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Marine environment protection and
biodiversity conservation: the application
and future development of the IMO's
particularly sensitive sea area concept

Julian Peter Roberts
University of Wollongong

Roberts, Julian Peter, Marine environment protection and biodiversity conservation the application and future development of the IMO's particularly sensitive sea area concept, PhD thesis, Centre for Maritime Policy, University of Wollongong, 2006. <http://ro.uow.edu.au/theses/547>

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**Marine Environment Protection and
Biodiversity Conservation:
The Application and Future Development of the IMO's
Particularly Sensitive Sea Area Concept**

**A thesis submitted in fulfillment of the requirements
for the award of the degree**

Doctor of Philosophy

from

UNIVERSITY OF WOLLONGONG

By

**Julian Peter Roberts
MSc (Herriot-Watt University, Edinburgh)**

**Centre for Maritime Policy
Faculty of Law
University of Wollongong
2006**

CERTIFICATION

I, Julian Roberts, declare that this thesis, submitted in fulfilment of the requirements for the award of Doctor of Philosophy, in the Centre for Maritime Policy, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualifications at any other academic institution.

Julian Roberts

1 August 2006

I really don't know why it is that all of us are so committed to the sea, except I think it's because in addition to the fact that the sea changes, and the light changes, and ships change, it's because we all came from the sea. And it is an interesting biological fact that all of us have, in our veins the exact same percentage of salt in our blood that exists in the ocean, and therefore, we have salt in our blood, in our sweat, in our tears. We are tied to the ocean. And when we go back to the sea, whether it is to sail or to watch it - we are going back from whence we came.

John F. Kennedy, 14 September 1962

ABSTRACT

In the context of marine environment protection and biodiversity conservation, a number of measures adopted by the International Maritime Organization (IMO) can be viewed as implementing obligations and recommendations of the 1982 United Nations Convention on the Law of the Sea, Chapter 17 of Agenda 21 and the 1992 Convention on Biological Diversity respectively. Pre-eminent among these measures is the particularly sensitive sea area (PSSA) concept; a tool that can be applied in an integrated manner, irrespective of maritime jurisdictional boundaries. However, despite the potential benefits that PSSA designation can deliver, recent practice both within the IMO and by individual member States, has considerably undermined confidence in this emerging concept, calling into question its whole basis as an effective management tool.

Recent nominations by individual member States, for PSSA designation, have had the effect of dividing the IMO community over the scope and application of the PSSA concept, resulting in demands by several States to re-examine and constrain the concept. Some observers consider that the manner by which the IMO considers and decides upon applications for PSSA designation has aggravated this situation and have called for a review of the IMO approval process in its entirety. That this should occur at a time when many observers and coastal State members are increasingly realising the potential benefits of the PSSA concept is all the more cause for concern.

The focus of this thesis is on the events within the IMO that have led to this lack of confidence arising. The central theme of the investigation is that the current situation can largely be attributed to the actions of certain member States, in their interpretation and implementation of the PSSA concept, and to the current mechanisms adopted by the IMO for reviewing and approving individual submissions for PSSA designation. A number of specific issues can also be identified with the PSSA Guidelines themselves.

This thesis presents an examination of coastal State practice with the PSSA concept, and seeks to address how confidence in the measure can be restored, while satisfying both coastal and maritime States' interests. In undertaking this analysis, the research provides evidence of the value of the PSSA concept, but also demonstrates its limitations. In this regard, the thesis presents a 'reality check' which seeks to rationalise some of the heightened expectations with the concept that are apparent in the current debate. The research argues that States may seek to designate PSSAs more for their 'iconic status' than for any demonstrable environmental benefits that may be realised. Such an approach will contribute to the current lack of confidence in the measure and could conceivably result in a complete and irrevocable loss of confidence in the measure by the shipping community.

On the basis of the empirical analysis presented and the comparison with alternative protection strategies, this thesis draws conclusions over the value of the PSSA concept and makes recommendations for the future development of the concept. A number of specific amendments are suggested for the PSSA Guidelines themselves, as well as changes to the institutional arrangements for reviewing and approving PSSA nominations.

ACKNOWLEDGEMENTS

The undertaking of this thesis has been an intensely personal experience. The research was largely undertaken on a part time basis, while I worked for the New Zealand Maritime Safety Authority, as an environmental advisor. While undertaking any research under such circumstances clearly has the potential to create stress, this drawback was more than compensated for by the unique circumstances I found myself in, as a New Zealand delegate to the IMO for five years. Rather than observe the mechanics and procedures from outside the organisation, as many researchers do, I actively participated in developments that are the focus of this research. In my view this has contributed to a more insightful study of this particular aspect of the IMO's work.

Achieving the completion of this thesis, within the existing time frame, would not have been possible without the guidance and support of my two supervisors and mentors, Professor Martin Tsamenyi and Professor John Morrison. Their insightful comments and suggestions and above all their friendship throughout the process, gave me constant support and encouragement to continue the research and to explore areas that I had not fully considered.

A large number of other people have provided invaluable assistance throughout the duration of this research. Moreover, the undertaking of this research has led to the establishment of a number of friendships which I hope will endure well beyond the completion of this thesis. Special thanks must be made to both Lindy Johnson and Kristina Gjerde, my two 'PSSA gurus' and PhD mentors, who provided a constant sounding board for ideas and who also provided comments and constructive criticisms on draft manuscripts for publication.

Thanks are extended to Sian Pullen, Simon Walmsley and Alison Champion of WWF-UK and to David Johnson of the Southampton Institute, for their thoughts on the application of the PSSA concept; to Phillip Fox at the World Conservation Monitoring Centre in Cambridge, for his assistance with the provision of GIS data; to Joquan Trinanés of NOAA for his assistance in obtaining and disseminating vessel tracking data; to the many State delegates and Secretariat staff of the IMO who assisted me, or who contributed to the meetings I attended. Particular thanks are extended to the many staff of the New Zealand Maritime Safety Authority who supported me in the undertaking of this research and who made the regular visits to the IMO possible. Thanks also to all those who assisted with the circulation and completion of the research questionnaire that formed part of this research, in particular, to David Wilcox of the Southampton Institute.

To Chris Rahman for his friendship and support while visiting Wollongong, and to Myree Mitchell for all her help in organising my visits. Special thanks goes to Heather Mills for her diligent proof reading of the final draft of this thesis.

Above all, my deepest and sincerest thanks go to my wife, Janet, who has provided unquestioned love, support and encouragement throughout the duration of this PhD, who has given me the ability to complete this work, and who has tirelessly proof read chapter after chapter and rewrite after rewrite, until final completion of the thesis was achieved. Without her undiminished support, this thesis would not have been possible.

TABLE OF CONTENTS

Certification	i
Abstract	iii
Acknowledgements	iv
Table of Contents	v
List of Tables	x
List of Figures	xi
Publications Arising from this Thesis	xii
Acronyms and Abbreviations.....	xiii

Chapter 1

INTRODUCTION.....	1
1.1 Background.....	1
1.1.1 Shipping and Marine Protected Areas	3
1.2 Problem Definition	8
1.2.1 Research Questions.....	10
1.3 Contribution of this Thesis	12
1.3.1 Contribution to the Literature	14
1.4 Study Methods	14
1.4.1 Existing Literature	15
1.4.2 Research Visits	15
1.4.3 Other Research Methods	16
1.5 Structure of the Thesis	17

Chapter 2

INTERNATIONAL LEGAL FRAMEWORK FOR THE PROTECTION OF THE MARINE ENVIRONMENT	19
2.1 Introduction	19
2.2 International Instruments	21
2.2.1 1958 Geneva Conventions.....	22
2.2.2 United Nations Conference on the Human Environment.....	24
2.2.3 United Nations Convention on the Law of the Sea	28
2.2.4 United Nations Conference on Environment and Development	35
2.3 The Concept of Marine Protected Areas	41
2.3.1 Defining Marine Protected Areas	42
2.4 The Marine Protected Area Concept in International Law.....	44
2.4.1 United Nations Convention on the Law of the Sea	45
2.4.2 Convention on Biological Diversity	47
2.4.3 International Biodiversity Conventions and Initiatives	53
2.5 Conclusions	62

Chapter 3

INTERNATIONAL REGULATION OF SHIPPING FOR THE PROTECTION OF THE MARINE ENVIRONMENT 63

3.1	Introduction	63
3.2	Nature of the Impacts of Shipping.....	65
3.2.1	Operational Discharges.....	65
3.2.2	Accidental Discharges	67
3.2.3	Physical Harm	69
3.3	The Establishment and Role of the International Maritime Organization.....	70
3.3.1	Background to the Organisation	70
3.3.2	Standard Setting.....	75
3.4	Existing Instruments Administered by the IMO	80
3.4.1	International Convention for the Safety of Life at Sea.....	81
3.4.2	International Convention for the Prevention of Pollution from Ships.....	83
3.5	Coastal State Versus Flag State Jurisdiction	87
3.5.1	Flag State Obligations and Jurisdiction	90
3.5.2	Coastal State Jurisdiction.....	93
3.6	Conclusions	112

Chapter 4

THE PARTICULARLY SENSITIVE SEA AREA CONCEPT 115

4.1	Introduction	115
4.2	PSSA Overview.....	116
4.3	Historical Development of the PSSA Concept.....	123
4.3.1	1991 PSSA Guidelines	126
4.3.2	Review of the 1991 Guidelines	128
4.3.3	The Revised Guidelines - Resolution A.927(22).....	132
4.4	The PSSA Concept in International Law	135
4.4.1	The Legal Basis of the PSSA Concept	137
4.4.2	Relationship Between PSSAs and Marine Protected Areas	147
4.4.3	PSSA Links to the CBD	152
4.5	Conclusions	155

Chapter 5

REQUIREMENTS FOR PSSA DESIGNATION AND IMPLEMENTATION OF THE PSSA GUIDELINES BY THE IMO 157

5.1	Introduction	157
5.2	Submitting a Proposal for PSSA Designation	158
5.2.1	PSSA Identification	160
5.3	Protection of PSSAs	163
5.3.1	Special Discharge Restrictions	164
5.3.2	Regulation of Navigation for Protection of the Environment	169

5.3.3 Application of Ships' Routeing Measures	170
5.3.4 Update of IMO Measures to Protect the Marine Environment	173
5.3.5 Case Study - New Zealand's Application for a Mandatory Area to be Avoided	174
5.3.6 Vessel Traffic Services	179
5.3.7 Ship Reporting Systems	185
5.3.8 To PSSA or not to PSSA?	187
5.4 Assessment and Approval of PSSA Proposals by the IMO	188
5.4.1 Consideration by MEPC	192
5.4.2 Consideration by NAV and MSC	196
5.4.3 Approval of a PSSA	199
5.4 Conclusion	199

Chapter 6

STATE PRACTICE: APPLICATION OF THE PSSA CONCEPT	201
6.1 Introduction	201
6.2 The Western European PSSA	203
6.2.1 Background	203
6.2.2 Existing Navigation Regime	206
6.2.3 Associated Protective Measures	208
6.2.4 Consideration by IMO	209
6.3 Extension of the Great Barrier Reef PSSA to Include the Torres Strait	213
6.3.1 Background	213
6.3.2 Existing Navigation Regime	217
6.3.3 Associated Protective Measures	221
6.3.4 Consideration by IMO	222
6.4 The Baltic Sea	226
6.4.1 Background	226
6.4.2 Existing Navigation Regime	229
6.4.3 Associated Protective Measures	230
6.4.4 Consideration by IMO	231
6.5 Florida Keys National Marine Sanctuary	234
6.5.1 Background	234
6.5.2 Existing Navigation Regime	237
6.5.3 Associated Protective Measures	239
6.5.4 Consideration by IMO	241
6.6 Analysing the Benefits of PSSA Designation	241
6.6.1 Comprehensive Management Tool	243
6.6.2 Adoption of Additional Protective Measures	249
6.6.3 Approval of Exceptional Measures	250
6.6.4 Intrinsic Benefits of PSSA Designation	261
6.7 Conclusions	273

Chapter 7

ISSUES IDENTIFIED WITH THE PSSA CONCEPT THROUGH AN EXAMINATION OF STATE AND IMO PRACTICE 277

7.1	Introduction	277
7.2	Issues Identified with State Practice	278
7.2.1	Defining the Scope of a PSSA	279
7.2.2	Linkage Between Vulnerability and APMs	284
7.2.3	Appropriate APMS	284
7.2.4	IMO Process	286
7.2.5	Strategic Framework	290
7.3	Revision of the PSSA Guidelines	291
7.3.1	PSSA Definition	294
7.3.2	Linking the Identified Vulnerability with an APM	295
7.3.3	The Legal Basis for Associated Protective Measures	295
7.3.4	Procedural Issues	302
7.3.5	Effect of the Revisions	302
7.4	Unresolved Issues	303
7.4.1	Application of the PSSA Concept to Wide Geographic Areas	303
7.4.2	IMO Process	307
7.4.3	Strategic Approach	315
7.5	Conclusions	316

Chapter 8

DEVELOPMENT OF A STRATEGIC FRAMEWORK FOR THE PSSA CONCEPT 319

8.1	Introduction	319
8.2	A Strategic Approach for the Identification of Sites for PSSA Designation	320
8.2.1	Strategic Environmental Assessment	321
8.2.2	Marine Spatial Planning	325
8.3	Application of Marine Spatial Planning Techniques to PSSA Identification	331
8.3.1	Global Level Assessment	332
8.3.2	Identification of Sites Vulnerable to the Impacts of Shipping	343
8.3.3	Outcome of the Analysis	348
8.4	Regional and Local Approaches for Identifying Candidate PSSA Sites	356
8.4.1	Application to PSSA Identification	358
8.5	Conclusions	361

Chapter 9

CONCLUSIONS AND RECOMMENDATIONS..... 363

9.1	Introduction	363
9.2	Role of the IMO	363
9.3	The PSSA Concept in International Law	365

9.4	Benefits of PSSA Designation.....	366
9.5	Current Status of the PSSA Concept	368
9.6	Future Development of the PSSA Concept	370
9.7	Recommendations	371
9.8	Concluding Comments	375
REFERENCES.....		377
Bibliography.....		377
Journal Articles, Books and Conference Proceedings.....		377
Reports, Briefing Papers and Other Documents.....		399
Online Sources.....		402
Official Documents		405
IMO Documents		405
OECD Documents		416
OSPAR Documents		416
UNESCO		416
UN General Assembly		417
United Nations Environment Programme		417
International Instruments.....		417
European Union Documents.....		420
National and Regional Legislation, Statements and Declarations.....		420
Appendix A		423
Appendix B		451
Appendix C		469
Appendix D		471
Appendix E		475
Appendix F.....		480

LIST OF TABLES

Table 3.1. Summary of Compensation Costs Associated with Maritime Casualties in Western European Waters Between 1992 and 2002	68
Table 3.2. MARPOL 73/78 Annexes and Pollutant Categories.....	86
Table 4.1. PSSAs Designated to Date	122
Table 4.2. Criteria for the Identification of a PSSA.....	133
Table 4.3. Special Area Criteria as Defined Under Annex I to Resolution A.927(22)	151
Table 5.1. Special Areas Designated Under Annexes I, II and V of MARPOL 73/78	165
Table 5.2. IMO Resolutions Encouraging the Use of Ships' Pilots in Certain Areas.	184
Table 8.1. UNESCO Site Selection Criteria	338

LIST OF FIGURES

Figure 4.1. Global Distribution of PSSAs Designated to Date.....	121
Figure 5.1. Extent of the Mandatory Area to be Avoided	175
Figure 5.2. IMO Procedure for Consideration and Designation of PSSAs	191
Figure 5.3. Consideration and Adoption of Proposals for Ships Routeing Measures and Ship Reporting Systems	197
Figure 6.1. Limits of the Western European PSSA	205
Figure 6.2. Torres Strait and the Boundary of the PSSA.....	216
Figure 6.3. The Baltic Sea and the Boundary of the PSSA	227
Figure 6.4. Limits of the Florida Keys PSSA.....	236
Figure 8.1. Global Distribution of Marine Protected Areas and Global 200 Ecoregions	335
Figure 8.2. Potential Tropical Coastal, Marine and Small Island World Heritage Sites	342
Figure 8.3. Global Distribution of Oil Spills (Greater than 7 Tonnes) Between 1970 and 2004	344
Figure 8.4. Global Shipping Movements Mapped from Reported Positions of Ships Participating in the WMO VOS Programme.....	345
Figure 8.5. Relative Shipping Densities Mapped to a 60 Nautical Mile Global Grid..	347
Figure 8.6(a). Areas for Consideration for Potential PSSA Sites - North Atlantic.....	349
Figure 8.6(b). Areas for Consideration for Potential PSSA Sites - South Atlantic	350
Figure 8.6(c). Areas for Consideration for Potential PSSA Sites - Indian Ocean	351
Figure 8.6(d). Areas for Consideration for Potential PSSA Sites - SW Pacific.....	352
Figure 8.6(e). Areas for Consideration for Potential PSSA Sites - NW Pacific	353
Figure 8.6(f). Areas for Consideration for Potential PSSA Sites - NE Pacific.....	354

PUBLICATIONS ARISING FROM THE THESIS

The following peer reviewed articles, focussing on different aspects of the research, have been published during the preparation of this thesis:

- J. Roberts, “Compulsory pilotage in international straits: The Torres Strait PSSA proposal,” *Ocean Development and International Law* 37 (2006), 93-112.
- J. Roberts, “Protecting sensitive marine environments: the role and application of ships’ routeing measures,” *International Journal of Marine and Coastal Law* 20 (2005), pp. 135-159.
- J. Roberts, T. Workman, M. Tsamenyi and L. Johnson. “The Western European PSSA: A “politically sensitive sea area,” *Marine Policy* 29 (2005), pp. 431-440.

ACRONYMS AND ABBREVIATIONS

AIS	Automatic Identification System
AMSA	Australian Maritime Safety Authority
APM	Associated Protective Measure
BIMCO	The Baltic and International Maritime Council
CBD	1992 Convention on Biological Diversity
CDEM	Construction, Design, Equipment and Manning
COLREGS	International Regulations for the Prevent of Collisions at Sea, 1972
COP	Conference of Parties
DOALOS	United Nations Division for Ocean Affairs and the Law of the Sea
dwt	Dead Weight Tonnage
EEZ	Exclusive Economic Zone
EU	European Union
FKNMS	Florida Keys National Marine Sanctuary
GEEP	IOC/IMO/UNEP Group of Experts on the Effects of Pollution
GESAMP	Group of Experts on the Scientific Aspects of Marine Environmental Protection
GIS	Geographic Information System
GPSR	General Provisions on Ships' Routing
HELCOM	Helsinki Commission / Baltic Marine Environment Protection Commission
ICC-MAB	International Coordinating Council of the Man and the Biosphere Programme
ICS	The International Chamber of Shipping
I.L.M	International Legal Materials
IMCO	Intergovernmental Maritime Consultative Organization
IMO	International Maritime Organization
INTERCARGO	The International Association of Dry Cargo Ship Owners
INTERTANKO	The International Association of Independent Tanker Owners
IPIECA	International Petroleum Industry Environmental Conservation Association
IPTA	The International Parcel Tanker Owners Association
ITOPF	International Tanker Owners Pollution Federation Ltd
IUCN	The World Conservation Union - previously International Union for the Conservation of Nature
km	Kilometers
LOSC	United Nations Convention on the Law of the Sea, 1982 (Law of the Sea Convention)
MAB	Man and the Biosphere
MARPOL 73/78	International Convention for the Prevention of Pollution from Ships as modified by the 1978 Protocol relating thereto
MCPA	Marine and Coastal Protected Area
MEPC	IMO Marine Environment Protection Committee
MoU	Memorandum of Understanding

MPA	Marine Protected Area
MSA	Maritime Safety Authority of New Zealand
MSANZ	Maritime Safety Authority of New Zealand
MSC	IMO Maritime Safety Committee
MSP	Marine Spatial Planning
NAV	IMO Sub-committee on Safety of Navigation
NGO	Non-Governmental Organisation
NOAA	National Oceanic and Atmospheric Administration
NOx	Nitrogen Oxides
OCIMF	Oil Companies International Marine Forum
OECD	Organisation for Economic Cooperation and Development
OUV	Outstanding Universal Value
PSC	Port State Control
PSSA	Particularly Sensitive Sea Area
SBSTTA	Subsidiary Body on Scientific, Technical and Technological Advice
SEA	Strategic Environmental Assessment
SECA	SOx Emission Control Area
SOLAS	International Convention for the Safety of Life at Sea, 1974
SOx	Sulphur Oxides
SRS	Ship Reporting System
TSCZ	Territorial Sea and Contiguous Zone [Convention]
TSPP	Tanker Safety and Pollution Prevention [Conference]
TSS	Traffic Separation Scheme
U.K.T.S	United Kingdom Treaty Series
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNCHE	United Conference on the Human Environment
UNCTAD	United Nations Conference on Trade and Development
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNFCCC	United Nations Framework Convention on Climate Change
U.N.T.S	United Nations Treaty Series
US	United States
USA	United States of America
VOS	Voluntary Observing Ship
VTs	Vessel Traffic Services
WCMC	UNEP World Conservation Monitoring Centre
WE PSSA	Western European Particularly Sensitive Sea Area
WMO	World Meteorological Organization
WSSD	World Summit on Sustainable Development
WWF	Worldwide Fund for Nature

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

In the current context of international oceans governance, considerable emphasis is placed on the role and application of marine protected areas¹ (MPAs) for the conservation of marine biodiversity and the protection of vulnerable marine habitats. The primary obligation to address this issue may be derived from the United Nations Convention on the Law of the Sea 1982 (hereafter LOSC)² and the 1992 Convention on Biological Diversity (hereafter CBD).³ The global community's commitment to this obligation can be witnessed in the outcomes of the 2002 United Nations World Summit on Sustainable Development (WSSD), which *inter alia* calls for action at all levels to:

encourage the application by 2010 of the ecosystem approach; and maintain the productivity and biodiversity of important and vulnerable marine and coastal areas, including in areas within and beyond national jurisdiction.⁴

¹ The International Union for the Conservation of Nature and Natural Resources (IUCN) defines a marine protected area as:

any area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment.

See Resolution 17.38 adopted by the General Assembly of IUCN, at its 17th Session in San Jose, Costa Rica, 1-10 February.

² *United Nations Convention on the Law of the Sea*, 10 December 1982. In force 16 November 1983. 1833 *U.N.T.S.* 397 (hereafter LOSC).

³ *Convention on Biological Diversity*, 5 June 1992. In force 29 December 1993. 1760 *U.N.T.S.* 79 (hereafter CBD). The Convention requires Parties to identify activities which have or are likely to have a significant adverse impact on biodiversity (Article 7), and to regulate and manage those activities within a system of protected areas which must be established for the purpose of biodiversity conservation (Article 8).

⁴ World Summit on Sustainable Development, (Johannesburg, 26 August – 4 September 2002), “Plan of Implementation,” para. 31(c).

Furthermore, in February 2004, the Parties to the CBD reaffirmed their commitment to develop representative networks⁵ of marine protected areas on a national and regional basis by 2012 and further agreed to urgently address, through appropriate integrated marine and coastal management approaches, all threats, “including those arising from the land and shipping/transport, in order to maximise the effectiveness of marine and coastal protected areas and networks.”⁶

A marine protected area may be subject to a variety of legal measures depending on the type of protection and the environmental outcome sought. As such, among the elements that characterise MPAs are the varying protective measures adopted for them. While such measures have largely focused on the restriction of extractive activities, other activities that may impact the marine environment are clearly of importance in any integrated management regime.⁷ In this regard, the measures available to protect MPAs from the impacts of shipping are important. As de Klemm⁸ observes:

the only way to ensure that ships do not release or dump pollutants, may be to impose restrictions on navigation in certain areas.

⁵ The CBD Ad Hoc Technical Expert Group on Marine and Coastal Protected Areas describes a “representative network” as:

A network of protected areas should be representative of the full range of biodiversity. A representative network will include protected areas incorporating all habitat types, with the amount of each habitat type being sufficient to cover the variability within it, and to provide duplicates (as a minimum), so as to maximise potential connectivity and minimise the risk of impact from large-scale effects.

⁶ Decision VII/5 of the Conference of the Parties to the CBD, para.26. See UNEP/CBD/COP/7/21, *Decisions adopted by the Conference of the Parties to the Convention on Biological Diversity at its seventh meeting*, 13 April 2002.

⁷ See F. Spadi, “Navigation in marine protected areas: National and international law,” *Ocean Development and International Law* 31 (2000), p. 285.

⁸ C. De Klemm, *Biological Diversity Conservation and the Law* (Gland, Switzerland: IUCN, 1993), p. 260.

It has therefore been argued that the CBD provides the framework for the creation of protected areas within which activities that may impact biodiversity, including shipping, should be regulated.⁹

1.1.1 Shipping and Marine Protected Areas

Historically, States have failed to regulate navigation for environmental purposes since there are often strong objections to the placing of prohibitions or restrictions on navigation, on the grounds that these run counter to the freedom of navigation enshrined in international law.¹⁰ The historical debate over the regulation of shipping for environmental purposes is characterised by two dichotomous points of view - those that wish to see the adoption of ever more stringent regulations for the protection of coastal States' marine resources, and those that view coastal States' environmental regulation as a threat to traditional rights of freedom of navigation and therefore wish to limit the regulation of navigation for environmental purposes.¹¹

The development, over the past 50 years, of international law relating to vessel source pollution specifically and the law of the sea generally, has sought to resolve this conflict by defining more precisely the jurisdictional rights and responsibilities of States.¹² Thus, the current international legal framework, codified in the LOSC, the International Convention for the Prevention of Pollution from Ships 1973 as modified by the Protocol

⁹ See K.N. Scott, "International regulation of undersea noise," *International Comparative Law Quarterly* 53 (2004), p. 291.

¹⁰ De Klemm, p. 260 (note 8 above).

¹¹ D. Bodansky, "Protecting the marine environment from vessel-source pollution: UNCLOS III and beyond," *Ecology Law Quarterly* 18 (1991), p. 720.

¹² *Ibid.*

of 1978 relating thereto (hereafter MARPOL 73/78)¹³ and the International Convention for the Protection of the Safety of Life at Sea (hereafter SOLAS),¹⁴ provides for varying levels of protection to coastal States depending on the maritime zones within which the protective measures are applied.

Notwithstanding these legally determined boundaries, some marine ecosystems, such as the Great Barrier Reef and the Florida Keys reef tract, may straddle a variety of jurisdictional zones, from internal waters through the territorial sea and to the exclusive economic zone (EEZ).¹⁵ Differences in jurisdiction and enforcement capabilities may lead to difficulties in establishing coherent and effective management regimes for such areas. It is widely accepted that the United Nations' International Maritime Organization (IMO) is the competent international organisation to regulate all aspects of shipping.¹⁶ As such, the interplay of the IMO and the LOSC is of primary importance in the international regulation of shipping. However, it must also be appreciated that in

¹³ *International Convention for the Prevention of Pollution from Ships 1973 as modified by the Protocol of 1978 relating thereto*, 1 June 1978. In force 2 October 1983. 1340 *U.N.T.S* 61 (hereafter MARPOL 73/78).

¹⁴ *The International Convention for the Safety of Life at Sea*, 1 November 1974. In force 25 May 1980. 1184 *U.N.T.S* 2 (hereafter SOLAS).

¹⁵ G. French, "Legal mechanisms for protection and preservation of the marine environment: Their relationship to particularly sensitive areas," in *Proceedings of the International Seminar on Protection of Sensitive Sea Areas* (Malmo, Sweden: International Maritime Organization, 1990), p. 374.

¹⁶ See for example: P. Birnie, "The status of environmental 'soft law': Trends and examples with special focus on IMO norms," in H. Ringbom (ed), *Competing Norms in the Law of Marine Environmental Protection* (London/The Hague/Boston: Kluwer Law International, 1997), p. 35; A. Blanco-Bazán, "The environmental UNCLOS and the work of the IMO in the field of prevention of pollution from vessels," in A. Kirchner (ed) *International Marine Environmental Law: Institutions, Implementation and Innovations* (London/The Hague/Boston: Kluwer Law International, 2003), p. 34; LEG/MISC/3/Rev.1, *Implications of the United Nations Convention on the Law of the Sea for the International Maritime Organization*, IMO Secretariat, 6 January 2003, p. 3.

addition to the LOSC, a large number of binding and non-binding international instruments have implications for the IMO.¹⁷

Several developments provide clear evidence of the IMO's commitment to meeting obligations under both the LOSC and the CBD in a way that attempts to balance the rights and obligations of coastal, maritime and flag State Parties.¹⁸ The first measure that sits comfortably within the context of the MPA debate is the Special Area designation that is encompassed within the framework of MARPOL 73/78. The second arises from amendments to SOLAS, to provide the ability to regulate ships' routing for environmental protection purposes. However, among the measures that the IMO has adopted to manage the impacts of shipping on the marine environment, the particularly sensitive sea area (PSSA) concept stands out as a unique 'soft law'¹⁹ management tool that can be applied in an integrated manner, irrespective of maritime jurisdictional boundaries,²⁰ and is widely viewed by observers as a true MPA.

¹⁷ See Birnie generally (note 16 above).

¹⁸ For a general discussion on the application of development and application of IMO measures see generally E. J. Molenaar, *Coastal State Jurisdiction over Vessel-Source Pollution* (The Hague: Kluwer Law International, 1998).

¹⁹ For a discussion of the concept of 'soft law' in the context of the IMO, see Birnie, pp. 31-57 (note 16 above).

²⁰ S. Raaymakers, "Maritime transport & high seas governance: Regulation, risks and the IMO regime," in *Proceedings of the International Workshop on Governance of High Seas Biodiversity Conservation* (Cairns, 17-20 June 2003), p. 20.

1.1.1.1 Particularly Sensitive Sea Areas

A PSSA is defined as:

An area that needs special protection through action by IMO because of its significance for recognised ecological, socio-economic, or scientific attributes where such attributes may be vulnerable to damage by international shipping activities.²¹

To date, eleven PSSAs have been designated by the IMO (see Table 4.1 at p. 122 below). In its original form, the primary purpose of the PSSA concept was simply to assemble and analyse opportunities offered by certain IMO conventions to provide extra protection to already existing marine protected areas, especially those beyond the territorial sea.²² However, as a result of public pressure and the increasing focus on the conservation of marine biodiversity, the IMO is under increasing pressure from environmental non-governmental organisations (NGOs) and environmentally focused coastal States to adopt ever increasingly stringent measures to protect the marine environment.²³ In this regard the PSSA concept has assumed an important status as a protective measure in its own right, for providing protection to MPAs and other environmentally sensitive marine areas from the impacts of shipping.²⁴ As a result,

²¹ IMO Assembly Resolution A.982(24), *Revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas*. Adopted 1 December 2005. Para. 1.2.

²² K.M. Gjerde and D. Ong, "Protection of particularly sensitive sea areas under international environmental law: Report of the international meeting of legal experts on particularly sensitive sea areas," *Marine Pollution Bulletin* 26 (1993), p. 10.

²³ Evidence of such can be seen by the submissions made by certain environmental NGOs in support of proposals for PSSAs including the Western European water, Baltic Sea and Torres Strait. Furthermore, the NGOs have been supportive of revisions to the PSSA concept (note 21 above) that would allow for a broader range of protective measures to be adopted by the IMO. It seems only a matter of time before a high seas PSSA proposal is put before the IMO – largely due to increasing pressure for such from some NGOs. Observation by the author at sessions of the IMO Marine Environment Protection Committee.

²⁴ WWF Briefing Paper, *Particularly sensitive sea areas (PSSAs) and marine environmentally high risk areas (MEHRAS)*, September 2003; L. de La Fayette, "The Marine Environment Protection Committee:

Footnote continued on next page.

coastal States are increasingly seeking to apply the PSSA concept as a primary measure to regulate international shipping to such an extent that it has been suggested that the PSSA concept may be an effective alternative to an amendment to the LOSC.²⁵

It is argued that PSSA designation offers a number of benefits²⁶ including:

- (1) Providing a comprehensive management tool whereby the vulnerability of an area to damage from international shipping activities can be examined and a measure adopted by the IMO can be tailored to address the identified vulnerability;
- (2) Giving coastal States the opportunity to adopt additional protective measures to address the particular risks associated with international shipping in the area; and
- (3) Providing global recognition of the special significance of a designated area through identification of PSSA status on international charts, thereby informing mariners of the importance of taking extra care when navigating through a region.

Moreover, some observers argue that the most significant benefits of PSSA designation are realised by the fact that PSSA designation may provide for approval of exceptional

The conjunction of the law of the sea and international environmental law,” *International Journal of Marine and Coastal Law* 16 (2001), p. 186.

²⁵ According to Frank, this view was expressed during an European Union Coordination Meeting in preparation for a session of the IMO Marine Environment Protection Committee in 2003. See V. Frank, “Consequences of the Prestige sinking,” *International Journal of Marine and Coastal Law* 20 (2005), p. 30.

²⁶ See: MEPC 36/21/4, *Report of the third international meeting of legal experts on particularly sensitive sea areas*, submitted by the IMO Secretariat, 4 August 1994, paras. 10-17; K. M. Gjerde and J. S. H. Pullen, “Cuba’s Sabana-Camagüey Archipelago: The second internationally recognised particularly sensitive sea area,” *International Journal of Marine and Coastal Law* 13 (1998), p. 249; and Anon, “Particularly sensitive sea areas: Using a comprehensive planning tool to protect habitats from shipping,” *MPA News* 3 (2002), p. 2.

measures, which, although justified by internationally recognised exceptional circumstance, cannot find a precise legal basis in existing international instruments.²⁷

1.2 PROBLEM DEFINITION

Despite the suggested benefits of PSSA designation, no research or ongoing monitoring has been undertaken to evaluate the extent to which these benefits have been realised. Numerous sensitive sea areas have been afforded protection by the application of other measures available to the IMO such as ships' routing measures.²⁸ This suggests that, while coastal States are identifying areas within their national jurisdiction that warrant additional protection, they are reluctant to apply the full measure of the PSSA concept, preferring instead simply to apply the appropriate protective measures that would be required for such a designation. This would suggest that many States do not perceive significant benefits from PSSA designation. Moreover, there appears to be almost an 'iconic status' associated with PSSA designation which has elevated its status above that which was originally envisaged.

Despite the potential benefits that may be realised by designation of an area as a PSSA, the application of the PSSA concept has been problematic, particularly during the last three years. Although a number of examples clearly demonstrate the utility of the

²⁷ K. M. Gjerde, "Protecting particularly sensitive sea areas from shipping: A review of IMO's new PSSA guidelines," in H. Thiel & 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*, BfN-Skripten 43 (Bonn: German Federal Agency for Nature Conservation, 2001), pp. 125-126; Gjerde and Pullen, p. 252 (note 26 above); See also: MEPC 36/21/4, para. 33 (note 26 above).

²⁸ For an overview of these measures see generally: J. Roberts, "Protecting sensitive marine environments: The role and application of ships' routing measures," *International Journal of Marine and Coastal Law* 20 (2005), pp. 97-121; G. Peet, "Particularly sensitive sea areas - an overview of relevant IMO documents," *International Journal of Marine and Coastal Law* 9 (1994), pp. 556-576.

concept as a management tool,²⁹ recent practice both within the IMO and by individual member States has undermined confidence in the PSSA concept, calling into question its effectiveness as a management tool.³⁰ Recent applications by some member States have had the effect of dividing the IMO community over the scope and application of the PSSA concept, resulting in protracted debates within many of the IMO committees and an overwhelming demand for a review of the basis for the designation of PSSAs.³¹ Moreover, some observers consider that the manner by which the IMO considers and decides upon applications for PSSA designation has aggravated this situation and have called for a review of the IMO approval process in its entirety.³² The designation of PSSAs to date has been piecemeal, lacking any overall strategic or policy framework and there is growing evidence that coastal States are applying the concept in a manner that was never envisaged during its development. Furthermore, during the last three years the PSSA concept has been seen by some States as an opportunity to support the introduction of increasingly stringent measures to regulate international shipping, many of which appear contrary to international law. As such, while many observers are calling for an increasing focus on the role of PSSAs, many States are becoming

²⁹ Examples of good practice may be observed with the application of the PSSA concept to the Great Barrier Reef (Australia), the Florida Keys (USA), the Paracas National Reserve (Peru) and the Galapagos Islands (Ecuador).

³⁰ See for example generally J. Roberts, T. Workman, M. Tsamenyi, L. Johnson, "The Western European PSSA: A 'politically sensitive sea area'," *Marine Policy* 29 (2005), pp. 431-440.

³¹ See for example MEPC 51/22, *Report of the Marine Environment Protection Committee on its fifty-first session*, 22 April 2004, paras. 8.4 - 8.10.

³² Examples of revisions to the process include the establishment of a full Working Group of the MEPC, and third party scientific review of every application and the establishment of a multidisciplinary review team following the model of the UNESCO World Heritage Site assessment teams. Evidence of these concerns can be seen in various reports of IMO Committees. See for example MEPC 51/22 para.8.41 (note 28 above); MEPC 52/24, *Report of the Marine Environment Protection Committee on its fifty-second session*, 18 October 2004, para.8.31.

increasingly alarmed at the application of the concept and the possible proliferation of PSSAs at a global level.³³

1.2.1 Research Questions

This thesis examines the development of the PSSA concept since its inception and in particular examines recent State practice with the concept. A number of critical issues that have been identified through State practice are identified and discussed and their impact on the future application of the PSSA concept analysed. In this regard the thesis will examine the extent to which the suggested benefits of the PSSA concept have been realised.

The central argument of the thesis is that, while the PSSA concept does have utility as a tool to enable States to give effect to obligations under the LOSC and CBD (as well as many of the outcomes from United Nations Conference on the Environment and Development and WSSD), many of the suggested benefits of PSSA designation are not being realised. Furthermore, problems with the application of the PSSA Guidelines by member States, coupled with the manner in which the IMO has addressed individual PSSA proposals and a lack of understanding of the legal principles involved in the designation of PSSAs, has had the effect of eroding confidence in the PSSA concept.

³³ Evidence of such can be seen in IMO paper LEG 87/16/1, *Designation of a Western European Particularly Sensitive Sea Area*, submitted by Liberia, Panama, the Russian Federation, BIMCO, ICS, INTERCARGO, INTERTANKO and IPTA, 15 September 2003.

Finally, in light of the issues identified with State practice and the concerns raised over the manner in which PSSAs are developing, the thesis will consider a number of ways to improve the utility and effectiveness of the concept in the future. The central theme of the investigation is that, on the whole, the current lack of confidence in the PSSA concept can be attributed both directly to the actions of certain member States, in their interpretation and implementation of the concept, and to the current mechanisms adopted by the IMO for reviewing and approving individual submissions for PSSA designations.

Five questions therefore focus the enquiry:

- (1) How do restrictions on navigation for environmental purposes interact with the principles of innocent passage and freedom of navigation?
- (2) What is the basis, in international environmental law, for the establishment of PSSAs and what constitutes an appropriate associated protective measure?
- (3) What benefits are derived from PSSA designation in addition to the protection provided by the application of existing IMO measures for the protection of the marine environment from the impacts of international shipping?
- (4) To what extent has State practice in designating PSSAs been responsible for the current lack of confidence in this measure? and
- (5) What steps, if any, can the IMO take to restore confidence in the integrity of this measure?

1.3 CONTRIBUTION OF THIS THESIS

This thesis addresses several inter-related issues that have been highlighted by analysis of State practice and the literature. The research provides an empirical study of State and IMO practice with respect to both PSSAs and alternative measures to regulate ships for the purpose of environmental protection. Four case studies underpin the empirical analysis. They are the proposals put forward for designation of the following areas as PSSAs: Florida Keys; Western European Waters of the Atlantic; Torres Strait; and the Baltic Sea. The case studies reflect the range of proposals that have been considered by the IMO and demonstrate the extent to which the current debate over the future scope and application of the PSSA concept may be attributed to IMO and State practice. In undertaking this analysis the research provides evidence of the value of the PSSA concept, but also demonstrates its limitations. In this regard the thesis presents a ‘reality check’ which seeks to rationalise some of the heightened expectations with the concept that are apparent in the current debate.

While some States have found considerable utility in the application of the PSSA concept more as a comprehensive assessment tool to review an area that needs special protection through it, other States may seek to designate PSSAs more for their ‘iconic status’ than for any tangible and demonstrable environmental benefits that may be achieved with the measure. Such an approach will contribute to the current lack of confidence in the measure and could conceivably result in a complete and irrevocable loss of confidence in the measure by the shipping community. On the basis of the empirical analysis and the comparison with alternative protection strategies, the thesis therefore draws conclusions regarding the value of the PSSA concept and its most effective use for the future.

Additionally, this thesis clarifies a number of issues that have been highlighted by the review of State practice. As an important step, an analysis is presented of the precise legal basis for the PSSA concept and consideration given to the extent to which the recent review of the PSSA Guidelines, completed in 2005,³⁴ addresses the identified issues. Drawing upon the empirical analyses of State and IMO practice, this thesis argues that a lack of clarity exists as a result of the current IMO process for reviewing PSSAs. As such, an alternative model for the identification and evaluation of PSSAs is suggested. The model draws upon contemporary legal measures for the identification, evaluation and designation of sensitive marine areas that warrant legal protection for their environmental values. One model in particular that may provide a useful comparison is the United Nations Educational, Scientific and Cultural Organisation (UNESCO) method for considering and approving World Heritage Sites. As such, this thesis compares and contrasts the designation process for PSSAs with those for World Heritage Sites.

