooperation agreement aimed at setting up an administering body to govern the PSSA. Subsequently, this body would need to seek consensual appointment by IMO member states to manage the area. Management would encompass coordination and implementation of protective measures, as well as their enforcement. This approach would not violate UNCLOS provisions on the high seas, as long as all states agree to it. Moreover, nothing in the PSSA Guidelines prohibits such a limited transfer of authority. APMs could be chosen from all measures available under Article 211(6). Their implementation would lie solely with the flag state by virtue of Article 211(2); the enforcement actions of other states would not conform to UNCLOS. Still, interested states could use their port-state jurisdiction and modify port-entry requirements so as to foster compliance with APMs. Even if very few APMs could be considered for adoption, the awareness-raising character of PSSAs could probably be used in a broader manner, since the designation of high-seas areas by IMO may play a catalytic role for protective efforts within other fora.

#### **The PSSA Concept – Past Achievements and Future Perspectives**

40. The PSSA concept does not only have an impact on coastal-state jurisdiction over foreign vessels, but also contributes to transcending some of the limitations inherent in the law of the sea governance regime. The most notable impact can be identified with respect to the evolution of IMO routing measures. These measures, as envisaged in SOLAS and the GPSR, were originally initiated as a means solely to increase the safety of vessel traffic. Following a request presented in the 1991 PSSA Guidelines to incorporate relevant provisions of the guidelines into the GPSR, the MSC augmented the objectives section and added procedural requirements for routing systems based on environmental considerations. In

addition, further amendments to the GPSR in 2000, not related to the request in the 1991 Guidelines, but triggered by the Florida Keys PSSA proposal, brought about an extension to their objectives to echo environmental threats posed by anchors, as well as the introduction of “no-anchoring areas”. Furthermore, the PSSA concept has a progressive influence on the approximation of protective regimes in different maritime zones and on the cooperation of adjoining coastal states, although, to that end, PSSAs are part of a wider process which they have not triggered. Finally, the PSSA concept can neither be considered to implement progressively the precautionary principle in a manner that may serve as a prime example for other regimes nor does it seem to have an impact on the promotion of a precautionary approach in other areas of marine environment protection policy.

41. While the PSSA concept was able to give fresh impetus to some areas of the law of the sea regime, prospects for its future development are not too bright. This assertion is based on recent challenges to the concept through PSSA designations of large and disparate marine areas. The designation of the Western European PSSA and the Baltic Sea Area PSSA, despite opposition within MEPC, eventually received approval. These developments highlight two critical issues. First, the wording of the ecological criteria in the PSSA Guidelines is vague and lacks any guidance document, such as unified interpretations of certain terms, and thus gives MEPC a significant leeway in deciding whether or not a proposal meets a criterion. It is widely believed that almost every marine area in the world meets one of the PSSA criteria. In approving the Western European PSSA and the Baltic Sea Area PSSA, MEPC changed its traditional approach to the application of the PSSA Guidelines. It seems that it is no longer particularly sensitive sea areas that are protected, but large sea areas that are subject to spacious surveillance measures and, for certain parts, to specifically tailored routing measures. Secondly, IMO’s conduct is indicative of a significant asymmetry in its decision-making. While powerful states are able to influence decisions within MEPC with respect to PSSAs, evidence assembled in this treatise suggests that developing countries are faced with serious difficulties in finding enough resources even to accumulate adequate information to convince IMO member states immediately of the area’s ecological value. As a consequence, the PSSA Guidelines should be modified by the deletion of ecological, scientific and socio-economic criteria. The identification of PSSAs should rely solely on shipping characteristics. Based on the recognition that all marine areas can be considered to be “sensitive sea areas”, it may be readily concluded that those that are threatened by specifically dangerous vessel traffic patterns are “particularly sensitive.” This approach reasonably echoes the fact that the starting point for all IMO activities is the regulation of international shipping. It would furthermore address the flaws in the current guidelines inasmuch as it prevents the PSSA concept from becoming the standard protective regime solely for waters under the jurisdiction of developed countries.