Finally, in the absence of any form of strategic framework for the PSSA concept, this thesis presents a spatial analysis, using a computer-based Geographic Information System, as a method of identifying areas that may warrant further evaluation for the establishment of PSSAs or other IMO measures. The analysis identifies areas at a global level based on their environmental sensitivity and likely exposure to shipping activities. It does not however assess the extent to which these areas are vulnerable to the impacts of shipping and therefore does not provide any recommendations as to priorities for designation.

³⁴ Note 21 above. The review was initiated as a response to concerns over the application of the PSSA concept. This issue is discussed in detail in Chapters 6 and 7 below.

Among the community of scholars, policy makers and NGOs, many are likely to find the thesis of interest. IMO member States and observers are an obvious audience, the spatial analysis and case study analysis being of particularly relevance in informing member States of conservation priorities within their regions.

Analysts of oceans governance will find the work of relevance because of its consideration of the application of IMO measures across different jurisdictional boundaries. Staff and researchers within the IMO itself will also be interested in the study because of its application to the identification and consideration of areas as candidate PSSAs in the future.

1.3.1 Contribution to the Literature

During the preparation of this thesis, three peer reviewed journal articles, on the subject of PSSAs, have been published by the author. These papers are included in the thesis' bibliography and make a significant contribution to the existing literature on the subject of PSSAs.

1.4 STUDY METHODS

This research project is primarily a study of IMO and State practice in the identification and designation of PSSAs and other IMO measures for the protection of the marine environment. Four case studies underpin the thesis throughout. One of the strengths of case studies is their flexibility in allowing the analyst to draw upon a range of documentary material coupled with interviews and observations. Thus, material used to inform the research originates from several sources:

- A review of existing literature including official documents, published articles, books and reports;
- Informal discussions and meetings with researchers and practitioners in the field, key representatives of NGOs and key officers from relevant United Nations (UN) agencies;
- Observation and participation at meetings of the IMO Marine Environment Protection Committee; and
- A questionnaire survey aimed at establishing perceptions of professional mariners of the PSSA concept.

1.4.1 Existing Literature

While there is a large body of literature available on the general subject of the LOSC and regulation of shipping, the published literature relating specifically to PSSAs is not extensive. The primary sources of information for the thesis are contained in the official documents and legal instruments of the IMO. Supplementing these documents are the published works of researchers in the disciplines of international maritime law and oceans governance.

A large number of official documents and reports in relation to particular UN bodies and Convention Secretariats are also available on the worldwide web and from the relevant organisations themselves.

1.4.2 Research Visits

In the United Kingdom, research meetings were held with staff from the Worldwide Fund for Nature (WWF), the United Nations Environment Programme - World

Conservation Monitoring Centre (UNEP-WCMC), researchers from the Southampton Institute and relevant staff within the IMO Secretariat.

In the United States of America (USA), research meetings were held with staff from the National Oceanic and Atmospheric Administration (NOAA). In New Zealand, staff from Maritime New Zealand (MNZ) provided additional information specifically on the deliberations of the IMO Legal Committee and Maritime Safety Committee (MSC) as they relate to the subject of this thesis.

1.4.2.1 IMO Meetings

The following key meetings were attended by the author during the course of this research: the 48th, 49th, 51st, 52nd and 53rd Sessions of the IMO Marine Environmental Protection Committee (MEPC) and the 49th Session of the IMO Subcommittee on Safety of Navigation (NAV). Attendance at the meetings included participating in the Intercessional Correspondence Group tasked with reviewing the PSSA Guidelines (MEPC 52-53), participating in the informal Technical Groups reviewing several PSSA applications (MEPC 49 & 51); and presenting New Zealand's submission for a mandatory area to be avoided (NAV 49).

1.4.3 Other Research Methods

Extensive use was also made of electronic mail as a means to communicate with a range of researchers and organisations and to follow up research interviews for the purposes of clarification. A discrete aspect of the research involved undertaking a geospatial analysis. For the purposes of this analysis ESRI's ArcView 8.3 software was used to manipulate and analyse the data. Data was made available by a number of agencies, but

with the exception of IMO routeing measures data, all of this data was freely available for download using the worldwide web.

1.5 STRUCTURE OF THE THESIS

Chapter 2 provides an overview of the development of the international legal regime for the protection of the marine environment. In doing so, it introduces the concept of marine protected areas as a tool to protect vulnerable marine habitats and species from the destructive impacts associated with *inter alia* international shipping. Chapter 3 provides an overview of the legal regime governing the international regulation of shipping for environmental protection purposes. Having provided a brief overview of the historical development of the IMO, including the development and application of a number of relevant international agreements adopted by the IMO, this chapter discusses the rights and duties of flag and coastal States in international law. Chapters 2 and 3 thus set the context for the subsequent discussion and provide the reader with a broad understanding of the complex legal regime to which can be attributed much of the current debate.

Chapter 4 provides an analysis of the PSSA concept, including a brief historical overview of its development. Specific attention is given to the legal basis of PSSA designation in the context of the LOSC, and also the relationship between the PSSA concept and the CBD, as well as its relationship to the broader MPA concept and a number of international agreements that relate to biodiversity protection. Chapter 5 then provides an overview of the requirements for submitting a proposal for the identification of a PSSA to the IMO, and considers how the IMO undertakes its evaluation of such proposals in order to make a final determination on designation. In doing so, this chapter reviews the different elements of a PSSA proposal and, in particular, the range

of measures available for the protection of a PSSA. Consideration is also given to the range of IMO measures available to address environmental concerns, particularly the application of ships' routing measures for the protection of the marine environment.

Chapter 6 examines State practice with respect to the implementation of PSSA and in particular presents four case studies which underpin the analysis presented in Chapters 6 and 7. On the basis of these case studies, Chapter 6 also analyses the extent to which the suggested benefits of PSSA status are being realised. In doing so, the analysis also highlights a number of key issues that have become particularly apparent with the recent experience of a number of controversial PSSA proposals. On this basis, Chapter 7 provides an analysis of the potential measures that have been, or could be, taken to address these issues, to ensure the integrity of the PSSA concept is maintained. In doing so, this chapter provides an overview of the outcome of a recent revision of the PSSA Guidelines, and considers other specific measures that should be taken to support this revision. One of the key recommendations of Chapter 7 is that the IMO initiate the development of a "strategic framework" within which to develop the PSSA concept further. Chapter 8 therefore provides an overview of a suggested strategic approach to the future identification of candidate sites for PSSA designation.

In conclusion, Chapter 9 provides a summary of the findings of this research and considers the extent to which the PSSA concept may contribute to the global aims of marine biodiversity conservation, specifically in the context of the impacts of international shipping activities. In particular, it makes a number of recommendations for the future development of the PSSA concept, in order to enhance its status and to legitimise it as a recognised international marine biodiversity conservation instrument.

CHAPTER 2

INTERNATIONAL LEGAL FRAMEWORK FOR THE PROTECTION OF THE MARINE ENVIRONMENT

2.1 INTRODUCTION

Concern for the environment is not a new phenomenon.¹ Indeed, references to the need to protect the environment from pollution may be traced back to Roman times.² However, until a few decades ago, environmental policy formation and implementation were primarily local or national matters. While traditional customary law included certain rules which could provide a solution to many problems associated with the marine environment, it was recognised several decades ago that there existed no general rules for the protection of the marine environment and that customary law was considered inadequate for such protection of the marine environment.³ In response to this perceived need, customary law on marine pollution has developed in recent years through a range of declarations, resolutions and international conventions.⁴

This chapter therefore provides an overview of the development of the international legal regime for the protection of the marine environment. While historically measures adopted for the protection of the marine environment have largely focussed on

¹ See for example A.C. Kiss and D. Shelton, *International Environmental Law* (New York: Transnational Publishers Inc, 1991), pp. 162-163, who provide a concise history of the evolution of pollution problems from as far back as 1919, when concerns arose about discharges of oil from ships in harbour; Also on this subject see A.D. McIntyre, "Control of pollution of the sea," *Marine Policy* 17 (1995), pp. 394-398; Birnie observes that attempts at international control of marine pollution commenced as early as 1926 in a proposal to limit oil pollution in the sea by a convention (which failed to be ratified): P. Birnie, "Law of the sea and ocean resources: Implications for marine scientific research," *International Journal of Marine and Coastal Law* 10 (1995), p. 232.

² M. Gavouneli, *Pollution from Offshore Installations* (London: Graham & Trotman, 1995), pp. 3-4.

³ G. Timagenis, *International Control of Marine Pollution* (New York: Oceana Publications, 1980), p. 3.

⁴ *Ibid*, pp. 9-14.

pollution, more recently it has become widely recognised that measures to protect the marine environment must address the full range of anthropogenic impacts causing deterioration of the marine environment.⁵ Therefore, this chapter focuses not only on marine pollution, but also on broader issues relating to the protection of habitats and marine biodiversity. In doing so, it provides a more holistic view of the international legal regime that has evolved to address the protection of the marine environment.

Part I of this chapter focuses on the development of international principles and legal measures which are aimed at the protection of the marine environment from pollution and other damage. Both ‘soft law’⁶ and conventional law instruments are addressed. In particular, this section discusses the development and coming into force of the LOSC and the impact that both this, and the large number of soft law instruments established by the international community, have had on the evolution of international environmental law concerned with the protection of the marine environment.

Part II addresses the protection of habitats and biodiversity more generally. While the focus of the section is on the conservation of marine resources, it does not address resource utilisation in any way. Instead, it introduces the concept of marine protected areas as a tool to protect vulnerable marine habitats and species from the destructive

⁵ A comprehensive assessment of the state of the marine environment was undertaken by UN Group of Experts on the Scientific Aspects of Marine Environment Protection (GESAMP) in 2001. The assessment concluded that the following issues were of most significance to the health of the oceans: destruction and alteration of habitats; the effect of fishing; effects of sewage and chemicals on human health and the environment; increasing eutrophication; and changes to hydrology and the flow of sediments. See GESAMP, *A Sea of Troubles*, GESAMP Reports and Studies No. 70 (The Hague: UNEP, 2001), p. 35; See also The Report of the Independent World Commission on the Oceans, *The Ocean ... Our Future* (Cambridge, U.K: Cambridge University Press, 1998), p. 248.

⁶ For a discussion on the meaning of ‘soft law’ see for example P. Birnie, “The status of environmental ‘soft law’: Trends and examples with special focus on IMO norms,” 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. 37-42.

impacts associated with *inter alia* international shipping. Particular attention is given to the significance of the CBD in the context of the marine environment, as well as a number of international agreements that have been adopted to specifically address the protection of vulnerable marine habitats.

PART I: PROTECTION OF THE MARINE ENVIRONMENT

2.2 INTERNATIONAL INSTRUMENTS

Traditional customary law includes a number of principles and obligations which can provide the basis for addressing environmental problems with the marine environment.⁷ However, at an early stage, it was widely recognised that customary law was inadequate to meet the increasingly obvious problems of the marine environment⁸ and the need for international cooperation and legislation was emphasised.⁹ A number of international conventions, resolutions and declarations have been adopted in the past 30 years, in connection with the protection of the marine environment from pollution. Thus, customary law on marine pollution has developed in recent years through international conventions, resolutions and declarations which give effect to these general principles. These are discussed below in chronological order.

⁷ These principles include the principle that no State has the right to use or permit the use of its territory in such a manner as to cause damage to the territory of another State, best described by the Latin maxim *sic utere tuo ut alienum non laedas*; the principle of good neighbourliness; the principle of abuse of rights; and the concept of custodianship. For an overview of these and other principles of customary law see for example J.B. McLoughlin and E.G. Bellinger, *Environmental Pollution Control: An Introduction to Principles and Practice of Administration* (London: Graham and Trotman Ltd, 1993), p. 163; E. J. Molenaar, *Coastal State Jurisdiction over Vessel-Source Pollution* (The Hague: Kluwer Law International, 1998), p. 42; P. Birnie and A.E. Boyle, *International Law and The Environment* (Oxford: Clarendon Press, 1992), p. 94; Gavounelli, p. 83 (note 2 above).

⁸ See for example A.E. Boyle, "Marine pollution under the Law of the Sea Convention," *American Journal of International Law* 79 (1995), p. 348; R. M'Gonigle and M. Zacher, *Pollution, Politics, and International Law: Tankers at Sea* (Los Angeles: University of California Press, 1979), pp. 81-142.

⁹ Timagenis, p. 26 (note 3 above).

2.2.1 1958 Geneva Conventions

The United Nations convened the Geneva Conference on the Law of the Sea in 1958. Little attention was given to the protection of the marine environment at the Conference, and the conventions¹⁰ that the Conference delivered had little to say on the subject.¹¹ Notwithstanding this observation, two of the United Nations Conventions on the Law of the Sea did contain prohibitions relating to the pollution of the marine environment by oil.¹² Although the provisions of the 1958 conventions are general, they established several important precedents on principles now basic to international environmental law. First, there was a goal of universality reflected in the preamble to the Convention on the High Seas.¹³ There were also numerous references to existing treaty provisions and organisations, emphasising that States must comply with internationally developed standards and cooperate with competent international organisations in implementing

¹⁰ The Conference led to the codification of four treaties that dealt with some areas of the law of the sea, namely: the *Convention on the High Seas*, 29 April 1958. In force 30 September 1962. 450 *U.N.T.S* 11; the *Convention on the Continental Shelf*, 29 April 1958. In force 10 June 1964. 499 *U.N.T.S* 311; the *Convention on the Territorial Sea and Contiguous Zone*, 29 April 1958. In force 10 September 1964. 516 *U.N.T.S* 205; and, the *Convention on the Fishing and Conservation of the Living Resources of the High Seas*, 29 April 1958. In force 20 March 1966. 559 *U.N.T.S* 285. Gold argues that, while this latter convention did not involve a direct implication for shipping, the convention did, for the first time, indicate the international community's interest in the protection and utilisation of marine resources. As a result, shipping as an ocean use, and resource development and the conservation of marine resources were soon viewed as competing uses. See E. Gold, *Gard Handbook on Marine Pollution* (Arendal, Norway: Assuranceforeningen Gard, 1997), p. 56.

¹¹ Boyle, p. 79 (note 8 above).

¹² See Article 24 of the High Seas Convention which required States to draw up regulations to prevent oil pollution ships or pipelines, and Article 24 of the Convention on the Territorial Sea and Contiguous Zone which provided coastal States with the right to exercise control to prevent, *inter alia*, the infringement of its sanitary regulations within its territorial sea.

¹³ Note 10 above. The Preamble to the Convention on the High Seas states that:

The States Parties to this Convention,

Desiring to codify the rules of international law relating to the high seas,

Recognising that the United Nations Conference on the Law of the Sea, held at Geneva from 24 February to 27 April 1958, adopted the following provisions as generally declaratory of established principles of international law...

such standards.¹⁴ However, while reference was clearly made to the regulation of pollution, the 1958 conventions did not impose duties on States to adhere to that convention or regulate pollution at sea but merely empowered them to do so. Article 24 of the 1958 Convention on the High Seas,¹⁵ while requiring States to regulate oil pollution from ships, did not specify the content of those regulations beyond requiring that existing treaty provisions should be taken into account. This left a large measure of discretion available to those individual States.¹⁶ The High Seas Convention assured every State freedom of navigation and the right to extend its nationality to ships registered under its laws. In contrast, the Convention on the Territorial Sea and Contiguous Zone¹⁷ (TSCZ) conferred upon coastal States very limited powers to regulate activities within their territorial waters and “a zone of the high seas contiguous with its territorial sea”. While coastal State sovereignty over the territorial sea was expressly recognised under the Convention,¹⁸ coastal States could not hamper the right of innocent passage of ships travelling through the territorial sea,¹⁹ provided they were in compliance with the laws and regulations enacted by the coastal State, in conformity with the TSCZ Convention and other rules of international law.²⁰

¹⁴ Kiss & Shelton, p. 163 (note 1 above).

¹⁵ Note 10 above.

¹⁶ Boyle (note 8 above), at p. 4 observes:

States enjoyed a substantial measure of freedom to pollute oceans and the existing law did not provide for the full range of forms and sources of marine pollution.

¹⁷ Note 10 above.

¹⁸ TSCZ, Article 1(1) (note 10 above).

¹⁹ *Ibid*, Article 15.

²⁰ *Ibid*, Article 17.

However, the Geneva conventions did achieve the following:²¹

- (1) Confirmed the absolute freedom of every State to exploit and use the high seas in accordance with customary international law;
- (2) Subject to the obligation to protect living resources from harmful agents, left the matter of pollution prevention to the discretion of the coastal State; and
- (3) Confirmed the flag State's supremacy over the control of ship-source pollution, while limiting the coastal State's powers to protect itself from pollution of its territorial sea by oil discharged from foreign vessels.²²

By the time the Geneva regime was concluded, the IMO was established. It was therefore to the IMO that the Geneva system looked to develop the applicable rules and standards regarding the prevention of ship-source pollution.²³

2.2.2 United Nations Conference on the Human Environment

The conceptual cornerstone of modern international environmental law was laid in 1972 with the convening of the United Nations Conference on the Human Environment (UNCHE).²⁴ UNCHE sought to reconcile two strongly contested positions:

²¹ *Ibid.*

²² It was the Geneva regime that gave rise to the concept of Flags of Convenience. The major maritime States sought to ensure the freedom of navigation for both merchant and naval fleets and as such resisted any attempts by coastal States to achieve concessions beyond what was already possessed in respect of the territorial sea. As such, the combined Geneva and IMO regimes entrenched the freedom of the seas. See D.M. Dzidzornu and B.M. Tsamenyi, "Enhancing international control of vessel-source oil pollution under the Law of the Sea Convention, 1982: A reassessment," *University of Tasmania Law Review* 19 (1991), p. 272.

²³ *Ibid.*, p. 275.

- (1) The need for development espoused principally by developing countries; and
- (2) An argument supportive of environmental protection advanced largely by industrialised countries and NGOs.

The concepts formulated through UNCHE laid the basis for many subsequent gatherings.²⁵ As Caldwell²⁶ writes:

The Stockholm Conference was a watershed in international relations. It legitimised environmental policy as a universal concern among nations, and so created a place for environmental issues on many national agendas where they had been previously unrecognised...

The growth of international environmental co-operation during the 1970s and thereafter is an aspect of a larger social transition. It is an expression of a changing view of mankind's relationship to the earth.

Following its deliberations, the conference adopted the following texts; the Stockholm Declaration on the Human Environment²⁷ enunciating 26 principles; an Action Plan with 109 recommendations;²⁸ and a resolution on institutional and financial change.²⁹

²⁴ The Conference was convened pursuant to UN General Assembly Resolutions A/RES/2398 (XXIII), 3/12/1968 and A/RES/2581 (XXIV) 15/12/1969.

²⁵ M.S. El-Sabha, S. Demersa and D. Lafontaine, "Coastal management and sustainable development: From Stockholm to Rimouski," *Ocean & Coastal Management* 39 (1998), p. 4.

²⁶ L.K. Caldwell, *International Environmental Policy: Emergence and Dimensions* (Durham: Duke University Press, 1990), p. 21.

²⁷ *Declaration of the United Nations Conference on the Human Environment* (Stockholm Declaration), 16 June 1972, 11 *I.L.M.* 1416 (1972). For a comprehensive overview of the outcomes of the conference and a detailed analysis of the Declaration see L.B. Sohn, "The Stockholm Declaration," *Harvard International Law Journal* 14 (1973), pp. 423-515.

²⁸ A/Conf.48/14/Rev.1, *Stockholm Action Plan for the Human Environment*, 1973.

²⁹ D. Momtaz, "The United Nations and the protection of the environment: From Stockholm to Rio de Janeiro," *Political Geography* 15 (1996), p. 265. The resolutions on institutional and financial arrangements led to the establishment by the UN General Assembly of the United Nations Environment Programme (UNEP).

The Stockholm Declaration is not in treaty form, rather it is a non-binding instrument. It is composed of a preamble and 26 principles which cover all aspects of environmental deterioration. A number of these principles and recommendations are directly relevant to, or specifically address, the subject of marine environment protection.³⁰ Indeed, action to protect the marine environment was one of the priorities defined by the Conference.³¹

While the general obligation to protect the marine environment has appeared in a number of international declarations and resolutions, in terms of marine pollution, Timagenis³² argues that the Stockholm Declaration represented the declaration of the greatest significance at that time. The Declaration contained principles which referred to the need to protect the Earth's capacity to produce renewable resources, the need to avoid damage to natural ecosystems, and the necessity to avoid pollution of the seas by substances which could endanger human health, harm living resources and interfere with legitimate users of the sea. Furthermore, Principle I of the Declaration refers to the "solemn responsibility to protect and improve the environment".

Following this general provision, Principle 7 of the Declaration specifically addresses marine pollution declaring that:

³⁰ L. Juda, *International Law and Ocean Use Management* (London/New York: Routledge, 1996), p. 186.

³¹ The Stockholm Conference called upon States to endorse collectively the following statement:

The marine environment and all the living organisms which it supports are of vital importance to humanity, and all people who have an interest in assuring that this environment is so managed that its quality and resources are not impaired. This applies especially to coastal nations, which have a particular interest in management of coastal resources. The capacity of the sea to assimilate wastes and render them harmless and its ability to regenerate natural resources are not unlimited. Proper management is required and measures to prevent and control marine pollution must be regarded as an essential element in this management of the oceans and seas and their natural resources.

³² Timagenis, p. 26 (note 3 above).

States shall take all possible steps to prevent pollution of the seas by substances that are liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea.

This principle has arguably had a considerable influence on subsequent treaties which have used it as their directional umbrella.³³

However, perhaps most specific was the inclusion of Principle 21, which recognises “the sovereign right of States to exploit their own resources pursuant to their own environmental policies”. It also asserts the correlative responsibility of States “to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States, or of areas beyond the limits of national jurisdiction”.

States are therefore obliged not to pollute ocean space beyond the limits of their sovereign jurisdiction.³⁴ As such, this principle went beyond that which would limit damage to the territory of other States and included areas, such as the high seas, which were beyond the jurisdiction of any State, if the damage resulted from activities that occurred beyond a State’s territorial jurisdiction, but which remain within its control.³⁵ Principle 21 remained a highly influential statement in the post-Stockholm development of law and practice in environmental matters, notably in United Nations resolutions, in United Nations Environment Programme (UNEP) principles and in a range of multilateral treaties. The Action Plan similarly accords great importance to the protection of the marine environment, devoting its recommendations 86-94 to this

³³ Gold, p. 60 (note 10 above).

³⁴ C.C. Joyner, “The international ocean regime at the new millennium: A survey of the contemporary legal order,” *Ocean and Coastal Management* 43 (2000), p. 189.

³⁵ Juda, p. 186 (note 30 above).

matter.³⁶ While not legally binding, the principles and recommendations adopted at Stockholm reflected changing sentiments and contribute to the process of crystallisation of soft law, which would lead to a later codification as binding international law recognising identifiable rights and obligations.³⁷

2.2.3 United Nations Convention on the Law of the Sea

The LOSC opened for signature at Montego Bay, Jamaica in December 1982, and entered into force on 16th November 1994.³⁸ The LOSC included strong declarations on the protection of the marine environment. Many of the outcomes of UNCHE³⁹ were placed before the Law of the Sea Conference, assuring that it would focus on environmental issues and, as a consequence, the LOSC would stand as one of the most

³⁶ Momtaz, p. 265 (note 29 above). Recommendations 70-85 address pollution generally while Recommendations 86-94 address marine pollution specifically. In particular, Recommendation 86 urges States *inter alia* to:

Accept and implement available instruments on the control of the maritime sources of marine pollution;

Ensure that the provisions of such instruments are complied with by ships flying their flags and by ships operating in areas under their jurisdiction and that adequate provisions are made for reviewing the effectiveness of, and revising existing and proposed international measures for control of marine pollution.

³⁷ For example, pursuant to the recommendations of the Conference, an Intergovernmental Conference was convened in London which adopted the *Convention on the Prevention of Marine Pollution by Dumping of Waste and Other Matter*, 29 December 1972. In force 30 August 1975. 11 *I.L.M* 1294 (1972) (hereafter London Convention). Similarly, the recommendations of the Conference had a profound influence on the subsequent development, by the IMO, of the *International Convention on the Prevention of Pollution from Ships*, 2 November 1973. 1340 *U.N.T.S* 61.

³⁸ As of 20 September 2005, 149 States are Party to the Convention. See http://www.un.org/Depts/los/reference_files/chronological_lists_of_ratifications.htm.

³⁹ At the same time that UNCHE was convened, the United Nations was also considering the reports of its Committee on Peaceful Uses of the Seabed and Ocean Floor which led it to convene the Third United Nations Conference on the Law of the Sea, which was required to adopt a single convention on almost every aspect of the law of the sea. See the Declaration of Principles – General Assembly Resolution 2749 (XXV). For a general discussion on this development see P. Birnie, “The law of the sea and the United Nations Conference on Environment and Development,” in E. M. Borgese, N. Ginsburg and J. R. Morgan (eds) *Ocean Yearbook* 10 (Chicago: The University of Chicago Press), p. 17.

important international agreements on the subject of marine environmental protection.⁴⁰

The basic objective of the Convention is to establish:

Legal order for the seas and oceans which will facilitate international communication, and will promote the peaceful uses of the seas and oceans, the equitable and efficient utilisation of their resources, the conservation of their living resources, and the study, protection and preservation of the marine environment.⁴¹

The LOSC comprehensively and successfully codifies what can now be regarded as a rule of customary international law,⁴² requiring States to protect the marine environment from all sources of pollution, including dumping, land-based sources and atmospheric pollution.⁴³ Its provisions on the protection and preservation of the marine environment established an overall framework of governing principles and general obligations for the future protection and governance of the world's oceans.⁴⁴ As such, it is considered by

⁴⁰ J.I. Charney, "The marine environment and the 1982 United Nations Conference on the Law of the Sea," *International Lawyer* 28 (1994), p. 884.

⁴¹ See the Preamble to the LOSC.

⁴² The Convention comprises 320 Articles and nine Annexes, governing all aspects of ocean space from delimitations to environmental control, scientific research, economic and commercial activities, technology and the settlement of disputes relating to ocean matters. It represents not only the codification of customary norms, but also the progressive development of international law.

⁴³ Boyle, pp. 25-26 (note 8 above).

⁴⁴ Numerous authors have written on the subject of the LOSC and its provisions relating to environmental protection. See for example: R.R. Churchill and A. V. Lowe, *The Law of the Sea*, 3rd Edition (Manchester, UK: Manchester University Press, 1999); Birnie & Boyle (note 7 above); M.L. McConnell and E. Gold, "The modern law of the sea: Framework for the protection and preservation of the marine environment?" *Case Western Reserve Journal of International Law* 23 (1991), pp. 83-105; D. Bodansky "Protecting the marine environment from vessel-source pollution: UNCLOS III and beyond," *Ecology Law Quarterly* 18 (1991), pp. 719-777. A comprehensive 6 volume analysis of the convention is also provided by M. Nordquist (ed), *United Nations Convention on the Law of the Sea 1982: A Commentary* (Dordrecht/Boston/London: Martinus Nijhoff Publishers, 1985-1995).

many to contain the most comprehensive and progressive international environmental law of any modern international agreement.⁴⁵

At a broad level the LOSC fixes international obligations for States to protect the marine environment in three main ways:⁴⁶

- (1) Governments are explicitly obligated to protect and preserve the marine environment. Governments have the duty not to pollute the marine environment and must not condone the actions of nationals that do;
- (2) Governments are obligated to cooperate on both a global and regional basis. This involves a fundamental commitment to make rules, regulations and standards that underpin the obligation to protect and preserve the marine environment; and
- (3) Governments are obligated to adopt, enact and enforce at the national level, internationally agreed-upon standards for protecting the marine environment.

The obligation to protect and preserve the marine environment must be undertaken in a way that does not pose risks to other environments.⁴⁷ This holistic approach is most clearly articulated in Articles 195 and 196, which place obligations on States not to transfer, directly or indirectly, damage or hazards from one area to another, or transform one type of pollution to another, or introduce alien or new species into a particular part of the environment.

⁴⁵ See for example Charney, generally (note 40 above) who argues that the LOSC establishes the foundation for international environmental law of the sea.

⁴⁶ Joyner, p. 192 (note 34 above).

⁴⁷ Charney, p. 888 (note 40 above).

The negotiation of the LOSC has effected a number of fundamental changes in the international law of the sea.⁴⁸ Principal among these is the fact that pollution (and presumably other damage to the environment) can no longer be regarded as an implicit freedom of the seas. Rather, its control from a number of sources is now seen as a primary obligation on all States. A second change is the alteration in the balance of power between flag States and coastal States, with respect to the rights of the latter to regulate shipping for the purposes of protecting their coastal waters and the resources therein. Thirdly, emphasis is no longer placed on responsibility or liability for environmental damage but instead rests primarily on international regulation and co-operation for the protection of the marine environment.

2.2.3.1 General Provisions of the LOSC

While the LOSC addresses the environment in several different sections, the protection and preservation of the marine environment is primarily dealt with in Part XII.⁴⁹

Part XII is dedicated entirely to the protection and preservation of the marine environment, and is an area where changes were most fundamental and that clearly breaks new ground.⁵⁰ The provisions illustrate a movement towards regulation based

⁴⁸ Birnie & Boyle, p. 346 (note 7 above).

⁴⁹ Significant provisions are also found in the definition of terms used in the Convention (Article 1.1(4)) as well as in Articles on the exploitation of living resources in the EEZ (Articles 56, 61-73), on the high seas (Articles 116-120) and on exploitation of the resources of the deep sea-bed (Article 145). These provisions establish a comprehensive framework for the protection and preservation of the marine environment in the context of the global environment. See Charney, p. 885 (note 40 above).

⁵⁰ Part XII constitutes an extensive part of the LOSC comprising some 40 Articles (Articles 192-265) addressing the general obligation to protect the marine environment, the control of all sources of marine pollution, the requirement for international cooperation to prevent and minimise damage from marine pollution, technical assistance, the requirement for monitoring and environmental assessment of activities under the jurisdiction of States and the requirement for States to adopt laws and regulations governing pollution.

upon a more holistic concept of the ocean as a resource that is finite, and ocean usage as a resource management question.⁵¹ A major feature of Part XII is the attempt to harmonise the often opposing interests of those wishing to protect the marine environment and those placing special emphasis on the preservation of freedom of navigation.⁵² For the first time, Part XII elaborated a comprehensive international constitution on the protection and preservation of the marine environment.⁵³ Article 192 illustrates the comprehensive nature of this by placing a general, and unqualified, obligation on States to protect and preserve the marine environment. This is the first time such a strong and broad mandate has been included in a general international treaty.⁵⁴ Article 193, like Principle 21 of the Stockholm Declaration, confirms the sovereign right of States to exploit natural resources pursuant to their environmental policies, to the extent that this accords with their other obligations.⁵⁵ However, by according preservation of the environment priority over the sovereign right of States to

⁵¹ McConnell & Gold, p. 83 (note 44 above).

⁵² For an overview of the manner in which the convention attempts to address the tension between navigational freedoms and environmental protection see for example: Bodansky (note 44 above); B. H. Dubner, "On the interplay of international law of the sea and the prevention of maritime pollution: How far can a State proceed in protecting itself from conflicting norms in international law?" *Georgetown International Environmental Law Review* 11 (1998), pp. 137-150; L.S. Johnson, *Coastal State Regulation of International Shipping* (Dobbs Ferry, N.Y: Oceana Publications, 2004), pp. 35-133; B. Smith, "Innocent passage as a rule of decision: Navigation versus environmental protection," *Columbia Journal of Transnational Law* 21 (1982), pp. 49-102.

⁵³ McConnell & Gold (note 44 above) note that Part XII and associated provisions of the Convention are important in the general development of international law since they comprise the first attempt to develop a public international law framework in response to the deterioration of, and threats to, the marine environment.

⁵⁴ E. Franckx, "Regional marine environmental protection regimes in the context of UNCLOS," *International Journal of Marine and Coastal Law* 13 (1998), pp. 310-311.

⁵⁵ P. Birnie, "Law of the sea and ocean resources: Implications for marine scientific research," *International Journal of Marine and Coastal Law* 10 (1995), pp. 232-233.

exploit their natural resources, Article 192 is more strongly expressed than Principle 21.⁵⁶

The content of this obligation is elaborated upon further in Article 194, which reaffirms the obligation that States shall respect the environment of others and clarifies the scope of the regulated subject, i.e. pollution of the marine environment. Article 194 describes the measures States must take to reduce and control pollution of the marine environment. These include all measures⁵⁷ necessary to accomplish this objective using the “best practical means at their disposal”.⁵⁸ The duty to protect and preserve the marine environment includes the obligation that:

measures must include measures to protect and preserve rare or fragile ecosystems, as well as the habitats of depleted, threatened or endangered species and other forms of life.⁵⁹

Birnie and Boyle argue that the focus of the LOSC is:

no longer on the control of sources of marine pollution, but more broadly on the prevention of environmental degradation and the protection of ecosystems.⁶⁰

Certainly when the general obligation of Article 192 is read in the context of subsequent articles relating to marine pollution, it may be argued that an overall goal of the LOSC

⁵⁶ Birnie & Boyle, p. 350 (note 7 above).

⁵⁷ The measures to be taken embody both a duty to adopt the necessary laws and regulations and a duty to enforce these laws and regulations.

⁵⁸ LOSC Article 194(1).

⁵⁹ LOSC Article 194(5). While Part XII places a general obligation on States to protect and preserve the marine environment (Article 192) the measures set out in Part XII relate exclusively to the prevention, control and reduction of pollution. Therefore, it is widely viewed that Article 194 relates to damage that may be attributable to pollution, rather than being a more general provision dealing with all activities that may harm rare and fragile ecosystems (such a bottom trawling).

⁶⁰ Birnie & Boyle p. 347 (note 7 above).

was to minimise damage to the environment. However, the primary concern of Part XII does seem to be the prevention of pollution,⁶¹ given that Article 192 figures first among a series of provisions relating to marine pollution.⁶² In contrast, clauses relating to the preservation of biological resources are contained within the sections of the conventions regulating each of the established marine zones.⁶³ As such, Part XII may be described as ‘general’ for covering the marine environment in its entirety and ‘comprehensive’ for dealing with all sources of pollution.⁶⁴ The treatment of marine conservation and protection in the LOSC, as opposed to marine pollution, which is a separate issue, suggests that the law of marine pollution has now evolved as an independent body of law.⁶⁵ The general parameters of this evolution are set out in the Part XII rules. However, not all the provisions relating to marine pollution are found in Part XII. As such they must be read in conjunction with articles found elsewhere in the LOSC, which affect the Part XII regime.

The protection and preservation of living resources of the marine environment are also promoted by the LOSC. The definition of pollution includes “harm to living resources and marine life”. The LOSC is therefore considered to be a convention that provides the

⁶¹ McConnell & Gold, p. 89, confirm this view that the subject matter of Part XII is pollution of the marine environment (note 44 above).

⁶² Kiss & Shelton, p. 168 (note 1 above). The Convention addresses all major forms of marine pollution (Article 194(1)). It obliges States to use internationally agreed norms to control land-based sources of pollution, and to harmonise their policies on the regional level. It outlines limits on pollution arising from ships, although with more exceptions. Marine pollution from offshore oil and gas extraction is also addressed. In doing so, the Convention makes a substantial departure from its precursor by creating a general duty to regulate all sources of marine pollution rather than a mere empowerment to do so. See E. Duruigbo, “Reforming the international law and policy on marine oil pollution,” *Journal of Maritime Law and Commerce* 21 (2000), p.75.

⁶³ In this context, the recognised zones which address conservation and utilisation of biological resources are, the Territorial Sea, the EEZ and the High Seas.

⁶⁴ Molenaar, p. 51 (note 7 above).

⁶⁵ McConnell & Gold, p. 86 (note 44 above).

basic framework of the legal framework relating to the different forms of pollution. The umbrella function of the LOSC⁶⁶ is strengthened by Article 237 which guarantees the pre-eminence of the LOSC over all other specific obligations assumed by States, with respect to the protection and preservation of the marine environment, thereby clarifying the relationship between the obligations contained in Part XII and those assumed by parties under existing or future treaties of agreements.

2.2.4 United Nations Conference on Environment and Development

In June 1992, 118 heads of state met in Rio de Janeiro for the United Nations Conference on Environment and Development (UNCED)⁶⁷ also known as the “Earth Summit”. UNCED was another incremental step in the evolution of the body of international environmental law, while giving direction to future environmental law-making.⁶⁸ One of UNCED’s key objectives was a comprehensive programme to guide States in pursuing sustainable development.⁶⁹ The Rio Conference reaffirmed that “environmental protection shall constitute an integral part of the development process

⁶⁶ Franckx, p. 311 (note 54 above).

⁶⁷ *Ibid*, p. 218.

⁶⁸ Peter Sands even suggests that, in its significance, the Rio meeting is comparable to major multilateral peace conferences such as the 1919 Versailles Conference, given the significance placed on the “security of the planet” and the “risk to humans and other species”. P.H. Sands, “UNCED and the development of international environmental law,” in G. Handl (ed) 3 *Yearbook of International Environmental Law* (London: Graham & Trotman, 1992), p. 3; The importance of UNCED is also noted by Kimball who observes that:

What UNCED did was to take stock of progress in articulating and implementing agreed international environmental and development norms, and to address the conditions under which justice and respect of these norms can be maintained.

L.A. Kimball, “Toward global environmental management: The institutional setting,” in G. Handl (ed) 3 *Yearbook of International Environmental Law* (London: Graham & Trotman, 1992), pp. 19-20; See also Birnie & Boyle, Chapter 3 generally (note 7 above).

⁶⁹ Molenaar, p. 56 (note 7 above).

and cannot be considered in isolation from it”.⁷⁰ As such, UNCED made explicit the intricate linkages between human activities and environmental integrity⁷¹ that were first acknowledged at Stockholm 20 years earlier.⁷² It is for this that UNCED is most heralded as a success.

The major agreements reached at the Earth Summit include two binding instruments: the CBD, and the United Nations Framework Convention on Climate Change (UNFCCC),⁷³ as well as three non-binding instruments: the Rio Declaration on Environment and Development (hereafter Rio Declaration),⁷⁴ Agenda 21,⁷⁵ and the Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests. These various agreements articulate numerous soft law principles which have clearly influenced and guided law and policy reforms.⁷⁶ These include *inter alia* integration, the precautionary principle,⁷⁷ pollution prevention, the polluter pays principle,⁷⁸ public participation,

⁷⁰ Principle 4, Rio Declaration: *Rio de Janeiro Declaration on Environment and Development*, 14 June 1992, UN Doc. A/Conf.151/5/REV.1, 31 *I.L.M* 874 (1992).

⁷¹ This linkage is most clearly expressed in Principle 4, but also in Principles 2-7 of the Rio Declaration.

⁷² That the basis of the link was laid by the Stockholm Conference is recognised in the Preamble to the Rio Declaration.

⁷³ *United Nations Framework Convention on Climate Change*, 9 May 1992. In force 21 March 1994. 1771 *U.N.T.S* 107.

⁷⁴ See note 70 above. One of achievements of UNCED was the establishment of common, but differentiated, responsibilities. Rio Declaration, Principle 7. Also see L.A. Kimball, “UNCED and the oceans agenda: The process forward,” *Marine Policy* 17 (1993), p.492.

⁷⁵ *Agenda 21*, 14 June 1992, UN Doc. A/Conf.151/26 (1992).

⁷⁶ D. M. Johnston and D. L. VanderZwaag, “The ocean and international environmental law: Swimming, sinking and treading water at the millennium,” *Ocean and Coastal Management* 43 (2000), pp. 153-154.

⁷⁷ The precautionary principle has been adopted in numerous global and regional convention for the protection of the marine environment. Notable examples include: The *1996 Protocol* to the London Convention, 7 November 1996. Not yet in force. 36 *I.L.M* 1 (1997); The *Convention for the Protection of the Marine Environment of the North-East Atlantic* (hereafter OSPAR Convention), 22 September 1992. In force 25 March 1998. 32 *I.L.M* 1069 (1993); The *Convention on the Protection of the Marine*

Footnote continued on next page.

community-based management and women in development.⁷⁹ Furthermore, significantly, the Rio instruments confirm the status of Principle 21 of the Stockholm Declaration.⁸⁰

2.2.4.1 UNCED and the Oceans

The general principles embodied in the Rio Declaration and their practical elaboration through detailed provisions, specific recommendations and guidelines in Agenda 21 are directly relevant to the issue of marine environmental protection and marine pollution.⁸¹ Agenda 21 is an extensive document of 40 chapters. Among these is Chapter 17 “Protection of the oceans, all kinds of seas, including enclosed and semi-enclosed seas, and coastal areas and the protection, rational use and development of their living resources.”⁸²

Environment of the Baltic Area, 9 April 1992. In force 17 January 2000. 1507 *U.N.T.S* 167 (hereafter Helsinki Convention).

⁷⁸ The polluter pays principle is best exemplified in those international conventions that deal with compensation for damage arising as a result of oil pollution: The 1969 *International Convention on Civil Liability for Oil Pollution Damage* (1969 Civil Liability Convention) as amended by the *1992 Protocol*, 27 November 1992. In force 30 May 1996. 1956 *U.N.T.S* 255; and the 1971 *International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage* (1971 Fund Convention) as amended by the *1992 Protocol*, 27 November 1992. In force 30 May 1996. 1996 *U.K.T.S* 87. (See http://www.imo.org/InfoResource/mainframe.asp?topic_id=831).