42. If the PSSA Guidelines are modified as proposed in this treatise so as to become the basic protective regime for marine areas largely overseen by coastal states, they must be complemented with a comprehensive MPA regime designed to amalgamate different regulatory approaches. The most adequate way of

establishing a treaty regime for MPAs is to develop a stand-alone treaty on MPAs that does not expressly interpret, implement or revise UNCLOS. The scope of application must be wide-ranging to include all policy sectors that are relevant for the protection of vulnerable marine ecosystems and for a successful management regime. Hence, the criteria that marine areas have to meet to qualify for designation must be more stringent so as not to allow for too much political leeway. They could possibly be established in the style of those used in the EU Habitat Directive, pursuant to which the EU Natura 2000 system was set up. MPAs do not necessarily need to be of a small size, but should be confined to biologically functional units, such as reefs. If several fragile parts within a larger area of the sea merit protection, this should primarily be done by means of establishing MPA networks, jointly administered in order to reflect, maintain and strengthen interdependencies between protected sites. In an amplification of obligations contained in Article 8 of the CBD, contracting parties should be compelled to submit sites to the assessment procedure. The means by, and the extent to, which restrictions can be placed on international shipping in order to protect an MPA is likely to become the subject of controversial discussions. In my contention, a treaty instrument provides a valuable chance to allow for all measures that are necessary without being confined to measures available from existing treaties or IMO instruments. Enforcement in these specifically designated areas must not be hampered by the limitations of Article 220 to ensure coherent and prompt action. The international community would be ill-advised automatically to sacrifice environmental protection for the sake of freedom of navigation. As to institutional arrangements, three procedural stages can be identified in which an institution may become involved: the proposal; scientific assessment; and the designation, management and protection of sites. In areas under the jurisdiction of a coastal state, competences for the proposal and management of MPAs should primarily rest with the coastal state. As far as high seas areas are concerned, it would be for the convention bodies to award designation, as well as to monitor implementation by receiving reports from parties. Regarding assessment, as within other regimes, at least one separate sub-body comprised of scientific experts should deal with the proposals' merits. Another expert group may be created to consider the necessary protective measures. Where IMO is not in the position to grant approval for protective measures against threats posed by international shipping, the MPA regime itself should be the basis for those measures.

# Annex

## REVISED GUIDELINES FOR THE IDENTIFICATION AND DESIGNATION OF PARTICULARLY SENSITIVE SEA AREAS

### 1 INTRODUCTION

1.1 The Marine Environment Protection Committee (MEPC) of the International Maritime Organization (IMO) began its study of the question of Particularly Sensitive Sea Areas (PSSAs) in response to a resolution of the International Conference on Tanker Safety and Pollution Prevention of 1978. The discussions of this concept from 1986 to 1991 culminated in the adoption of Guidelines for the Designation of Special Areas and the Identification of Particularly Sensitive Sea Areas by Assembly resolution A.720(17) in 1991. In a continuing effort to provide a clearer understanding of the concepts set forth in the Guidelines, the Assembly adopted resolutions A.885(21) and A.927(22). This document is intended to clarify and, where appropriate, strengthen certain aspects and procedures for the identification and designation of PSSAs and the adoption of associated protective measures. It sets forth revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas (the Guidelines or PSSA Guidelines).

1.2 A PSSA is an area that needs special protection through action by IMO because of its significance for recognized ecological, socio-economic, or scientific attributes where such attributes may be vulnerable to damage by international shipping activities. At the time of designation of a PSSA, an associated protective measure<sup>1</sup>, which meets the requirements of the appropriate legal instrument establishing such measure, must have been approved or adopted by IMO to prevent, reduce, or eliminate the threat or identified vulnerability. Information on each of the PSSAs that has been designated by IMO is available at [www.imo.org](http://www.imo.org).

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<sup>1</sup> The term “associated protective measure” or “measure” is used both in the singular and plural throughout these Guidelines. It is important to recognize that an identified vulnerability may be addressed by only one or by more than one associated protective measure and that therefore the use of this terminology in the singular or plural should not be taken as any indication to the contrary.

1.3 Many international and regional instruments encourage the protection of areas important for the conservation of biological diversity as well as other areas with high ecological, cultural, historical/archaeological, socio-economic or scientific significance. These instruments further call upon their Parties to protect such vulnerable areas from damage or degradation, including from shipping activities.

1.4 The purpose of these Guidelines is to:

- .1 provide guidance to IMO Member Governments in the formulation and submission of applications for designation of PSSAs;
- .2 ensure that in the process all interests – those of the coastal State, flag State, and the environmental and shipping communities – are thoroughly considered on the basis of relevant scientific, technical, economic, and environmental information regarding the area at risk of damage from international shipping activities and the associated protective measures to prevent, reduce, or eliminate that risk; and
- .3 provide for the assessment of such applications by IMO.

1.5 Identification and designation of any PSSA and the adoption of associated protective measures require consideration of three integral components: the particular attributes of the proposed area, the vulnerability of such an area to damage by international shipping activities, and the availability of associated protective measures within the competence of IMO to prevent, reduce, or eliminate risks from these shipping activities.

## **2 INTERNATIONAL SHIPPING ACTIVITIES AND THE MARINE ENVIRONMENT**

2.1 Shipping activity can constitute an environmental hazard to the marine environment in general and consequently even more so to environmentally and/or ecologically sensitive areas. Environmental hazards associated with shipping include:

- .1 operational discharges;
- .2 accidental or intentional pollution; and
- .3 physical damage to marine habitats or organisms.

2.2 Adverse effects and damage may occur to the marine environment and the living resources of the sea as a result of shipping activities. With the increase in global trade, shipping activities are also increasing, thus including greater potential for adverse effects and damage. In the course of routine operations,

accidents, and wilful acts of pollution, ships may release a wide variety of substances either directly into the marine environment or indirectly through the atmosphere. Such releases include oil and oily mixtures, noxious liquid substances, sewage, garbage, noxious solid substances, anti-fouling systems, harmful aquatic organisms and pathogens, and even noise. In addition, ships may cause harm to marine organisms and their habitats through physical impact. These impacts may include the smothering of habitats, contamination by anti-fouling systems or other substances through groundings, and ship strikes of marine mammals.

### **3 PROCESS FOR THE DESIGNATION OF PARTICULARLY SENSITIVE SEA AREAS**

3.1 The IMO is the only international body responsible for designating areas as Particularly Sensitive Sea Areas and adopting associated protective measures. An application to IMO for designation of a PSSA and the adoption of associated protective measures, or an amendment thereto, may be submitted only by a Member Government. Where two or more Governments have a common interest in a particular area, they should formulate a co-ordinated proposal.<sup>2</sup> The proposal should contain integrated measures and procedures for co-operation between the jurisdictions of the proposing Member Governments.

3.2 Member Governments wishing to have IMO designate a PSSA should submit an application to MEPC based on the criteria outlined in section 4, provide information pertaining to the vulnerability of this area to damage from international shipping activities as called for in section 5, and include the proposed associated protective measures as outlined in section 6 to prevent, reduce or eliminate the identified vulnerability. Applications should be submitted in accordance with the procedures set forth in section 7 and the rules adopted by IMO for submission of documents.

3.3 If, in preparing its submission for a PSSA proposal, a Member Government requires technical assistance, that Government is encouraged to request such assistance from IMO.