⁷⁹ For a detailed analysis of the range of principles promoted by the Rio instruments see for example Birnie & Boyle, Chapter 3 (note 7 above).

⁸⁰ The principle is clearly articulated in Principle 2 of the Rio Declaration, the Preamble to the UNFCCC and Article 3 of the CBD.

⁸¹ The Rio Declaration is not limited to the marine environment. Its Principles cover a wide range of issues including the role of women, indigenous people, and armed conflict.

⁸² B. Cicin-Sain, “Earth Summit implementation: Progress since Rio,” *Marine Policy* 29 (1996), p. 126. Chapter 17 is the longest and one of the most complex chapters in Agenda 21, which reflects the complicated nature of international oceans governance and the importance of the protection of the marine environment.

Chapter 17 makes it clear throughout that the UNCED considered the LOSC to be the necessary foundation for the environmental law of the sea.⁸³ The introduction to Chapter 17 states:

International law, as reflected in the provisions of the United Nations Convention on the Law of the Sea referred to in this chapter of Agenda 21, sets forth rights and obligations on States and provides the international basis upon which to pursue the protection and sustainable development of the marine and coastal environment and its resources.

Thus the LOSC and UNCED processes, when taken together, provide a comprehensive international environmental law. Chapter 17 consists of seven specific programme areas,⁸⁴ each being broken into a basis for action, objectives, activities and means of implementation. Together, these programme areas set out modes of implementation of several parts of the LOSC.⁸⁵ However, notwithstanding the clear relationship between the LOSC and Agenda 21, Chapter 17 does introduce a number of new elements not seen in the LOSC, including the emphasis on integrated and precautionary approaches to protection of the marine environment. The focus has shifted from the principle objective of control of sources of marine pollution and is more broadly focussed on the prevention of environmental ‘degradation’ and the protection of ecosystems.⁸⁶

⁸³ Charney, p. 883 (note 40 above).

⁸⁴ The seven programme areas are set out in the introduction to Agenda 21 (paras. 17.1(a)–(g)) and include (a) integrated management and sustainable development of coastal areas; (b) marine environmental protection; (c) sustainable use and conservation of marine living resources of the high seas; (d) sustainable use and conservation of marine living resources under national jurisdiction; (e) addressing critical uncertainties for the management of the marine environment and climate change; (f) strengthening international, including regional cooperation and coordination; and (g) sustainable development of small islands.

⁸⁵ G. Kullenberg, “Approaches to addressing the problems of pollution of the marine environment: An overview,” *Ocean and Coastal Management* 42 (1999), p. 1000.

⁸⁶ See for example the reference at para. 17.19 of Agenda 21.

Of the seven specific program areas set out in Chapter 17, the programme area “Marine Environmental Protection” has the most direct relevance to environmental damage from international shipping.⁸⁷ It sets out a number of objectives that apply to both land-based and sea-based impacts on the marine environment and a separate set of management-related activities.⁸⁸ The basis for action for this programme area is a precautionary and anticipatory approach⁸⁹ which is to be realised through various objectives such as environmental impact assessment, an integrated approach to protection, the establishment of economic incentives to apply clean technologies, and the need to improve living standards of coastal populations in developing States. Management-related sea-based activities to prevent, reduce and control the degradation of the marine environment cover a wide range of specific focal points within this field, including the necessity to ratify and implement international instruments. Nollkaemper argues that the crux of Agenda 21’s provisions on sea-based pollution is the improvement, acceptance and implementation of existing rules rather than the development of new ones.⁹⁰ Nonetheless, Agenda 21 did identify several new issues which are of relevance in the context of this thesis, namely:

⁸⁷ This work programme has a number of specific references to the degradation of the marine environment arising from shipping. See Agenda 21, paras 17.30 – 17.34.

⁸⁸ Sea-based activities are separated into various sources of pollution: shipping; dumping; offshore oil and gas platforms; and ports.

⁸⁹ See Agenda 21, para. 17.21.

⁹⁰ A. Nollkaemper, “Agenda 21 and prevention of sea-based marine pollution: A spurious relationship?” *Marine Policy* 17 (1993), p. 538. Agenda 21 recognised the need for a better implementation of relevant shipping conventions and enforcement of international standards. Agenda 21, para. 17.30.

- (1) The need for additional measures to address degradation of the marine environment from shipping;⁹¹
- (2) Assessing the state of pollution caused by ships in particularly sensitive areas;⁹²
and
- (3) Consideration of the adoption of appropriate rules on ballast water discharge to prevent the spread of non-indigenous organisms.⁹³

It is important to note that neither the Stockholm nor Rio Declarations are binding international treaties. Instead, they constitute what is referred to as ‘soft law’.⁹⁴ While soft law is not enforceable, its validity should not be underestimated.⁹⁵ The importance and recognition of its influence can be found in the rhetoric in international fora, as well as in the conduct of diplomacy between countries on a daily basis.⁹⁶ How these developments have further changed the law can be seen in the rewriting of a number of regional seas agreements, revision of the London Convention⁹⁷, extension of treaty schemes on liability for pollution damage, and the adoption of the Washington

⁹¹ See Agenda 2, para. 17.30(a).

⁹² Para. 17.30(a)(iv) calls upon States to take action to implement applicable measures in particularly sensitive areas to ensure compliance with generally accepted international regulations although it does not specify what is possible or permitted under existing IMO instruments.

⁹³ See Agenda 21, para. 17.30(vi).

⁹⁴ See note 6 above.

⁹⁵ See for example Birnie & Boyle, pp. 82-83 (note 7 above) who note three factors that give the Rio Declaration significant authority in the articulation and development of contemporary international law relating to the environment, namely (i) it is expressed mainly in obligatory terms; (ii) its principles represent a “package-deal” negotiated by consensus, which must be read as a whole; and (iii) the Declaration reflects real consensus of developed and developing States on the need to identify agreed norms of international environmental protection.

⁹⁶ *Ibid.*

⁹⁷ Note 77 above.

Declaration and Global Programme of Action on Protection of the Marine Environment from Land-based Activities.⁹⁸ A precautionary approach to the protection of marine ecosystems and biological diversity is now addressed in many of these treaties and in various others, in particular, through the CBD, the UNFCCC, the 1995 Agreements on Straddling and Highly Migratory Fish Stocks, the creation of specially protected areas by the IMO, and a range of regional seas agreements.

PART II: CONSERVATION OF MARINE BIODIVERSITY

2.3 THE CONCEPT OF MARINE PROTECTED AREAS

While Part XII of the LOSC is arguably focused on the control and prevention of pollution,⁹⁹ the marine environment is subject to a far broader range of anthropogenic threats than just pollution.¹⁰⁰ It is therefore worth considering more generally, the measures that exist in international environmental law for the protection of the marine environment, and in particular for the protection of vulnerable marine habitats and the conservation of marine biological diversity.

Notwithstanding that there exists a large body of international environmental law aimed at protecting specific species or groups of organisms,¹⁰¹ arguably the primary tool that

⁹⁸ *Washington Declaration on Protection of the Marine Environment from Land-based Activities*, 1 November 1995, 31 *LOS*, 76 (1996).

⁹⁹ See the arguments put forward in Section 2.2.3.1 above relating to Part XII and in particular the application of Article 194(5) LOSC.

¹⁰⁰ See generally GESAMP (note 5 above).

¹⁰¹ See for example the large number of fisheries protection conventions, the measure adopted by the International Whaling Commission and a number of conventions adopted for the conservation of Antarctic marine living resources. However, these largely relate to the protection of exploitable species and resources and not to conservation and habitat protection *per se*. For an overview of the range of measures that have been adopted for the conservation and management of marine living resources see generally D. Freestone, “The conservation of marine ecosystems under international law,” in M. Bowman

Footnote continued on next page.

has developed in international environmental law for the protection of marine habitats and species is the concept of the marine protected area (MPA). Interest in MPAs has increased considerably in the last decade. As Nicholls notes:¹⁰²

The case for marine protection and conservation is becoming increasingly urgent for reasons pertaining to a variety of issues including fish stock depletion due to over fishing and habitat destruction, releases and discharges from offshore oil and gas developments, tanker accidents, and the impacts of on-shore coastal developments.

2.3.1 Defining Marine Protected Areas

In the broadest sense, a marine protected area can be defined as any area of the coastal zone or open ocean, conferred some level of protection for the purpose of managing the use of resources and ocean space, or protecting vulnerable or threatened habitats and species.¹⁰³ However, probably the most common definition of an MPA used throughout the world is that of the International Union for the Conservation of Nature and Natural Resources (IUCN):¹⁰⁴

Any area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment.

and C. Redgwell (eds), *International Law and Conservation of Biological Diversity* (London/The Hague/Boston: Kluwer Law International, 1996), pp. 91-107.

¹⁰² H.B. Nichols "Canadian east coast marine-protected areas: A review," *Ocean and Coastal Management* 39 (1998), p. 88.

¹⁰³ T. Agardy, *Marine Protected Areas and Ocean Conservation* (Georgetown, Texas: R.G. Landes Company, 1997), p. 99.

¹⁰⁴ G. Kelleher, C. Bleakley and S. Wells, *A Global Representative System of Marine Protected Areas: Volume 1 Antarctic, Arctic, Mediterranean, Northwest Atlantic, Northeast Atlantic and Baltic*, (Washington DC: World Bank, 1995), p. vii.

The global list of MPAs contains a wide variety of biotopes such as coral reefs, salt marshes, mangroves, offshore reefs, seamounts and ice covered areas.¹⁰⁵ MPAs may be established for a wide range of purposes, including protecting marine species and habitats, conserving marine biodiversity, restoring fish stocks, managing tourism activities and minimising conflicts between diverse resource users.¹⁰⁶ As such, MPAs may range from small, highly protected ‘no-take’ reserves that sustain species and maintain natural resources, to very large multiple-use areas in which the use and removal of resources is permitted but controlled to ensure that conservation goals are achieved.¹⁰⁷

Notwithstanding this, Kelleher¹⁰⁸ argues that the two primary reasons for applying the MPA concept are:

- (1) To protect habitats and biodiversity; and
- (2) To help maintain viable fisheries.

In the context of this thesis, it is the first of these two reasons that is of importance. The conservation of habitats is an essential feature of biodiversity conservation. By protecting habitats, MPAs safeguard the vital life-support processes of the sea, maintain food chains, movement of nutrients, degradation of pollutants and conservation of

¹⁰⁵ A recent survey documented over 4000 MPAs covering an area of over 1.6 x 10⁶ km². See UN Atlas of the Oceans 2004 (<http://www.oceansatlas.org>).

¹⁰⁶ R.S. Pomeroy, J.E. Parks and L.M. Watson, *How is Your MPA Doing? A Guidebook of Natural and Social Indicators for Evaluating Marine Protected Area Management Effectiveness* (Gland, Switzerland/Cambridge, UK: IUCN, 2004), p. vii.

¹⁰⁷ Agardy, p. 99 (note 103 above).

¹⁰⁸ G. Kelleher, (ed). *Guidelines for Marine Protected Areas World Commission on Protected Areas* (Gland, Switzerland / Cambridge, UK: IUCN, 1999), p. xvi.

biological diversity and productivity. As such, only by protecting the entire habitat can the viability and functionality of ecosystems be preserved.¹⁰⁹

The management of each MPA varies depending on the nature of the resources, their utilisation and the human activities occurring within them. A range of management tools must therefore be applied: in some areas protection may be given from all the activities which could give rise to environmental damage, whereas in other areas, protection may be provided by limiting the allowed types of activities. According to Kelleher *et al*, MPAs represent a practical way of conserving biodiversity, maintaining the productivity of marine ecosystems and contributing to the economic and social welfare of human communities.¹¹⁰ Clearly therefore, MPAs can play a powerful role in preserving special marine areas, increasing public awareness and support for marine conservation, and providing sites for research and monitoring.

2.4 THE MARINE PROTECTED AREA CONCEPT IN INTERNATIONAL LAW

The development of the MPA concept, initially at least, took place in the absence of an international legal framework. At the global level much of the impetus for the establishment of MPAs came from initiatives pursued by NGOs rather than from any obligation set down in international law.¹¹¹ In particular, a major impetus for the designation of MPAs under international law has been the programme developed by the

¹⁰⁹ *Ibid*, p. 32.

¹¹⁰ Kelleher *et al*. (note 104 above).

¹¹¹ R. Warner, "Marine protected areas beyond national jurisdiction: Existing legal principles and a future international law framework," in M. Haward (ed) *Integrated Oceans Management: Issues in Implementing Australia's Oceans Policy* (Hobart: Cooperative Research Centre for Antarctica and Southern Ocean, 2001), p. 59.

IUCN.¹¹² However, at the international level a number of initiatives and mechanisms do serve to advance MPAs as vehicles for promoting the long-term conservation use of marine resources and biodiversity.¹¹³ Of the developments that have contributed most to the establishment of the principle of MPAs in international law, the entry into force of both the CBD and the LOSC greatly increased both the obligations on States to create MPAs in the cause of conservation of biological diversity and their rights to do so.¹¹⁴

2.4.1 United Nations Convention on the Law of the Sea

Despite it not being in force during the first two decades of the development of the MPA concept,¹¹⁵ support for the creation of MPAs can be inferred from a number of provisions of the LOSC. Indeed it may be argued that the LOSC provides the framework for action to conserve biodiversity and other components of the marine environment.¹¹⁶

¹¹² Freestone, p. 97 (note 101 above).

¹¹³ T. Agardy, P. Bridgewater, P. Crosby, J. Day, P.K. Dayton, R. Kenchington, D. Laffoley, P. McConney, P.A. Murray, J.E. Parks and L. Peau, "Dangerous targets? Unresolved issues and ideological clashes around marine protected areas," *Aquatic Conservation: Marine and Freshwater Ecosystem* 13 (2003), p. 354.

¹¹⁴ National Research Council, *Marine Protected Areas: Tools for Sustaining Ocean Ecosystems*. (Washington, DC: National Academic Press, 2001), p. 150. It should however be noted that the development of a broad body of customary international law has also greatly influenced the development of the MPA concept. Chapter 17 of Agenda 21 for example spells out the relevant requirements for protection of marine living resources and the marine environment very clearly. It specifies *inter alia* the establishment of coordinated mechanisms to further integrated management, conservation and restoration of critical habitats in all marine areas and a precautionary and anticipatory approach to protection from degradation and use of resources. Furthermore, it specifically encourages States to identify marine ecosystems exhibiting high levels of biodiversity and productivity and other critical habitat areas and to establish limitations on use of such areas through *inter alia* designation of protected areas. See Birnie & Boyle, p. 680 (note 7 above).

¹¹⁵ Notwithstanding that it was not in force during the early development of the MPA concept it may be argued that the LOSC is reflective of customary law and therefore its provisions were nonetheless important in the development of the concept.

¹¹⁶ K. Gjerde, "High seas marine protected areas," *International Journal of Marine and Coastal Law* 16 (2001), p. 526.

The obligations the LOSC imposes in relation to the marine environment depend, to a large extent, on the jurisdictional nature of the particular waters under consideration. However, the LOSC does contain a number of provisions of general significance for the protection of marine ecosystems, which can be viewed as supportive of the MPA concept. Gjerde¹¹⁷ argues that the general obligation created by Article 192 LOSC includes the duty, set forth in Article 194(5), to take the necessary measures to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of life. However, this argument seems to be misplaced in the context of the debate on MPAs, since Article 194 relates only to the measures to prevent, reduce and control pollution of the marine environment. As such, while the general obligation imposed by Article 192 seems to apply to all activities, other Articles in Part XII of the LOSC cannot be viewed as providing general support for the establishment of MPAs other than where the impacts of pollution are to be controlled. In addition, Article 196 requires all States to take all necessary measures to prevent, reduce and control pollution of the marine environment resulting from the intentional or accidental introduction of species, alien or new, to a particular part of the marine environment, which may cause significant and harmful changes thereto. The wording “to a particular part of the marine environment” implies the identification of specific areas that warrant a greater level of protection from such discharges and therefore may be read as supportive of an MPA approach to protect areas from invasive aquatic organisms.

¹¹⁷ *Ibid*, p. 524.

2.4.2 Convention on Biological Diversity

The CBD was opened for signature at UNCED and entered into force on 29 December 2003.¹¹⁸ By the end of 2000, 177 Parties had become party to the convention, making it one of the most widely ratified of all environmental conventions. The Convention encompasses all living organisms and their ecosystems, and establishes principles and procedures for the management and conservation of biological diversity. In doing so, the mandate of the Convention overlaps considerably with that of numerous other international, regional and national regimes concerned with management and conservation of living resources.¹¹⁹ However, while numerous global institutions and instruments are functionally linked to the biodiversity issue, Hoel argues that it is the CBD that provides the formal basis for global governance of biological diversity.¹²⁰

The Convention reaffirms the sovereignty of States over their own biological resources, and their sovereign right to exploit these resources, pursuant to their own environmental policies, subject to the responsibility to ensure that activities within their jurisdiction do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.¹²¹ Moreover, each Party is required to take action to protect components of coastal and marine biodiversity within its national jurisdiction. Coastal States can exercise jurisdictional rights over their marine waters as defined by the

¹¹⁸ For a comprehensive overview of the negotiations, development and implementation of the Convention see for example: A. E. Boyle, "The Rio Convention on Biological Diversity," in M. Bowman and C. Redgwell (eds) *International Law and Conservation of Biological Diversity*, (London/The Hague/Boston: Kluwer Law International, 1996), pp. 33-49; Birnie & Boyle, Chapter 11 generally (note 7 above).

¹¹⁹ A.H. Hoel, "Marine biodiversity and institutional interplay," *Coastal Management* 30 (2003), p. 35.

¹²⁰ *Ibid.*

¹²¹ See CBD, Article 3 "Principle". In the context of the marine environment, this effectively restates and emphasises the rights set forth under Article 193 of the LOSC.

LOSC. As such, the CBD's obligations apply within these maritime zones, insofar as they are consistent with rights and obligations under the LOSC.¹²² Thus the creation and management of MPAs pursuant to the CBD must be consistent with these rights and obligations, such as the right of innocent passage and the rights of coastal States to establish and enforce measures for the conservation of marine living resources within their zones of jurisdictions.¹²³

The objectives of the CBD are set out in Article 1 of that convention as follows:

The objectives of this Convention, to be pursued in accordance with its relevant provisions, are the conservation of biological diversity,¹²⁴ the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.

The CBD contains a series of potentially far reaching obligations related to the conservation of biological diversity and the sustainable use of genetic resources, species and ecosystems. In particular, it places great emphasis on *in situ* conservation,¹²⁵ calling upon Parties to adopt measures ranging from the establishment of a system of protected areas, to the rehabilitation of degraded ecosystems and the protection of natural habitats

¹²² See CBD, Article 22(2).

¹²³ A.C. De Fontaubert, D.R. Downes and T. Agardy, *Biodiversity in the Seas: Implementing the Convention on Biological Diversity in Marine and Coastal Habitats*, IUCN Environmental Policy and Law Paper No. 32. (Gland, Switzerland: IUCN, 1996), p. 16.

¹²⁴ Article 2 of the Convention defines biological diversity 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 a part; this includes diversity within species, between species and of ecosystems.

¹²⁵ See CBD, Article 8.

and species conservation in natural surroundings.¹²⁶ It is these obligations – set out in Articles 6-8 of the Convention - that are the most relevant in the context of this thesis. Article 6 requires *inter alia* Parties to develop national strategies, plans and programmes for the conservation and sustainable use of biological diversity. This planning should incorporate a number of sustainable use management tools such as protected areas which are required under Article 8 of the Convention.

As Boyle¹²⁷ notes, there is an interesting issue with regard to the interplay between these Articles and the provision of other international agreements that address coastal and marine conservation. This is particularly relevant in the context of the LOSC and the IMO, whereby the LOSC provisions for environmental protection are directly linked to pollution and not to ecosystem protection *per se*.¹²⁸ As will be seen later in this thesis, the CBD appears to have legitimised a broader interpretation of provisions of the LOSC and their application to the protection of the marine environment from the impacts of shipping.

2.4.2.1 The CBD and Marine Protected Areas

With the exception of the definition of biological diversity, the CBD text and its annexes contain no provisions on marine and coastal biodiversity.¹²⁹ However, while the

¹²⁶ M. Pimbert, "Issues emerging in implementing the Convention on Biological Diversity," *Journal of International Development* 9 (1997), p. 420.

¹²⁷ Boyle, pp. 43-44 (note 118 above).

¹²⁸ This issue, among others, defines the discussion currently being held within the IMO over the future of the PSSA concept. Some coastal States and environmental NGOs would like to see the concept more broadly applied as an environmental management tool. However this is resisted by those who wish to constrain the measure.

¹²⁹ S. Arico, "Evolution of the international debate on marine and coastal biodiversity since the Earth Summit," in *Proceedings of the Oceans and Coasts Rio +10 Workshop*, (Paris, France: 2001), p. 6.

Convention does not explicitly highlight marine biodiversity as a priority, the Conference of Parties (COP) to the Convention selected marine and coastal biodiversity as one of the topics for early consideration.¹³⁰ The issue of marine and coastal biodiversity as such was first tackled in 1995, when the Convention's Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) held its first meeting.¹³¹ As a result, marine and coastal issues achieved prominence at an early stage in the Convention's history. Furthermore, having identified marine and coastal biodiversity as an early priority for action, at its second meeting the COP adopted an important decision¹³² relating to development of a work programme on this area¹³³ and promoted the co-operation with related conventions and relevant international agreements. Notably, the COP invited international and regional bodies responsible for legal instruments, agreements and programmes which address activities relevant to the conservation and sustainable use of marine and coastal biodiversity, including the IMO, to review their programmes with a view to improving existing measures and developing new actions which promote conservation and sustainable use of marine biological diversity.¹³⁴

¹³⁰ Birnie & Boyle, p. 646 (note 7 above).

¹³¹ Arico, p. 6 (note 129 above).

¹³² "Decision II/10 of the Second Meeting of the Conference of the Parties to the Convention: Conservation and Sustainable use of Marine and Coastal Biological Diversity". See UNEP/CBD/COP/2/19, *Report of the Second Meeting of the Conference of the Parties to The Convention on Biological Diversity*, 30 November 1995.

¹³³ The Programme of Work on Marine and Coastal Biodiversity. The work programme was largely based on the outcome of the first meeting of the SBSTTA. The SBSTTA identified a number of key areas for action (integrated marine and coastal management, marine and coastal living resources, marine and coastal protected areas, mariculture and alien species and genotypes).

¹³⁴ Decision II/10, para. 13 (note 132 above).

The COP also issued a Ministerial Statement known as the Jakarta Mandate on Marine and Coastal Biological Diversity, acknowledging the new global consensus on the importance of this topic and reaffirming the need for the COP to address conservation and sustainable use of marine and coastal biodiversity. The Jakarta Mandate demonstrates that the Convention is an important legal tool for promoting the conservation of marine and coastal biodiversity and the sustainable use of living marine and coastal resources.¹³⁵

In August 2002, the WSSD was held in Johannesburg. The Plan of Implementation of the WSSD urges States to promote the conservation and management of the oceans through actions at all levels. Particular importance was placed on maintaining the productivity and biodiversity of important and vulnerable marine and coastal areas, through the implementation of the work programme arising from the Jakarta Mandate. As such the Plan of Implementation calls for action at all levels to *inter alia*:

- encourage the application by 2010 of the ecosystem approach; and
- maintain the productivity and biodiversity of important and vulnerable marine and coastal areas, including areas within and beyond national jurisdiction.

In this regard, one significant undertaking was to:

¹³⁵ De Fontaubert *et al* p. 1 (note 123 above). As Arico notes, at p. 8 (note 129 above):

At the end of COP-2, the Convention started to look more promising as a forum for policy decision having a real impact on the conservation and management of marine and coastal biodiversity.

Develop and facilitate the use of diverse approaches and tools, including ... the establishment of marine protected areas consistent with international law and based on scientific information, including representative networks by 2012.¹³⁶

In February 2004, the seventh meeting of the CBD COP reaffirmed their commitment to develop representative networks¹³⁷ of MPAs on a national and regional basis by 2012 and further agreed to urgently address, through appropriate integrated marine and coastal management approaches, all threats, including those arising from the land and shipping/transport, in order to maximise the effectiveness of marine and coastal protected areas and networks.¹³⁸

The outcomes of the seventh COP included an extensive decision on marine and coastal biodiversity.¹³⁹ In particular, the decision incorporated a substantial amount of new text on the topic of marine and coastal protected areas (MCPAs) into the programme of work and agreed that the goal for work related to MCPAs under the CBC should be the

¹³⁶ World Summit on Sustainable Development, (Johannesburg, 26 August – 4 September 2002), “Plan of Implementation,” para 31(c). In December 2002, the United Nations General Assembly endorsed the provisions of WSSD with respect to the need for representative networks of MPAs, highlighting the need for international programmes to halt the loss of marine biodiversity. See the Resolution adopted by the UN General Assembly A/RES/57/141, *Oceans and the Law of the Sea*, 21 February 2003. Further support to this effect is provided by one of the outcomes of the World Parks Congress in 2003, which recommends *inter alia* that a global system of marine and protected areas be established by 2012, with at least 20-30% of areas strictly protected.

¹³⁷ The CBD Ad Hoc Technical Expert Group on Marine and Coastal Protected Areas describe a “representative network” as:

A network of protected areas should be representative of the full range of biodiversity. A representative network will include protected areas incorporating all habitat types, with the amount of each habitat type being sufficient to cover the variability within it, and to provide duplicates (as a minimum), so as to maximise potential connectivity and minimise the risk of impact from large-scale effects.

Note the use of the broader term Marine and Coastal Protected Areas by the group. It is argued that MPAs are thus a subset of MCPAs.

¹³⁸ Decision VII/5 of the Conference of the Parties to the CBD, para 26. See UNEP/CBD/COP/7/21, *Decisions adopted by the Conference of the Parties to the Convention on Biological Diversity at its seventh meeting*, 13 April 2002.

¹³⁹ Decision VII/5 is an extensive document of over 40 pages addressing a broad range of issues related to marine and coastal biodiversity.

establishment and maintenance of MCPAs that are effectively managed, ecologically based and contribute to a global network of MCPAs, building on national and regional systems, and including a range of levels of protection.¹⁴⁰ Potentially of most significance was the adoption of a target of developing such MCPA systems by the year 2012, echoing the commitment made by WSSD.¹⁴¹

2.4.3 International Biodiversity Conventions and Initiatives

While the extensive body of soft law principles and conventional international law discussed above, has greatly influenced the development of the MPA concept, a number of specific biodiversity protection agreements have also contributed to the development of the concept over the past 30 years. Notable among these for the conservation of marine biodiversity are the 1972 Convention for the Protection of the World Cultural and Natural Heritage¹⁴², the Convention on Wetlands of International Importance¹⁴³ and UNESCOs' Man and the Biosphere Programme.¹⁴⁴ Numerous regional agreements also establish frameworks for the identification and designation of MPAs.¹⁴⁵ As will be seen in subsequent chapters, a number of IMO measures aimed at the protection of the marine environment and biodiversity conservation, have clearly been informed by these

¹⁴⁰ Decision VII/5, Annex 1. Section III Programme Elements, (note 138 above).

¹⁴¹ See Decision VII/5, para. 19 (note 138 above), which agrees to adopt the approach put forward by WSSD for the work of the Convention on marine and coastal protected areas, and to develop a strategy to meet this goal, including indicators of progress.

¹⁴² *Convention for the Protection of the World Cultural and Natural Heritage*, 16 November 1972. In force 17 December 1975. 1037 *U.N.T.S* 151 (hereafter World Heritage Convention).

¹⁴³ *Convention on Wetlands of International Importance especially as Waterfowl Habitat*, 2 February 1971. In force 21 December 1975. 996 *U.N.T.S* 245 (hereafter RAMSAR Convention).

¹⁴⁴ Kelleher *et al* pp. 9-10 (note 104 above). For a recent overview of the range of international and regional agreements addressing protected area designation see generally S. Chape, M. Spalding and D. Sheppard, *The State of the Worlds Protected Areas: Chapter 1 - Global Overview*, (Gland, Switzerland: IUCN, 2004).

¹⁴⁵ Kelleher *et al* p. 11 (note 104 above).

instruments. In particular elements of the Biosphere Reserve concept and the World Heritage concept can be clearly seen in the IMO's PSSA concept. For this reason the following section provides a brief overview of these two agreements.

2.4.3.1 World Heritage Convention

The 1972 Convention for the Protection of the World Cultural and Natural Heritage (hereafter World Heritage Convention) entered into force in December 1975, three years after its adoption by the General Conference of UNESCO in 1972.¹⁴⁶ To date approximately 175 countries have become party to the Convention, making it one of the most universal international legal instruments for the protection of cultural and natural heritage.¹⁴⁷ The Convention encourages the protection of cultural and natural properties of outstanding universal value (OUV). This includes natural areas of outstanding value for their scientific, conservation or aesthetic attributes, as well as traditional and archaeological sites, which are of particular value from the historical, aesthetic, ethnological or anthropological points of view. The primary objectives of the Convention are to identify and conserve the world's cultural and natural heritage¹⁴⁸ by drawing up a list of sites whose outstanding values should be preserved for all humanity

¹⁴⁶ Meeting of the Seventeenth Session of the The General Conference of the United Nations Educational, Scientific and Cultural Organization, Paris, 17 October to 21 November 1972.

¹⁴⁷ E. Green, *A Global Overview of Tropical Marine, Coastal and Small Island Ecosystems and the World Heritage List*, UNEP-WCMC Discussion Paper (Cambridge, UK: UNEP – WCMC, 2001), p. 4.

¹⁴⁸ Article 2 of the Convention defines "natural heritage" as:

Natural features consisting of physical and biological formations or groups of such formations, which are of outstanding universal value from the aesthetic or scientific point of view;

Geological and physiographical formations and 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;

Natural sites or precisely delineated natural areas of outstanding universal value from the point of view of science, conservation or natural beauty.

and to ensure their protection through closer cooperation among nations.¹⁴⁹ For the purposes of this discussion, the natural heritage designation is of most relevance, since it is these sites that equate to the designation of MPAs.

A request for a particular site to be designated as world heritage must come from the State in which the site is designated. The request is then evaluated by the World Heritage Committee, which is composed of representatives from 21 countries.¹⁵⁰ The Committee, which meets once a year, bases its decisions on independent technical evaluations which are provided by the International Council on Monuments and Sites (for cultural sites) and the IUCN (for natural sites).¹⁵¹ To be included on the World Heritage List, the World Heritage Committee must find that it has ‘outstanding universal value’ defined as:

Cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity. As such the permanent protection of this heritage is of the highest importance to the international community as a whole. At the time of inscription of a property on the World Heritage List, the Committee will agree on a statement of outstanding universal value.¹⁵²

¹⁴⁹ M. Spalding, “The World Heritage List – The best of all worlds?” *Parks* 12 (2002), p. 50.

¹⁵⁰ M.H. Glantz and R.M. Figueroa, “Does the Aral Sea merit heritage status?” *Global Environmental Change* 7 (1997), p. 357.

¹⁵¹ Green, p. 4 (note 147 above).

¹⁵² UNESCO, *Operational Guidelines for the Implementation of the World Heritage Convention*, Intergovernmental Committee for the Protection of the World Cultural and Natural Heritage. WHC. 05/2 1 February 2005, para. I.C.4.

Thus, to go on the World Heritage List, sites should be carefully selected and the case for their inscription well-argued.¹⁵³ It is on the basis of the over-riding principle of OUV that the Committee defines the selection criteria that sites must satisfy for designation as either cultural natural sites.

For a property to be included on the World Heritage List as natural heritage, the site must meet one or more of the following criteria:¹⁵⁴

- Be outstanding examples representing major stages of the Earth's history, including the record of life, significant ongoing geological processes in the development of landforms, or significant geomorphic or physiographic features; or
- 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
- Contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance; or
- Contain the most important and significant natural habitats for *in situ* conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.

¹⁵³ A. Phillips, "The World Heritage Convention and its application to marine and coastal sites." Discussion paper to the *Workshop on World Heritage Biodiversity: Filling Critical Gaps and Promoting Multi-Site Approaches to New Nominations of Tropical Coastal, Marine and Small Island Ecosystems* (Hanoi, Vietnam, February 25 - March 1, 2002). p. 4. Available at http://international.nos.noaa.gov/heritage/docs/wrkspdoc/Attach4_Background.doc.

¹⁵⁴ UNESCO, para. 77 (note 152 above).

It should be noted that these criteria were the result of a revision of the Convention which took place in 1994, to provide for identification of sites that are the most important and significant habitats for *in situ* conservation of biological diversity, following the adoption of the CBD.¹⁵⁵ As such, the last two criteria relate respectively to ecological and biological processes, and to *in situ* conservation of biological diversity.¹⁵⁶ De Fontaubert *et al*¹⁵⁷ argue that measures under the World Heritage Convention are related to the obligations of States under the CBD to identify and protect ecosystems of particular importance. In encompassing both natural and cultural heritage, and providing for identification of sites rich in biological diversity, the Convention implicitly recognises that biodiversity's cultural as well as natural values are important.¹⁵⁸ It may therefore be argued that the Convention is an important tool, for conserving areas of global biodiversity significance.¹⁵⁹

While terrestrial ecosystems are well represented on the World Heritage List, marine and wetland environments are not. To date a total of 144 sites have been listed on the WHS as sites of natural heritage. Of these, only 28 have a significant coastal or marine

¹⁵⁵ De Fontaubert *et al*, p. 63. (note 123 above).

¹⁵⁶ C. Magin and S. Chape, *Review of the World Heritage Network: Biogeography, Habitats and Biodiversity*, (Cambridge, UK/Gland, Switzerland: UNPE-WCMC and IUCN, 2004), p. iii.

¹⁵⁷ De Fontaubert *et al*, p. 63. (note 123 above).

¹⁵⁸ *Ibid*, p. 64.

¹⁵⁹ See for example Koester, who observes that the Convention "has proved a helpful tool in the global effort to conserve biological diversity". V. Koester, "The five global biodiversity-related conventions," *Environmental Policy and Law* 31 (2001), p.153; Birnie & Boyle, p. 470 (note 7 above) argue that for sites listed on the World Heritage List the Convention provides real protection but that limitations on listing prevent it from being the major instrument of habitat protection.

component¹⁶⁰ and a further 25 coastal-island sites have been listed with no or insignificant marine values.¹⁶¹

2.4.3.2 Man and the Biosphere Programme

UNESCO's Man and the Biosphere (MAB) Programme was launched in 1972, after the completion of UNCHE, with the aim of promoting interdisciplinary research, training and communications in the field of ecosystem conservation and the rational use of natural resources.¹⁶² It was established around four guiding principles focused on the need to establish a worldwide network of protected areas of outstanding national and regional cultural and biological value.¹⁶³ The concept of Biosphere Reserves was initiated by a task force of UNESCO's MAB Programme in 1974. The Biosphere Reserve network was launched in 1976 and, as of March 2005 had grown to 459 reserves in 97 countries. The aim of Biosphere Reserves was to establish terrestrial and coastal areas representing the main planetary ecosystems, in which genetic resources

¹⁶⁰ J. Thorsell, R. Ferster and T. Sigaty, *A Global Overview of Wetland and Marine Protected Areas on the World Heritage List: A Contribution to the Global Theme Study of World Heritage Natural Sites*. IUCN Natural Heritage Programme, (Gland, Switzerland: IUCN, 1997), p. 61.

¹⁶¹ It should also be noted that there also exists a significant imbalance in the types of heritage and geographic location. Since 1979 and progressively afterwards, perceived disparities and imbalances have been underlined, notably the large number of inscriptions of cultural properties compared with the proportionally smaller number of natural properties. Furthermore, more than 50% of sites are located in Europe and North America, while there exist very few sites in Africa, Arab States and the Pacific for example.

¹⁶² UNESCO, *World Network of Biosphere Reserves*, Ref SC/ECO (Paris: UNESCO MAB Secretariat, November 2004), p.1. Available at <http://www.unesco.org/mab/brlist.PDF>.

¹⁶³ V. Hartje, A. Klaphake and R. Schliep, *The International Debate on the Ecosystem Approach*, BfN-Skripten 80 (Bonn: German Federal Agency for Nature Conservation, 2003), p. 23.

would be protected, and where research on ecosystems, as well as monitoring and capacity building could be carried out as part of an intergovernmental programme.¹⁶⁴

Biosphere Reserves are defined as “areas of terrestrial and coastal/marine ecosystems or a combination thereof, which are internationally recognised within the framework of the MAB.”¹⁶⁵ However, it is argued that Biosphere Reserves are much more than just protected areas, as they are designed to promote and demonstrate a balanced relationship between people and nature. While conservation has been and should remain the first concern of Biosphere Reserves, they cannot be considered nature reserves or other conventional forms of protected areas.¹⁶⁶

Each Biosphere Reserve is intended to fulfil three basic functions, which are complimentary and mutually reinforcing:¹⁶⁷

- (1) A conservation function – to contribute to the conservation of landscapes, ecosystems, species and genetic variation;
- (2) A development function – to foster economic and human development which is socio-culturally and ecologically sustainable;

¹⁶⁴ P. Bridgewater, “Biosphere Reserves – A network for conservation and sustainability,” *Parks* 12 (2002), p. 15.

¹⁶⁵ Article 1 of the Statutory Framework of the World Network of Biosphere Reserves. UNESCO.

¹⁶⁶ M. Batisse, “Development and implementation of the Biosphere Reserve concept and its applicability to coastal regions,” *Environmental Conservation* 17 (1990), p. 111.

¹⁶⁷ Bridgewater, p. 16 (note 164 above).

- (3) A logistic function – to provide support for research, monitoring, education and information exchange related to local, national and global issues of conservation and development.

Biosphere Reserves are not covered by an international convention, but must simply meet a set of criteria¹⁶⁸ allowing them to fulfil properly their three functions. They are nominated by national governments through the focal points for the MAB Programme and UNESCO in their respective countries.¹⁶⁹ Collectively, Biosphere Reserves form a World Network. Since 1995 this network has been established under a Statutory Framework,¹⁷⁰ that sets the ‘rules of the game’ and makes provisions for a periodic review of Biosphere Reserves every 10 years to encourage them to meet the current criteria and objectives. General activities of the World Network are governed by the Seville Strategy for Biosphere Reserves.¹⁷¹

¹⁶⁸ The criteria for the stipulation of Biosphere Reserves build on the Action Plan for Biosphere Reserves (UNESCO 1984), the Statutory Framework of the World Network of Biosphere Reserves (UNESCO 1995) (available at <http://www.unesco.org/mab/docs/statframe.htm>.) and especially the Seville Strategy (UNESCO 1995) (available at <http://www.unesco.org/mab/docs/stry-1.htm>.) The actual criteria are defined in Article 4 of the Statutory Framework.

¹⁶⁹ P. Bridgewater, “Biosphere Reserves: The network beyond the islands,” *Parks* 11 (2001), p 1.

¹⁷⁰ A UNESCO “Intergovernmental Conference on Biosphere Reserves” was held at Seville, Spain, between 20-25 March, 1995. The Seville conference was an occasion to review the experience from using the Biosphere Reserve concept throughout the world, to develop a strategy statement concerning the further development of Biosphere Reserves, and to finalise a Statutory Framework that set out the conditions for the functioning of the World Network of Biosphere Reserves. The “Seville Strategy & Statutory Framework of the World Network”, as it is called, was adopted by 28C/Resolution 2.4 of the UNESCO General Conference in November 1995: *Records of the Twenty-Eighth Session of the UNESCO General Conference, 25 October - 16 November 1995 - Volume 1 Resolutions*, (Paris: UNESCO, 1996). The Statutory Framework of the World Network of Biosphere Reserves was formulated with the objective of enhancing the effectiveness of the individual Biosphere Reserves. The framework is intended to contribute to the widespread recognition of Biosphere Reserves and to encourage and promote good working examples. The Statutory Framework sets out 10 Articles which address definitions, criteria and designation procedures for Biosphere Reserves.

¹⁷¹ Note 170 above.

Biosphere Reserves are organised into three interrelated zones, known as the core area, the buffer zone and the transition area. The core areas are priority conservation areas, legally constituted and devoted to long-term protection. Buffer zones are clearly identified, surrounding or contiguous to the core area or areas. As such they are really one end of a continuous transition region, extending further into an area of co-operation where biodiversity threatening influences on the core and surrounding landscape are minimised.¹⁷² Only the core area requires legal protection. Some countries have enacted legislation specifically to establish Biosphere Reserves. In many others, the core areas and buffer zones are designated (in whole or in part) as protected areas under national law. A number of Biosphere Reserves simultaneously encompass areas protected under other systems (such as national parks or nature reserves) and other internationally recognised sites (such as World Heritage Sites and RAMSAR sites¹⁷³).

The added value of Biosphere Reserve designation lies essentially in the official recognition by a UN agency, linking with countries own efforts to meet their obligations under the conventions dealing with biodiversity. In particular, Biosphere Reserves can be considered as reflecting the ‘ecosystem approach’ adopted by the CBD.¹⁷⁴ Although a number of marine Biosphere Reserves have been established, successful application of the concept has thus far been limited to a few sites such as the Great Barrier Reef.¹⁷⁵

¹⁷² D. Brunckhorst, P. Bridgewater and P. Parker, “The UNESCO Biosphere Reserve programme comes of age: Learning by doing, landscape models for sustainable conservation and resource,” in *Proceedings of Conservation Outside Reserves*, (Brisbane: University of Queensland, February 1996), p. 8.