### **4 ECOLOGICAL, SOCIO-ECONOMIC, OR SCIENTIFIC CRITERIA FOR THE IDENTIFICATION OF A PARTICULARLY SENSITIVE SEA AREA**

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<sup>2</sup> It is clear that the Guidelines recognize that an application for designation of a PSSA may be submitted by one or more Governments. For ease of drafting, however, the use of the word "Government" will be used throughout the text and it should be recognized that this term applies equally to applications where there is more than one Government involved.

4.1 The following criteria apply to the identification of PSSAs only with respect to the adoption of measures to protect such areas against damage, or the identified threat of damage, from international shipping activities.

4.2 These criteria do not, therefore, apply to the identification of such areas for the purpose of establishing whether they should be protected from dumping activities, since that is implicitly covered by the London Convention 1972 (the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972) and the 1996 Protocol to that Convention.

4.3 The criteria relate to PSSAs within and beyond the limits of the territorial sea. They can be used by IMO to designate PSSAs beyond the territorial sea with a view to the adoption of international protective measures regarding pollution and other damage caused by ships. They may also be used by national administrations to identify areas within their territorial seas that may have certain attributes reflected in the criteria and be vulnerable to damage by shipping activities.

4.4 In order to be identified as a PSSA, the area should meet at least one of the criteria listed below and information and supporting documentation should be provided to establish that at least one of the criteria exists throughout the entire proposed area, though the same criterion need not be present throughout the entire area. These criteria can be divided into three categories: ecological criteria; social, cultural, and economic criteria; and scientific and educational criteria.

*Ecological criteria*

4.4.1 Uniqueness or rarity – An area or ecosystem is unique if it is “the only one of its kind”. Habitats of rare, threatened, or endangered species that occur only in one area are an example. An area or ecosystem is rare if it only occurs in a few locations or has been seriously depleted across its range. An ecosystem may extend beyond country borders, assuming regional or international significance. Nurseries or certain feeding, breeding, or spawning areas may also be rare or unique.

4.4.2 Critical habitat – A sea area that may be essential for the survival, function, or recovery of fish stocks or rare or endangered marine species, or for the support of large marine ecosystems.

4.4.3 Dependency – An area where ecological processes are highly dependent on biotically structured systems (e.g. coral reefs, kelp forests, mangrove forests, seagrass beds). Such ecosystems often have high diversity, which is dependent on the structuring organisms. Dependency also embraces the migratory routes of fish, reptiles, birds, mammals, and invertebrates.

4.4.4 Representativeness – An area that is an outstanding and illustrative example of specific biodiversity, ecosystems, ecological or physiographic processes, or community or habitat types or other natural characteristics.

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- 4.4.5 Diversity – An area that may have an exceptional variety of species or genetic diversity or includes highly varied ecosystems, habitats, and communities.
- 4.4.6 Productivity – An area that has a particularly high rate of natural biological production. Such productivity is the net result of biological and physical processes which result in an increase in biomass in areas such as oceanic fronts, upwelling areas and some gyres.
- 4.4.7 Spawning or breeding grounds – An area that may be a critical spawning or breeding ground or nursery area for marine species which may spend the rest of their life-cycle elsewhere, or is recognized as migratory routes for fish, reptiles, birds, mammals, or invertebrates.
- 4.4.8 Naturalness – An area that has experienced a relative lack of human-induced disturbance or degradation.
- 4.4.9 Integrity – An area that is a biologically functional unit, an effective, self-sustaining ecological entity.
- 4.4.10 Fragility – An area that is highly susceptible to degradation by natural events or by the activities of people. Biotic communities associated with coastal habitats may have a low tolerance to changes in environmental conditions, or they may exist close to the limits of their tolerance (e.g., water temperature, salinity, turbidity or depth). Such communities may suffer natural stresses such as storms or other natural conditions (e.g., circulation patterns) that concentrate harmful substances in water or sediments, low flushing rates, and/or oxygen depletion. Additional stress may be caused by human influences such as pollution and changes in salinity. Thus, an area already subject to stress from natural and/or human factors may be in need of special protection from further stress, including that arising from international shipping activities.
- 4.4.11 Bio-geographic importance – An area that either contains rare biogeographic qualities or is representative of a biogeographic “type” or types, or contains unique or unusual biological, chemical, physical, or geological features.