¹⁷³ As of 20 January 2006 a total of 84 biosphere sites were either wholly or partially RAMSAR wetlands and 74 were either wholly or partially World Heritage Sites. See: <http://www.unesco.org/mab/wnbr.htm>.

¹⁷⁴ Bridgewater, p. 1 (note 164 above).

¹⁷⁵ J. Sobel, “Conserving biological diversity through marine protected areas: A global challenge,” *Oceanus* 36 (1993), pp. 19-23.

2.5 CONCLUSIONS

The international legal framework relating to the protection of the marine environment has developed over the past 50 years through a range of non-binding instruments and international conventions. Historically much of the focus of this legal framework has related to the prevention of marine pollution and customary law has focused attention largely on this aspect of environmental harm. However, more recent developments since UNCED, have focused on the need to address the full range of anthropogenic impacts, including habitat damage and loss of marine biodiversity. The development and entry into force of a number of international conventions, notably the LOSC and the CBD, have been instrumental in changing State practice with regard to the protection of the marine environment and considerable effort has been expended in creating the framework for a global network of marine protected areas. In addition, numerous other conventions provide States with a mechanism for giving effect to their obligations under international environmental law to preserve and protect the marine environment.

CHAPTER 3

INTERNATIONAL REGULATION OF SHIPPING FOR THE PROTECTION OF THE MARINE ENVIRONMENT

3.1 INTRODUCTION

The concept of “Freedom of the Seas” has always been, and remains to this day, the underlying principle of the law of the sea. It was established long before 1609 when Hugo Grotius published his *Mare Liberum*¹ that first set out the philosophy behind the principle. Since then, the principle has been enshrined as one of the basic tenets of international law, upon which a large volume of international maritime law has been built, in an effort to protect and nurture international trade and commerce.² Historically, the regulation of shipping in general, and vessel-source pollution specifically, has engendered conflict between States seeking to protect their coastal waters by adopting strict environmental control (coastal States) and States with significant naval and/or commercial maritime interests (maritime and flag States). Coastal States’ environmental regulation is viewed as a threat to traditional rights of innocent passage and freedom of navigation.³ The development, over the past 50 years, of international law relating to

¹ H. Grotius, *On the Freedom of the Seas* - Translated by Ralph Van Deman Magoffin (London: Oxford University Press, 1916). *Mare Liberum* was written to vindicate the claims of the Dutch East India company. It discusses the rights of England, Spain and Portugal to rule over the seas. If these countries could legitimately control the seas this would prevent the Dutch from sailing, for example, in the East Indies.

² See for example E. Gold, “Pollution of the sea and international law: A Canadian perspective,” *Journal of Maritime Law and Commerce* 3 (1971), pp. 17-18; R.R. Churchill and A. V. Lowe, *The Law of the Sea*, 3rd Edition (Manchester, UK: Manchester University Press, 1999), pp. 5-13; E. Gold, “The future of maritime transit,” in J. M. Van Dyke, L. M. Alexander and J. R. Morgan (eds) *International Navigation: Rocks and Shoals Ahead: A workshop of the Law of the Sea Institute* (Honolulu: Law of the Sea Institute, 1986), pp. 237-259.

³ D. Bodansky, “Protecting the marine environment from vessel-source pollution: UNCLOS III and beyond,” *Ecology Law Quarterly* 18 (1991), p. 720. A well known example of this type of conflict can be seen with the establishment by Canada of shipping safety control zones extending across Canadian Arctic coastal waters. See J.A. Beesley, “Rights and responsibilities of Arctic coastal States: The Canadian view,” *Journal of Maritime Law and Commerce* 3 (1971), pp. 1-12; See also D. L. VanderZwaag,

Footnote continued on next page.

vessel source pollution specifically and law of the sea generally, has sought to resolve this conflict by defining more precisely the jurisdictional rights and responsibilities of States.⁴

After presenting a brief overview of the types of vessel based activities that may impact the marine environment of coastal States, Part I of this chapter provides an overview of the legal regime governing the international regulation of shipping for environmental protection purposes. A number of actors have a recognised role to play in the regulation of international shipping. In the context of this thesis the most important of these are the IMO, flag States and coastal States. These actors are introduced, and their role in the regulation of shipping, for environmental protection purposes, discussed. In the context of the IMO, this chapter provides a brief overview of the historical development of the IMO and the relationship between the IMO and the LOSC. A number of relevant international agreements have been adopted by the IMO and the development and application of each of these are discussed, insofar as they relate to the protection of the marine environment.

Part II of this chapter discusses the rights and duties of flag and coastal States, and in particular provides an overview of coastal State jurisdiction to regulate shipping for the

“Shipping and marine environmental protection in Canada: Rocking the boat and riding a restless sea,” in D. Rothwell and S. Bateman (eds) *Navigational Rights and Freedoms and the New Law of the Sea*, (The Hague/Boston: Martinus Nijhoff Publishers, 2000), p. 209.

⁴ Bodansky, p.720 (note 3 above); See also E. Duruigbo, “Reforming the international law and policy on marine oil pollution,” *Journal of Maritime Law and Commerce* 31 (2000), pp. 65-88; W. L. Schachte, “The value of the 1982 UN Convention on the Law of the Sea: Preserving our freedoms and protecting the environment,” *Ocean Development and International Law* 23 (1992), pp. 55-69; H. Djalal, “The Law of the Sea Convention and navigational freedoms,” in D. Rothwell and S. Bateman (eds) *Navigational Rights and Freedoms and the New Law of the Sea*, (The Hague/Boston: Martinus Nijhoff Publishers, 2000), pp. 1-10.

purposes of environmental protection. Since coastal States' rights differ between the various maritime zones recognised under the LOSC, particular attention is given to the varying degrees to which coastal States can interfere with navigation in each of these zones.

PART I: INTERNATIONAL REGULATION OF MARITIME ACTIVITIES

3.2 NATURE OF THE IMPACTS OF SHIPPING

While it is beyond the scope of this thesis to address the impacts of shipping on the marine environment in detail, a broad appreciation by the reader of the subject is desirable. In particular it should be recognised that, although the emphasis has historically been placed on the control and impacts of ship-sourced oil pollution, ships can constitute an environmental hazard to the marine environment in a number of ways, including operational and accidental discharges and physical harm.

3.2.1 Operational Discharges

The most common sources of ship-sourced pollution derive from the normal operation of a ship.⁵ These so called 'operational discharges' include certain automatic releases as well as intentional discharges incidental to normal operations.⁶ Such discharges include

⁵ Despite catastrophic oil spills resulting from tanker accidents, the principal source of ship-source pollution remains routine operational discharges. See for example the recent report of the Organization for Economic Cooperation and Development (OECD) Maritime Transport Committee: OECD, *Cost savings stemming from non-compliance with international environmental regulations in the maritime sector*, OECD Document DSTI/DOT/MTC(2002)8/FINAL, (Paris: OECD, 2003), pp. 10-11; See also the most recent estimates of oil inputs into the sea published by the US National Research Council: National Research Council, *Oil in the Sea III: Inputs, Fates and Effects* (Washington DC: National Academy Press, 2002), Chapter 3 generally.

⁶ G. Timagenis, *International Control of Marine Pollution* (Dobbs Ferry, NY: Oceana Publications, 1980), p. 18.

oil and other harmful substances,⁷ ballast water and associated invasive aquatic organisms,⁸ antifouling substances,⁹ garbage¹⁰ and sewage.

The extent to which such sources of pollution represent an environmental threat will depend on the degree of compliance with the relevant international conventions. As such, while international environmental law does permit certain operational discharges within specified limits, non-compliance with these standards represents a significant ongoing problem.

⁷ Since the introduction of severe restrictions on the disposal of residues containing oil and other harmful substances there has been a noticeable improvement in the quantities of these substances discharged to the marine environment. Nonetheless, oil is routinely discharged from the engine spaces of ships, and in the form of dirty ballast water and cargo residues from cargo tanks and numerous cases of non-compliance with these regulations are reported annually (See for example: OECD (note 5 above) at p. 20-21). Pollution levels measured along the main shipping routes in particular, still show considerable quantities of illegally discharged oil. See for example F. Wiese, *Seabirds and Atlantic Canada's Ship-Source Oil Pollution: Impacts, Trends, and Solutions*, (Toronto: WWF Canada, 2002), p. 6.

⁸ The introduction of non-native species via the discharge of ballast water is well documented. See for example: J.T. Carlton, "Transoceanic and interoceanic dispersal of coastal marine organisms: the biology of ballast water," *Oceanography and Marine Biology: An Annual Review* 23 (1985), pp. 313-371; J.T. Carlton, "Man's role in changing the face of the ocean: Biological invasions and implications for the conservation of near-shore environments," *Conservation Biology* 3 (1989), pp. 265-273; J.K. Kelly, "Ballast water and sediments as mechanisms for unwanted species introductions into Washington State," *Journal of Shellfish Research* 12 (1993), pp. 405-410; J.T. Carlton, "The scale and ecological consequences of biological invasions in the world's oceans," in O. T. Sandlund, P. J. Schei and Å. Viken, (eds), *Invasive Species and Biodiversity Management*, (Dordrecht, The Netherlands: Kluwer Academic Publishers, 1999), pp. 195-212.

⁹ For examples of the impacts of antifouling substances see: G.W. Bryan, P.E. Gibbs, G.R. Burt and L.G. Hummerstone, "The decline of the gastropod *Nucella lapillus* around southwest England: evidence for the effects of tributyltin from anti-fouling paints," *Journal of the Marine Biological Association of the United Kingdom* 66 (1986), pp. 611-640; S. J. de Mora (ed) *Tributyltin: Case Study of an Environmental Contaminant*, (Cambridge, UK: Cambridge University Press, 1996); C. Alzieu, "Tributyltin: case study of a chronic contaminant in the coastal environment," *Ocean and Coastal Management* 40 (1998), pp. 23-36; R. Owen, A. Knap, M. Toaspern and K. Carbery, "Inhibition of coral photosynthesis by the antifouling herbicide Irgarol 1051," *Marine Pollution Bulletin* 44 (2002), 623-632; N. Kobayashi and H. Okamura, "Effects of new antifouling compounds on the development of sea urchin," *Marine Pollution Bulletin* 44 (2002), pp. 748-751.

¹⁰ It is clear that a good deal of the garbage washed up on beaches is derived from land-based sources. However, in some areas most of the rubbish found comes from passing ships, which find it convenient to throw rubbish overboard rather than dispose of it in ports. See D. Johnson, "Environmentally sustainable cruise tourism: a reality check," *Marine Policy* 26 (2002), pp. 261-270.

3.2.2 Accidental Discharges

Although operational discharges of oil represent by far the most significant input of oil from ships, public perception demands that accidental discharges of oil and other harmful substances receive the greatest scrutiny. Numerous high profile maritime casualties in recent years have demonstrated the potential significant impacts such incidents may have on both the environment and economy of coastal States (see Table 3.1). A significant literature exists on the both the environmental and socio-economic impacts of such incidents.¹¹

¹¹ Fingus, provides a comprehensive list of 175 major oil spills that have occurred since the *Torrey Canyon* in 1967: M Fingus, *Basics of Oil Spill Cleanup*, 2nd Edition (Boca Raton, Florida: CRC Press LLC, 2001), pp. 10-14; For an overview of the impacts of oil spills see for example the reports of the International Petroleum Industry Environmental Conservation Association (IPIECA). *Guidelines on Biological Impacts of Oil Pollution*. IPIECA Oil Spill Report Series Volume 1 (London: IPIECA, 2000). Available at <http://www.ipieca.org/publications/oilspill.html#IPIECAOSRS>; S. Patin, *Oil Spills in the Sea* (East Northport, NY: EcoMonitor Publishing, 2001); W. Ritchie and M. O'Sullivan (eds) *The Environmental Impact of the Wreck of the Braer* (The Scottish Office, Edinburgh, 1994); *The Environmental Impact of the Sea Empress Oil Spill: Final Report of the Sea Empress Environmental Evaluation Committee*, (Government Stationary Office, London, 1998); P.G. Wells, J.N Butler, J.S. Hughes (eds) *Exxon Valdez Oil Spill: Fate and Effects in Alaskan Waters* (Ann Arbor, MI: ASTM, 1995).

Table 3.1. Summary of Compensation Costs Associated with Maritime Casualties in Western European Waters Between 1992 and 2002

Vessel Name	Date of Incident	Location of Incident	Oil Spilled (tonnes)	Compensation Paid by IOPC Funds and Ship Owners' Insurer
<i>Aegean Sea</i>	3.12.92	Spain	73,500	<i>Cleanup: Pts 1,729,240,000</i> <i>Fishery related: 8,696,000,000</i> <i>Tourism related: 13,810,000</i> <i>Financial costs: 371,680,000</i> <i>Total Pts 13,207,970,962</i>
<i>Braer</i>	5.1.93	Shetland, UK	84,000	<i>Cleanup: 593,883 sterling</i> <i>Fishery related: 38,538,451</i> <i>Property damage: 8,904,047</i> <i>Tourism related: 77,375</i> <i>Farming related: 3,572,392</i> <i>Other lost income: 268,780</i> <i>Indemnification: 279,989</i> <i>Total 52,218,927 sterling</i>
<i>Sea Empress</i>	15.2.96	Wales	72,360	<i>Cleanup: 23,291,444 sterling</i> <i>Fishery related: 10,101,347</i> <i>Property damage: 378,554</i> <i>Tourism related: 1,296,726</i> <i>Other lost income: 268,780</i> <i>Indemnification: 1,835,035</i> <i>Total 38,171,886 sterling</i>
<i>Erika</i>	12.12.99	France	14,000	<i>Cleanup: FFr 227,892,000</i> <i>Fishery related: 66,275,000</i> <i>Property damage: 6,525,000</i> <i>Tourism: 313,046,000</i> <i>Other income loss: 37,313,000</i> <i>Total FFr 1,151,531,000</i>
<i>Prestige</i>	13.11.02	Spain	Unknown	<i>Liability limits expected to be exceeded (SDR 135 million)</i>

However, the incidence of large spills is relatively low and it is clear that the number of large spills (>700 tonnes) has decreased significantly during the last thirty years.¹² The average number of large spills per year during the 1990s was less than a third of that witnessed during the 1970s.¹³ Most incidents are the result of a combination of actions and circumstances, all of which contribute in varying degrees to the final outcome.

3.2.3 Physical Harm

Less emphasis is generally placed on the physical impacts that vessels may give rise to. However, the physical impacts of shipping are becoming more and more apparent. Such impacts may include, engine and machinery noise;¹⁴ physical damage to organisms¹⁵ and habitats;¹⁶ and wake and wash effects associated with high speed passage in narrow channels.

¹² Data from the International Tanker Operators Pollution Federation (ITOPF) suggests that in the period 1970-1979 3.14 million tonnes of oil was spilled in tanker accidents, whereas during the period 1990-1999 less than half that volume (1.14 million tonnes) was spilled. Furthermore, a few very large spills are responsible for a high percentage of the oil spilt in any one year. As such large accidents have the potential to contribute significantly to the overall data. See <http://www.itopf.org/stats.html>.

¹³ The International Tanker Operators Pollution Federation, *The ITOPF Handbook 2005/2006*, (London: ITOPF, 2005), p. 9.

¹⁴ For an overview of the impacts of noise on marine mammals see: C. Perry, *A Review of the Impact of Anthropogenic Noise on Cetaceans*, Report No.SC/50/E9 (London: Environmental Investigation Agency, 1998); W. Richardson, C. Greene, C. Malme and D. Thompson, *Marine Mammals and Noise*, (San Diego: San Diego Academic Press, 1995), Chapter 5 generally; J. Gordon and P. Tyack, "Sound and cetaceans," in P. Evans and J. Raga (eds) *Marine Mammals: Biology and Conservation* (New York: Kluwer Academic, 2001), pp. 139-196.

¹⁵ For example ship strikes. For a comprehensive overview of this issue see for example D.W. Laist, A.R. Knowlton, J.G. Mead, A.S. Collet and M. Podesta, "Collisions between ships and whales," *Marine Mammal Science* 17 (2001), pp. 35-75.

¹⁶ In fragile marine environments such as coral reefs, ships may cause harm by running aground or by the use of anchors. See for example the submission made by the USA to the MEPC seeking designation of the Florida Keys as a PSSA which noted the incidence of coral damage by ship grounding and anchor use: MEPC 46/6/2 *Designation of the marine area around the Florida Keys as a particularly sensitive sea area*, submitted by the United States, 19 January 2001, paras. 5.1.2 – 5.1.3. On 2 November 2000, the 184m cargo ship *Bunga Teratai Satu* ran aground on Sudbury Reef, within the Great Barrier Reef Marine Park. Although no cargo or fuel was lost, the ship remained aground for 12 days and a large quantity of

Footnote continued on next page.

3.3 THE ESTABLISHMENT AND ROLE OF THE INTERNATIONAL MARITIME ORGANISATION

A number of intergovernmental institutions have been created under the auspices of the UN system to facilitate a coordinated approach for implementing ocean law, designed to prevent marine pollution through the harmonisation of national legislation and policy within the contemporary law of the sea.¹⁷ In the context of vessel-sourced pollution, pre-eminent among these is the IMO, which remains the sole agency of the UN entirely devoted to maritime affairs.¹⁸

3.3.1 Background to the Organisation

The International Maritime Consultative Organisation (IMCO)¹⁹ was conceived following the end of the Second World War,²⁰ with the adoption in 1948 of the IMO

antifoulant paint containing TBT, zinc, and copper was scraped from the hull during the grounding and subsequent refloating operation. This resulted in extensive contamination of the reef sediments for up to 250m surrounding the grounding site.

¹⁷ C. C. Joyner, “The international ocean regime at the new millenium: a survey of the contemporary legal order,” *Ocean and Coastal Management* 43 (2000), p. 189. The main agencies with marine responsibilities are IMO, UNEP, IOC and FAO.

¹⁸ A. Blanco-Bazan, “The environmental UNCLOS and the work of the IMO in the field of prevention of pollution from vessels,” in A. Kirchner (ed) *International Marine Environmental Law: Institutions, Implementation and Innovations* (The Hague: Kluwer Law International, 2003), p. 31. As Blanco-Bazan notes the term “maritime” applies to the IMO in a restrictive sense. “IMO is a maritime organisation as long as maritime relates to shipping”. This is somewhat oversimplifying the matter since a number of IMO instruments also relate to the operation of offshore oil and gas installations, while many of the safety related conventions apply to all vessels not just international shipping; For a general overview of the IMO and its work see generally M. Nordquist and J.N. Moore (eds) *Current Maritime Issues and the International Maritime Organization* (The Hague, Netherlands: Kluwer Law International, 1999).

¹⁹ The name of the organisation was changed from the “Inter-Governmental Maritime Consultative Organization” (IMCO) to “International Maritime Organization” (IMO) by an amendment done at London 14 November 1975.

²⁰ Several countries had proposed that a permanent international body should be established to promote maritime safety more effectively, but it was not until the establishment of the UN itself that these hopes were realised. In 1948 an international conference in Geneva adopted a convention formally establishing what is now known as the International Maritime Organization. For a general overview of the historical development of the Organization see generally R. M. M'Gonigle and M. W. Zacher, *Pollution, Politics, and International Law: Tankers at Sea* (Los Angeles: University of California Press, 1979), Chapter 3; L.

Footnote continued on next page.

Convention.²¹ However, the IMO Convention did not enter into force until 1958²² and the new Organisation met for the first time the following year. The establishment of the IMO was essential for cooperation among member States in the field of governmental regulation and practices relating to technical matters affecting the international shipping industry.²³ The IMO was also to encourage the adoption of the highest practicable standards in matters concerning maritime safety. Furthermore, it was to the IMO that the Geneva Convention system looked to develop the applicable rules and standards, and the jurisdiction of States regarding the prevention of vessel-sourced pollution.²⁴

At the outset, the IMO was established with a ‘Council’ and the ‘Maritime Safety Committee’ (MSC) within the administrative umbrella of the Organisation. The IMO’s

Juda, “IMCO and the regulation of ocean pollution from ships,” *International and Comparative Law Quarterly* 26 (1977), pp. 558-584.

²¹ *Convention on the Intergovernmental Maritime Consultative Organization*, 6 March 1948. In force 17 March 1958. 289 *U.N.T.S.* 4. As a result of the entry into force of amendments adopted by the IMCO Assembly in 1975 and 1977 respectively, the name of the IMCO was changed to International Maritime Organization and the title of the Convention modified accordingly. *Convention on the International Maritime Organization*, 14 November 1975, rectification 9 November 1977. In force 22 May 1982. 1276 *U.N.T.S.* 468 (hereafter IMO Convention). See R. R. Churchill, “The role of the IMCO in combating marine pollution,” in D. J. Cusine and J. P. Grant (eds) *The Impact of Marine Pollution* (Montclair, New Jersey: Allanheld, Osmun & Co, 1980), p. 75.

²² M. Valenzuela, “International maritime transportation: Selected issues of the law of the sea,” in A.H. Soons (ed) *Implementation of the Law of the Sea Convention Through International Institutions - 23rd Annual Conference of the Law of the Sea Institute*, Noordwijk aan Zee, The Netherlands, (Honolulu: Law of the Sea Institute, 1989), p. 189.

²³ See T. Mensah, “The international regulation of maritime traffic: IMO approaches,” *The UN Convention on the Law of the Sea: Impact and Implementation - 19th Annual Conference of the Law of the Sea Institute*, Cardiff, Wales, (Honolulu: Law of the Sea Institute, 1985), p 484; Article 1(a) The IMO Convention (note 21 above) defines the purpose of the organisation as:

To provide machinery for co-operation among Governments in the field of governmental regulation and practices relating to technical matters of all kinds affecting shipping engaged in international trade; to encourage and facilitate the general adoption of the highest practicable standards in matters concerning maritime safety, efficiency of navigation and the [prevention and control of marine pollution from ships]”.

²⁴ D.M. Dzidzornu and B. M. Tsamenyi, “Enhancing international control of vessel-source oil pollution under the law of the sea convention, 1982: A reassessment,” *University of Tasmania Law Review* 10 (1991), p. 275.

first task was to adopt a new version of SOLAS, the most important of all treaties dealing with maritime safety. This was achieved in 1960²⁵ and the IMO then turned its attention to such matters as the facilitation of international maritime traffic, load lines and the carriage of dangerous goods, while the system of measuring the tonnage of ships was revised.²⁶

Currently comprising 166 member States and 63 NGOs with consultative status,²⁷ the IMO provides an international forum through which member States negotiate, develop and implement international Conventions and other legal instruments on maritime safety and marine pollution. This is achieved through the work of sector-specific committees, comprising member States and observer organisations. These include the MSC, the Marine Environment Protection Committee (MEPC),²⁸ the Legal Committee and various subcommittees and working groups established under these committees.

Over the past 45 years the IMO has contributed unquestionably to improved safety at sea and a reduction in marine pollution from ships. Its primary contribution has been the establishment of agreed-upon definitions and standards, codified in a series of treaties

²⁵ M'Gonigle & Zacher, p. 43 (note 20 above).

²⁶ See <http://www.imo.org/HOME>. At this time there was no mention of marine pollution among the IMO's purposes and functions. As Churchill notes at p. 74 (note 21 above) "this is not surprising since in 1948 when the Convention was drafted, there was little concern about marine pollution".

²⁷ As of 25 January 2006. For a comprehensive overview of the current role and method of work of the IMO see S. Rosenne, "The International Maritime Organization 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, Netherlands: Kluwer Law International, 1999), pp. 251-268.

²⁸ As a result of amendments made in 1975 which established both the Legal Committee and the MEPC, the organisation has in recent times pursued a more visible focus on the prevention and control of pollution. Together, these Committees serve to support the international instruments for which IMO is the administrative body. The 1975 amendments also added the phrase "the prevention and control of pollution from ships" to the purpose Statement of Article 1(a) of the IMO Convention.

and revisions of those treaties.²⁹ Many of the technical rules it has laid down in its conventions have had the effect of preventing and minimising vessel-sourced pollution.³⁰ Conventions can authorise the IMO organs to adopt amendments thereto, or to review and approve specific regulatory proposals (approval role). The IMO organs can also be authorised by conventions to adopt non-binding instruments³¹ in the form of recommendations, codes manuals and guidelines.³² Since its inception in 1958, therefore, the IMO has established a comprehensive set of binding and non-binding instruments aimed at enhancing safety of commercial navigation and the prevention and control of marine pollution from vessel sources.³³ IMO treaty-making work in the field of marine pollution from ships has been particularly successful on account of the international nature of shipping. As Blanco-Bazan³⁴ notes:

Only through world-wide applicable international regulations can a conflict-free interaction between flag, coastal and port State jurisdiction be put in place in order to make possible the harmonious development of sea-borne international trade.

²⁹ J.E. Vorbach, "The vital role of non-flag state actors in the pursuit of safer shipping," *Ocean Development and International Law* 32 (2001), p. 29.

³⁰ Dzidzornu & Tsamenyi, p. 275 (note 24 above).

³¹ See P. Birnie, "The status of environmental 'soft law': trends and examples with special focus on IMO norms," 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. 31-57.

³² E. J. Molenaar, *Coastal State Jurisdiction over Vessel-Source Pollution* (The Hague: Kluwer Law International, 1998), p. 38.

³³ The range of measures aimed at safety and environmental protection is impressive:

- Over 40 conventions and protocols providing the technical basis for inclusion of LOSC requirements into the national laws of member States;
- In excess of 60 codes and recommendations focused on achieving the highest standards of seamanship, environmental protection, cargo handling and crew certification;
- An extensive programme of technical assistance aimed at helping nations meet their international convention obligations;
- Model training courses at achieving uniformity and consistency in training standards.

³⁴ Blanco-Bazan, p. 32 (note 18 above).

Both the coming into force of the LOSC and the implementation of Agenda 21 have had a profound influence on the IMO and its approach to the regulation of vessel-source pollution³⁵. The LOSC laid new responsibilities on the IMO, but it is notable that the IMO conventions and other IMO instruments influenced the drafting of the LOSC and facilitated the compromises that enabled consensus to be reached on those provisions relating to marine environmental protection, at an early stage in the deliberations.³⁶ While not explicitly stated, it is implicitly recognised that the IMO is the ‘competent international organisation’³⁷ in respect of the establishment of rules and standards for

³⁵ As the then Secretary General of IMO noted in 1985:

the [LOS] Convention gives legal and political confirmation to the regulatory regimes developed by IMO, and it implicitly recognises IMO as the legitimate international forum in which States are expected to develop new international standards and regulations ...

See T. Busha, “The response of the International Maritime Organization to references in the 1982 Convention to the ‘competent international organisation’,” in J. M. V. Dyke, L. M. Alexander and J. R. Morgan (eds) *International Navigation: Rocks and Shoals Ahead - A Workshop of the Law of the Sea Institute* (Honolulu: Law of the Sea Institute, 1986), p. 237; See also generally P. Birnie, “Implementation of IMO regulations and oceans policy post-UNCLOS and post-UNCED,” in M.H. Nordquist and J.N. Moore (eds) *Current Maritime Issues and the International Maritime Organization* (The Hague, Netherlands: Kluwer Law International, 1999), pp. 361-390.

³⁶ Birnie, p. 34 (note 31 above).

³⁷ See Busha, pp. 238-240 (note 35 above); Vukas observes that:

it is common knowledge that the singular used instead of ‘competent international organisations’ meant the reservation of the international legislation of the International Maritime Organization.

B. Vukas, “Generally accepted international rules and standards,” in A.H. Soons (ed) *Implementation of the Law of the Sea Convention Through International Institutions - 23rd Annual Conference of the Law of the Sea Institute*, Noordwijk aan Zee, The Netherlands, (Honolulu: Law of the Sea Institute, 1989), p. 411; See also J. W. Kindt, *Marine Pollution and the Law of the Sea*, (Buffalo, NY: William S. Hein & Co., 1986), p. 1174, who notes that “although the IMO is not mentioned *per se* in Article 211 of the LOSC, it is understood that the IMO is to govern vessel-sourced pollution”; See also generally D. M. McRae, “The new oceans regime: Implementing the convention,” *Marine Policy* 8 (1984), pp. 83-94.

Analysis undertaken by the Legal Division of the IMO points out that although the IMO is explicitly referred to in only one of the LOSC Articles, it is implicitly recognised as the ‘competent international organisation’ in respect of setting rules and standards for the protection of the marine environment from the impacts of vessel-sourced pollution and for maintaining safety of navigation. Furthermore, the use of the singular ‘competent international organisation’ reinforces that only one organisation, the IMO, is competent for the purpose of establishing such rules and standards: LEG/MISC/3/Rev.1, *Implications of the United Nations Convention on the Law of the Sea for the International Maritime Organization, prepared by the IMO Secretariat*, 6 January 2003, p. 3. This interpretation is supported by Wolfrum. R. Wolfrum, “IMO interface with the Law of the Sea Convention,” in M.H. Nordquist and J.N. Moore (eds)

Footnote continued on next page.

maintaining safety of navigation and protection of the marine environment from the impacts of shipping.

The IMO has three different roles under the LOSC: the first is as a forum for international cooperation, sharing of information and negotiation of international standards (forum role); the second role relates to the review and approval of specific regulatory proposals of individual States (approval role); and the third role relates to the legal effect under the LOSC of rules promulgated by or through the IMO or in IMO-related treaties (standard-setting role).³⁸ It is this latter aspect of the IMO's work that is of relevance in this thesis.

3.3.2 Standard Setting

As noted above, the IMO has developed a remarkably comprehensive body of law dealing with all aspects of maritime transportation. A major aim, in order to achieve its constitutive requirements, is to create uniform standards for shipping safety and marine environment protection. The IMO's role in the regulation of shipping is to enable Governments to cooperate in establishing the highest practicable standards for the regulation of shipping; to promote uniformity in the content and application of States' measures; and to assist States which need assistance in developing and implementing the requisite measures. However, it should be noted that the IMO is not the regulator of

Current Maritime Issues and the International Maritime Organization (The Hague, Netherlands: Kluwer Law International, 1999), p. 223.

³⁸ See B. H. Oxman, "Environmental protection in archipelagic waters and international straits - The role of the International Maritime Organization," *International Journal of Marine and Coastal Law* 10 (1995), p. 468.

international shipping, but rather an indispensable mechanism for effective regulation.³⁹

The IMO thus provides the forum for both harmonisation of existing standards and for creating new ones.⁴⁰

The numerous international instruments establishing standards for world shipping adopted by the IMO fall into two classes:

- (1) those – the most important – establishing technical standards and procedures on construction and operation of ships; and
- (2) those promoting uniform rules and procedures concerning legal issues, which can take the form of conventions, or other binding treaty instruments incorporating technical regulations, and non-binding instruments, regarded by the IMO as of equal importance for States to incorporate into their national legislation.⁴¹

The balance of jurisdiction over vessel-sourced pollution laid down in the LOSC mainly centres around three distinct types of measures,⁴² namely discharge standards; construction, design, equipment and manning (CDEM) standards and navigation standards. Other measures such as the use of economic instruments are beyond the scope of this thesis.

³⁹ Mensah, p. 488 (note 23 above).

⁴⁰ Birnie, p. 43 (note 31 above).

⁴¹ Birnie, p. 45 (note 31 above).

⁴² Molenaar, p. 3 (note 32 above).

3.3.2.1 Discharge Standards

Discharge standards were the first approach to reduce vessel-sourced pollution caused by operational discharges.⁴³ Initially applied specifically to oil, they stipulate allowable concentrations, discharge rates or total quantities per voyage.⁴⁴ Such standards are often dependent on, or specific to, geographic areas. As such, discharge standards permit discharges, but subject them to specific conditions which are aimed at ensuring that the marine environment is capable of assimilating the contaminant discharged, to avoid adverse impacts on the marine environment.⁴⁵

One of the most significant barriers to the success of such discharge standards has been the limited provision worldwide of port reception facilities. Many ports provide no reception facilities, while in others, the fees act as a disincentive to masters to use them, thereby encouraging illegal discharges at sea.⁴⁶

⁴³ *The International Convention for the Prevention of Pollution from Ships*, 12 May 1954. In force 26 July 1958. 327 *U.N.T.S* 3 (hereafter OILPOL 1954) represented the first serious attempt to regulate some of the sources of marine pollution in a global context. The Convention established a permissive regime for the discharge of all oily waste beyond the limits of a prohibited zone which was to extend 50 nautical miles from the coast of States party to the convention. Within the prohibited zone however, only discharges with an oil content of less than 100 mg oil/litre of water were permitted. These prohibited zones encompassed both territorial waters and high seas in order to circumvent problems arising with the divergence in the territorial sea limits claimed by various States. The convention also included provisions requiring ships registered with contracting States to be fitted with certain pollution prevention facilities and the main ports of such States to provide waste oil reception facilities.

⁴⁴ For a general discussion on the early development of oil pollution discharge standards see for example: R. H. Neuman, "Oil on troubled waters: The international control of marine pollution," *Journal of Maritime Law and Commerce* 2 (1971), pp. 349-361; E. Gold, "The control of marine pollution from ships: responsibilities and rights," *The Law of the Sea: What Lies Ahead? - 20th Annual Conference of the Law of the Sea Institute*, (Honolulu: Law of the Sea Institute, 1986).

⁴⁵ Molenaar, p. 22 (note 32 above).

⁴⁶ See for example the OECD report, p. 40 (note 5 above).

3.3.2.2 Construction Design Equipment and Manning (CDEM) Standards

CDEM standards are aimed at both preventing and reducing vessel sourced pollution. In comparison with discharge standards, they represent an important shift in responsibility from the master to the owner or operator. Their preventive dimension is apparent in ensuring adequate quality of the vessel, of the equipment it carries and of the crew. It is argued that, by eliminating sub-standard shipping, the likelihood of incidents at sea and thereby environmental damage is diminished.⁴⁷ CDEM standards may also contribute to a reduction in pollution once incidents have taken place, for example, by minimising or preventing the outflow of cargo by using smaller sized tanks or double hulls.

One of the most important developments in this regard must be the amendments to MARPOL 73/78, regarding the design and construction of new and existing tankers. These amendments, which came into force in July 1993, required tankers to be fitted with either a double hull or an equally effective alternative.⁴⁸ The double hull arrangement was chosen because of its perceived utility in preventing extensive damage and outflow of oil in the event of grounding or collision.⁴⁹ While this development was not received well by ship-owners and flag States, who questioned the choice and effectiveness of the double hull design, it has received considerable support from

⁴⁷ *Ibid.*

⁴⁸ After the *Exxon Valdez* tanker spill in 1989, the USA took unilateral action in the Oil Pollution Act 1990 (OPA '90), which included phasing out of oil tankers with single hulls, in favour of double hulls. Under pressure to maintain international standards the IMO adopted similar provisions in Regulation 13G of Annex 1 of MARPOL in 1993 although the IMO schedule for phasing out such tankers was more extended than the OPA '90 requirements. See L. de La Fayette, "Protection of the marine environment in 2000," *Environmental Policy and Law* 31 (2001), p. 141; See also P. M. McGrath and M. Julian, "Protection of the marine environment from shipping operations: Australian and international responses," in D. Rothwell and S. Bateman (eds) *Navigational Rights and Freedoms and the New Law of the Sea*, (The Hague/Boston: Martinus Nijhoff Publishers, 2000), pp. 198-199.

⁴⁹ Duruigbo, p. 10 (note 4 above).

coastal States. Since its original introduction, coastal States have called successfully for accelerated phase out of existing single hull tankers on more than one occasion.⁵⁰

3.3.2.3 Navigational Standards

Increased traffic on the oceans has forced coastal States, especially in heavily congested coastal waters, to prescribe navigational standards aimed at avoiding incidents such as collisions or groundings. In particular, large tankers are often very limited in their manoeuvrability. Such navigational standards are inherently preventive in nature and include general safety measures, speed limits, sea-lanes, ship's routeing measures, ship reporting systems (SRS) and vessel traffic services (VTS).⁵¹

At the international level, such standards have been limited to ships' routeing measures,⁵² traffic separation schemes, speed restrictions and general safety measures.⁵³

Navigational standards have been embodied in the 1972 Convention on the International Regulations for the Prevention of Collisions at Sea (hereafter COLREGS),⁵⁴ SOLAS

⁵⁰ Following the *Erika* oil spill off Brittany in 1999, IMO adopted an accelerated phaseout schedule for single hull tankers under MARPOL Annex I Regulation 13F and 13G – See MEPC 46/23, *Report of the Marine Environment Protection Committee on its forty sixth session*, 16 May 2001, para. 2.55. See de La Fayette, p. 141 (note 77 above). These amendments were adopted in 2000 but were almost immediately revised following the sinking of the *Prestige* off the Spanish coast. As a result, a subsequent revised phaseout schedule for single hull tankers was adopted in 2004. See generally MEPC 50/3 *Report of the Marine Environment Protection Committee on its fiftieth session*, 8 December 2003.

⁵¹ Molenaar, p. 24 (note 32 above).

⁵² Ships routeing measures are set out in the General Provisions on Ships Routeing (GPSR): IMO Resolution A.572(14) *General Provisions on Ships' Routeing*. Adopted 20th November 1985. As amended by Resolution A.827(19). Adopted 23rd November 1995. Those measure adopted by the IMO are published on a regular basis in the IMO's Ships Routeing handbook. For the purposes of this thesis such routeing measures include traffic separation schemes, two-way routes, recommended tracks, no-anchoring areas, areas to be avoided, inshore traffic zones, roundabouts, precautionary areas, and deep water routes.

⁵³ Bodansky, p. 730 (note 3 above).

⁵⁴ *Convention on the International Regulations for Preventing Collisions at Sea 1972*, 20 October 1972. In force 15 July 1977. 1050 *U.N.T.S* 16 (hereafter COLREGS).

and related IMO guidelines. SRS and VTS are comprehensive vessel traffic management systems that enable coastal States to track ships through a particular area and to take the necessary measures in case of emergencies.⁵⁵ A SRS may apply to transiting traffic as well as vessels entering a port. A typical system may require the reporting of the vessel name, radio call sign, position, course speed (and any additional information relevant to its purpose) to a coastal station when entering or departing the zone.⁵⁶

3.4 EXISTING INSTRUMENTS ADMINISTERED BY THE IMO

The IMO safety conventions mainly regulate measures to prevent accidents endangering human life and goods at sea. However, these include many regulations aimed at preventing marine pollution and other forms of harm occurring as a result of these accidents.⁵⁷ Among the most important treaties dealing mainly with safety of navigation

⁵⁵ For a general discussion on the application of ship reporting schemes see for example: G. 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* (London/The Hague/Boston: Kluwer Law International, 1997), pp. 11-27; and Joyner, p. 198 (note 17 above).

⁵⁶ J. Roberts, "Protecting sensitive marine environments: The role and application of ships' routing measures," *International Journal of Marine and coastal Law* 20 (2005), p. 107.

⁵⁷ Many authors overlook the direct role SOLAS plays in terms of preventing marine pollution. See for example McGrath & Julian (note 48 above), p. 195, who state that "control of pollution from ships essentially involves three IMO Conventions (MARPOL 73/78; The Intervention Convention and the 1990 OPRC Convention)". In fact the 1990 OPRC Convention does not relate to the prevention of pollution from ships since it relates solely to response to oil spills; A similar view is put forward by Vanderzwaag at p. 214 (note 3 above); However, others recognise the direct role SOLAS plays in terms of pollution prevention. As Roberts notes, p. 98 (note 56 above):

It is widely acknowledged that protection of the environment is a secondary benefit of the enhancement of navigational safety, since measures for the security of maritime traffic usually prevent environmental hazards as well;

See for example the report of the Lord Donaldson Inquiry which concludes that "pollution control and safety are very closely linked, because the best way to maintain safety and to prevent pollution is to preserve the integrity of the ship": HMSO, *Safer Ships, Cleaner Seas*. Report of Lord Donaldson's Inquiry into the Prevention of Pollution from Merchant Shipping. (London: HMSO, 1994), para. 1.11.

are SOLAS and the COLREGS.⁵⁸ The IMO environmental treaties almost exclusively regulate pollution, irrespective of whether the discharge of such substances arises as the result of an accident or from the normal operation of the ship. The main treaties that deal with the prevention of pollution⁵⁹ are MARPOL 73/78,⁶⁰ the International Convention on the Control of Harmful Anti-Fouling Systems on Ships (2001)⁶¹ and the International Convention for the Control and Management of Ships' Ballast Water and Sediment (2004).⁶²

3.4.1 International Convention for the Safety of Life at Sea

SOLAS, in its successive forms,⁶³ is generally regarded as the most important of all international treaties concerning the safety of merchant ships.⁶⁴ Its main objective is to specify minimum standards for the construction, equipment and operation of ships,

⁵⁸ The COLREGS, in line with Article 39 of the LOSC, sets forth detailed rules relating to the operation of vessels, including safe speeds, rights of way, actions to avoid collisions, lighting, signalling and provisions for traffic separation schemes.

⁵⁹ The IMO has developed a broad range of Conventions that address different aspects of pollution such as preparedness and response to pollution incidents and liability and compensation for damage from oil pollution. However, these are beyond the scope of this research, which focuses on the regulation of shipping for the purposes of prevention of harm to the environment.

⁶⁰ Note 13, Chapter 1 of this thesis.

⁶¹ *International Convention on the Control of Harmful Anti-Fouling Systems on Ships*, 5 October 2001. Not yet in force.

⁶² *International Convention for the Control and Management of Ships' Ballast Water and Sediment*, 13 February 2004. Not yet in force.