*Social, cultural and economic criteria*

- 4.4.12 Social or economic dependency – An area where the environmental quality and the use of living marine resources are of particular social or economic importance, including fishing, recreation, tourism, and the livelihoods of people who depend on access to the area.



- 4.4.13 Human dependency – An area that is of particular importance for the support of traditional subsistence or food production activities or for the protection of the cultural resources of the local human populations.
- 4.4.14 Cultural heritage – An area that is of particular importance because of the presence of significant historical and archaeological sites.

*Scientific and educational criteria*

- 4.4.15 Research – An area that has high scientific interest.
- 4.4.16 Baseline for monitoring studies – An area that provides suitable baseline conditions with regard to biota or environmental characteristics, because it has not had substantial perturbations or has been in such a state for a long period of time such that it is considered to be in a natural or near-natural condition.
- 4.4.17 Education – An area that offers an exceptional opportunity to demonstrate particular natural phenomena.

4.5 In some cases a PSSA may be identified within a Special Area and vice versa. It should be noted that the criteria with respect to the identification of PSSAs and the criteria for the designation of Special Areas are not mutually exclusive.

## **5 VULNERABILITY TO IMPACTS FROM INTERNATIONAL SHIPPING**

5.1 In addition to meeting at least one of the criteria listed in 4.4, the recognized attributes of the area should be at risk from international shipping activities. This involves consideration of the following factors:

*Vessel traffic characteristics*

- 5.1.1 Operational factors – Types of maritime activities (e.g. small fishing boats, small pleasure craft, oil and gas rigs) in the proposed area that by their presence may reduce the safety of navigation.
- 5.1.2 Vessel types – Types of vessels passing through or adjacent to the area (e.g. high-speed vessels, large tankers, or bulk carriers with small under-keel clearance).
- 5.1.3 Traffic characteristics – Volume or concentration of traffic, vessel interaction, distance offshore or other dangers to navigation, are such as to involve greater risk of collision or grounding.

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- 5.1.4 Harmful substances carried – Type and quantity of substances on board, whether cargo, fuel or stores, that would be harmful if released into the sea.

*Natural factors*

- 5.1.5 Hydrographical – Water depth, bottom and coastline topography, lack of proximate safe anchorages and other factors which call for increased navigational caution.
- 5.1.6 Meteorological – Prevailing weather, wind strength and direction, atmospheric visibility and other factors which increase the risk of collision and grounding and also the risk of damage to the sea area from discharges.
- 5.1.7 Oceanographic – Tidal streams, ocean currents, ice, and other factors which increase the risk of collision and grounding and also the risk of damage to the sea area from discharges.

5.2 In proposing an area as a PSSA and in considering the associated protective measures to prevent, reduce, or eliminate the identified vulnerability, other information that might be helpful includes the following:

- .1 any evidence that international shipping activities are causing or may cause damage to the attributes of the proposed area, including the significance or risk of the potential damage, the degree of harm that may be expected to cause damage, and whether such damage is reasonably foreseeable, as well as whether damage is of a recurring or cumulative nature;
- .2 any history of groundings, collisions, or spills in the area and any consequences of such incidents;
- .3 any adverse impacts to the environment outside the proposed PSSA expected to be caused by changes to international shipping activities as a result of PSSA designation;
- .4 stresses from other environmental sources; and
- .5 any measures already in effect and their actual or anticipated beneficial impact.