⁶³ The first version was adopted in 1914, in response to the sinking of the *SS Titanic*, the second in 1929, the third in 1948 and the fourth in 1960. A completely new Convention was adopted in 1974, which included not only the amendments agreed up until that date but a new amendment procedure - the tacit acceptance procedure - designed to ensure that changes could be made within a specified (and acceptably short) period of time. Instead of requiring that an amendment shall enter into force after being accepted by, for example, two thirds of the Parties, the tacit acceptance procedure provides that an amendment shall enter into force on a specified date unless, before that date, objections to the amendment are received from an agreed number of Parties. As a result the 1974 Convention has been updated and amended on numerous occasions. The 1974 Convention is the principal convention dealing with maritime safety through CDEM and navigation standards. Molenaar, p. 70 (note 32 above).

⁶⁴ IMO, *IMO and the Safety of Navigation*, Focus on IMO Paper (London: IMO, January 1998).

compatible with their safety. Flag States are responsible for ensuring that ships under their flag comply with its requirements, and a number of certificates are prescribed in the Convention as proof that this has been done. Control provisions also allow Contracting States to inspect ships of other Contracting States, if there are clear grounds for believing that the ship and its equipment do not substantially comply with the requirements of the Convention - this procedure is known as Port State Control.

The Convention intends to promote safety of life at sea by ensuring that a ship is fit for international service on the oceans. As such, SOLAS sets forth minimum standards for vessels as regards construction, stability, machines, fire protection, communications carriage of dangerous goods, surveys and certification of vessels, as well as navigation safety.⁶⁵ The current SOLAS Convention includes Articles setting out general provisions on matters such as the entry into force of the Convention and its relation to treaties, followed by an Annex divided into 12 Chapters. Chapter I of the Annex contains general provisions on obligations and jurisdiction such as application, definitions, surveys and certificates. The other chapters are mainly concerned with CDEM standards. In the context of this thesis, Chapter V – Safety of Navigation - is of most relevance since it addresses ships' routing systems, ship reporting systems and vessel traffic services.

3.4.1.1 Chapter V - Safety of Navigation

SOLAS - Chapter V, identifies certain navigation safety services which should be provided by Contracting Governments and sets forth provisions of an operational nature

⁶⁵ Joyner, p, 197 (note 17 above).

applicable in general to all ships on all voyages. This is in contrast to the Convention as a whole, which only applies to certain classes of ship engaged on international voyages. The subjects covered include the maintenance of meteorological services for ships; the ice patrol service; routing of ships; and the maintenance of search and rescue services. Chapter V recognises the IMO as the only international body for establishing and adopting routing measures on an international basis.⁶⁶ This competence is supplemented by IMO's resolutions concerning the General Provisions on Ships' Routing (GPSR)⁶⁷ as well as the COLREGS which provide for the adoption of traffic separation schemes.

3.4.2 International Convention for the Prevention of Pollution from Ships

The International Convention for the Prevention of Pollution from Ships 1973 (MARPOL '73) was adopted at an international conference in 1973.⁶⁸ The aim of the Convention is the control of all forms of pollution of the sea from ships (other than dumping of waste). While it was recognised that accidental pollution was spectacular, the 1973 Conference considered that operational pollution was still the bigger threat. As a result, the 1973 Convention incorporated much of 1954 International Convention for the Prevention of Pollution from Ships (OILPOL 1954)⁶⁹ and its amendments into Annex I, covering oil.

⁶⁶ SOLAS, Chapter V, Regulation V/10.

⁶⁷ IMO Assembly Resolution A.572(14), para. 3.1 (note 52 above) recognises the IMO as:

the only international body responsible for establishing and recommending measures on an international level concerning ships routing”.

⁶⁸ *International Convention for the Prevention of Pollution from Ships*, 2 November 1973. 1340 *U.N.T.S* 184. Not intended to enter into force without the 1978 Protocol.

⁶⁹ See note 43 above.

Arguably, the 1973 Convention was heavily influenced by UNCHE.⁷⁰ Its focus was far broader than just oil pollution, since it was also intended to address other forms of pollution from ships⁷¹ and therefore other annexes covered chemicals, harmful substances carried in packaged form, sewage and garbage. The 1973 Convention required ratification by 15 States, with a combined merchant fleet of not less than 50 percent of world shipping by gross tonnage, to enter into force. By 1976, it had only received three ratifications - Jordan, Kenya and Tunisia⁷² - representing less than one percent of the world's merchant shipping fleet. This was despite the fact that States could become Party to the Convention by only ratifying Annexes I (oil) and II (bulk chemicals). Annexes III to V, covering harmful goods in packaged form, sewage and garbage, were optional. However, the linking of Annex I to Annex II, with the latter's additional onerous burdens proved to be a major hurdle to ratification for most States.

In response to a spate of tanker accidents in 1976-1977, the IMO held a Conference on Tanker Safety and Pollution Prevention (TSPP Conference) in February 1978. The conference adopted measures affecting tanker design and operation, which were incorporated into both the Protocol of 1978, relating to the 1974 Convention on the Safety of Life at Sea (1978 SOLAS Protocol) and the Protocol of 1978, relating to the

⁷⁰ Duruigbo, p. 7 (note 4 above)

⁷¹ The terms of the Convention required that discharge of:

harmful substances or effluents containing such substances be prevented in accordance with the provisions of the Convention.

Harmful substances are defined as:

any substance which, if introduced into the sea, is liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea and includes any substance subject to control by the present Convention. (Article 2).

⁷² Churchill, p. 80 (note 21 above).

1973 International Convention for the Prevention of Pollution from Ships (1978 MARPOL Protocol) - adopted on 17 February 1978.

More importantly in terms of achieving the entry into force of MARPOL, the 1978 Protocol allowed States to become Party to the Convention by first implementing Annex I, as it was decided that Annex II would not become binding until three years after the Protocol entered into force. This gave States time to overcome technical problems in Annex II, which for some had been a major obstacle in ratifying the Convention. As the 1973 Convention had not yet entered into force, the 1978 MARPOL Protocol absorbed the parent Convention. The combined instrument - the International Convention for the Prevention of Marine Pollution from Ships, 1973 as modified by the Protocol of 1978 relating thereto (MARPOL 73/78) - finally entered into force on 2 October 1983 (for Annexes I and II).

3.4.2.1 MARPOL Today

MARPOL 73/78 and its predecessor OILPOL 1954 are the only regulatory conventions that contain both CDEM standards and discharge and emission standards.⁷³ MARPOL 73/78 therefore covers the technical aspects of pollution from ships except the disposal of waste by dumping, and applies to all ship types. The Convention consists of a number of articles and some regulations, but the substantive content of the Convention is contained within the six Annexes, each dealing with a different category of pollutant

⁷³ See L. B. Sohn, "Implications of the Law of the Sea Convention regarding the protection and preservation of the marine environment," *The Developing Order of the Oceans - 18th Annual Conference of the Law of the Sea Institute*, San Francisco, (Honolulu: The Law of the Sea Institute, 1984), p. 104; See also McGrath & Julian, p. 196 (note 48 above).

(Table 3.2). States acceding to the Convention are obliged to accept the provisions of Annexes I and II, the other Annexes being optional.

Table 3.2. MARPOL 73/78 Annexes and Pollutant Categories

Annex	Pollutant Category
I	Oil
II	Noxious liquid substances (NLS) carried in bulk
III	Harmful substances in packaged form
IV	Sewage
V	Garbage
VI	Air pollution

With the exception of Annex III, each of the six Annexes has discharge standards that are modelled to particular substances. The criteria for discharge standards include: factors such as the distance from the nearest land; the degree of dilution (or concentration) of the pollutant; and the speed at which the vessel must be travelling before discharge is permitted. Furthermore, Annexes I, II, V and VI⁷⁴ provide for the establishment of Special Areas where more stringent discharge standards may apply. It is worth noting, however, that the complete prohibition of discharges is limited to a small number of situations.

⁷⁴ MARPOL 73/78, Annex VI, relating to air emissions, includes a provision for the designation of SO_x (Sulphur Oxides) Emission Control Areas (SECA) where the standards for sulphur emissions are more stringent than the general MARPOL standard. Thus while they are not referred to as Special Areas, they serve the same purpose.

PART II: MARITIME JURISDICTION UNDER THE LAW OF THE SEA

3.5 COASTAL STATE VERSUS FLAG STATE JURISDICTION

The work of the IMO is predicated on the principle that it is the prerogative of States to regulate international shipping. Accordingly, the measures required for the protection of the State and for safeguarding ‘common’ amenities and facilities must ultimately depend on the willingness, readiness and ability of the States concerned to take the measures needed.⁷⁵

Historically the regulation of vessel-source pollution has engendered conflict between coastal States seeking to adopt strict environmental control and maritime/flag States with significant naval and/or commercial maritime interests.⁷⁶ Coastal States’ environmental regulation is viewed as a threat to traditional rights of innocent passage and freedom of navigation.⁷⁷ The combined Geneva and IMO regime prior to the LOSC regime coming into force, entrenched the concept of freedom of the seas,⁷⁸ concentrating jurisdiction over navigation and the control of pollution in the flag State⁷⁹

⁷⁵ Mensah, p. 484 (note 23 above).

⁷⁶ See for example B. O. Okere, “The technique of international maritime legislation,” *International and Comparative Law Quarterly* 30 (1981), pp 513-536; See also Neuman, generally (note 44 above); The terms ‘flag State’ and ‘maritime State’ are often used incorrectly and almost interchangeably. States which are characterised as ‘maritime’ commonly have large merchant fleets, the ships of which are usually registered in that State, in which case that State is the flag State with respect to those ships. Alternatively, ships are registered in another State (the so called ‘open registry’ or ‘flag of convenience’) while the controlling interest of the vessel is located in the maritime State – this explains the difference between maritime States and flag States. See also Molenaar, p. 30-31 (note 32 above).

⁷⁷ Bodansky, p. 720 (note 3 above).

⁷⁸ Gold, p. 20 (note 2 above).

⁷⁹ I. J. Booth, “International ship pollution law: Recent developments at UNCLOS,” *Marine Policy* 4 (1980), p. 217.

with only limited power available to coastal States under the concept of ‘sanitary’⁸⁰ jurisdiction over ships in the territorial sea and contiguous zone.⁸¹

The policies of the major maritime States under the Geneva regime gave rise to the flag of convenience phenomenon⁸² and the maritime States proved reluctant to concede jurisdictional concessions to coastal States, beyond what was already provided for in respect of the territorial sea. However, the increase in tanker capacity for oil and other harmful substances contributed significantly to a reassessment of the balance of legal rights between those coastal States who wished to protect their coastal environment and resources, and those of the flag State and wider world community, interested in maintaining freedom of the seas so as to expedite world commerce.⁸³

The following statement made by Allan Beesley⁸⁴ exemplifies the concerns of coastal States at the outset of negotiations for the LOSC:⁸⁵

⁸⁰ Article 24 of the Convention on the Territorial Sea and Contiguous Zone provides coastal States with the power to “exercise the control necessary to prevent *inter alia* the infringement of its sanitary regulations within its territorial sea.”

⁸¹ Dzidzornu & Tsamenyi, p. 279 (note 24 above). Legault presents a different view by noting that:

The ‘freedom of the seas’ is not an absolute principle and has never been applied in absolute terms... State practice, including the practice of the major maritime powers, amply demonstrates that coastal States may and do exercise jurisdiction and control over foreign vessels beyond territorial waters in order to prevent injury to their territory ...

L. H. J. Legault, “The freedom of the seas: A licence to pollute?” *University of Toronto Law Journal* 21 (1971), p. 218.

⁸² Dzidzornu & Tsamenyi, p. 279 (note 24 above).

⁸³ See for example Booth generally (note 79 above). No example better highlights this than the claims by Canada for the establishment of shipping safety control zones (that may extend up to 100 nautical miles) to regulate the increasing tanker traffic transiting its arctic waters. See generally Beesley, (note 3 above); Gold (note 2 above); Neuman, (note 44 above); Legault, p. 219 (note 81 above).

⁸⁴ Ambassador Allan Beesley was head of the Canadian delegation during the negotiations for the Convention until 1983.

⁸⁵ Cited by L. Juda, *International Law and Ocean Use Management*, (New York/London: Routledge, 1996), p. 182.

The traditional law of the sea in general is oriented towards the concept of unfettered freedom of navigation on the high seas and thus favours flag State jurisdiction, while seeking to limit the jurisdiction of coastal States. As a result, this essentially laissez-faire system is inadequate in its provisions for the prevention and control of marine pollution. Those provisions, as they are found in various conventions, do not strike a proper balance between the interests of the flag State in unfettered rights of navigation and the fundamental interest of the coastal States, in the integrity of their shores. Flag State jurisdiction does not carry with it, for instance, the logical consequence of flag State responsibility for damage to the environment.

The LOSC attempts to create a balance between marine environmental protection from ship-sourced pollution and the rights of navigation, through provisions which balance the various interest, taking into account the various jurisdictional zones into which the ocean space has been divided.⁸⁶ The Convention makes a substantial departure from its precursors by creating a general duty to regulate all sources of pollution, as opposed to a mere empowerment to do so. While it establishes a primary obligation to protect and preserve the marine environment and to prevent, reduce and control pollution, the only obligations to do so from ships are placed on flag States. As such, coastal and port States have limited jurisdiction to prescribe and enforce standards.⁸⁷

Implementation of the various kinds of standards involves the exercise of different types of jurisdiction:⁸⁸

Prescriptive jurisdiction – the jurisdiction to mandate a vessel's compliance with particular standards;

⁸⁶ Schachte, p. 60 (note 4 above).

⁸⁷ Duruigbo, p. 12 (note 4 above).

⁸⁸ Bodansky, p. 731 (note 3 above).

Enforcement jurisdiction – jurisdiction to prevent or punish violations of those standards; and

Adjudicative prescription – the power of the court or administrative tribunal to hear a case against a vessel or person.

In the context of this thesis, it is the first of these that is of relevance, particularly insofar as it relates to a coastal State's ability to prescribe standards for the purpose of environmental protection.

3.5.1 Flag State Obligations and Jurisdiction

Traditionally, international law has relied on the flag State to regulate a vessel's activities, including vessel-sourced pollution. Given the principle of freedom of navigation on the high seas and the EEZ, flag State jurisdiction is necessary in order to ensure that vessels are subject to the authority of some State.⁸⁹ While the LOSC has provided a more expansive regime for coastal State jurisdiction, the primacy of the flag State jurisdiction is largely retained.⁹⁰ However, the LOSC does place an obligation on flag States to ensure compliance by vessels flying their flag, with the applicable international rules and standards established by the IMO, and with those States' regulations concerning vessel-sourced pollution.⁹¹ The basic obligations imposed upon the flag State are contained in Article 94 of the LOSC which requires flag States to take measures to ensure safety at sea which conform to "generally accepted international

⁸⁹ Bodansky, p. 736 (note 3 above). The duties of the flag State in respect of the high seas are set out in Article 94 LOSC. For a general discussion of the relationship between a ship and the flag State see Churchill & Lowe, Chapter 13 generally (note 2 above).

⁹⁰ LOSC, Article 217; See Kindt, p. 1196 (note 37 above).

⁹¹ LOSC, Article 217.

regulations, procedures and practices”.⁹² Flag States are therefore obliged to adopt legislation to give effect to such international rules and standards, and to take other measures necessary for effective enforcement of those laws.⁹³ Such laws shall have at least the same effect as the generally accepted standard. Assuming that flag States do indeed discharge to the full extent their obligations and jurisdiction over ships flying their flag, it is argued that the provisions of the LOSC can greatly increase the effectiveness of flag State jurisdiction.⁹⁴ However, concerns have often been expressed about the adequacy of flag State implementation, due in large part to the development of ‘flags of convenience’.⁹⁵

Apart from jurisdiction to prescribe and enforce rules relating to pollution, the LOSC imposes a number of more specific obligations on flag States. The navigation rights enjoyed by ships of foreign States in the various zones of coastal States, and on the high seas, are prescribed in the LOSC and customary law. On the high seas, and to a lesser extent the EEZ, all States enjoy the freedom of navigation⁹⁶ subject to the normal obligations not to damage the interests of other States.⁹⁷ Article 94(1) confirms the primacy of flag State jurisdiction on the high seas. In the various maritime zones, while

⁹² LEG/MISC/3/Rev.1, pp. 10-11 (note 37 above). For a discussion on the meaning of ‘generally accepted’ see A. Blanco-Bazan, “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, Netherlands: Kluwer Law International, 1999), pp. 282-284.

⁹³ B. Kwiatkowska, *The 200 Mile Exclusive Economic Zone in the new Law of the Sea* (Dordrecht, The Netherlands: Martinus Nijhoff Publishers, 1989), p. 179. It should be noted that the obligation to establish laws giving effect to international standards is irrespective of whether the flag State is a party to the international instrument that promulgates those standards.

⁹⁴ *Ibid.*

⁹⁵ Bodansky, p. 742 (note 3 above).

⁹⁶ LOSC, Article 87(1)(a).

⁹⁷ LOSC, Article 87(2).

ships of foreign States enjoy considerable navigation freedoms, they are also subject to the obligation to comply with the laws and regulations of coastal States. Notwithstanding this, the LOSC does impose specific flag State obligations regarding discharge, CDEM and navigational standards. The flag State's duties to exercise jurisdiction over its vessels are found in Article 94(1). Furthermore, Article 94(3) requires that every State shall take such measures for ships flying its flag as are necessary to ensure safety at sea with regard, *inter alia*, to:

- (a) The construction, equipment and seaworthiness of ships;
- (b) The manning of ships, labour conditions and the training of crews, taking into account the applicable international instruments;
- (c) The use of signals, the maintenance of communications and the prevention of collisions.

Molenaar argues that, while this provision has been placed in Part VII on the high seas, the view that Article 94 would apply only to the high seas and EEZ has to be rejected.⁹⁸ As such, it is argued that these obligations are placed more generally on flag States to exercise effective jurisdiction on ships flying their flags, wherever those ships may be. Flag States are further obligated to ensure ships flying their flags comply with international standards for pollution prevention under Article 211(2), which provides that:

⁹⁸ See Molenaar, p. 98 (note 32 above).

States shall adopt laws and regulations for the prevention, reduction and control of pollution of the marine environment from vessels flying their flag or of their registry. Such laws and regulations shall at least have the same effect as that of generally accepted international rules and standards established through the competent international organisation or general diplomatic conferences.⁹⁹

Thus, it can be seen that, while flag States enjoy considerable freedoms of navigation, they remain subject to a number of obligations to protect the marine environment.

3.5.2 Coastal State Jurisdiction

While the different legal status of the maritime zones does not directly influence the way safety and anti-pollution measures are enforced on board ships by flag States, the existence of maritime zones becomes relevant in determining how coastal State jurisdiction should be exerted in connection with the enforcement of navigation and anti-pollution standards.¹⁰⁰

In general, IMO treaties do not attempt to regulate the nature and extent of coastal State jurisdiction. Thus the degree to which coastal States may enforce IMO regulations in respect of foreign ships in innocent passage in their territorial waters, or navigating in the EEZ, is exclusively subject to be regulated by the LOSC. The same principle applies to transit passage in straits used for international navigation or to archipelagic sea lanes.

⁹⁹ This provision is further supported by the provisions of Article 217(1) which requires flag States to ensure their vessels comply with national and international regulations relating to vessel-sourced pollution.

¹⁰⁰ LEG/MISC/3/Rev.1, p. 9 (note 37 above). For the purposes of this thesis, the relevant zones are ports and internal waters, the territorial sea and the EEZ. Since the focus of the discussion in this chapter relates to coastal State jurisdiction to regulate navigation and discharge standards, no analysis will be provided on the rights of a State to intervene with a casualty. Accordingly, no reference will be made in this chapter, to a State's powers of intervention in either the EEZ or the high seas.

3.5.2.1 Jurisdiction in Ports and Internal Waters

Customary international law acknowledges in principle, full coastal State jurisdiction within ports.¹⁰¹ By entering foreign ports and other internal waters, ships put themselves within the territorial jurisdiction of the coastal State.¹⁰² As such, coastal States have extensive authority to regulate ships that enter their ports.¹⁰³ Based on the principle of territoriality, this jurisdiction provides a port State not only with the ability to close down its ports to international shipping¹⁰⁴ but also with the ability to set port entry conditions.¹⁰⁵ Pursuant to Article 211(3) of the LOSC, States may establish particular requirements for the prevention, reduction and control of pollution as a condition for the entry of foreign vessels into their ports. Accordingly, as Molenaar and others argue, port State jurisdiction under the LOSC is, in principle, unlimited.¹⁰⁶

The rights of a port State to prescribe conditions for entry into ports also apply, *mutatis mutandis*, to a coastal State's prescriptive jurisdiction within its internal waters.¹⁰⁷ Thus, according to Molenaar:

¹⁰¹ See LOSC, Article 11.

¹⁰² Churchill & Lowe, p. 65 (note 2 above).

¹⁰³ L.S. Johnson, *Coastal State Regulation of International Shipping* (Dobbs Ferry, NY: Oceana Publications, 2004), p. 35.

¹⁰⁴ For a discussion on the issue of port closure see *Ibid*, pp. 36-38.

¹⁰⁵ Johnson, p. 35 (note 103 above).

¹⁰⁶ Molenaar, p. 104 (note 32 above). Johnson (note 103 above) at p. 42, argues that if proper notification is given to a ship of the existence of such conditions and the vessel still voluntarily enters port, it can be argued that the vessel has agreed to be bound by such conditions. For a comprehensive overview of the rights of access to ports used for international trade see generally L. de La Fayette, "Access to ports in international law," *International Journal of Marine and Coastal Law* 11 (1996), pp. 1-22.

¹⁰⁷ Internal waters are those waters which lie on the landward side of the baseline from the territorial sea and other maritime zones are measured (LOSC, Article 8(1)).

the view that port State jurisdiction is in principle unlimited implies that coastal State jurisdiction over its internal waters is in principle also unrestricted.¹⁰⁸

Consequently there is no right of innocent passage such as exists in the territorial sea.¹⁰⁹

3.5.2.2 Jurisdiction in the Territorial Sea

With respect to the territorial sea, the LOSC promotes a preference for national rules and standards to be adopted by the coastal State. Coastal States may therefore adopt their own rules on discharges for foreign vessels. However, there are two principle limitations on these powers.

First, it is a well established rule of international law that ships of all States enjoy the right of innocent passage through the territorial sea.¹¹⁰ That is to say, foreign vessels enjoy a right of unimpeded navigation through the territorial sea to the extent that it does not adversely affect the interests of the coastal State.¹¹¹ As such, the LOSC places on coastal States an obligation not to hamper, deny or impair the right of innocent passage.¹¹²

¹⁰⁸ Molenaar, p. 186 (note 32 above).

¹⁰⁹ An exception to this rule exists where the internal waters were created by the drawing of a straight baseline which encloses waters that were previously considered to be territorial waters. See LOSC Article 8(2). Under these circumstances, ships enjoy the right of innocent passage through the internal waters as if those water remained part of the territorial sea. Accordingly, the regime of jurisdiction over vessel-source pollution applies within such waters as well.

¹¹⁰ Innocent passage is broadly defined in Articles 18 and 19 of the LOSC. For a detailed discussion of the meaning of the term see for example K. Hakapaa and E. J. Molenaar, "Innocent passage - past and present," *Marine Policy* 23 (1999), pp. 131-135; Molenaar, pp. 195-199 (note 32 above); Churchill & Lowe, pp. 81-92 (note 2 above).

¹¹¹ B. Smith, "Innocent passage as a rule of decision: Navigation versus environmental protection" *Columbia Journal of Transnational Law* 21 (1982), p. 50.

¹¹² LOSC, Article 24.

The second limitation is that coastal States are not permitted to establish rules and standards that relate to CDEM, unless such rules give effect to “generally accepted international rules or standards”.¹¹³

Notwithstanding this, the LOSC recognises that coastal States retain a significant degree of authority to prescribe and enforce their laws over foreign ships engaged in such passage.¹¹⁴ The territorial sea is part of the coastal State’s territory and subject to its sovereignty.¹¹⁵ Thus in its territorial sea, a coastal State may, pursuant to the provisions of Article 21 of the LOSC, legitimately regulate innocent passage with respect to *inter alia*:

- The safety of navigation and the regulation of maritime traffic;¹¹⁶
- The conservation of the living resources of the sea;¹¹⁷ and
- The preservation of the environment of the coastal State and the prevention, reduction and control of pollution thereof.¹¹⁸

Article 21(1) would therefore appear to provide a general authority for the adoption of routeing measures for the purposes of environmental protection. Furthermore, Article 22 of the LOSC provides that coastal States may:

¹¹³ LOSC, Article 21(2).

¹¹⁴ Johnson, p. 61 (note 103 above).

¹¹⁵ See Hakapaa & Molenaar, p. 132 (note 110 above).

¹¹⁶ LOSC, Article 21(1)(a).

¹¹⁷ LOSC, Article 21(1)(d).

¹¹⁸ LOSC, Article 21(1)(f).

- (1) Designate sea lanes and prescribe traffic separation schemes (TSS) for the regulation of innocent passage of ships through its territorial sea, where necessary, having regard to the safety of navigation; and
- (2) Require tankers, nuclear powered ships and ships carrying nuclear or other inherently dangerous or noxious substances or materials to confine their passage to such sea lanes.¹¹⁹

Even though Article 22 specifically relates only to the adoption of sea lanes and TSSs *for the purpose of safety of navigation* [emphasis added], it should be read more broadly in the context of the general authority provided by Article 21, and also of Article 22(2) which specifically address those types of ships and hazardous cargoes that may present a threat to the marine environment.¹²⁰ Similarly, Article 21 does not place any restriction on the type of routeing measure that may be adopted. As such, it should not be assumed that coastal State jurisdiction is limited only to sea lanes and TSSs.¹²¹ In further support of these arguments is the scope of Article 211(1) of the LOSC, which explicitly provides for the adoption of ships' routeing measures for the purposes of preventing, reducing and controlling pollution of the marine environment.

Thus the establishment of environmentally targeted routeing measures within a coastal State's territorial sea appears wholly consistent with the provisions of the LOSC.

¹¹⁹ The subject of coastal State rights with respect to ships carrying hazardous cargoes has attracted a great deal of attention in recent times. High profile incidents such as the *Prestige* and the *Erika* have prompted several coastal States to propose ever increasingly stringent measures to protect their coastal waters. See for example J. Roberts, T. Workman, M. Tsamenyi and L. Johnson, "The Western European PSSA: A 'politically sensitive sea area'," *Marine Policy* 29 (2005), pp. 431-440.

¹²⁰ Bodansky, pp. 750-751 (note 3 above).

¹²¹ For a broader discussion of this argument see Molenaar, pp. 203-204 (note 32 above).

Articles 21 and 22 when read together and in the context of Article 211(1), confirm that coastal States have the power to adopt routeing measures to protect vulnerable areas and can regulate the environmental impacts of international shipping.¹²² It should be noted, however, that while the adoption of routeing measures is clearly within the competence of coastal States with regard to their own territorial seas, a coastal State needs to take into account the recommendations of the IMO with respect to the design and adoption of ships' routeing systems, even if it need not consult with that organisation.¹²³

The territorial sea is thus a compromise between the coastal State's powers to control navigation and pollution, while preserving the rights of innocent passage and international control of construction, design, equipment and manning of vessels.¹²⁴

3.5.2.3 Jurisdiction in the EEZ

The EEZ is one of the most revolutionary features of the LOSC. Ultimately, the creation of the EEZ was a compromise conferring on the coastal State, on the one hand, regulatory jurisdiction over all sources of pollution including vessel pollution, and on the other hand ensuring that such jurisdiction in respect of vessels was limited only to the application of international rules. As Kullenberg notes:

This acceptance of the EEZ probably represents the largest transfer of resources to national jurisdiction in history.¹²⁵

¹²² Johnson, pp. 69-71 (note 103 above).

¹²³ Roberts, p. 100 (note 56 above).

¹²⁴ A.E. Boyle, "Marine pollution under the Law of the Sea Convention," *American Journal of International Law* 79 (1985), p. 360.

Coastal States' rights and jurisdiction in the EEZ relate to the natural resources of the EEZ.¹²⁶ Article 56(1)(a) of the LOSC provides that States have *inter alia* sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living, of the waters superadjacent to the seabed and of the seabed and its subsoil.¹²⁷

With respect to protection of the marine environment, Article 56(1)(b) confers on coastal States jurisdiction as provided for in the relevant provisions of the Convention with respect to the protection and preservation of the marine environment. The relevant provisions are to be found in Part XII.¹²⁸ This part gives the coastal States the legislative and enforcement competence in the EEZ to deal with *inter alia* pollution from vessels.¹²⁹ Within the EEZ, coastal States may adopt laws and regulations applicable to foreign-flag vessels, but those laws must conform to "generally accepted international rules and standards established through the competent international organisation or general diplomatic conference".¹³⁰ Where the coastal State believes these international rules are inadequate to meet circumstances, in a clearly defined area of the EEZ, that State may submit to the IMO, scientific and technical evidence in support of the need

¹²⁵ G. Kullenberg, "The exclusive economic zone: some perspectives" *Ocean and Coastal Management* 42 (1999), p. 849. The EEZs cover approximately 8% of the earth's surface and include approximately 25% of global primary production and 90% of total fish catch.

¹²⁶ Dziedzornu & Tsamenyi, p. 280 (note 24 above).

¹²⁷ See Kullenberg, p. 850 (note 125 above).

¹²⁸ See Kwiatkowska, p. 160 (note 93 above); See also D. M. Dziedzornu, "Coastal State obligations and powers respecting EEZ environmental protection under Part XII of the UNCLOS: A descriptive analysis," *Colorado Journal of International Environmental Law* 8 (1997), p. 284.

¹²⁹ For a general discussion of coastal State rights and duties in the EEZ see Churchill & Lowe, pp. 166-169 (note 2 above).

¹³⁰ LOSC, Article 211(5).

for a special regime through that organisation and with its consent adopt such a regime.¹³¹

These rights notwithstanding, Article 58(1) of the LOSC specifically provides that ships enjoy freedom of navigation in the EEZ.¹³² As such, coastal States are not generally permitted to prescribe navigational standards within the EEZ, except in certain circumstances. However, while the LOSC does not specifically give competence to coastal States to adopt routeing measures in their EEZ, in any way analogous to those provisions for the territorial sea, pursuant to the provisions of Article 211(1) and with the consent of the IMO, a coastal State may still legitimately impose controls on navigation in the form of routeing measures.

As noted above, in the EEZ, a coastal State's jurisdiction is generally limited to that which gives effect to internationally accepted standards. However, out of deference to its interests in conserving and managing resources, the coastal State is allowed to establish environmental standards that may be more stringent than those internationally established.¹³³ These measures are characterised as "special mandatory measures" aimed at preventing vessel source pollution in the EEZ.¹³⁴ Pursuant to Article 211(6), they may be established in "special clearly defined areas" of the EEZ where "for recognised technical reasons in relation to its oceanographical and ecological conditions" the

¹³¹ Juda, p. 236 (note 85 above).

¹³² See however J. Van Dyke, "The disappearing right to navigational freedom in the exclusive economic zone," *Marine Policy* 29 (2004), pp. 107-121, who argues strongly that the traditional rights of freedom of navigation have been severely eroded in the EEZ as a result of coastal State practice. He particularly notes the actions of certain States in respect of ships carrying harmful substances such as oil (pp. 109-110) and irradiated nuclear fuel (p. 111).

¹³³ Dzidzornu, p. 301 (note 128 above).

¹³⁴ LOSC, Article 211(6).

coastal State may adopt “special mandatory measures for the prevention of pollution from ships”. However, this authority is not unilateral, and a coastal State must submit a proposal for such measures to the IMO for its approval.¹³⁵

It can therefore be seen that, generally speaking, the LOSC serves the interest of maritime States in ensuring uniformity of standards in the EEZ and above all, in preserving their ability to influence the formulation of those standards through the IMO. As such, while the coastal State has almost absolute discretion over the rules it may apply to protect its interests within the territorial sea, in the EEZ it has no such discretion. That power lies within the member States of the IMO and therefore the exercise of that power represents compromise and common interest of those member States, and not merely of the interests of coastal States.

As Boyle¹³⁶ observes:

the articles on vessel pollution in the economic zone are better understood not as an attempt to give the coastal State more power at the expense of the flag State, but as part of a policy of strengthening and making more effective the primary duty of flag States to control their own vessels. In this sense, the coastal State’s legislative role in the zone is a secondary or subsidiary one, more important for enforcement purposes than as an example of legislative jurisdiction.

It is a traditionally held view that the establishment of routeing measures for the purpose of protecting the marine environment must relate to pollution.¹³⁷ It is reasoned that Article 56 is subject to the requirements of Article 211(5), which restricts coastal States’

¹³⁵ Refer to LOSC, Article 211(6)(a).

¹³⁶ See Boyle, p. 362 (note 124 above).

¹³⁷ See for example Kwiatkowska, p. 160 (note 128 above). See also generally Dzidornu (note 128 above).

rights to regulate ships transiting the EEZ, and stipulates that measures established in the EEZ for the prevention, reduction and control of pollution from vessels must conform to, and give effect to, generally accepted international rules and standards established through the IMO.¹³⁸ Thus, in the context of Article 56, and other provisions of Part V of the LOSC, a coastal State must tie adverse effects from ship sourced pollution to its EEZ resources, in order to make the case for imposition of environmental rules and standards. However, what if a coastal State's concerns relate to environmental impacts other than pollution? Johnson argues that States exercising their sovereign rights under Part V of the LOSC may adopt measures for the purpose of protection and preservation of the marine environment and for conserving and managing natural resources.¹³⁹ As such, coastal States may seek to establish navigational controls for impacts to EEZ resources that are not directly associated with pollution.¹⁴⁰ It thus follows logically that, in order to give effect to the obligations under Article 56 (as well as Articles 192 and 194(5)), the IMO may similarly adopt measures for the purposes of protection and preservation of the marine environment and for conserving and managing natural resources.

The USA has taken this position, claiming jurisdiction to protect biological resources, within its sovereign jurisdiction, from non-pollution related impacts of international shipping.¹⁴¹ For example, the USA successfully argued for an amendment to the

¹³⁸ Roberts, p. 101 (note 56 above).

¹³⁹ For a detailed discussion of this argument see Johnson, pp. 103-106 (note 103 above).

¹⁴⁰ Roberts, p. 101 (note 56 above).

¹⁴¹ See Bodansky, pp. 766-767 (note 3 above).

GPSR¹⁴² to include no anchoring areas as a recognised ships' routeing measure. Clearly anchor damage is not 'pollution' *per se*, but the USA argued that:

there is clearly a need to establish a measure for no anchoring areas in the GPSR. Such areas could be proposed and established where anchoring may be unsafe, unstable, hazardous, or where there is the possibility that unacceptable damage to the marine environment would result.¹⁴³

On the basis that this argument would be accepted, the USA also proposed the establishment of three mandatory no anchoring areas to protect the coral reefs of the Flower Garden Banks in the Gulf of Mexico.¹⁴⁴ Subsequently, the USA sought the adoption of three mandatory no anchoring areas as an integral part of a proposal to identify the marine area around the Florida Keys as a PSSA.¹⁴⁵

This approach has also been applied to the protection of North Atlantic right whales off the east coast of the USA. Two mandatory SRSs were adopted by the IMO in 1998, in order to "provide important protection for endangered large whale species, in particular the critically endangered northern right whale."¹⁴⁶ Similarly, Canada has also amended a traffic separation scheme in the Bay of Fundy, for the purpose of reducing ship strikes

¹⁴² Note 52 above.

¹⁴³ NAV 46/3/2, *Proposed amendments to the General Provisions on Ships' Routeing to provide for a no anchoring area routeing measure*, submitted by the United States, 5 April 2000, para. 2.

¹⁴⁴ NAV 46/3/3, *No anchoring areas for Flower Garden Banks in the Northwestern Gulf of Mexico*, submitted by the United States, 5 April 2000.

¹⁴⁵ NAV 47/3/1, *No anchoring areas in the Tortugas Ecological Reserve and the Tortugas Bank in the Florida Keys*, submitted by the United States, 15 February 2001.

¹⁴⁶ NAV 44/14, *Subcommittee on Safety of Navigation forty-fourth session: Report to the Maritime Safety Committee*. 4 September 1998, Annex 8, para. 1.

on North Atlantic right whales, by shifting the traffic lanes of the TSS from an area with the highest density of right whales to an area where there is a lower density.¹⁴⁷

Despite the approval of these measures by the IMO, it should be noted that in order to give full effect to the obligations under Article 56, it may be necessary to establish measures in the EEZ that are not approved by the IMO. As Johnson notes, the fact that a coastal State cannot act unilaterally in the EEZ, does not mean it should be assumed that they have no ability to regulate to conserve and manage their natural resources.¹⁴⁸ For example, additional measures for the protection of right whales are currently being proposed by the USA under domestic legislation. The National Marine Fisheries Service is considering regulations to implement a strategy aimed at reducing mortalities to right whales as a result of vessel collision. The strategy may include such measures as speed restrictions in designated traffic lanes, as well as routing measures.¹⁴⁹ Each of the proposals to the IMO, and those now being considered within the USA, were premised on the basis of resource jurisdiction and a coastal State's rights to regulate navigation to protect against activities that affect its resources in the EEZ. However, a coastal State relying on Part V must clearly tie any proposed regulation to its natural resources and economic activities associated with them.¹⁵⁰ Thus, while Article 56 is clearly important in justifying coastal State action, the more general provisions of Part XII, especially articles 192 and 194(5) provide a broader mandate for IMO action.

¹⁴⁷ See NAV 48/3/5, *Amendment of the traffic separation scheme in the Bay of Fundy and approaches*, submitted by Canada, 5 April 2002; MSC 76/23, *Report of the Maritime Safety Committee on its Seventy-Sixth Session*, 16 December 2002, para. 113.

¹⁴⁸ Johnson, p. 132 (note 103 above).

¹⁴⁹ 69 Federal Register at 30857. Endangered Fish and Wildlife; Advanced Notice of Proposed Rulemaking (ANPR) for Right Whale Ship Strike Reduction. (June 1 2004).

¹⁵⁰ Johnson, p. 106 (note 103 above).

3.5.2.4 Straits Used for International Navigation

The regime dealing with navigation through international straits is found in Part III of the LOSC. While the LOSC does not define the term ‘strait’, the ordinary meaning of a strait as “a natural passage or arm of water connecting two larger bodies of water” appears to be accepted.¹⁵¹ Straits may be comprised of: internal waters; territorial seas; exclusive economic zones; and even areas of the high seas.¹⁵² What is important, therefore, is the legal status of the waters constituting a strait, as it is this factor that determines the navigational rights of other States through a strait.¹⁵³

Part III of the LOSC recognises four types of passage through international straits:

- (1) The right of ‘transit passage’ through straits used for international navigation which connect one part of the high seas or an exclusive economic zone with another part of the high seas or an exclusive economic zone;¹⁵⁴
- (2) ‘Innocent passage’ through straits used for international navigation formed by the mainland and an island of the State bordering the strait where there exists to seaward route through the high seas or a route of similar convenience;¹⁵⁵

¹⁵¹ Churchill & Lowe, p. 102 (note 2 above); Molenaar, p. 283 (note 32 above).

¹⁵² See B.H. Dubner, “On the interplay of international law of the seas and the prevention of marine pollution – How far can a State proceed in protecting itself from conflicting norms in international law?” *Georgetown International Environmental Law Review* 11 (1998), p. 147.

¹⁵³ Churchill & Lowe, p. 102 (note 2 above).

¹⁵⁴ LOSC, Articles 37 and 38.

¹⁵⁵ LOSC, Articles 38(1) and 45.

- (3) Normal freedoms of navigation and over flight as prescribed in the LOSC in straits used for international navigation, through which there exists a high seas or exclusive economic zone corridor;¹⁵⁶ and
- (4) The legal regime in straits created by previously negotiated longstanding international conventions regarding passage by shipping through those straits, which conventions are not affected by Part III of the LOSC.¹⁵⁷

3.5.2.5 The Transit Passage Regime

The transit passage regime implies, as regards navigation, that the strait is no longer to be considered as part of the territorial sea of a strait State and that coastal State powers in the strait are different from those it can exercise in the territorial sea.¹⁵⁸ Thus, in a strait where the transit passage regime exists, the rules of innocent passage are supplanted by the more relaxed rules of transit passage. The transit passage regime has been described as sitting somewhere between the regime of ‘innocent passage’ and ‘free navigation’.¹⁵⁹ Under the transit passage regime, freedom of navigation and a right of overflight exists, for ships and aircraft respectively, operating in their ‘normal mode’.¹⁶⁰ The LOSC does not define ‘normal mode’, however, maritime States have interpreted this to mean that submarines can transit submerged and warships can engage in

¹⁵⁶ LOSC, Article 36.

¹⁵⁷ LOSC, Article 36(c).

¹⁵⁸ See M. George, “Transit passage and pollution control in straits under the 1982 Law of the Sea Convention,” *Ocean Development and International Law* 33 (2002), p. 194.

¹⁵⁹ Molenaar, p. 287 (note 32 above).

¹⁶⁰ LOSC, Article 39(1)(c).

exercises, so long as these are consistent with their normal mode of “continuous and expeditious” transit.¹⁶¹ According to Article 38(2) of the LOSC:

the requirement of continuous and expeditious transit does not preclude passage through the strait for the purposes of entering, leaving or returning from a State bordering the strait, subject to the conditions of entry to that State.

3.5.2.5.1 Flag State Obligations under Transit Passage

Notwithstanding that the right of transit passage is heavily weighted in favour of flag States, flag States remain subject to a number of obligations set out in Part III of the LOSC. As noted above, transit passage must be “continuous and expeditious” and as Churchill and Lowe note, while there is no criterion of ‘innocence’ associated with transit passage,¹⁶² ships are bound to refrain from the threat of use of force¹⁶³ and must refrain from activities other than those incidental to their normal modes of continuous and expeditious transit, unless rendered necessary by *force majeure*.¹⁶⁴

Under Article 39(2), ships in transit passage are also obliged to comply with “generally accepted international regulations, procedures and practices” for safety at sea and the prevention, reduction and control of pollution from ships. Thus, standards set out in SOLAS, COLREGS and MARPOL 73/78 for example, would be applicable to all ships

¹⁶¹ G. Galdorisi, “An operational perspective on the law of the sea,” *Ocean Development and International Law* 29 (1998), p. 79. Galdorisi argues that:

Less restrictive than innocent passage, the transit regime permits ships and aircraft to pass through straits continuously and expeditiously in the normal mode. Accordingly, submarines may pass through straits submerged, naval task forces may conduct formation steaming, aircraft carriers may engage in flight operations, and military aircraft can transit unchallenged.

¹⁶² Churchill & Lowe, p. 107 (note 2 above).

¹⁶³ LOSC, Article 39(1)(b).

¹⁶⁴ LOSC, Article 39(1)(c).

in the strait irrespective of whether the flag State was a party to these conventions.¹⁶⁵

Ships in straits used for international navigation, which are not exercising their right of transit passage, are subject to the general provisions of the LOSC other than those in Part III.¹⁶⁶

3.5.2.5.2 Coastal State Jurisdiction to Regulate Transit Passage

The regime of transit passage generally applies in areas where there is no equally convenient alternative route or in some cases no alternative route at all.¹⁶⁷ As a result, interference with navigation in these areas may be a serious problem and, unlike the innocent passage regime of the territorial sea, strait States have no unilateral regulatory powers to impose routing measures on ships in transit passage.¹⁶⁸ However, while a coastal State's regulatory powers in international straits are limited by the provisions of Part III of the LOSC, a coastal State may still impose controls on navigation. Article 42 of the LOSC prescribes the limits of the regulatory powers of States bordering straits relating to transit passage. Accordingly, strait States may adopt laws and regulation relating to transit passage, *inter alia* with respect to the safety of navigation and maritime traffic and the prevention and control of pollution. Pursuant to Article 41 of the LOSC, strait States have the right to prescribe sea lanes and traffic separation schemes to minimise the number of accidents and to enhance the safety of navigation, provided they conform to international regulations and are submitted to the IMO for

¹⁶⁵ Churchill & Lowe, p. 108 (note 2 above).

¹⁶⁶ See Molenaar, p 287-289, for a discussion on what activities cannot be considered as exercises of the right of transit passage (note 32 above).

¹⁶⁷ LOSC, Article 37.

¹⁶⁸ B. H. Oxman, p. 476 (note 38 above).

adoption.¹⁶⁹ Similarly, pursuant to Article 42(1)(b) States have the right to establish national laws to give effect to “applicable international regulations” respecting vessel discharges in a strait. Brubaker argues that, based upon State practice and the legislative history of this provision, strait States have competence to prescribe discharge provisions as set out in MARPOL 73/78.¹⁷⁰ However, this competence is extremely limited, since under Articles 42(2) and 44 of the LOSC, coastal States are not to hamper, impair, deny, or suspend transit passage in international straits, even for violations of domestic laws and regulations. Thus, the implication of the transit passage regime for all strait States is that user States have unlimited and maximum freedom of passage.

3.5.2.6 Innocent Passage in International Straits

Innocent passage applies to those straits used for international navigation which are excluded from the regime of transit passage¹⁷¹ or which are between a part of the high seas or an EEZ and the territorial sea of a foreign State.¹⁷² The innocent passage regime is set forth in Part II of the LOSC and is discussed above (Section 3.5.2.1) in the context of coastal jurisdiction in the territorial sea. However, in the context of the international straits regime such innocent passage is not-suspendable.¹⁷³

¹⁶⁹ LOSC, Article 41(4). Given that coastal States have no jurisdiction to act unilaterally, and given that IMO approval of such measures is required, there does not appear to be any reason why the procedure set out in Article 41 could not equally apply to other internationally accepted measures such as ship’s routing measures and SRS. Molenaar (note 32 above) at p. 295, elaborates on this argument. However, State practice in this area does not assist in clarifying whether this is the case, as the treatment by IMO of applications by coastal States for other measures has not been addressed in a consistent manner.

¹⁷⁰ R.D. Brubaker, “Straits in the Russian Arctic,” *Ocean Development and International Law* 32 (2001), p. 268.

¹⁷¹ LOSC, Article 45(1)(a).

¹⁷² LOSC, Article 45(1)(b).

¹⁷³ LOSC, Article 45.

3.5.2.7 Archipelagic Sea Lanes

A similar but separate issue to straits used for international navigation applies in the case of archipelagic States and their waters. The regime governing archipelagic States is addressed in Part IV of the LOSC, which contains a number of similarities to the straits regime.

Article 46(a) defines an archipelagic State as “a State constituted wholly by one or more archipelagos¹⁷⁴ and may include other islands”. As Molenaar notes, central to Part IV, is the definition of the sovereign rights of archipelagic States set forth in Article 49, which “extends to the waters enclosed by the archipelagic baselines drawn in accordance with Article 47”.¹⁷⁵ Thus archipelagic waters are those waters contained within archipelagic baselines as defined in Article 47. The regular maritime zones, such as, the territorial sea extend seawards from these archipelagic baselines.¹⁷⁶ However, while an archipelagic State has sovereignty over its archipelagic waters, this sovereignty is subject to a number of rights enjoyed by third States. For the purposes of this thesis, the most important of these are navigation rights. To address these rights, as with straits used for international navigation, two navigation regimes are applicable to archipelagic waters; the regime of innocent passage, as provided for in Part II of the LOSC, and the regime of non-suspendable archipelagic sea lane passage.

¹⁷⁴ An archipelago means:

a group of islands, including parts of islands, interconnecting waters and other natural features which are so closely interrelated that such islands, waters and other natural features form an intrinsic geographical, economic and political entity, or which historically have been regarded as such. (LOSC, Article 46(b)).

¹⁷⁵ Article 47 is a complex Article of many paragraphs which defines the procedures for determining the limits and extent of archipelagic baseline. For a discussion on archipelagic baselines see for example Churchill & Lowe, pp. 123-125 (note 2 above).

¹⁷⁶ Molenaar, p. 340 (note 32 above).

International shipping enjoys the same right of innocent passage in archipelagic waters as they do in the territorial sea.¹⁷⁷ This right may only be suspended, temporarily and in specified areas for where such suspension is necessary for security reasons.¹⁷⁸ Furthermore, any such suspension must be publicised.

3.5.2.8 Archipelagic Sea Lanes Passage

Archipelagic sea lanes passage applies to sea lanes and air routes thereabove, suitable for the continuous and expeditious passage of foreign ships and aircraft through and over archipelagic waters and the adjacent territorial sea designated by the archipelagic State after adoption by the IMO.¹⁷⁹ The similarities between archipelagic sea lanes passage and the right of transit passage in straits are clearly apparent when comparing the provisions of the LOSC that relate to each.¹⁸⁰ Indeed, Churchill and Lowe argue that the right of archipelagic sea lane passage is essentially the same as transit passage through straits and the rights and obligations of both flag and archipelagic States are the same as the rights and obligations of flag and strait States in respect of transit passage.¹⁸¹ Geographically, passage must be between one part of the high seas or an EEZ and another part of the high seas or EEZ. Passage under the regime is concerned

¹⁷⁷ LOSC, Article 52(1).

¹⁷⁸ LOSC, Article 52(2).

¹⁷⁹ LOSC, Article 53. The approval role of the IMO is crucial in the designation of archipelagic sealanes. As such IMO has adopted procedures for the designation of archipelagic sea lanes. For a discussion of the IMO approval role see for example C. Johnson, "A rite of passage: The IMO consideration of the Indonesian archipelagic sea-lanes submission," *International Journal of Marine and Coastal Law* 15 (2000), pp. 319-325; Oxman, generally (note 38 above).

¹⁸⁰ For example LOSC, Articles 39, 40, 42 and 44, which relate to transit passage, apply *mutatis mutandis* to the regime of archipelagic sea lanes passage – See Article 54.

¹⁸¹ Churchill & Lowe, p. 127 (note 2 above).

with transit and carries no requirement of innocence.¹⁸² Furthermore, such transit must be unobstructed¹⁸³ and cannot be suspended.¹⁸⁴

The right of archipelagic sea lanes passage also still applies in instances where an archipelagic State has not designated any sea lanes. In this event, Article 53(12) provides that the right of archipelagic sea lanes passage may still be exercised through the routes normally used for international navigation. The regime of archipelagic sea lanes passage is, therefore, not contingent upon the designation and adoption of sea lanes.

3.6 CONCLUSIONS

Because of the international nature of shipping, it has long been recognised that the regulation of the industry is more effective if carried out at an international level, rather than by individual countries acting unilaterally. To achieve this, a complex international framework has developed, consisting of well established customary international law, based on the premise of freedom of the seas; specific international conventions aimed at regulating specific aspects of ships' operations; and a number of clearly identifiable actors. Most important among these is the IMO, which has developed a comprehensive range of conventional and soft law instruments aimed at ensuring the delicate balance between maritime and flag States' rights of freedom of navigation and coastal States' rights to protect their sovereign territory and resources from environmental damage, is maintained. However, while the IMO has developed a number of important

¹⁸² Johnson, p. 318 (note 103 above).

¹⁸³ LOSC, Article 53.

¹⁸⁴ LOSC, Articles 54 and 44.

international instruments, these do not define a State's rights and obligations, since this is a matter for the LOSC. As such, the relationship between the IMO and its instruments and the LOSC is of critical importance in the ongoing development of the international legal regime governing international shipping.

CHAPTER 4

THE PARTICULARLY SENSITIVE SEA AREA CONCEPT

4.1 INTRODUCTION

In the context of marine environment protection and marine biodiversity conservation, a number of IMO initiatives can be viewed as implementing obligations and recommendations of the LOSC, Chapter 17 of Agenda 21 and the CBD respectively. Of particular relevance in the context of this thesis, are the Special Area designations available under MARPOL 73/78 and the application of ships' routing measures specifically for the purpose of environmental protection. However, pre-eminent among the many measures that the IMO has adopted to manage the impacts of shipping on the marine environment is the PSSA concept.¹ There is wide recognition that the PSSA concept can be applied as one means of addressing States' obligations under the CBD.²

Having provided a broad overview of the PSSA concept and its application, this chapter provides a brief historical overview of the development of the PSSA concept since its

¹ S. Raaymakers, "Maritime transport & high seas governance – Regulation, risks and the IMO regime," in *Proceedings of the International Workshop on Governance of High Seas Biodiversity Conservation* (Cairns, 17-20 June 2003), p. 20.

² See for example A.C. De Fontaubert, D.R. Downes and T. Agardy, *Biodiversity in the Seas: Implementing the Convention on Biological Diversity in Marine and Coastal Habitats*, IUCN Environmental Policy and Law Paper No. 32. (Gland, Switzerland: IUCN, 1996), p. 18; L. de La Fayette, "The marine environment protection committee: The conjunction of the law of the sea and international environmental law," *International Journal of Marine and Coastal Law* 16 (2001), p. 186; OSPAR Document ICG-MPA 05/8/1-E, *Legal Basis for Marine Protected Areas on the High Seas*, submitted by A. Kirchner, meeting of the OSPAR Commission Intersessional Correspondence Group on Marine Protected Areas (ICG-MPA), (Isle of Vilm, Germany, 4-8 April 2005), p. 5; Numerous interventions by NGOs at the MEPC make clear references to the role the PSSA concept can play in giving effect to obligations under the CBD – Kristina Gjerde personal communication; There is also clear recognition by the CBD Secretariat and State Parties, that PSSAs have a role to play in the protection of marine biodiversity. See for example the recent paper concerning the establishment of MPAs on the High Seas, prepared for the Ad Hoc Open-Ended Working Group on Protected Areas; the paper *inter alia* invites members of the IMO to consider further extending PSSA designations to marine areas beyond the limits of national jurisdiction and, in proposing PSSAs for approval to take into account areas of importance for biodiversity: UNEP/CBD/WG-PA/1/2, *Options for cooperation for the establishment of marine protected areas in marine areas beyond the limits of national jurisdiction*, 20 April 2005, p. 4.

inception in 1978 to the present day, including the development of the various IMO resolutions that have been adopted to give effect of this concept. In order to gain a full appreciation of both the utility and limitation of the PSSA concept, a number of critical elements must be understood in the context of how a PSSA functions. As such, the chapter provides an analysis of the PSSA mechanism and in particular its basis in international law. Specific attention is given to the legal basis of PSSA designation in the context of the LOSC, and also the relationship between the PSSA concept and the CBD, as well as its relationship to the broader MPA concept and a number of international agreements that relate to biodiversity protection.

4.2 PSSA OVERVIEW

De La Fayette and others³ argue that a PSSA may be regarded as a kind of specialised MPA, or may be designated in conjunction with a MPA regulating non-shipping activities, in order to protect an ecologically sensitive area of the sea from the hazards of international shipping. In this regard, it should be noted that the PSSA concept is a problem oriented mechanism to enable the adoption of measures to protect against damage from international shipping, and not from other ocean uses. Other threats to the same areas are covered by other regimes.⁴

³ De La Fayette, p. 186 (note 2 above); T. Agardy, *Marine Protected Areas and Ocean Conservation*, (Georgetown, Texas: R.G. Landes Co., 1997), p. 100; G. Kelleher, C. Bleakley and S. Wells, *A Global Representative System of Marine Protected Areas: Volume I Antarctic, Arctic, Mediterranean, Northwest Atlantic, Northeast Atlantic and Baltic* (Washington DC: The World Bank, 1995), p. 3.

⁴ A. Chircop, "Particularly sensitive sea areas and international navigation rights: Trends, controversies and emerging issues," in Iwan Davies, (ed) *Issues in International Commercial Law* (Aldershot, UK: Ashgate Publishing, 2005), p. 231.

In general, to be identified as a PSSA, three elements must be present:⁵

- (1) The area must meet at least one of the three given criteria (ecological; social, cultural and economic; or scientific and educational);
- (2) It must be vulnerable to damage by international shipping activities; and
- (3) There must be measures that can be adopted by the IMO to provide protection to the area from these specifically identified international shipping activities.

It is argued that PSSA designation offers a number of benefits⁶ including:

- (1) It provides a comprehensive management tool whereby the vulnerability of an area to damage from international shipping activities can be examined and a measure adopted by the IMO can be tailored to address the identified vulnerability;
- (2) It provides global recognition of the special significance of a designated area through identification of PSSA status on international charts;
- (3) It informs mariners of the importance of taking extra care when navigating through a region; and

⁵ J. Roberts, T. Workman, M. Tsamenyi and L. Johnson, "The Western European PSSA: A 'politically sensitive sea area'," *Marine Policy* 29 (2005), p. 432.

⁶ See MEPC 36/21/4 *Report of the third international meeting of legal experts on particularly sensitive sea areas*, submitted by the IMO Secretariat, 4 August 1994, paras. 10-17; K. M. Gjerde and J. S. H. Pullen, "Cuba's Sabana-Camagüey Archipelago: The second internationally recognised particularly sensitive sea area," *The International Journal of Marine and Coastal Law* 13 (1998), p. 249; and Anon, "Particularly sensitive sea areas: Using a comprehensive planning tool to protect habitats from shipping," *MPA News* 3 (2002), p. 2.

- (4) It gives coastal States the opportunity to adopt additional protective measures to address the particular risks associated with international shipping in the area.

Moreover, the PSSA concept offers opportunities to enable the development of common jurisdictional and enforcement regimes for environmentally significant marine areas. Others argue that the most significant added value of the PSSA could be to provide for approval of exceptional measures, which although justified by internationally recognised exceptional circumstances, cannot find a precise legal basis in existing international instruments.⁷

In itself, designation of a PSSA confers no direct regulatory benefit. It is only through the application of associated protective measures (APMs), such as ships' routing measures, that the legal basis for the regulation of shipping can be provided. Notwithstanding this, it is argued that the designation of a PSSA has an intrinsic value in its own right, since it serves to highlight that the area is sensitive and that mariners should exhibit greater caution than would otherwise have been the case.⁸ A similar conclusion was reached by the Donaldson Inquiry following the grounding of the tanker *MV Braer*.⁹ The report of the Inquiry,¹⁰ recommended *inter alia* the establishment of

⁷ K. 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*, BfN-Skripten 43 (Bonn: German Federal Agency for Nature Conservation, 2001), pp. 125-126; Gjerde and Pullen, p. 252 (note 6 above); See also MEPC 36/21/4, para. 33 (note 6 above).

⁸ See for example MEPC 36/21/4, paras. 14-5 (note 6 above).

⁹ The *MV Braer* was a Liberian registered oil tanker carrying a cargo of gulfaks crude which foundered and grounded off Garths Ness in Shetland in January 1993. As a result of the grounding the entire cargo of some 83,000 tonnes of oil was lost. The area around Shetland is widely recognised as having high biodiversity values due to the high productivity of the area and the large number of sea birds that feed in Shetland waters. See generally L. M. Warren and M. W. Wallace, "The Donaldson inquiry and its relevance to particularly sensitive sea areas," *International Journal of Marine and Coastal Law* 9 (1994), p. 523.

Marine Environmental High Risk Areas defined as “comparatively limited areas of high sensitivity which are also at risk from shipping”.¹¹ The report concluded that:

the first purpose of any new measure must be to inform Masters of areas where there is a real prospect of a problem arising. This prime purpose stands alone and regardless of any consequential defensive measures.¹²

Supporters of this view argue that the Great Barrier Reef PSSA provides clear evidence of this.¹³

Alternatively, others argue that if no new APMs are adopted, or only those that already exist in an IMO instrument are applied, there is no benefit to be gained from designation. Indeed, PSSA designation does require the additional work of submitting a proposal to the IMO for designation and may entail a greater amount of time and procedural hurdles than simply submitting a proposal for, say, a routeing or reporting system.¹⁴ Others argue against the concept more forcibly and question whether coastal States gain much benefit from PSSA designation other than some “ill-defined recognition of the area’s special character”.¹⁵

However, while the legal status of PSSAs and the merits of their designation may be debated, it is widely accepted that a PSSA represents a comprehensive management tool

¹⁰ HMSO, *Safer Ships, Cleaner Seas*. Report of Lord Donaldson’s Inquiry into the Prevention of Pollution from Merchant Shipping. (London: HMSO, 1994).

¹¹ *Ibid*, para. 14.120.

¹² *Ibid*, para. 14.119.

¹³ Paul Nelson (AMSA) personal communication, January 2004.

¹⁴ Roberts *et al*, p. 434 (note 5 above).

¹⁵ E.J. Molenaar, *Coastal State Jurisdiction over Vessel-Source Pollution*, (Kluwer Law International, 1998), p. 443.

at the international level that provides a mechanism for reviewing an area that is vulnerable to damage by international shipping and determining the most appropriate way to address that vulnerability.¹⁶ In this regard, the application of the PSSA concept as a management tool exhibits many similarities with risk assessment tools used to identify areas of high risk and to select appropriate mitigation measures to treat that risk.¹⁷ In the context of PSSAs the ‘risk’ is environmental damage.

To date 11 PSSAs have been designated by the IMO (See Figure 4.1 and Table 4.1).

¹⁶ Lindy Johnson, (NOAA) personal communication, November 2004.

¹⁷ See for example: MSANZ, *Review of the Voluntary Vessel Routeing Code for Shipping in New Zealand Coastal Waters*, A consultation document prepared by the Maritime Safety Authority of New Zealand June 2001. The review applied a semi-quantitative approach to estimate the relative impact of oil spills around the coastline using environmental, economic and social/amenity indicators; The UK Department of Environment, Transport and the Regions (DETR) used a risk based approach to identify Marine Environment High Risk Areas around the coastline. See Safetec UK, *Identification of the Environmental High Risk Areas (MEHRA's) in the UK*, (Department for Environment, Transport and Regions, London, 1999); While the Great Barrier Reef is designated as a PSSA, authorities have applied risk assessment to identify a number of highly vulnerable areas within the PSSA that may warrant further action to protect them. See: *Oil Spill Risk Assessment for the Coastal Waters of Queensland and the Great Barrier Reef Marine Park*. Report prepared by Queensland Transport and the Great Barrier Reef Marine Park Authority August 2000, pp. 39-41. Available at http://www.msq.qld.gov.au/qt/msq.nsf/index/oilspill_risk.

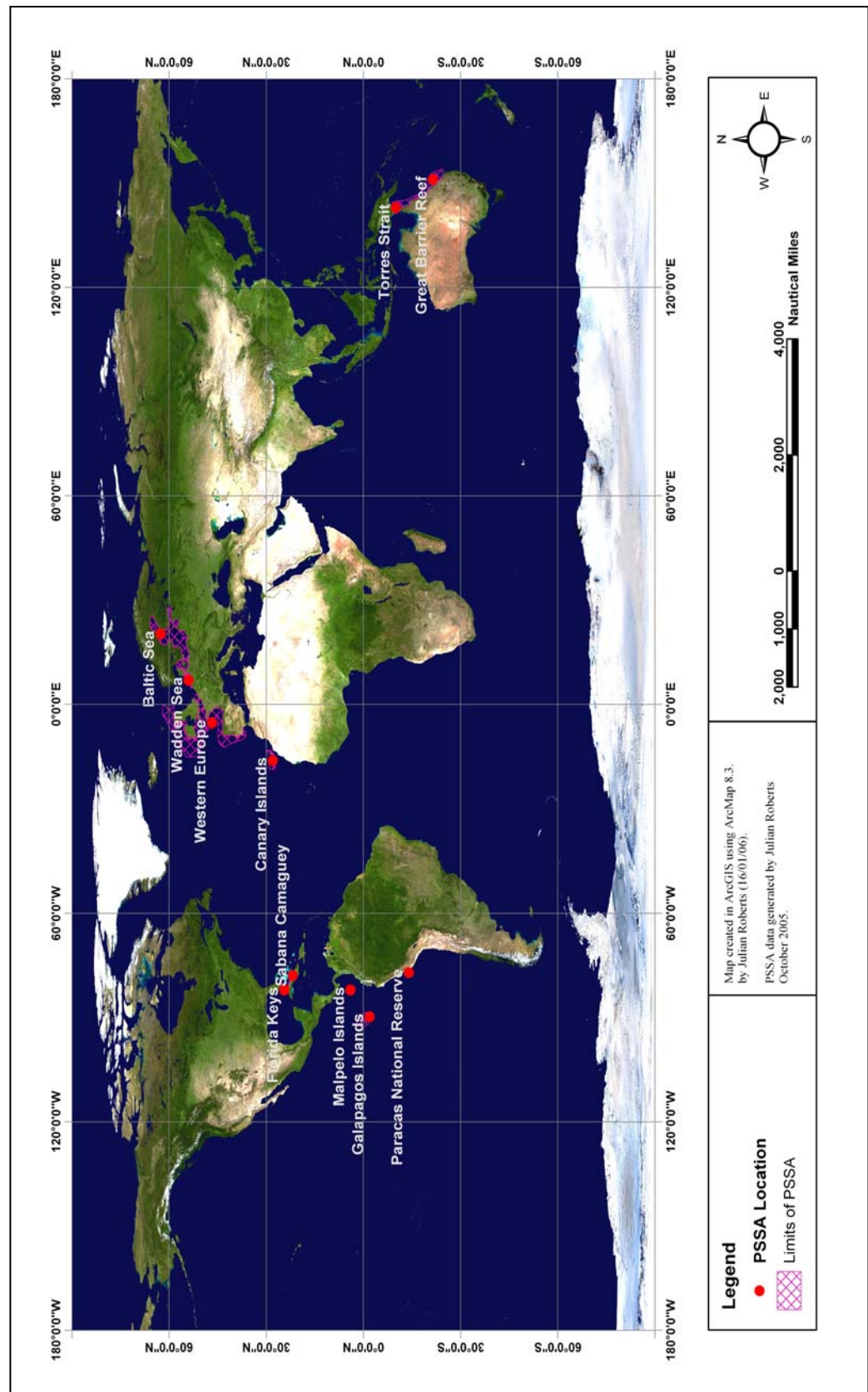


Figure 4.1. Global Distribution of PSSAs Designated to Date

Table 4.1. PSSAs Designated to Date

PSSA	Designation	Associated Protective Measures
Great Barrier Reef, Australia	1991	Compulsory pilotage
		IMO-recommended pilotage
		Mandatory reporting
Sabana-Camagüey Archipelago, Cuba	1998	Traffic separation schemes
		Area to be avoided
		Discharge prohibitions
Malpelo Islands, Columbia	2002	Area to be avoided
Florida Keys, United States of America	2002	Four areas to be avoided
		Three mandatory no-anchoring areas
Wadden Sea, North Sea	2002	Mandatory reporting *
		Routeing systems *
		MARPOL special areas *
Paracas National Reserve, Peru	2003	Area to be avoided
Western Europe	2004	Fourteen traffic-separation schemes *
		Two deepwater routes *
		Seven areas to be avoided *
		Mandatory 48-hour reporting for single-hull tankers carrying heavy grades of fuel oil
Torres Strait, Australia	2005	Compulsory pilotage
		Recommended two-way route
Canary Islands, Spain	2005	Five areas to be avoided
		Recommended tracks
		Mandatory ship reporting
Galapagos Islands, Ecuador	2005	Area to be avoided
Baltic Sea	2005	MARPOL Special Area *
		Mandatory reporting *
		Transit route *
		Deepwater route *
		Fifteen traffic-separation schemes *
		Localised compulsory pilotage *

* Existing measure at the time of designation.

4.3 HISTORICAL DEVELOPMENT OF THE PSSA CONCEPT

The concept of the PSSA was introduced into the IMO agenda in 1978 by the Swedish delegation at the TSPP Conference convened by the IMO in February 1978.¹⁸ Sweden submitted to the conference, a proposal calling for special protection for “areas of particular value because of their renewable natural resources or their importance for scientific purposes”.¹⁹ Resolution 9, adopted at the Conference,²⁰ endorsed the Swedish proposal, with some changes to the original proposed text.²¹ Accordingly, the Conference *inter alia* invited the IMO to initiate studies, with a view to:

- (1) Making an inventory of sea areas around the world which are in special need of protection against marine pollution from ships and dumping, on account of the area’s particular sensitivity in respect of their renewable resources or in respect of their importance for scientific purposes;
- (2) Assessing as far as possible, the extent of the need for protection, as well as the measures which might be considered appropriate, in order to achieve a reasonable degree of protection, taking into account also other legitimate uses of the seas; and
- (3) On the basis of this work, action should be taken with a view to incorporate any necessary revisions within the framework of relevant conventions.

¹⁸ G. Peet, “Particularly sensitive sea areas - a documentary history,” *International Journal of Marine and Coastal Law* 9 (1994), p. 475.

¹⁹ TSPP/CONF/5, *Consideration of draft instruments on tanker safety and pollution prevention and related recommendations and resolutions*, submitted by Sweden, 13 January 1978, para. 1.

²⁰ TSPP Resolution 9. *Protection of Particularly Sensitive Sea Areas*. Adopted 16 February 1978.

²¹ Peet, p. 475 (note 18 above). Refer also to section 3.4.2.2 above.

The Preamble to the Resolution clearly indicated that the competence of the IMO regarding PSSAs was restricted to prevention of pollution of the marine environment from ships and by dumping of wastes.²² Nevertheless, the Resolution invited the IMO to initiate studies on PSSAs with “other relevant organisations”,²³ thus acknowledging the role of other organisations in the identification of PSSAs.

The MEPC began work on this topic in 1986.²⁴ Initially there was little impetus for the development of the measure. The main proponents for the development of the measure were NGOs²⁵ and many member States questioned the need to identify PSSAs, preferring instead that the IMO focus their efforts on the consolidation and effective implementation of existing IMO provisions.²⁶ There was, however, sufficient support for progress to be made on the issue, albeit slowly. At its 23rd session in 1986, the

²² Despite the reference to the dumping of wastes, the PSSA concept has never been applied to the deliberate dumping of waste at sea. The regime addressing dumping of waste is established by the London Convention on Dumping. The third consultative meeting of the Contracting Parties to the London Convention considered TSPP Resolution 9, and while agreeing that ‘sensitive zones’ could be identified by criteria relating to the control of undesirable effects of dumping in areas outside specific dumping sites, considered that dumping was already prohibited in particularly sensitive areas. As such, the meeting concluded that a more effective way forward in this regard was to request GESAMP develop further scientific criteria for the selection of sites which will minimise the effect on the marine environment. See MEPC 23/16/2, *Identification of particularly sensitive sea areas*, submitted by the IMO Secretariat, 6 June 1986, paras. 7-17.

²³ It is assumed that this reference relates to other international organisations such as the United Nations Environment Programme, The United Nations Food and Agriculture Organization and the Intergovernmental Oceanographic Commission.

²⁴ A. Blanco-Bazan, “The IMO guidelines on particularly sensitive sea areas (PSSAs): Their possible application to the protection of underwater cultural heritage,” *Marine Policy* 20 (1996), p. 344; See also Peet, generally (note 18 above) for an overview of the historical development of the PSSA concept and the IMO guidelines.

²⁵ Two papers were submitted to MEPC by the Friends of the Earth International (MEPC 23/16/1, *Identification of particularly sensitive area*, submitted by Friends of the Earth International, 6 June 1986) and the IUCN (MEPC 23/INF.16, *Existing treaty and legislative practice concerning special areas in the sea*, submitted by IUCN, 6 June 1986) respectively, setting out a possible way forward for the development and implementation of the PSSA concept.

²⁶ Peet, p. 447 (note 18 above).

MEPC adopted Circular MEPC/Circ.171²⁷ inviting member States to submit information regarding national protection measures for marine areas within territorial waters,²⁸ including criteria for:

- (1) Identifying marine areas requiring protection;
- (2) Establishing restrictions imposed upon shipping and related maritime activities;
and
- (3) Establishing the specific purposes of the restrictions imposed.

There then followed a five year period of deliberations and redrafting of guidelines, which was characterised by a debate over whether PSSAs should be developed as a stand alone concept or whether the existing Special Area concept, that was available under MARPOL 73/78, should be enhanced to provide for greater protection of the marine environment. During this period, the MEPC began the development of criteria for the identification of PSSAs and the development of guidelines for member States wishing to identify areas as PSSAs. However, despite these developments, progress was slow. It was not until 1990 that the impetus was found to progress the work to its completion, due largely to the submission of an Australian proposal to identify the Great Barrier Reef as a PSSA, and at the same time to adopt a system of compulsory pilotage for its protection.²⁹ This proposal resulted in the adoption of two resolutions by the

²⁷ IMO Circular MEPC/Circ.171 on Particularly Sensitive Sea Areas. August 1986.

²⁸ For a summary of the responses to this request see MEPC 25/INF.7, *Response to MEPC/Circ.171 and MEPC/Circ.171/Corr.1 on particularly sensitive sea areas*, 9 September 1987.

²⁹ See MEPC 30/19/4, *Identification of particularly sensitive sea areas, including development of guidelines for designating special areas under Annexes I, II and V*, submitted by Australia, 19 September 1990; MEPC 30/19/4/Corr.1, *Identification of particularly sensitive sea areas, including development of*

Footnote continued on next page.

MEPC; the first identifying the Great Barrier Reef as a PSSA,³⁰ and the second, recommending that foreign ships comply with Australia's pilotage system operating in the Inner Route of the Great Barrier Reef.³¹

At the 17th session of the IMO Assembly in November 1991, the IMO finally adopted Resolution A.720(17)³² which contained the "Guidelines for the Designation of Special Areas and the Identification of Particularly Sensitive Sea Areas" (hereafter the 1991 Guidelines) (see Appendix A).³³

4.3.1 1991 PSSA Guidelines

The primary purpose of the 1991 Guidelines was to assemble and analyse opportunities offered by certain IMO Conventions to provide additional protection to already existing marine protected areas,³⁴ especially those extending beyond the territorial sea.³⁵ In doing

guidelines for designating special areas under Annexes I, II and V, submitted by Australia, 19 September 1990; and MEPC 30/INF.12, *Identification of the Great Barrier Reef region as a particularly sensitive sea area*, submitted by Australia, 17 September 1990.

³⁰ IMO Resolution MEPC.44(30). *Identification of the Great Barrier Reef Region as a Particularly Sensitive Sea Area*. Adopted 16 November 1990.

³¹ IMO Resolution MEPC.45(30). *Protection of the Great Barrier Reef Region*. Adopted 16 November 1990.

³² IMO Resolution A.720(17). *Guidelines for the Designation of Special Areas and the Identification of Particularly Sensitive Sea Areas*. Adopted 6 November 1991. The 1991 Guidelines defined a PSSA as:

An area that needs special protection through action by the IMO because of its significance for recognised ecological, socio-economic or scientific reasons and which may be vulnerable to damage by international shipping.

This definition was retained until the most recent amendments to the PSSA Guidelines, adopted in December 2005. See Section 1.1.1.1 above.

³³ Although legally and factually distinct, the guidelines addressed both Special Areas and PSSAs in the one document because both sets of guidelines seek to protect vulnerable areas of the sea from international shipping. However, this presented a number of problems and was a primary reason for the subsequent review of the guidelines discussed below.

³⁴ K. M. Gjerde and D. Ong, "Protection of particularly sensitive sea areas under international marine environment law," *Marine Pollution Bulletin* 26 (1993), p. 10.

so, the 1991 Guidelines provided guidance to the IMO member States on the formulation and submission of applications for the identification of PSSAs, ensuring that during the process all stakeholder interests were thoroughly considered on the basis of relevant scientific, technical, economic, and environmental information regarding the area at risk.

4.3.1.1 Scope of the 1991 Guidelines

According to the 1991 Guidelines, a proposal for identification of a PSSA should consist of two parts:³⁶

- (1) Information why a given area should be considered as a PSSA and identifying the type of protection the area needs against damage from maritime activities; and
- (2) A proposal for the adoption of the required protective measures.

In order to justify the identification of a PSSA, the Guidelines list several criteria: ecological; social, cultural and economic; and scientific and educational (see Appendix A). At least one of the criteria must be satisfied for an area to be identified as a PSSA. The 1991 Guidelines also provide for the inclusion of a buffer zone,³⁷ provided it can be demonstrated how such a zone would contribute to the protection of the PSSA.

³⁵ The 1991 Guidelines make it clear that a PSSA may be established within and beyond the limits of the territorial sea. The PSSA guidelines can be used by the IMO to identify PSSAs beyond the territorial sea, with a view to bringing about the development of international protective measures regarding pollution and other damage caused by ships. See Resolution A.720(17), para. 3.3.3 (note 32 above).

³⁶ *Ibid*, para. 3.2.1.

³⁷ The 1991 Guidelines, at para. 3.1.5, define a buffer zone as:

an area contiguous to the site-specific feature (core zone) for which specific protection from shipping is sought.

The 1991 Guidelines identify a number of special protective measures³⁸ for the protection of PSSAs, including:

- (a) Designation of an area as a Special Area under Annexes I, II and V of MARPOL 73/78;
- (b) The adoption of ships' routing measures as provided for in the GPSR; and
- (c) The development and adoption of other measures aimed at protecting specific areas against environmental damage such as compulsory pilotage or vessel traffic management systems.

International support for the PSSA concept followed shortly thereafter. A few months after the adoption of Resolution A.720(17), Chapter 17 of Agenda 21 called upon States to “assess the 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.”³⁹

4.3.2 Review of the 1991 Guidelines

At an early stage, the 1991 Guidelines were criticised for being too complicated and for confusing the concepts of PSSAs with Special Areas designated under MARPOL 73/78.⁴⁰ As a result, several environmental NGOs began pressing for a revision of the

³⁸ Defined as measures that are limited to actions within the purview of the IMO. See the 1991 Guidelines, para. 3.1.3. It should be noted that this list is not a definitive list of measures but rather an indication of the broad scope of measures that may be considered.

³⁹ Agenda 21, para. 17.31(a)(iv).

⁴⁰ Peet, pp. 493-494 (note 18 above). That such confusion would arise had been previously identified by the third international meeting of legal experts. See MEPC 36/21/4, para. 8 (note 6 above).

1991 Guidelines with a view to simplifying them and separating them into two documents: one to address Special Areas and one to address PSSAs.⁴¹ In light of these concerns, in 1994, the MEPC established a correspondence group, under the leadership of Greenpeace, to consider whether there was a need to revise the 1991 Guidelines. For a variety of reasons, the group was unable to complete its work, and in 1998 the MEPC reformed a correspondence group with revised terms of reference under the leadership of Australia.⁴²

In September 1997, the MEPC officially recognised the Sabana-Camagüey archipelago, off the coast of Cuba, as a PSSA. The proposal represented the second PSSA to be identified, but raised some concerns within the MEPC, largely as a result of Cuba's apparent misunderstanding of the requirements of the 1991 Guidelines.⁴³ While the proposal clearly identified how the archipelago met the criteria for PSSA identification, it failed to discuss the level of traffic in the region, or, more importantly, what measures Cuba proposed to take to address the vulnerability to shipping in the area. This would seem to be largely due to confusion over the difference between PSSAs and MARPOL Special Areas. As a result, the MEPC agreed to the proposal 'in principle' but requested that Cuba submit additional information concerning the measures to be taken to protect

⁴¹ De La Fayette, p. 187 (note 2 above). See for example: MEPC 34/20, *Particularly sensitive sea areas*, submitted by Friends of the Earth International, 13 April 1993; and MEPC 36/21/1, *Particularly sensitive sea areas*, submitted by Friends of the Earth International, 29 July 1994.

⁴² See MEPC 40/21, *Report of the Marine Environment Protection Committee on its fortieth session*, 27 October 1997, para. 7.9. Support for revision of the guidelines by the correspondence group included Australia, Brazil, Egypt, Norway, Singapore, United Kingdom, WWF and IUCN. Notably, the USA objected to the revision, suggesting instead that amplification and clarification of the 1991 Guidelines was all that was required. See MEPC 41/6/2, *Interim report of the correspondence group*, submitted by Australia, 30th January 1998.

⁴³ Gjerde & Pullen, p. 249 (note 6 above).

the PSSA. Cuba's response⁴⁴ exhibited a similar lack of understanding. Rather than seeking new measures to protect the area, Cuba relied on increased compliance with MARPOL 73/78 believing that PSSA status would confer automatic protection to the area.⁴⁵ Cuba thus reserved the right to decide at a later stage what measures were necessary and to adopt them within the framework of IMO powers and regulations.

The proposal was important for two reasons: first it introduced the concept of "approval in principle"⁴⁶ to the PSSA process, which had not been considered previously; and second, it precipitated the submission of a paper by the USA seeking an amendment to Resolution A.720(17).⁴⁷ The USA proposal sought to clarify the procedures contained in that Resolution by clearly articulating the steps necessary for the identification of PSSAs and the adoption of IMO measures to protect such areas. Furthermore, while the proposal did not seek to establish a legal basis for PSSAs *per se*, it is clear from the wording that the USA wished to formally recognise the legal competence of the IMO to adopt APMs.

⁴⁴ See MEPC 43/6/4, *Revision of resolution A.720(17)*, submitted by Cuba, 2 April 1999. The paper included an annex which provided additional information in support of its applications for PSSA designation.

⁴⁵ Gjerde & Pullen, p. 250 (note 6 above).

⁴⁶ This was the first time that the 'in principle' concept had been applied to PSSAs. The concept gained traction, particularly with NGOs who saw it as a mechanism of identifying PSSAs before the APMs had formally been adopted. This issue has recently been revisited as part of a broader review of the PSSA Guidelines, as many States are uncomfortable about the manner in which the 'in principle' concept has been utilised to apply pressure for the approval of PSSAs with questionable APMs. See below at Section 7.3). See for example 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*, submitted by the United States, 9 July 2004, para. 7.

⁴⁷ MEPC 41/6, *Improving the procedures for identification of particularly sensitive sea areas and the adoption of associated protective measures*, submitted by the United States, 23 December 1997. See de La Fayette, p. 188 (note 2 above) for a discussion of the background and reaction to this submission.

The submission sought the establishment of a two-stage process for PSSA identification:

- (1) A description of the identified area, the significance of its environmental characteristics at risk of damage from particular international maritime activities, and an assessment of its vulnerability to damage by these activities; and
- (2) A justification of the appropriate APM⁴⁸ and the ability of the IMO to provide such measures to protect the area from these maritime activities.

The proposals set forward in MEPC 41/6 were, by and large, adopted in a revised Assembly Resolution (A.885(21)).⁴⁹ As a result, not only did the Resolution set out more clearly the steps necessary to implement the 1991 Guidelines, but for the first time, it articulated a legal basis for the APMs to be adopted in respect of a PSSA. The adoption of Resolution A.885(21) clearly establishes that identification of a PSSA and its protection with legal measures are two separate but related matters. Notwithstanding this, the work of the newly formed correspondence group continued, and in November 2001 the IMO adopted Resolution A.927(22) “Guidelines for the Designation of Special

⁴⁸ IMO Resolution 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 25 November 1999. Para. 2.1 of the resolution defines an associated protective measure as:

an international rule or standard that falls within the purview of the IMO and regulates international maritime activities for the protection of the area at risk.