## **6 ASSOCIATED PROTECTIVE MEASURES**

6.1 In the context of these Guidelines, associated protective measures for PSSAs are limited to actions that are to be, or have been, approved or adopted by IMO and include the following options:

- 6.1.1 designation of an area as a Special Area under MARPOL Annexes I, II or V, or a SO<sub>x</sub> emission control area under MARPOL Annex VI, or application of special discharge restrictions to vessels operating in a PSSA. Procedures and criteria for the designation of Special Areas are contained in the Guidelines for the Designation of Special Areas set forth in annex 1 of Assembly resolution A.927(22). Criteria and procedures for the designation of SO<sub>x</sub> emission control areas are found in Appendix 3 to MARPOL Annex VI;
- 6.1.2 adoption of ships' routing and reporting systems near or in the area, under the International Convention for the Safety of Life at Sea (SOLAS) and in accordance with the General Provisions on Ships' Routing and the Guidelines and Criteria for Ship Reporting Systems. For example, a PSSA may be designated as an area to be avoided or it may be protected by other ships' routing or reporting systems; and
- 6.1.3 development and adoption of other measures aimed at protecting specific sea areas against environmental damage from ships, provided that they have an identified legal basis.

6.2 Consideration should also be given to the potential for the area to be listed on the World Heritage List, declared a Biosphere Reserve, or included on a list of areas of international, regional, or national importance, or if the area is already the subject of such international, regional, or national conservation action or agreements.

6.3 In some circumstances, a proposed PSSA may include within its boundaries a buffer zone, in other words, an area contiguous to the site-specific feature (core area) for which specific protection from shipping is sought. However, the need for such a buffer zone should be justified in terms of how it would directly contribute to the adequate protection of the core area.

## **7 PROCEDURE FOR THE DESIGNATION OF PARTICULARLY SENSITIVE SEA AREAS AND THE ADOPTION OF ASSOCIATED PROTECTIVE MEASURES**

7.1 An application for PSSA designation should contain a proposal for an associated protective measure that the proposing Member Government intends to submit to the appropriate IMO body. If the measure is not already available under

an IMO instrument, the proposal should set forth the steps that the proposing Member Government has taken or will take to have the measure approved or adopted by IMO pursuant to an identified legal basis (see paragraph 7.5.2.3).

7.2 Alternatively, if no new associated protective measure is being proposed because IMO measures are already associated with the area to protect it, then the application should identify the threat of damage or damage being caused to the area by international shipping activities and show how the area is already being protected from such identified vulnerability by the associated protective measures. Amendments to existing measures may be introduced to address identified vulnerabilities.

7.3 In the future, additional associated protective measures may also be introduced to address identified vulnerabilities.

7.4 The application should first clearly set forth a summary of the objectives of the proposed PSSA designation, the location of the area, the need for protection, the associated protective measures, and demonstrate how the identified vulnerability will be addressed by existing or proposed associated protective measures. The summary should include the reasons why the associated protective measures are the preferred method for providing protection for the area to be identified as a PSSA.

7.5 Each application should then consist of two parts.

7.5.1 Part I – *Description, significance of the area and vulnerability*

- .1 *Description* – a detailed description of the location of the proposed area, along with a nautical chart on which the location of the area and any associated protective measures are clearly marked, should be submitted with the application.
- .2 *Significance of the area* – the application should state the significance of the area on the basis of recognized ecological, socio-economic, or scientific attributes and should explicitly refer to the criteria listed above in section 4.
- .3 *Vulnerability of the area to damage by international shipping activities* – the application should provide an explanation of the nature and extent of the risks that international shipping activities pose to the environment of the proposed area, noting the factors listed in section 5. The application should describe the particular current or future international shipping activities that are causing or may be expected to cause damage to the proposed area, including the significance of the damage and

degree of harm that may result from such activities, either from such activity alone or in combination with other threats.

7.5.2 Part II – *Appropriate associated protective measures and IMO's competence to approve or adopt such measures*

- .1 The application should identify the existing and/or proposed associated protective measures and describe how they provide the needed protection from the threats of damage posed by international maritime activities occurring in and around the area. The application should specifically describe how the associated protective measures protect the area from the identified vulnerability.
- .2 If the application identifies a new associated protective measure, then the proposing Member Government must append a draft of the proposal which is intended to be submitted to the appropriate Sub-Committee or Committee or, if the measures are not already available in an IMO instrument, information must be provided with regard to its legal basis and/or the steps that the proposing Member Government has taken or will take to establish the legal basis.
- .3 The application should identify the legal basis for each measure. The legal bases for such measures are:
  - (i) any measure that is already available under an existing IMO instrument; or
  - (ii) any measure that does not yet exist but could become available through amendment of an IMO instrument or adoption of a new IMO instrument. The legal basis for any such measure would only be available after the IMO instrument was amended or adopted, as appropriate; or
  - (iii) any measure proposed for adoption in the territorial sea,\* or pursuant to Article 211(6) of the United Nations Convention on the Law of the Sea where existing measures or a generally applicable measure (as set forth in subparagraph (ii) above) would not adequately address the particularized need of the proposed area.

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\* This provision does not derogate from the rights and duties of coastal States in the territorial sea as provided for in the United Nations Convention on the Law of the Sea.

- .4 These measures may include ships' routing measures; reporting requirements discharge restrictions; operational criteria; and prohibited activities, and should be specifically tailored to meet the need of the area to prevent, reduce, or eliminate the identified vulnerability of the area from international shipping activities.
- .5 The application should clearly specify the category or categories of ships to which the proposed associated protective measures would apply, consistent with the provisions of the United Nations Convention on the Law of the Sea, including those related to vessels entitled to sovereign immunity, and other pertinent instruments.

7.6 The application should indicate the possible impact of any proposed measures on the safety and efficiency of navigation, taking into account the area of the ocean in which the proposed measures are to be implemented. The application should set forth such information as:

- .1 consistency with the legal instrument under which the associated protective measure is being proposed;
- .2 implications for vessel safety; and
- .3 impact on vessel operations, such as existing traffic patterns or usage of the proposed area.

7.7 An application for PSSA designation should address all relevant considerations and criteria in these Guidelines, and should include relevant supporting information for each such item.

7.8 The application should contain a summary of steps taken, if any, by the proposing Member Government to date to protect the proposed area.

7.9 The proposing Member Government should also include in the application the details of action to be taken pursuant to domestic law for the failure of a ship to comply with the requirements of the associated protective measures. Any action taken should be consistent with international law as reflected in the United Nations Convention on the Law of the Sea.

7.10 The proposing Member Government should submit a separate proposal to the appropriate Sub-Committee or Committee to obtain the approval of any new associated protective measure. Such a proposal must comply with the requirements of the legal instrument relied upon to establish the measure.

## **8 CRITERIA FOR ASSESSMENT OF APPLICATIONS FOR DESIGNATION OF PARTICULARLY SENSITIVE SEA AREAS AND THE ADOPTION OF ASSOCIATED PROTECTIVE MEASURES**

8.1 IMO should consider each application, or amendment thereto, submitted to it by a proposing Member Government on a case-by-case basis to determine whether the area fulfils at least one of the criteria set forth in section 4, the attributes of the area meeting section 4 criteria are vulnerable to damage by international shipping activities as set forth in section 5, and associated protective measures exist or are proposed to prevent, reduce, or eliminate the identified vulnerability.

8.2 In assessing each proposal, IMO should in particular consider:

- .1 the full range of protective measures available and determine whether the proposed or existing associated protective measures are appropriate to prevent, reduce, or eliminate the identified vulnerability of the area from international shipping activities;
- .2 whether such measures might result in an increased potential for significant adverse effects by international shipping activities on the environment outside the proposed PSSA; and
- .3 the linkage between the recognized attributes, the identified vulnerability, the associated protective measure to prevent, reduce, or eliminate that vulnerability, and the overall size of the area, including whether the size is commensurate with that necessary to address the identified need.