⁴⁹ *Ibid.*

Areas under MARPOL 73/78 and Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas”⁵⁰ (see Appendix B).

4.3.3 The Revised Guidelines - Resolution A.927(22)

Resolution A.927(22) deleted much of the pre-ambular explanatory material that was contained in Resolution A.720(17) and created two separate sets of Guidelines for Special Areas (Annex 1) and PSSAs (Annex 2 – hereafter the 2001 Guidelines) respectively. Much of the content of Resolution A.885(21) was carried forward into the revised Guidelines.⁵¹ As a result, the 2001 Guidelines include more rigorous evidentiary and procedural requirements as well as new and updated criteria to reflect current priorities in international instruments, such as the CBD.⁵² Three new criteria were added to the original list in Resolution A.720(17) (see Table 4.2). In addition, the criterion for historical/archaeological significance was deleted in light of ongoing discussions at UNESCO concerning the protection of underwater cultural heritage.⁵³

⁵⁰ IMO Resolution A.927(22) *Guidelines for the Designation of Special Areas under MARPOL 73/78 and Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas*. Adopted 29 November 2001. For a comprehensive analysis of the review process and the various actors that participated see de La Fayette, pp. 187-194 (note 2 above).

It should be noted at this point that, although the 2001 Guidelines have themselves been amended, through a revised resolution adopted by the IMO Assembly in 2005, the majority of PSSAs designated to date have been done so according to the 2001 Guidelines. Thus, for the purposes of this thesis, most of the discussion relating to the “PSSA Guidelines” relates to the 2001 Guidelines. A detailed discussion on the subsequent amendments and adoption of Resolution A.982(24) is provided in Section 7.3 below.

⁵¹ L. de La Fayette, “Protection of the marine environment in 2000,” *Environmental Policy and Law* 31 (2001), p. 143.

⁵² For a detailed analysis of the revisions contained in the 2001 Guidelines see generally Gjerde (note 7 above).

⁵³ Gjerde, p. 124 (note 7 above).

Table 4.2. Criteria for the Identification of a PSSA

Ecological Criteria	Social, Cultural and Economic Criteria	Scientific and Educational Criteria
Uniqueness or rarity Critical habitat Dependency Representativeness Diversity Productivity Spawning or breeding grounds Naturalness Integrity Vulnerability Biogeographic importance	Economic benefit Recreation Human dependency	Research Baseline and monitoring studies Education

The required link to risk from international shipping activities is now emphasised through a section detailing additional information to be supplied. This includes: vessel traffic characteristics in the area (operational factors, vessel types, traffic characteristics and harmful substances carried); and natural factors (hydrographic, meteorological and oceanographic). Furthermore, building on the amendments that had been adopted in Resolution A.885(21), the 2001 Guidelines articulate a clear legal basis for protective measures as follows:⁵⁴

The application should propose the associated protective measures which are available through the IMO and show how the needed protection from the threats of damage posed by international maritime activities occurring in and around the area:

- (a) The application should identify the proposed measures, which may include:

⁵⁴ PSSA Guidelines, para. 7.4.2.1.

- (i) any measure that is already available in an existing instrument; or
- (ii) any measure that does not yet exist but that should generally be available as a generally applicable measure and that falls within the competence of the IMO; 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.

Despite these changes, the 2001 Guidelines retain much of the original content of the amended 1991 Guidelines. For example, the three identified categories of APMs remain the same and the concept of the buffer zone is retained. Where the 2001 Guidelines differ most significantly is in the provision of information detailed for both the procedures for the designation of PSSAs and adoption of APMs and in the criteria that the IMO must consider when assessing an application for designation of a PSSA. A fundamental and important difference between the 1991 and 2001 Guidelines is in the process terminology. The 1991 Guidelines provided for the ‘identification’ of a PSSA whereas the 2001 Guidelines refer to the end product as ‘designation’ of a PSSA. The term ‘identification’ was retained to describe the process of gathering and presenting the information necessary to determine whether an area meets the PSSA criteria.⁵⁵ This change is important for two reasons. First, it implies a two-stage process of both identification and then designation of a PSSA; and second, the process of designation implies a legal act whereby the IMO confers a special status on an area that can be marked on nautical charts.⁵⁶ Whether this is so is debatable. In the 1991 Guidelines, the term identification was considered to be appropriate since it did not imply a legal

⁵⁵ Gjerde, pp. 126-127 (note 7 above).

⁵⁶ Gjerde, at p. 127 (note 7 above) argues that this should result in greater awareness of and compliance with the APMs.

basis.⁵⁷ The legal basis of a PSSA will be considered more fully in Section 4.4 below. However, as noted above, in itself a PSSA has no legal basis. The legal basis for the regulation of shipping can only be provided by the adoption of APMs. Designation of an area as a PSSA, therefore, does appear to overstate the significance of a PSSA approved by the IMO.

4.4 THE PSSA CONCEPT IN INTERNATIONAL LAW

At an early stage, many observers saw the utility of the PSSA concept in international environmental law, since it was considered that it facilitated the opportunity to develop common jurisdictional and enforcement regimes for environmentally significant areas that straddle a variety of jurisdictional zones, as recognised by the LOSC⁵⁸. Recognising the potential legal complexities involved in the implementation of the PSSA concept, a series of three meetings of international legal experts was convened by the University of Hull Law School.⁵⁹ The meetings were co-sponsored by the IMO and sought to analyse and discuss the PSSA concept, particularly its significance and implications under international law.⁶⁰ The meetings were convened in the context of ongoing discussions within the IMO to enable further elaboration of the legal issues involved in development

⁵⁷ See Peet, pp. 481-482 (note 18 above). The term 'designation' was initially proposed but was rejected after concerns were raised that the term designation in the context of PSSAs might create confusion since it suggests a legal status for PSSAs which did not exist. See also Molenaar, p. 438 (note 15 above) who notes that the term 'identify' signifies that a PSSA does not have an explicit legal status.

⁵⁸ Gjerde & Ong, p. 9 (note 34 above).

⁵⁹ See generally K. M. Gjerde and D. Freestone, "Particularly sensitive seas areas - An important environmental concept at a turning point," *International Journal of Marine and Coastal Law* 9 (1994).

⁶⁰ *Ibid*, p. 431. It should be noted that the experts meeting reviewed the Guidelines as set out in resolution A.720(17). As noted above these have been superseded by more recent resolutions. However, the conclusions of the meetings remain relevant in the current context since few of the recommendations have been given effect to by the IMO.

of the PSSA concept.⁶¹ The objectives of the first meeting were clearly articulated as being:

To review existing mechanism under international maritime and marine environmental law for protection of PSAs⁶² in the light of measures available for protected areas in general and to endeavour to identify any existing lacunae in this field.⁶³

The meeting noted that integrated management of MPAs may require measures of three kinds:

- (1) Protective measures adopted by coastal States that do not affect international interests;
- (2) Protective measures adopted by coastal States that may affect international interests, but are recognised as being within the competence and jurisdiction of the coastal States under generally accepted international law; and
- (3) Protective measures that may be necessary to ensure comprehensive protection of a sensitive area but lie beyond coastal State competence to be imposed unilaterally and must be pursued through the appropriate international legal channels.

It was generally agreed that the PSSA concept could provide a means of implementing the third category.⁶⁴

⁶¹ Gjerde & Ong, p. 10 (note 34 above).

⁶² Despite the IMO clearly defining the concept as Particularly Sensitive Sea Areas, the group of legal experts chose to utilise the term Particularly Sensitive Areas (PSAs) instead.

⁶³ MEPC 33/INF.27, *Report of the international meeting of legal experts on particularly sensitive sea areas, University of Hull, 20-21 July 1992*, submitted by the IMO Secretariat, 1 September 1992, para. 4.2.1.

⁶⁴ Gjerde & Freestone, p. 433 (note 59 above).

Throughout the series of meetings, a number of general themes were discussed.⁶⁵ In the context of this thesis, the most important of these related to the legal basis of the PSSA concept in international law and, in particular, its relationship to specific provisions of the LOSC.

4.4.1 The Legal Basis of the PSSA Concept

The group of experts acknowledged that PSSA identification was not the same as legal designation and therefore measures, such as special discharge standards that were not otherwise within the competence of coastal States, could not automatically be applied to PSSAs.⁶⁶ This lack of a legal basis was highlighted as a weakness in the concept.⁶⁷ As a result, some participants at the meeting argued that the PSSA concept was duplicative of existing measures and thereby offered no additional benefits. To address this, it was suggested that either the IMO should develop a new instrument for the concept, or that it should be incorporated into an existing legal instrument, so as to convey its legal status.⁶⁸ Notwithstanding this, the group did agree that the LOSC provided a general legal framework within which States may take measures to protect vulnerable sea areas and that such areas could extend across various jurisdictional boundaries.

Recognising the different criteria that are required to be met for the identification of Special Areas under MARPOL 73/78 and PSSAs, the group suggested that the IMO

⁶⁵ For a full overview of the outcomes of the three meetings refer to the reports of the individual meetings: MEPC 33/INF.27 (note 63 above); MEPC 35/INF.17, *Report of the second international meeting of legal experts on particularly sensitive sea areas, Nyköping, Sweden, 2-4 June 1993*, submitted by the IMO Secretariat, 12 January 1994; MEPC 36/21/4 (note 6 above).

⁶⁶ MEPC 33/INF.27, para. 5.3.1 (note 63 above).

⁶⁷ *Ibid*, para. 10.2.1.

⁶⁸ MEPC 33/INF.27, para. 10.3.2 (note 63 above).

should give consideration to the development of discharge restrictions on vessels appropriate to specific PSSAs, including more stringent limitations or restrictions on substances not regulated under MARPOL at that time.⁶⁹ Some participants argued that designation of an area as a PSSA should require minimum conditions, such as the mandatory provision of pollution preparedness and response arrangements⁷⁰ and stricter controls on maritime activities in PSSAs, such as closure of shipping routes, imposition of speed restrictions, introduction of compulsory pilotage and the introduction of ‘environmental fees’.⁷¹ It was also recommended that a wider range of other measures be developed to address particular risks faced by certain PSSAs, for example, stricter CDEM⁷² standards, compulsory pilotage and VTS, and the use of a wide range of mandatory measures.⁷³

The group also noted that Article 211(6)(a) of the LOSC paralleled, in certain respects, the concept of the PSSA and thus could provide a basis for its development as a concept in international law. The relevance of Article 211(6) is that it provides the legal basis for the IMO to adopt discharge standards or routing measures that are more restrictive than under existing instruments. As such, it can form the legal basis for protective measures for areas identified in the EEZ including PSSAs. It was therefore generally considered that Article 211(6) offered a potentially useful tool for further development of

⁶⁹ *Ibid.*

⁷⁰ MEPC 33/INF.27, para. 11.2.4 (note 63 above).

⁷¹ Gjerde and Freestone, p. 432 (note 59 above).

⁷² See Section 3.3.2.2.

⁷³ MEPC 36/21/4, para. 34 (note 6 above).

protection mechanisms for certain, but not all PSSA within the EEZ.⁷⁴ In this regard the group requested that the IMO clarify the relationship between Article 211(6) and the PSSA concept, and harmonise the procedures for the identification of both types of area.⁷⁵

4.4.1.1 Relationship Between PSSAs and the LOSC

In the context of the LOSC, the power to create PSSAs to protect the marine environment may be derived from the general provisions that can be found throughout the LOSC relating to the protection of the marine environment and, in particular, Articles 192 and 194. There are also a number of other treaties designed to protect the marine environment and biodiversity, and that the application of the PSSA concept supports. The 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 routing measures to minimise the risk of accidents resulting in pollution. The LOSC itself identifies certain categories of areas that may require higher standards of environmental protection.⁷⁶ The overriding obligation in Article 194(5) to “take all necessary measures to protect and preserve rare or fragile ecosystems, as well as habitats of depleted, threatened or endangered species and other forms of life”, is further specified in several provisions which give coastal States the

⁷⁴ MEPC 36/21/4, para. 5.2.2 (note 6 above).

⁷⁵ *Ibid*, para. 37.

⁷⁶ P. Nelson, “Protecting areas that are vulnerable to damage by maritime activities: The reality of particularly sensitive sea areas,” in *Proceedings of the East Asian Seas Congress*, (Putrajaya, Malaysia, 8-12 December 2003), pp. 14-15.

opportunity to prescribe and enforce rules and standards in sea areas that may be vulnerable to the impacts of maritime activities.

However, as noted by the group of experts, the designation of a PSSA by the IMO has no legal significance because the concept is created by a non-binding IMO Assembly resolution and is not set forth in a convention.⁷⁷ As Peet⁷⁸ notes:

Identification as a PSSA is nothing more (and nothing less) than a qualification and a basis on which protective measures may be taken through IMO-measures.

The PSSA guidelines require, therefore, the adoption by the IMO of APMs, such as areas to be avoided and other routeing measures, to address the vulnerability of the area to damage by international shipping activities.⁷⁹ These measures, because they will result in a change to ships' operations, must have a legal basis. However, while the PSSA concept may be regarded as fulfilling general obligations in the LOSC and in a number of treaties designed to protect the marine environment and biodiversity, de La Fayette argues that the PSSA concept was devised by the IMO before anyone knew whether the LOSC would come into force and is inspired rather by the concept of the MPA.⁸⁰

⁷⁷ Chircop, at p. 230 (note 4 above) notes that the IMO's general authority in this regard stems from its own constitutive instrument. See Article 1(a) of the IMO Convention. According to the Division for Ocean Affairs and the Law of the Sea of the United Nations (DOALOS), the PSSA Guidelines conform to the requirements of Article 237 of the LOSC, as a subsequent agreement adopted by the IMO Assembly in furtherance of the general principles set forth in the Convention. See LEG 87/WP.3, *Comments made by the Division for Ocean Affairs and the Law of the Sea of the United Nations (DOALOS) in connection with issues raised in document LEG 87/16/1*, submitted by DOALOS, October 2003, p. 1.

⁷⁸ Peet, pp. 669-670 (note 18 above).

⁷⁹ Anon, p. 2 (note 6 above).

⁸⁰ De La Fayette, pp. 190-191 (note 2 above).

4.4.1.2 Article 211(6) and the PSSA Concept

In the context of the literature concerning PSSAs, a considerable amount of effort has been dedicated to analysing the relationship between the PSSA concept and Article 211(6) of the LOSC, with some observers arguing that this Article provides the legal basis for the PSSA concept.⁸¹ Article 211(6) of the LOSC provides the following:

Where the international rules and standards referred to in paragraph 1 [of Article 211] are inadequate to meet special circumstances and coastal States have reasonable grounds for believing that a particular, clearly defined area of their respective exclusive economic zones is an area where 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 for the protection of its resources and the particular character of its traffic, the coastal States, after appropriate consultation through the competent international organization with any other States concerned, may for that area, direct a communication to that organization, submitting scientific and technical advice in support and information on necessary reception facilities. If the organization so determines, the coastal State may, for that area, adopt laws and regulations for the prevention, reduction and control of pollution from vessels implementing such international rules and standards of navigational practices as are applicable, through the organization, for special areas.

With respect to Article 211(6) Chircop makes two observations:⁸²

⁸¹ See for example: LEG 87/16/1 *Designation of a Western European particularly sensitive sea area*, submitted by Liberia, Panama, the Russian Federation, BIMCO, ICS, INTERCARGO, INTERTANKO and IPTA, 15 September 2003; Nelson, p. 14 (note 13 above) makes specific reference to Article 211(6)(a) under the heading “Legal Basis” whereas no reference is made to this Article in the context of APMs; On their official website, AMSA publishes a fact sheet on PSSAs which states under the heading of Legal Basis “Most important in respect of PSSAs, however, is Article 211(6)(a) which provides for States to submit to the [IMO] ... proposals for special mandatory measures within their exclusive economic zone which require extra protection from vessel sourced pollution”.

⁸² Chircop, p. 225 (note 4 above).

- (1) This provision does not provide for the designation of special areas (or PSSAs) *per se*, but rather the adoption of special mandatory measures in special circumstances; and
- (2) The reference to ‘special area’ is distinct from the MARPOL 73/78 Special Areas.

The intention of Article 211(6) appears to have been to provide for the possibility of stricter measures than the norm, and with a reference to “a particular, clearly defined area” of the EEZ. Special mandatory measures meant that international standards for special areas would be raised or made more stringent.⁸³

The terms of reference for the correspondence group tasked with reviewing the 1991 Guidelines required it to take into account the need for consistency with the LOSC. As such the correspondence group was required to examine the relationship between ‘special areas’ under Article 211(6) of the LOSC and PSSAs. As a contribution to this review, the United Nations Division for Ocean Affairs and the Law of the Sea (DOALOS) submitted a paper to the 43rd session of the MEPC,⁸⁴ presenting an analysis of the relationship between the 1991 Guidelines and the LOSC. DOALOS concluded that the 1991 Guidelines differ from article 211(6), in a number of respects:

- (1) Article 211(6)(a) only allows for the approval of such measures for the prevention of pollution from vessels, whereas the 1991 Guidelines refer more generally to

⁸³ *Ibid*, p. 227.

⁸⁴ MEPC 43/6/2, *Relationship between the 1982 United Nations Convention on the Law of the Sea and the IMO Guidelines for the Designation of Special Areas and the Identification of Particularly Sensitive Sea Areas*, submitted by DOALOS, 31 March 1999.

“damage from international shipping activities”. Such activities include not only pollution but also physical damage to marine habitats or organisms;⁸⁵

- (2) Identification of a PSSA only requires one criterion to be met, whereas designation of a ‘special area’ under Article 211(6) requires all criteria to be met; and
- (3) Furthermore, the criteria are not the same: while two of the PSSA criteria, namely ecological and economic, could be reconciled with the criteria in Article 211(6), special attention should be given to some of the other PSSA criteria, for example, social and cultural value and scientific and educational significance. These criteria may not be consistent with Article 211(6).

As a result, DOALOS considered that there was a need to reconcile the PSSA concept with “a clearly defined area” under Article 211(6)(a) of the LOSC.⁸⁶

Similarly, Molenaar⁸⁷ observes that the PSSA Guidelines and Article 211(6) differ on various points. The PSSA Guidelines were adopted at a point when the LOSC had not yet come into force. As such, the identification of a PSSA prior to the LOSC being in force, could not be seen as an application of this article. Furthermore, the IMO has never explicitly stated that the PSSA Guidelines should be considered as rules of procedures for Article 211(6). In fact, the USA has recently called for the IMO to

⁸⁵ Similarly, Molenaar, p. 438 (note 15 above) notes that while Article 211(6) relates only to measures related to pollution, the PSSA guidelines refer more generally to “damage by maritime activities”. Thus he argues that a PSSA utilises a broader range of measures than a ‘special area’ under Article 211(6) can.

⁸⁶ See also Chircop (note 4 above) at p. 224, who argues that the relationship between Article 211(6) and the PSSA concept “is not sufficiently clear”.

⁸⁷ Molenaar, p. 442 (note 15 above).

establish such a procedure regarding the application of this Article in the context of APMs for PSSA.⁸⁸ Thus, while Molenaar notes that one cannot exclude the possibility that the PSSA Guidelines were influenced by Article 211(6), he concludes that the Guidelines “cannot be equated with Article 211(6) at all”.⁸⁹ De La Fayette supports this view⁹⁰ and concludes that:

While the PSSA concept responds to the same desire to protect the marine environment as Article 211(6), it is a separate concept inspired more by the concept of the marine protected area. The concept was devised by the IMO under its own mandate to address a broader range of concerns. Rather than interpreting Article 211(6) narrowly, which would restrict the effectiveness of the PSSA concept, the PSSA concept must necessarily be classified as a separate concept in its own right.⁹¹

The discussion above should not be read to imply that Article 211(6) has no relationship to the PSSA concept, rather that the precondition for the designation of a PSSA is not contained within Article 211(6). However, as mentioned above, as a result of the adoption of Resolution A.885(21) and its subsequent incorporation into the 2001 Guidelines, Article 211(6) does provide one of several legal foundations for the adoption of APMs that are established to provide protection to the PSSA. As such, Article 211(6) can clearly be utilised as one of the tools available to protect a PSSA.

The legal basis of the PSSA concept was also raised as a substantive issue at the 87th session of the IMO Legal Committee, following the decision by the MEPC to approve in principle an extensive area of the northeast Atlantic as a PSSA (Western European

⁸⁸ MEPC 52/8, para. 6 (note 46 above).

⁸⁹ Molenaar, p. 442 (note 15 above).

⁹⁰ De La Fayette, pp. 155-238 (note 2 above).

⁹¹ *Ibid*, p. 191.

PSSA).⁹² In response to this decision, a number of maritime States and industry NGOs,⁹³ questioned the legal basis for the establishment of the proposed PSSA, arguing that it exceeded the framework envisaged by Article 211(6) of the LOSC. In their view the designation of such a large geographic sea area ignored the restrictive meaning of Article 211(6) in favour of an excessively liberal interpretation, thereby going beyond what was intended by LOSC.⁹⁴ To assist in resolving a number of legal issues that were raised in respect of this proposal, DOALOS considered this, and other issues,⁹⁵ and concluded that the proposal was not contrary to Article 211(6) of LOSC because:

- (a) the area lay within the 200-mile limits of the States concerned;
- (b) it was clearly defined by geographical coordinates; and
- (c) the area clearly met the criteria for vulnerability set out in Article 211(6)(a).⁹⁶

While the views expressed by DOALOS were shared by a number of States, the Committee failed to reach a conclusion as to whether there existed in international law a legal basis for such a proposal.

The debate at the Legal Committee, and the submissions by several States, exhibits a misunderstanding of the legal principles involved in PSSA designation.⁹⁷ As noted

⁹² This example is discussed as a case study in detail in section 6.2.1 below. For a detailed discussion of the various arguments in support of and opposing the proposal see generally Roberts *et al* (note 5 above).

⁹³ LEG 87/16/1 (note 81 above).

⁹⁴ *Ibid*, para. 8.

⁹⁵ LEG 87/WP.3 (note 77 above).

⁹⁶ See V. Frank, "Consequences of the Prestige sinking for European and international law," *International Journal of Marine and Coastal Law* 20 (2005), p. 35.

⁹⁷ Roberts *et al*, p. 439 (note 5 above).

above, PSSAs in and of themselves have no legal significance, and the precondition for PSSA designation is not derived from Article 211(6) of the LOSC, although it does provide one of the legal bases for the adoption of APMs to protect a PSSA. Moreover, in the context of the Western European PSSA, this article is misplaced because the proposed area is not restricted to the EEZ, which Article 211(6) is, and includes the territorial sea of the proposing States.⁹⁸ It has also been argued that Resolution A.927(22) provides the legal basis for the adoption of APMs.⁹⁹ In other words, those States considered that designation of the area as a PSSA in and of itself provided a legal basis for the adoption of a new measure. However, a non-binding resolution cannot form the legal basis for any measure proposed for PSSA designation. Instead, the legal basis of any proposed APM must be clearly identifiable subject to the preconditions set forth in the 2001 G uidelines.¹⁰⁰

Therefore it can be seen that there remains within the IMO, a lack of understanding over the legal issues associated with PSSA designation.¹⁰¹ This, and other issues, have resulted in significant concerns being raised about the interpretation and application of the PSSA Guidelines.

⁹⁸ Roberts *et al*, p. 439 (note 92 above). However, Molenaar argues that one cannot interpret that special areas should be confined to the EEZ since this would have the effect of giving coastal States more extensive competence within the EEZ than within their territorial seas - at p. 402 (note 15 above).

⁹⁹ MEPC 49/22, *Report of the Marine Environment Protection Committee on its forty-ninth session*. 8 August 2003, para. 8.2.1.7.

¹⁰⁰ See PSSA Guidelines, para. 7.4.2.1 (note 50 above).

¹⁰¹ Frank, p. 37 (note 96 above).

4.4.2 Relationship Between PSSAs and Marine Protected Areas

As noted above, numerous authors have linked the PSSA concept to the development of the MPA concept and more recently the CBD.¹⁰² However, the development of the PSSA concept has its origins in the 1978 TSPP Conference and predates the development of the MPA concept as it is recognised today. Certainly the PSSA concept predates the development of the CBD and it is, therefore worthwhile considering the relationship between the PSSA concept and the broader MPA tool, as well as the CBD.

Notwithstanding that the origins of the PSSA concept in 1978 coincided with a period when the MPA concept was still being developed, the influence that the development of MPAs had on the development of the PSSA concept can be clearly seen in a number of areas. In the first place, Chapter 1 of the 1991 Guidelines provided a broad overview of the MPA concept and the impacts that ships may cause in sensitive marine areas, as well as the range of international instruments that provide for the designation of MPAs at a global level, including those measures available to the IMO. The 1991 Guidelines make specific reference to the World Heritage Convention, the RAMSAR Convention and the MAB Programme, although no reference is made to the extent to which PSSA designation would also accord with the requirements of each of these conventions. Furthermore, the 2001 Guidelines suggest that consideration be given to the potential for a PSSA to be listed on the World Heritage List, declared a Biosphere Reserve, or

¹⁰² See notes 2 and 3 above.

included on a list of areas of international, regional, or national importance.¹⁰³ From this two conclusions can be drawn:

- (1) The Guidelines raise the expectation that candidate sites for PSSA designation are of such international significance as to warrant designation under a broad range of international protected area conventions; and
- (2) Those charged with reviewing the 1991 Guidelines clearly believed that, in many cases, meeting the criteria for identification of a PSSA would concurrently meet the criteria of those international conventions referred to in the text.

The 1991 Guidelines also made specific reference to a number of provisions of the LOSC which relate to the protection of vulnerable marine areas.¹⁰⁴ Thus, while the Guidelines do not explicitly state that a PSSA represents a type of MPA, it is implicit that this is so.

4.4.2.1 PSSA Criteria

The second area of commonality between the PSSA concept and MPAs lies in the criteria for the identification of a PSSA contained within the Guidelines (see Table 4.2 above). From the outset, the development of the PSSA criteria was problematic and characterised by a lack of ecological expertise within the MEPC.¹⁰⁵ The first draft set of criteria developed by the MEPC were ill defined and lacked any rigorous scientific

¹⁰³ PSSA Guidelines, para. 6.2 (note 50 above).

¹⁰⁴ Resolution A.720(17) para. 1.3.7 (note 32 above).

¹⁰⁵ Peet, p. 479 (note 18 above).

basis.¹⁰⁶ Assistance with the development of the criteria was sought from the IOC/IMO/UNEP Group of Experts on the Effects of Pollutants (GEEP). GEEP, in reviewing the draft criteria set forth in MEPC 26/17, considered the characteristics which contribute to giving an area PSSA status. Accordingly, GEEP made a number of recommendations and proposed additional criteria.¹⁰⁷ To a large extent the amended draft criteria proposed by GEEP were adopted by the MEPC and incorporated into the final draft guidelines. The proposed GEEP criteria drew heavily on the criteria established by the IUCN for the identification and selection of coastal and marine protected areas,¹⁰⁸ which are still largely in use today.¹⁰⁹ That the IUCN criteria heavily influenced the development of the 1991 Guidelines is not surprising, since many NGOs, including the IUCN, played a key role in the development of the PSSA concept. Furthermore, the IUCN criteria had been developed by a panel of experts on MPAs and had taken some time to ensure that the criteria reflected the ecological needs of MPA designation.

¹⁰⁶ A set of these criteria was submitted to the 26th session of the MEPC for its consideration. See MEPC 26/17, *Identification of particularly sensitive sea areas, including development of guidelines for designating Special Areas under annexes I, II and V*, submitted by the IMO Secretariat, 2 June 1988, Annex 2.

¹⁰⁷ See MEPC 29/14/1, *Draft criteria for designation of special and particularly sensitive areas*, submitted by the IMO Secretariat, 15 December 1989.

¹⁰⁸ See G. Kelleher and R. Kenchington, *Guidelines for Establishing Marine Protected Areas*, (IUCN, Gland, Switzerland, 1992), pp. 15-16; R.V. Salm, J.R. Clark and E. Siirila, *Marine and Coastal Protected Areas: A Guide for Planners and Managers*, 3rd Edition (IUCN, Washington DC, 2000), pp. 87-93. The GEEP was guided in the development of the criteria by the criteria developed by the IUCN for the identification of marine protected areas (See MEPC 29/14/1, note 107 above). Kelleher *et al* at p. 3 (note 3 above) suggest that the IUCN MPA criteria were simply adopted by the IMO for PSSAs.

¹⁰⁹ See for example Salm *et al* (note 108 above).

The range of criteria is broad and it is arguable whether any but the most degraded marine area could fail to meet at least one of the criteria listed.¹¹⁰ Indeed, the fact that identification of an area as a PSSA required only one of the criteria to be represented in the area, was criticised by some participants at the meeting of legal experts, since it might give rise to a risk of proliferation of PSSAs.¹¹¹ The 2001 Guidelines provide very little guidance on the interpretation of these criteria, simply they provide brief definitions for each one. It is interesting to note that while it is only required to demonstrate one of the criteria set out in the Guidelines to be considered for PSSA designation, the designation of a Special Area under MARPOL requires at least one criterion from each category to be met (see Table 4.3). This raises an interesting issue, since a Special Area may be adopted as one of the measures for the protection of a PSSA. However, the test for Special Area designation is more stringent than that for PSSA designation. As such, it is possible for an area to be identified as a PSSA but, as a result of the more stringent criteria, the full range of APMs may not be available to protect the area. In practice, such a scenario seems unlikely to arise, since any area that is particularly vulnerable to operational discharges is likely to meet the Special Area criteria. However, the issue highlights the fact that the criteria for the PSSA guidelines are largely the result of developments in other fora, rather than a conscious attempt by the IMO to develop criteria that specifically address the needs of PSSAs and the measures to protect them.

¹¹⁰ See Chircop, p. 231 (note 4 above) who observes that:

this minimalist requirement is cause for significant concern because virtually any area of the oceans subject to international navigation could qualify, and as a result the effect of providing special protection for very special places may be undermined.

¹¹¹ MEPC 33/INF.27, para. 10.2.1 (note 63 above).

Table 4.3. Special Area Criteria as Defined Under Annex I to Resolution A.927(22)

Criteria For Designation	Description/Example
Ecological conditions indicating that protection of the area is needed to preserve:	<ul style="list-style-type: none"> – Threatened or endangered species – Areas of high natural productivity – Spawning, breeding, nursery areas for important marine species and areas representing migratory routes – Fragile/rare ecosystem (e.g., mangrove) – Critical habitats for marine resource including fish stocks
Oceanographic conditions that would cause the concentration or retention of harmful substances:	<ul style="list-style-type: none"> – Particular circulation patterns (e.g., convergence zones or gyres) – Long residence time caused by low flushing – Extreme ice state – Adverse wind conditions
Vessel traffic characteristics:	<ul style="list-style-type: none"> – Area is used to such an extent that normal MARPOL operations would be unacceptable
Other considerations:	<ul style="list-style-type: none"> – Extent of other sources of pollution and their impact on the area must be taken into account – Reception facilities – requirements of a special area can only become effective when adequate reception facilities are provided

In the context of MPAs, Salm *et al* argue that criteria have two functions.¹¹² They initially serve to assess the eligibility of sites for protected area status. Their principal role, however, is to order eligible sites according to priority in the selection process. The final determinants of how many sites are selected for protection are such factors as national policy, the urgency for action, the availability of financial and personnel resources, and, in the case of some developing countries, the extent of international concern and assistance. The application of selection criteria helps to ensure objectivity in the choice of sites for protection. However, in the context of PSSAs, in many cases

¹¹² Salm *et al*, p. 87 (note 108 above).

the criteria have simply been used to justify the designation of areas defined on the basis of political boundaries. In general, there has been too little ecological reasoning behind the demarcation of PSSA boundaries. Failure to recognise and use appropriate ecological boundaries may lead to inappropriate boundaries and zoning of the protected area.¹¹³ This has clearly been witnessed with some PSSAs designated to date.

4.4.3 PSSA Links to the CBD

The relationship between the PSSA concept and the CBD is less clear. Notwithstanding that the 2001 Guidelines included amendments to reflect priorities in international instruments including the CBD, the 1991 Guidelines were adopted a year before the conclusion of the CBD and, as such, they did not implement specific CBD obligations, although they clearly respond to the same concern for the protection of fragile ecosystems, habitats and rare and endangered species. There is no evidence from the literature or IMO documents to suggest that the development of the PSSA concept was a result of the anticipated development of the CBD. However, there is clear evidence that both the IMO and the international community perceive the PSSA concept as one tool to address concerns and obligations that arise from the CBD. Recent deliberations within the MEPC have also highlighted that many of the environmental NGOs clearly see the PSSA concept as a primary means for the IMO and its member States to give effect to obligations under the CBD.¹¹⁴

¹¹³ *Ibid*, p. 43.

¹¹⁴ During the amendments to the 1991 Guidelines, WWF and IUCN separately raised the issue of updating the PSSA criteria to reflect priorities identified by the CBD. See MEPC 44/7/3, *Consistency of the criteria for identification of PSSAs with UNCLOS*, submitted by WWF, 21 December 1999; and MEPC 43/6/3, *Identification and protection of Special Areas and particularly sensitive sea areas*, submitted by IUCN, 2 April 1999.

Following UNCED, and the successful completion of the CBD, the General Assembly of the United Nations adopted a resolution¹¹⁵ requesting all UN specialised agencies and related organisations of the UN system to strengthen and adjust their activities, programmes and medium-term plans, as appropriate, in line with Agenda 21, in particular regarding projects for promoting sustainable development. The IMO's response to this request was the submission to the Commission on Sustainable Development of a report which addressed the broad scope of the IMO's work programme and how each work item fulfilled the objectives of Agenda 21 and related initiatives.¹¹⁶ For the purposes of this discussion, two sections are highly relevant. Section 5 of the report, entitled "Protection of Particularly Sensitive Areas and Areas Designated by Coastal States to Protect and Preserve Rare and Fragile Ecosystems", included a comprehensive discussion on the role and scope of the PSSA concept and its role in addressing concerns raised in Agenda 21¹¹⁷ with regard to the protection of rare or fragile ecosystems from the impacts of shipping.¹¹⁸ Section 16 of the report addresses the IMO's response to the CBD and notes:

IMO has implicitly recognised that maritime traffic can have an impact upon marine biodiversity, for example when operating in areas of unique or unusual ecological significance. ... There is scope for "special areas" and "particularly sensitive sea areas" to

¹¹⁵ United Nations General Assembly Resolution A/RES/47/191, *Institutional arrangements to follow up the United Nations Conference on Environment and Development*. Adopted at the 47th session of the UN General Assembly, 29 January 1993.

¹¹⁶ *Report to the Commission on Sustainable Development in fulfilment of General Assembly Resolution 47/191 adopted on 22 December 1992*. The report was approved by the 36th Session of the MEPC and was submitted as an information paper to the 37th session under the reference MEPC 37/INF.2, 6 February 1995.

¹¹⁷ *Ibid*, paras. 27-30.

¹¹⁸ Agenda 21, Chapter 17, para. 17.30.

be designated or identified by IMO in which restrictions on operational discharges from ships and other environmental protection measures may be applied.

The report further notes that:

The work of the IMO on specific aspects ... namely pollution prevention, particularly sensitive sea areas and ships routing systems, and on ballast water discharges, makes an important contribution to the implementation of the Biological Diversity Convention.¹¹⁹

Thus, it is clear that the IMO saw the PSSA concept as one measure to give effect to obligations under the CBD at an early stage. During the subsequent review of the 1991 Guidelines, more explicit references were made to the link between the PSSA concept and the CBD. In particular, the terms of reference for the correspondence group tasked with reviewing and revising Resolution A.720(17) includes the following paragraph:

Bear in mind the relevant provisions of other international agreements, such as the Convention on Biodiversity and the World Heritage Convention, Agenda 21 of UNCED, as well as regional agreements regarding marine conservation and protected areas.¹²⁰

It therefore appears clear that the PSSA concept was widely recognised by the IMO and its member States as a primary tool to allow the IMO to give effect to obligations under the CBD. Similarly, there appears to be a recognition by the Conference of Parties to the CBD itself, that the PSSA concept has particular relevance in the context of marine and biodiversity conservation. At the first meeting of the *ad hoc* open-ended working group on protected areas, held in Montecatina, Italy, the group noted the relevance of the PSSA concept and invited members of the IMO to consider further extending PSSA

¹¹⁹ MEPC 37/INF.2, para. 67 (note 116 above).

¹²⁰ MEPC 44/7/2, *Draft terms of reference for the Correspondence Group*, submitted by Australia, 17 December 1999, Annex, para. 7.

designations to marine areas beyond the limits of national jurisdiction and, in proposing PSSAs for approval by the IMO, take into account areas of importance for biodiversity.¹²¹

4.5 CONCLUSIONS

The PSSA concept has developed considerably since its inception in 1978. The concept has clearly been influenced by the MPA concept and, in many respects, can be considered as a specialised type of MPA. However, while subsequent reviews of the PSSA Guidelines have considerably clarified and amplified the scope of the PSSA concept, a fundamental problem, and a cause of considerable confusion, appears to be the lack of a clear legal basis for PSSAs in their own right. Despite giving effect to a number of provisions of the LOSC, the PSSA concept has no legal basis in any international convention. This lack of a clear legal basis has resulted in some considerable concerns over the application and future development of the PSSA concept.

Notwithstanding this, there is considerable evidence that the PSSA concept provides the IMO and its members with a comprehensive management tool with which to give effect to obligations under a range of international conventions with a focus on the protection of the marine environment and marine biological diversity. In this regard, it is argued by many that the concept has considerable utility as one of the measures available to the IMO and its members to protect vulnerable marine habitats.

¹²¹ Refer to paper UNEP/CBD/WG-PA/1/2, para. 10 (note 2 above). While, the specific reference to PSSA in this paper is in relation to the designation of high seas marine protected areas, it clearly highlights the relevance of the PSSA concept more generally in the context of the CBD and its members.

CHAPTER 5

REQUIREMENTS FOR PSSA DESIGNATION AND IMPLEMENTATION OF THE PSSA GUIDELINES BY THE IMO

5.1 INTRODUCTION

Chapter 4 provided an overview of the PSSA concept, its status in international law and, in particular, a *prima facie* analysis of the IMO's PSSA Guidelines.¹ However, in order to fully appreciate both the utility and the identified shortfalls in the PSSA concept, it is also necessary to understand the process by which the IMO considers proposals for new PSSAs. Accordingly, this chapter provides an overview of the requirements for submitting a proposal for the identification of a PSSA to the IMO, and considers how the IMO undertakes its evaluation of such proposals in order to make a final determination on designation. In doing so, this chapter reviews the different elements of a PSSA proposal and, in particular, the range of measures available to protect such areas from the impacts of shipping activities. Consideration is therefore given to the range of IMO measures that are available to address environmental concerns, in particular, the application of ships' routing measures.

Having reviewed state practice in this regard, this chapter contrasts the application of routing measures for environmental purposes with the designation of PSSAs. In doing so this chapter considers why some member States show a preference for the former, despite the PSSA concept being specifically established for the identification and

¹ Unless otherwise stated, hereafter, any reference to the PSSA Guidelines means the 2001 *Guidelines for the identification and designation of particularly sensitive sea areas* contained within Annex 2 to IMO Resolution A.927(22) *Guidelines for the designation of Special Areas under MARPOL 73/78 and guidelines for the identification and designation of particularly sensitive sea areas*. Adopted 29 November 2001.

protection of sensitive marine areas. As a case study, it describes the designation of the first mandatory area to be avoided, around New Zealand's Poor Knights Islands marine reserve.

Numerous IMO committees and sub-committees have a role to play in the designation of a PSSA. In conclusion, this chapter provides an analysis of the roles of the different IMO bodies and the inter-relationship with each other in the context of PSSA designation.

5.2 SUBMITTING A PROPOSAL FOR PSSA DESIGNATION

The PSSA Guidelines make it clear that only IMO member States can submit proposals for the identification of a PSSA² and that the IMO is recognised as the only international body with competence for designating areas as PSSAs and adopting APMs for their protection.³ Where appropriate, the IMO may consider joint proposals from multiple States bordering an area proposed as a PSSA.⁴ Any application for a PSSA must contain three parts:⁵

- (1) A summary of the objectives of the proposed PSSA identification, its location, the need for protection and proposal for APMs;

² PSSA Guidelines, para. 3.1 (note 1 above).

³ *Ibid.*

⁴ A number of PSSA proposals have been put forward by multiple States, including The Wadden Sea (Germany, Denmark and the Netherlands); The Western European PSSA, (Portugal, Spain, France, Belgium, UK and Ireland); The Baltic (Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland and Sweden); and Torres Strait (Australia and Papua New Guinea).

⁵ K. M. Gjerde, "Protecting particularly sensitive sea areas from shipping: A review of IMO's new PSSA guidelines," in H. Thiel & 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*, BfN-Skripten 43 (Bonn: German Federal Agency for Nature Conservation, 2001), p. 126; A detailed overview of the IMO requirements for a PSSA proposal is included in IMO circular MEPC/Circ.398 *Guidance document for submission of PSSA proposals to IMO*, 27 March 2003.