8.3 The procedure for considering a PSSA application by IMO is as follows:

- .1 the MEPC should bear primary responsibility within IMO for considering PSSA applications and all applications should first be submitted to the MEPC:
  - .1 the Committee should assess the elements of the proposal against the Guidelines and, as appropriate, should establish a technical group, comprising representatives with appropriate environmental, scientific, maritime, and legal expertise;
  - .2 the proposing Member Government is encouraged to make a presentation of the proposal, along with nautical charts and other supporting information on the required elements for PSSA designation;

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- .3 any technical group formed should prepare a brief report to the Committee summarizing their findings and the outcome of its assessment; and
  - .4 the outcome of the assessment of a PSSA application should be duly reflected in the report of the MEPC;
- .2 if appropriate following its assessment, the MEPC should designate the area “in principle” and inform the appropriate Sub-Committee, Committee (which could be the MEPC itself), or the Assembly that is responsible for addressing the particular associated protective measures proposed for the area of the outcome of this assessment;
  - .3 the appropriate Sub-Committee or Committee which has received a submission by a proposing Member Government for an associated protective measure should review the proposal to determine whether it meets the procedures, criteria, and other requirements of the legal instrument under which the measure is proposed. The Sub-Committee may seek the advice of the MEPC on issues pertinent to the application;
  - .4 the MEPC should not designate a PSSA until after the associated protective measures are considered and approved by the pertinent Sub-Committee, Committee, or Assembly. If the associated protective measures are not approved by the pertinent IMO body, then the MEPC may reject the PSSA application entirely or request that the proposing Member Government submit new proposals for associated protective measures. A proper record of the proceedings should be included in the report of the MEPC;
  - .5 for measures that require approval by the Maritime Safety Committee (MSC), the Sub-Committee should forward its recommendation for approval of the associated protective measures to the MSC or, if the Sub-Committee rejects the measures, it should inform the MSC and MEPC and provide a statement of reasons for its decision. The MSC should consider any such recommendations and, if the measures are to be adopted, it should notify the MEPC of its decision;
  - .6 if the application is rejected, the MEPC shall notify the proposing Member Government, provide a statement of reasons for its decision and, if appropriate, request the Member Government to submit additional information; and



.7 after approval by the appropriate Sub-Committee, Committee, or, where necessary, the Assembly of the associated protective measures, the MEPC may designate the area as a PSSA.

8.4 IMO should provide a forum for the review and re-evaluation of any associated protective measure adopted, as necessary, taking into account pertinent comments, reports, and observations of the associated protective measures. Member Governments which have ships operating in the area of the designated PSSA are encouraged to bring any concerns with the associated protective measures to IMO so that any necessary adjustments may be made. Member Governments that originally submitted the application for designation with the associated protective measures, should also bring any concerns and proposals for additional measures or modifications to any associated protective measure or the PSSA itself to IMO.

8.5 After the designation of a PSSA and its associated protective measures, IMO should ensure that the effective date of implementation is as soon as possible based on the rules of IMO and consistent with international law.

8.6 IMO should, in assessing applications for designation of PSSAs and their associated protective measures, take into account the technical and financial resources available to developing Member Governments and those with economies in transition.

## **9 IMPLEMENTATION OF DESIGNATED PSSAs AND THE ASSOCIATED PROTECTIVE MEASURES**

9.1 When a PSSA receives final designation, all associated protective measures should be identified on charts in accordance with the symbols and methods of the International Hydrographic Organization (IHO).

9.2 A proposing Member Government should ensure that any associated protective measure is implemented in accordance with international law as reflected in the United Nations Convention on the Law of the Sea.

9.3 Member Governments should take all appropriate steps to ensure that ships flying their flag comply with the associated protective measures adopted to protect the designated PSSA. Those Member Governments which have received information of an alleged violation of an associated protective measure by a ship flying their flag should provide the Government which has reported the offence with the details of any appropriate action taken.

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