- (2) A detailed description of the area, together with a chart, an explanation of the significance of the area based on the recognised criteria, and an explanation of the vulnerability of the area to damage from international shipping activities, noting the factors regarding maritime activities listed in the criteria; and
- (3) A description of the proposed measures, showing how they will provide the needed protection from the identified threats of shipping damage.⁶

As a result of the incorporation of Resolution A.885(21) into the 2001 Guidelines, the PSSA Guidelines make it clear that identification of a PSSA and its protection with legal measures are two separate but related matters. As such, it is clear from the Guidelines that what is sought by the IMO is a logical analysis that achieves the following:

- (1) Clear establishment of the values that are vulnerable within the area in question;
- (2) Clear demonstration of the international shipping activities that threaten those values;⁷ and
- (3) Identification of specific measures that can clearly be demonstrated to reduce the threat presented by those maritime activities. Thus, the proposal must not only identify the proposed APMs, but also demonstrate how these provide the needed

⁶ It should be noted that, while the PSSA Guidelines require member Governments to submit a proposal for at least one APM within two years of the approval in principle of the PSSA, where an area is afforded protection by existing measures, these may be accepted as APMs, provided it can be demonstrated how the existing measures provide the necessary protection. PSSA Guidelines, para. 7.2 (note 1 above).

⁷ The application should provide an explanation of the nature and extent of risk that international shipping activities pose to the environment of the proposed area and in particular should demonstrate the effects of such damage on the environmental characteristics of the area. PSSA Guidelines, para. 7.4.1.3 (note 1 above).

protection from the identified threat.

In other words, there must be a clear and demonstrable link between the threat to the marine environment and the measures proposed to mitigate that threat. It therefore logically follows that demonstrating that an area meets the criteria for identification of a PSSA, and providing that area with appropriate legal protection, must be considered as part of the process of designating a PSSA. These two critical elements will therefore be discussed in more detail below.

5.2.1 PSSA Identification

For an area to be identified as particularly sensitive, it must be both of special significance and threatened by international shipping activities⁸ (i.e. vulnerable).

5.2.1.1 Significance of the Area

By definition, a PSSA must be significant from an environmental, socio-economic or scientific perspective.⁹ Thus, in order to be identified as a PSSA the area should meet at least one of the criteria set forth in Section 4 of the PSSA Guidelines (section 4 criteria), which are described in Appendix B. In practice this is extremely easy to achieve since, as discussed in Chapter 4, given the broad nature of the criteria, only for the most degraded marine areas would it not be possible to demonstrate at least one of the criteria as being applicable in some way (see Section 4.4.2.1 above).

⁸ Gjerde, p. 124 (note 5 above).

⁹ Refer to the definition of a PSSA. PSSA Guidelines, para. 1.2 (note 1 above).

One of the issues that arises in the application of the criteria is the extent to which a single criterion must be represented within an area. The PSSA Guidelines have been interpreted to mean that at least one criterion must be present throughout the entire area of the PSSA.¹⁰ However, it is recognised that in many cases more than one criterion will be present in a specified area and it has been widely accepted that, provided at least one of the criteria exists throughout the area, it is not necessary for the same criterion to be present throughout.¹¹ It has been argued that unless at least one of the criteria is present throughout the entire area, then that area cannot be considered to be particularly sensitive throughout.¹² This argument has been put forward to ensure that PSSAs are limited in size to that which is necessary to protect the identified vulnerability. However, in practice, from a biological perspective there are likely to be areas of greater environmental importance (hot spots) surrounded by areas of less environmental importance. Such less important areas may still be critical for the protection of the hot spots, indeed they may act as a form of buffer zone. Therefore, the extent to which a criterion or several criteria are met may become a subjective evaluation. Nonetheless, demonstrating that criteria are represented throughout the area is a critical element of any PSSA proposal.

¹⁰ The issue was discussed extensively by the Correspondence Group tasked with a revision of the PSSA Guidelines by MEPC 52. That at least one criterion must be present is one of a number of interpretations.

¹¹ See for example the proposals put forward for the Florida Keys, for the Torres Strait region and for the Wadden Sea, each of which identify multiple criteria within the boundaries of the proposed PSSAs. In fact, to date no single criterion PSSAs have been proposed. To some extent this may reflect 'application overkill' to ensure that the environmental significance of the area in question is clearly understood. However, it also reflects the highly dynamic and varied nature of the marine environment.

¹² Lindy Johnson (NOAA) personal communication. Ms Johnson was the coordinator of the Correspondence Group tasked with the review of the PSSA Guidelines. The author, as a New Zealand delegate to MEPC, participated through the deliberations of the Correspondence Group.

5.2.1.2 Vulnerability to International Shipping

The required link to risk from international shipping activities is emphasised through a section detailing additional information to be supplied.¹³ As such, any proposal for a PSSA should demonstrate the nature and extent of risk that international shipping activities pose to the environment of the proposed area. Such factors might include: vessel traffic characteristics in the area (operational factors, vessel types, traffic characteristics and harmful substances carried); and natural factors (hydrographic, meteorological and oceanographic). This may include an explanation of the nature and extent of the risk of damage that international maritime activities pose or have actually caused in the area, as well as details of the particular ongoing or future activities that are causing or may cause damage. Examples of such information include whether the damage is recurring or cumulative in nature, any history of grounding, collisions or spills and the consequences of such incidents, as well as stresses from other environmental factors such as land-based sources of pollution.¹⁴

5.2.1.3 Associated Protective Measures

As has previously been discussed in Chapter 4, there is some debate as to whether a PSSA has an intrinsic value in its own right. However, irrespective of the arguments for and against the intrinsic value of PSSA identification, only the adoption of specific APMs may be used to control the maritime activities in that area. Any application made to the IMO for PSSA designation is expected to identify legal measures that address the risk posed to the area by international shipping activities. At least one APM must be

¹³ PSSA Guidelines, para. 5.1 (note 1 above).

¹⁴ MEPC/Circ.398, para 3.4.3 (note 5 above).

submitted within 2 years of the approval in principle of the PSSA.¹⁵ Where such a measure already exists, then it must be demonstrated how the area is being protected by this measure.¹⁶ Moreover, there is a clear requirement to demonstrate that any proposed APM provides the necessary protection for the identified vulnerability. This link between the threat and the protection is a critical component in the effectiveness of any PSSA.

The LOSC provides that there are specific actions that can be taken by individual coastal States in their territorial seas. These have been discussed in Chapter 3. The PSSA Guidelines recognise these actions and that there are three possible legal bases for an APM.¹⁷ Accordingly, the measures may include those that are already available in an existing instrument, or any measure that does not yet exist but that should be available as a generally applicable measure and that falls within the competence of the IMO, or any measure proposed for adoption in the territorial sea or pursuant to Article 211(6) of the LOSC.¹⁸ Given the importance of the APMs in the designation of PSSAs, it is worthwhile considering the range of available measures and their application to marine environment protection.

5.3 PROTECTION OF PSSAS

The PSSA Guidelines identify several possible measures including Special Areas, ships' routing measures and vessel traffic services. While this is not an exhaustive list, these

¹⁵ PSSA Guidelines, para.7.1 (note 1 above).

¹⁶ *Ibid*, para. 7.2.

¹⁷ Refer to Section 4.3.3 above.

¹⁸ PSSA Guidelines, para. 7.4.2.1 (note 1 above).

represent those measures that are currently available to the IMO through various instruments.¹⁹ Consideration will therefore be given to each of these categories of protective measures below. However, it should be noted at the outset that identification of an area as a PSSA is not a precondition for the adoption of any of these measures. Each measure has a legal basis in an existing IMO instrument, or is recognised as a measure for which the IMO has competence to adopt, and may therefore be applied in its own right for the protection of a particular marine area, irrespective of whether designation of the area as a PSSA is being sought.

5.3.1 Special Discharge Restrictions

Under MARPOL 73/78, all sea areas are protected, to some degree, from the discharge of harmful substances. Most sea areas have a level of protection that is considered adequate. However, where additional protection is deemed necessary, MARPOL 73/78 provides for the designation of Special Areas²⁰ and imposes correspondingly more stringent restrictions on the discharge of harmful substances. Special areas are provided

¹⁹ The report of the third international meeting of legal experts on PSSAs also identified a number of potential new measures which could be proposed to the IMO as a measure that should be available as a ‘generally applicable measure’. These include: designated anchorage areas and methods; no anchorage zones; closure of routes to certain types of vessels or cargoes; speed restrictions; compulsory pilotage or tug escort to ensure safe navigation in or near PSSAs; prohibitions/restrictions on cargo transfer; required submission of pre-filed passage plans and adherence to time schedules; special under-keel clearance restrictions; regulation of offshore bunkering; prohibition of intentional discharges, including ballast water; seasonal closures to protect migrating marine mammals. MEPC 36/21/4, *Report of the third international meeting of legal experts on particularly sensitive sea areas*, submitted by the IMO Secretariat, 4 August 1994, para. 34.

Alternatively, where appropriate, certain measures could be proposed for adoption in the territorial sea or exclusive economic zone, if required by the special circumstances of the proposed PSSA. MEPC 46/6/1, *Additional protection for particularly sensitive sea areas (PSSA)*, submitted by the IMO Secretariat, 19 January 2001, para 2.3.3.

²⁰ The concept of ‘Special Areas’ was introduced by the 1973 MARPOL Convention.

for in three of the six MARPOL Annexes currently in force.²¹ To date, a total of 9 Special Areas have been designated under the three Annexes (Table 5.1). While each Annex has slightly different wording, the definition in Annex I reflects the general intent of what a Special Area is:

A sea area where, for recognised technical reasons in relation to its oceanographic 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 is required.

Table 5.1. Special Areas Designated Under Annexes I, II and V of MARPOL 73/78

Annex I ²²	Annex II ²³	Annex V ²⁴
Mediterranean Sea area	Baltic Sea area	Mediterranean Sea area
Baltic Sea area	Black Sea area	Baltic Sea area
Black Sea area	Antarctic Area	Black Sea area
Red Sea area		Red Sea area
Gulfs area		Gulfs area
Gulf of Aden		North Sea area
Antarctic area		Antarctic area
North West European Waters		Wider Caribbean area

Therefore, under MARPOL 73/78, Special Areas are afforded a higher level of protection than other marine areas. Thus, for example, according to MARPOL Annex I, the discharge of oil from oil tankers and from other ships of 400 gross tonnes and above

²¹ Annexes I, II and V of MARPOL 73/78 provide for Special Areas to be designated in respect of the discharge of oil, noxious liquid substances and garbage respectively. In addition, Annex VI of MARPOL 73/78 provides for a type of Special Area called a SOx Emission Control Area (SECA) which deals exclusively with discharges to air (Regulation 14 of Annex VI). To date, only the Baltic Sea area and the North Sea area have been designated as SECAs.

²² MARPOL 73/78, Annex I, Regulation 10(1).

²³ MARPOL 73/78, Annex II, Regulation 1(7).

²⁴ MARPOL 73/78, Annex V, Regulation 5(1).

is wholly prohibited.²⁵ While in such areas, ships shall retain on board all oil drainage and sludge, dirty ballast, and tank washing waters, and then discharge them only to reception facilities.²⁶

A Special Area may encompass the maritime zone of several States, or even an entire enclosed or semi-enclosed area.²⁷ Special Area designation must be made on the basis of the criteria and characteristics set out in the IMO's Guidelines for the Designation of Special Areas under MARPOL 73/78.²⁸ Unlike the designation of PSSAs, the designation of a Special Area requires that one of the criteria for each of the three categories should be satisfied. Furthermore, other considerations may be taken into account, for instance, the threat to amenities posed by non-maritime sources of pollution such as land-based sources, dumping of waste and atmospheric deposition.²⁹ In addition to meeting the criteria set out in the Special Area Guidelines, the requirements of a Special Area can only become effective when adequate reception facilities have been provided for, in accordance with the provisions of MARPOL 73/78.³⁰ This requirement for adequate reception facilities has delayed the coming into force of several Special Areas. Although a Special Area may be considered as one of the types of APM for a

²⁵ MARPOL 73/78, Annex I, Regulation 10(2).

²⁶ V. A. Kiselev, "Special areas for preventing pollution of the sea," *Marine Policy* 12 (1988), p. 242.

²⁷ Examples of such areas include the Baltic, Black and Mediterranean Seas.

²⁸ Annex 1 to IMO Resolution A.927(22) *Guidelines for the designation of Special Areas under MARPOL 73/78 and guidelines for the identification and designation of particularly sensitive sea areas*. Adopted 29 November 2001. "Guidelines for the designation of Special Areas under MARPOL 73/78" (Special Area Guidelines).

²⁹ J. Wonham, "Special areas and particularly sensitive sea areas," in P. Fabbri (ed) *Ocean Management in Global Change: Proceedings of the Conference on Ocean Management in Global Change* (Genoa, Italy: Routledge EF, 1992), p. 365.

³⁰ Special Area Guidelines, para. 2.7 (note 28 above). However, the Antarctic has been treated differently since wastes must be kept on board until ships have left the area.

PSSA, there is no requirement for such a Special Area to be contained within a PSSA. A Special Area may exist either within a PSSA or a PSSA may exist within a Special Area.

While any sea area that meets the criteria may be designated a Special Area, in practice, all existing Special Areas are enclosed or semi-enclosed seas in an oceanographic sense.³¹ Despite the obvious similarity between Special Areas under MARPOL 73/78 and those provided for by Article 211(6) of the LOSC, there are a number of material differences between the two designations. First it should be noted that MARPOL 73/78 specifically names certain waters as Special Areas, whereas Article 211(6) simply provides the conditions and procedures for establishing such areas, without specifically defining either of them. Second, Special Areas under MARPOL 73/78 encompass areas straddling different maritime jurisdictions, whereas the LOSC arguably only provides for the establishment of Special Areas in the EEZ.³² Third, MARPOL 73/78 does not grant coastal States any rights with regard to control over foreign ships beyond their territorial sea, whereas the LOSC makes provisions for such rights, subject to approval by the IMO.³³

Although discharge requirements for ships operating in Special Areas are more stringent than elsewhere, Molenaar³⁴ argues that the value of the Special Area concept has been

³¹ E.J. Molenaar, *Coastal State Jurisdiction over Vessel-Source Pollution* (Kluwer Law International, 1998), p. 431.

³² Although, as noted in Section 4.4.1.2. above, Molenaar, argues that this interpretation is too restrictive since any measure that may be adopted for the EEZ must also be available in the territorial sea. *Ibid*, p. 439.

³³ Kiselev, p. 245 (note 26 above).

³⁴ *Ibid*.

eroded over time, on the basis that while the Special Area discharge standards have not changed recently, the ‘regular’ discharge standards required under MARPOL 73/78 have become increasingly stringent over time. In a submission to the 49th session of the MEPC, WWF put forward a draft guidance document on protective measures for PSSAs.³⁵ Possibly in response to this same concern, WWF suggests that the PSSA Guidelines provide for the application of special discharge restrictions to vessels operating in a PSSA. They further suggest that such restrictions could prevent all discharges inside a PSSA and/or ensure uniform discharge standards throughout a PSSA straddling more than one jurisdictional zone, and that they might apply to substances not covered by MARPOL 73/78 or other international instruments.³⁶

It is unclear to which part of the PSSA Guidelines this refers. The PSSA Guidelines include no specific provision relating to special discharge measures, other than the references to Special Areas noted above and the explicit reference to Article 211(6) of the LOSC, as one of the legal bases for an APM. It is widely accepted that, when an area is too small to be designated as a Special Area under MARPOL 73/78, or where even more stringent discharge restrictions are required, consideration could be given to the adoption of special discharge regulations specifically tailored for the area. Alternatively, it is possible that a smaller scale Special Area may be created to enforce more stringent discharge standards for a PSSA. The Special Area would come into force as soon as the amendment to MARPOL 73/78 takes effect and the proposing

³⁵ MEPC 49/8/2, *Draft guidance document on associated protective measures for particularly sensitive sea areas*, submitted by WWF, 8 May 2003.

³⁶ *Ibid*, para. 2.4.5.

government certifies that adequate waste reception facilities exist in its ports and harbours, taking into account the vessel traffic within the area.

Arguably, States may impose such special discharge requirements pursuant to national law in the territorial sea, provided that the regulations do not apply to CDEM standards for foreign ships. Furthermore, pursuant to Article 211(6) of the LOSC, the IMO could adopt additional measures dealing with discharges in specific areas of the EEZ. However, the suggestion that the PSSA Guidelines themselves provide for this is misleading, since any new measure associated with a PSSA must have a clear legal basis in an existing IMO instrument, or must be capable of being adopted by that organisation.

5.3.2 Regulation of Navigation for Protection of the Environment

It is widely acknowledged that protection of the environment is a secondary benefit of the enhancement of navigational safety,³⁷ since measures for the security of maritime traffic usually prevent environmental hazards as well. However, international and national state practice has evolved to recognise the legitimacy of using navigation measures for the primary purpose of protecting the marine environment from pollution and other damage from ships.³⁸ This is particularly true in the case of PSSAs. While the most commonly used type of measure for this purpose are ships' routing measures, it is

³⁷ See for example the report of the Lord Donaldson Inquiry which concluded that:

pollution control and safety are very closely linked, because the best way to maintain safety and to prevent pollution is to preserve the integrity of the ship.

HMSO, *Safer Ships, Cleaner Seas*. Report of Lord Donaldson's Inquiry into the Prevention of Pollution from Merchant Shipping. (London: HMSO, 1994), para. 1.11.

³⁸ For an overview of the application of ships routing measures for environmental purposes see generally J. Roberts, "Protecting sensitive marine environments: The role and application of ships' routing measures," *International Journal of Marine and Coastal Law* 20 (2005), pp. 97-121.

also recognised that ship SRS and VTS may contribute to the protection of the marine environment.³⁹

While IMO instruments do not attempt to regulate the jurisdictional power of the coastal State, specific competences for the regulation of navigational safety, are attributed to the IMO by a range of international instruments. These competencies and the range of measures available to regulate navigation for environmental purposes are discussed below.

5.3.3 Application of Ships' Routeing Measures

SOLAS recognises the IMO as the only body having authority for establishing and adopting routeing measures at an international level, while COLREGS provide specifically for the adoption of TSS.⁴⁰ This competence is supplemented by the GPSR.⁴¹ While vessel routeing measures⁴² have been used in the protection of the marine environment for many years, the explicit application of such tools for this purpose has only been formally recognised by the IMO within the last decade, a development which is largely attributable to the development of the PSSA concept. When the IMO Assembly adopted Resolution A.720(17), it also requested the MSC to incorporate the

³⁹ For a general discussion on this issue see G. 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* (The Hague/Boston: Kluwer Law International, 1997), pp. 11-27.

⁴⁰ Rule 10 of the COLREGS deals with the behaviour of vessels in or near traffic separation schemes adopted by the Organization.

⁴¹ T. Ilstra, "Maritime safety issues under the Law of the Sea Convention and their implementation," in A.H Soons (ed) *Proceedings of the 23rd Annual Conference of the Law of the Sea Institute* (Honolulu: The Law of the Sea Institute, 1989), p. 219.

⁴² The GPSR recognises the following as true ships' routeing measures: traffic separation schemes; two-way routes; recommended tracks; areas to be avoided; no anchoring areas; inshore traffic zones; roundabouts; precautionary areas; and deepwater routes.

PSSA concept into relevant provisions of the GPSR.⁴³ This would expressly permit the application of ships' routing measures for purely environmental purposes.⁴⁴ This reiterated an earlier request to the IMO's Sub-committee on Safety of Navigation (NAV Sub-committee) that it amend the GPSR to incorporate environmental concerns as grounds for the establishment of ships' routing measures.

At the first meeting of the international group of legal experts on PSSAs, the group reached general agreement that it would be consistent with the LOSC for routing measures, such as those prescribed under the GPSR, to be adopted for the purpose of environmental protection, as well as to serve the needs of maritime safety.⁴⁵ The group noted the importance of the request made by the IMO Assembly in paragraph 4 of Resolution A.720(17) and suggested that that Resolution could provide a means to incorporate environmental concerns, reflected in the PSSA Guidelines, into the GPSR.⁴⁶

The IMO first incorporated environment concerns into the GPSR in June 1992 with an amendment to Resolution A.572(14),⁴⁷ which added to paragraph 1.1 of Section 1 (Objectives) the following:

Ships' routing 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

⁴³ IMO Resolution A.720(17) *Guidelines for the Designation of Special Areas and the Identification of Particularly Sensitive Sea Areas*. Adopted 6 November 1991. Para. 4.

⁴⁴ For a discussion of the history of this development see generally K. M. Gjerde and D. Ong, "Protection of particularly sensitive sea areas under international marine environment law," *Marine Pollution Bulletin* 26 (1993), pp. 9-13.

⁴⁵ MEPC 33/INF.27 *Report of the international meeting of legal experts on particularly sensitive sea areas, University of Hull, 20-21 July 1992*, 1 September 1992, para. 7.1.1.

⁴⁶ *Ibid*, para. 7.1.4.

⁴⁷ IMO Resolution A.572(14), *General Provisions on Ships' Routing*. Adopted 20th November 1985.

grounding in or near environmentally sensitive areas.

At the time it was considered that these amendments clearly established the link between Resolutions A.720(17) and A.572(14), as requested by the IMO Assembly.⁴⁸ However, the NAV Sub-committee considered this matter further at its 40th session, and agreed to submit further draft amendments to the GPSR, for the consideration of the MSC. The MSC finally adopted amendments to the GPSR in 1995.⁴⁹ Regulation 8 of Chapter V of SOLAS was also amended to reflect the potential application of vessel routeing measures to protect the environment.⁵⁰ The 1995 amendments to the GPSR effected the following changes:

- (1) Inserted a specific objective (1.2.6) addressing the organisation of safe traffic flow in or around or at *a safe distance from environmentally sensitive areas* [emphasis added]; and
- (2) Inserted a new procedure to specifically address the adoption of a routeing system which is *intended to protect an environmentally sensitive area* [emphasis added], as follows:

In deciding whether or not to adopt or amend a routeing system which is intended to protect the marine environment, IMO will consider:

- (i) whether the proposed routeing system can reasonably be expected to prevent or significantly reduce the risk of pollution or other damage to the marine

⁴⁸ Para. 3.27 of NAV 39/31 confirms this view. NAV 39/31, *Subcommittee on Safety of Navigation thirty-ninth session: Report to the Maritime Safety Committee*. 29 September 1993.

⁴⁹ Refer to Annex 3 of Resolution A.827(19) for the amended text for the GPSR: Resolution A.827(19) *Ships Routeing*. Adopted 23 November 1995.

⁵⁰ IMO Resolution MSC.46(65) *Adoption of amendments to the International Convention for the Safety of Life at Sea 1974*. Adopted 16 May 1995. The amendments entered into force on January 1997.

environment of the area concerned;

- (ii) whether given the overall size of the area to be protected, or aggregate number of environmentally sensitive areas established or identified in the geographical region concerned, the use of the routing systems – particularly areas to be avoided – could have the effect of unreasonably limiting the sea area available for navigation; and
- (iii) whether the proposed routing system meets the requirements of the IMO's General Provisions.

5.3.4 Update of IMO Measures to Protect the Marine Environment

In 1994, Gerard Peet published an analysis of sensitive marine areas that had been identified, through the IMO, for protection by the application of ships routing systems.⁵¹ The analysis served, among other things, to identify areas that might have otherwise qualified as PSSAs, had that concept been available at the time the proposal was submitted for consideration. In this regard, Peet coined the phrase PSSAs *avant la lettre* (i.e. without an explicit PSSA qualification) to describe such areas. A total of 22 adopted areas (and an additional 4 proposed areas) were identified. These, along with the specific measures adopted for each area, are summarised in Appendix C. Since that analysis was completed, the application of routing measures specifically for environmental protection purposes has become a more widespread practice. As such a further 14 areas have been protected through the application of routing measures, at least partly if not fully on the basis of their environmental sensitivity and vulnerability to the impacts of international shipping. These areas, along with the routing measures adopted are described briefly in Appendix D.

⁵¹ See G. Peet, "Particularly sensitive sea areas - an overview of relevant IMO documents," *International Journal of Marine and Coastal Law* 9 (1994), pp. 556-576.

It is interesting to note that, while the development of the PSSA concept has also taken place since Peet's analysis, the application of this measure for sensitive sea areas has not been widely applied. While there has been an increase in PSSA proposals considered by the IMO in recent years, only 11 PSSAs have been designated by the IMO since 1991. This would suggest that many States are using similar reasoning to that of New Zealand and the USA, as described above, in choosing not to utilise the PSSA concept when the same level of protection can be achieved by simply applying the relevant routing measure.

5.3.5 Case Study - New Zealand's Application for a Mandatory Area to be Avoided

The New Zealand government presented its application for a mandatory area to be avoided at the 49th session of the NAV Sub-committee in June 2003.⁵² The purpose of the area to be avoided is to protect the sensitive coastal environments of the north-east coast of the North Island of New Zealand, including the Poor Knights Islands marine reserve.⁵³ The extent of the area to be avoided is shown in Figure 5.1 below.

⁵² NAV 49/3, *Routing of ships, ship reporting and related matters: Proposed area to be avoided*, submitted by New Zealand, 16 January 2003.

⁵³ The Poor Knights Islands are a group of 12 islands of volcanic origin, situated approximately 15 nautical miles offshore to the east of mainland New Zealand. A detailed description of the islands is provided in: *Environmental Impact Report for the Poor Knights Islands Marine Reserve* (Wellington, NZ: Fisheries Management Division of the Ministry of Agriculture and Fisheries, July 1979). The wider area of the area to be avoided is characterised by extensive areas of mangrove and wetland habitat of outstanding value to wildlife.

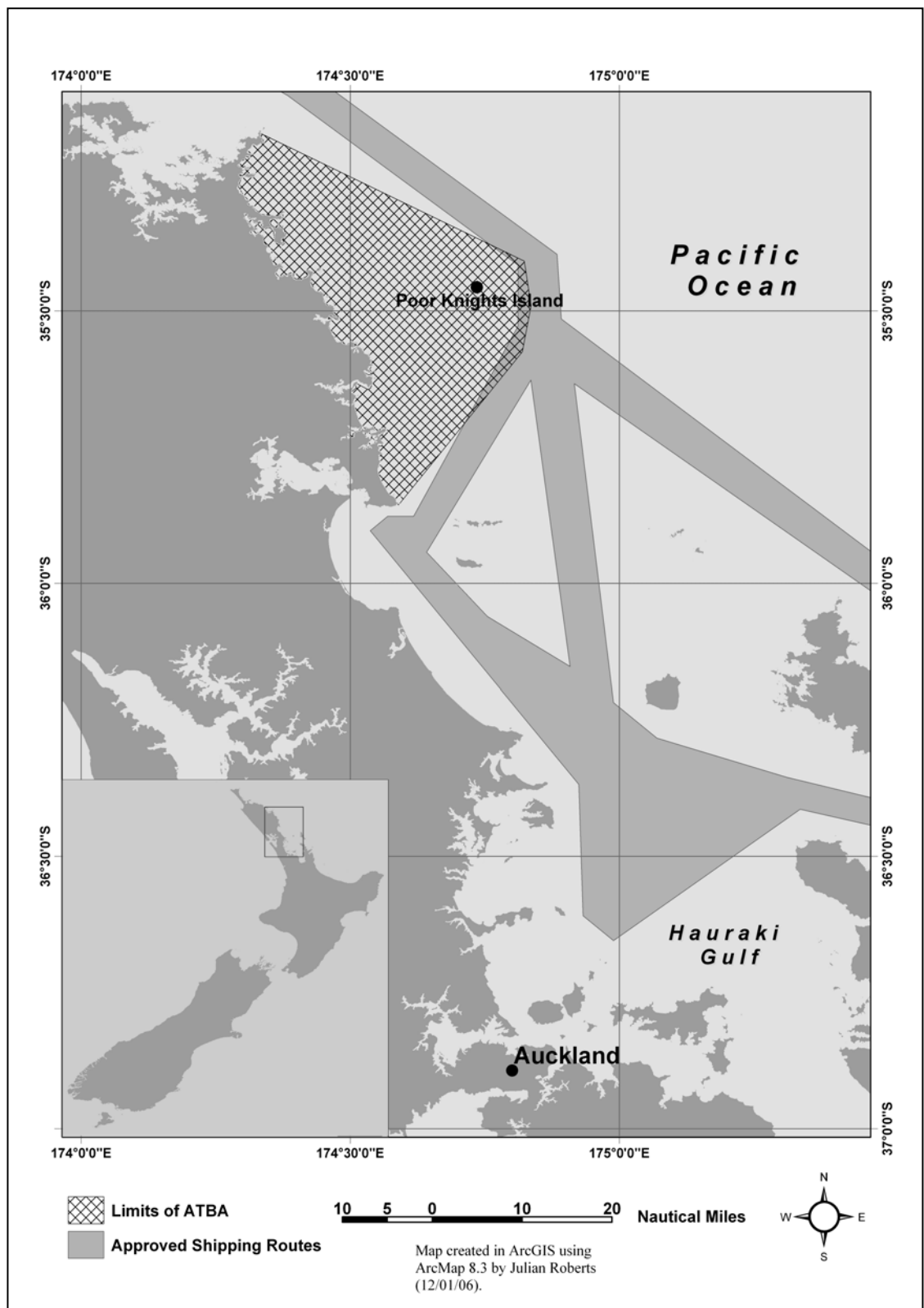


Figure 5.1. Extent of the Mandatory Area to be Avoided (ATBA)

5.3.5.1 Existing Navigation Regime

While traffic densities in New Zealand are not high by international standards,⁵⁴ this area of water experiences the highest shipping densities for New Zealand. The most recent national oil spill risk assessment⁵⁵ clearly identifies this area of the coastline as presenting the highest probability of an oil spill for New Zealand. Furthermore, oil spill sensitivity analysis has identified these areas as some of the most sensitive to the impacts of oil in New Zealand.⁵⁶ Since 1998 two incidents have occurred in the vicinity of the Poor Knights Islands. Both involved foreign-flagged vessels illegally discharging oil through bilge pumping.⁵⁷

This area is therefore particularly relevant from an environmental protection point of view, since it is both highly vulnerable in terms of its sensitivity to spills of oil and other harmful substances and is also at the highest risk of such an incident compared to other coastal areas within New Zealand. With the adoption of this area to be avoided, there are currently two IMO adopted routeing measures in place in New Zealand⁵⁸ both

⁵⁴ It is estimated that there are some 4,000 movements a year of vessels greater than 45 m in length in this area. This estimate includes approximately one large crude tanker (up to 150,000 dwt) every 10 days arriving at the refinery.

⁵⁵ *New Zealand Marine Oil Spill Risk Assessment 2004 – Report*. Prepared for the Director of Maritime Safety by URS New Zealand Ltd. December 2004.

⁵⁶ See MSA NZ, *Review of the Voluntary Vessel Routeing Code for Shipping in New Zealand Coastal Waters*, A consultation document prepared by the Maritime Safety Authority of New Zealand, (Wellington, NZ: June 2001).

⁵⁷ In the first incident, as a result of the close proximity of the vessel to the west of the Poor Knights Islands, a significant oil spill resulted in fuel oil contaminating the shoreline of the islands. While the environmental impacts of the spill were minor, this incident acted as a ‘wake up call’ for New Zealand, to the potential impacts a major incident would have in this area. In the second incident, the discharged oil did not impact the islands due to weather and environmental conditions at the time. However, this near miss once again heightened the risk that the Poor Knights Islands are exposed to from international shipping transiting the coast.

⁵⁸ A limited area to be avoided was established around the Three Kings Islands, off the northern most point of New Zealand, in 1993. NAV 39/3/2, *Routeing of ships: Area to be avoided in the Three Kings Islands*, submitted by New Zealand, 1 February 1993.

of which were established to protect environmentally sensitive areas. In addition, since 1992 New Zealand has operated a voluntary routeing code applicable to ships carrying oil and other harmful substances in bulk as defined in Annexes I & II of MARPOL 73/78.⁵⁹ The code requires that vessels transit at least 5 nautical miles off land, unless approaching a port or seeking shelter, and specifies recommended approaches for all New Zealand ports.

5.3.5.2 Consideration by the IMO

Although mandatory routeing measures have previously been approved three times since the ability to do so became available in 1997,⁶⁰ the application by New Zealand represents the first mandatory area to be avoided to be approved by the IMO. The concept of mandatory routeing measures, and in particular mandatory areas to be avoided, was not unanimously supported during the early discussions within the IMO. Several States voiced particular concern over the concept of mandatory areas to be avoided, noting that:

mandatory areas to be avoided could undermine the right of innocent passage through the territorial sea and freedom of navigation on the high seas under international law.⁶¹

⁵⁹ Maritime New Zealand, *Shipping Routes Around the New Zealand Coast: A voluntary code for ships carrying oil or other harmful liquid substances in bulk - Mandatory areas to be avoided by all ships over 45 metres in length/500 gross tons* (Wellington, NZ: Maritime New Zealand, 2005), 9 p.

⁶⁰ The four are the deep water route in the German Bight, the three mandatory no-anchoring areas for the Flower Gardens, the three mandatory no anchoring areas for Florida Keys and the mandatory area to be avoided off the north-east coast of New Zealand.

⁶¹ MSC 63/23, *Report of the Maritime Safety Committee on its sixty-third session*, 3 June 1994, para. 7.36.

As such, some States proposed that such measures should not be mandatory.⁶²

During the deliberations on the New Zealand application, the matter of mandatory versus recommended was once again raised as an issue. While the application received widespread support,⁶³ it was noted that the adoption of this measure was a significant step for the IMO since this was the first time a mandatory area to be avoided had been approved. Several delegations expressed the view that future applications for similar measures should be approached cautiously and should be the subject of stringent review.⁶⁴ This emphasises the increasingly important role of the IMO in striking a fine balance between the rights of traditional maritime States wishing to maintain traditional navigation rights and the prerogative of coastal States to protect their marine waters.

5.3.5.3 Benefits of IMO Approval

As noted above, the mandatory area to be avoided proposed by New Zealand lies entirely within its territorial sea. As such, New Zealand had every authority to impose mandatory restrictions on vessel movements in that area pursuant to Articles 21 and 22 of the LOSC. In light of the controversy over the concept of mandatory areas to be avoided, why then did New Zealand feel it necessary to pursue the proposal through the IMO when arguably there was no need to do so?

⁶² MSC 63/7/19, *Comments on mandatory ship reporting*, submitted by Japan, 25 March 1994, paras. 3-4; NAV 40/25, *Subcommittee on Safety of Navigation fortieth session: Report to the Maritime Safety Committee.*, 23 September 1994, para. 4.19. See also IMO Circular SN/Circ.234 *with respect to the mandatory area to be avoided off the northeast coast of the North Island of New Zealand*. 28 May 2004. Ref. T2-NAVSEC/2.7.1.

⁶³ The Sub-committee agreed to approve the proposed area to be avoided and invited the MSC to adopt the measure. See NAV 49/19, *Subcommittee on Safety of Navigation forty-ninth session: Report to the Maritime Safety Committee*, 28 July 2003, para. 3.26.

⁶⁴ *Ibid*, para 3.27.

While coastal States are entitled to establish vessel routeing systems as a sovereign right, subject to the requirement not to hamper innocent passage, it is widely acknowledged that approval by the IMO is desirable, if not necessary. Paragraph 3.16 of the GPSR recommends that Governments establishing routeing systems entirely within their territorial sea, should designate them in accordance with the criteria established by the IMO and submit them to the IMO for adoption. Routeing measures adopted through the IMO are more likely to be observed by international shipping. Therefore the establishment of routeing systems is best conducted through the IMO.⁶⁵ Furthermore, schemes not adopted by the IMO will not be published in the Ships' Routeing Manual,⁶⁶ and consequently there is no guarantee that the scheme will be known by vessels sailing the waters in which the scheme lies.⁶⁷ These were the same reasons that caused the USA to seek amendment to the GPSR to include no anchoring areas (Section 3.5.2.2), even when it considered such measures to be within the scope of coastal State sovereign rights under Article 56.⁶⁸

5.3.6 Vessel Traffic Services (VTS)

VTS Systems⁶⁹ are shore-based systems, which range from the provision of simple information messages to ships, such as position of other traffic or meteorological hazard

⁶⁵ G. Plant, "A European lawyer's view of the Government response to the Donaldson Report," *Marine Policy* 19 (1995), p. 464.

⁶⁶ IMO, *Ships' Routeing 7th Edition. Updated to include amendments adopted up to December 2003*. (London: IMO, 2003).

⁶⁷ Ilstra, p. 229 (note 41 above).

⁶⁸ Lindy Johnson (NOAA) personal communication.

⁶⁹ For a comprehensive overview of the development and application of VTS see generally T. Hughes "Vessel traffic services (VTS): are we ready for the new millennium?," *Journal of Navigation* 51 (1998), pp. 404-420; A basic summary of VTS is also provided on the IMO website http://www.imo.org/Safety/mainframe.asp?topic_id=387.

warnings, to extensive management of traffic within a port or waterway. However, a clear distinction must be made between a port or harbour VTS and a coastal VTS. A port VTS is mainly concerned with vessel traffic to and from a port or harbour, while a coastal VTS is mainly concerned with vessel traffic passing through an area. Accordingly, in the context of PSSAs, it is the establishment of a coastal VTS that is of benefit to the protection of that area. VTS can improve safety and efficiency of navigation, and protect the environment by providing interactive management of traffic along a coastline, or in other sensitive areas. This could include, for example, monitoring and controlling the passage of ships carrying hazardous cargoes through or around a PSSA.⁷⁰ Generally, ships entering a VTS area report to the authorities, usually by radio, and may be tracked by the VTS control centre.⁷¹

The purpose of a VTS is to provide active monitoring and navigational advice for vessels in particularly confined and busy waterways. There are two main types of VTS; surveilled and non-surveilled.⁷² Surveilled systems consist of one or more land-based sensors (i.e., radar, Automatic Identification Systems (AIS)⁷³ and closed circuit

⁷⁰ See MEPC 49/8/2, *Draft guidance document on associated protective measures for particularly sensitive sea areas*, submitted by WWF, 8 May 2003, para. 2.3.

⁷¹ VHF-FM communications network forms the basis of most major services. Transiting vessels make position reports to a vessel traffic centre by radiotelephone and are in turn provided with accurate, complete, and timely navigational safety information. The addition of a network of radars and close circuit television cameras for surveillance and computer-assisted tracking, similar to that used in air traffic control, allows the VTS to play a more significant role in marine traffic management, thereby decreasing vessel congestion, critical encounter situations, and the probability of a marine casualty resulting in environmental damage.

⁷² http://www.navcen.uscg.gov/mwv/vts/vts_home.htm.

⁷³ AIS is a shipboard broadcast transponder system operating in the VHF maritime band that is capable of sending and receiving ship information such as identification, position, heading, speed, ship length, beam, type, draft and hazardous cargo information, to other ships and to shore. Pursuant to Regulation 19 of SOLAS Chapter V all ships of 300 gross tonnage and upwards engaged on international voyages, cargo ships of 500 gross tonnage and upwards not engaged on international voyages and all passenger ships

Footnote continued on next page.

television sites), which output their signals to a central location, where operators monitor and manage vessel traffic movement. Non-surveilled systems consist of one or more reporting points, at which ships are required to report their identity, course, speed, and other data to the monitoring authority. They encompass a wide range of techniques and capabilities, aimed at preventing vessel collisions and groundings in the harbour, harbour approach and inland waterway phase of navigation. They are also designed to expedite ship movements, increase transportation system efficiency, and improve all-weather operating capability.⁷⁴ The efficiency of a VTS will depend on the reliability and continuity of communications, and the ability to provide clear and understandable information. The quality of accident-prevention measures will depend on the system's ability to detect a developing dangerous situation and on the ability to give timely warnings of such dangers.

The value of VTS in navigation safety and protection of the marine environment is recognised in the IMO Guidelines for Vessel Traffic Services (VTS Guidelines).⁷⁵ The VTS Guidelines note that a VTS is particularly appropriate in areas that include such characteristics as high traffic density, traffic carrying hazardous cargoes, conflicting and

irrespective of size are required to carry AIS capable of providing information about the ship to other ships and to coastal authorities automatically.

As a result of amendments to SOLAS brought about by the entry into force of the International Ship and Port Facility Security Code (ISPS Code), ships fitted with AIS shall maintain AIS in operation at all times except where international agreements, rules or standards provide for the protection of navigational information. See IMO Circular SN/Circ.227, *Guidelines for the installation of a Shipborne Automatic Identification System (AIS)*. 6 January 2003. Reference T2/8.02; and IMO Resolution A.917(22), *Guidelines for the onboard operational use of shipborne automatic identification systems (AIS)*. Adopted 19 November 2001; *International Ship and Port Facility Security Code*, adopted 12 December 2002. In force 1 July 2004. SOLAS/CONF.5/32 Conference Resolution 1 and related amendments to the 1974 SOLAS Convention); SOLAS/CONF.5/34 Conference Resolution 2 and related amendments to the 1974 SOLAS Convention and Conference Resolutions 3 to 11 (ISPS Code).

⁷⁴ http://www.navcen.uscg.gov/mwv/vts/vts_home.htm.

⁷⁵ IMO Resolution A.857(20), *Guidelines for Vessel Traffic Services*. Adopted 27 November 1997.

complex navigational patterns, navigational difficulties, narrow channels, difficult hydrological and meteorological elements, or environmental sensitivity.⁷⁶ These Guidelines are associated with SOLAS Regulation V/12 and, together with the Annexes to Resolution A.857(2), set out the objectives of VTS, outline the responsibilities and liability of the governments involved and give guidance for planning and implementing a VTS.

SOLAS Regulation 12 (Vessel Traffic Services) states *inter alia* that:

- (1) VTS contribute to safety of life at sea, safety and efficiency of navigation and protection of the marine environment, adjacent shore areas, work sites and offshore installations from possible adverse effects of maritime traffic.
- (2) Contracting Governments undertake to arrange for the establishment of VTS where, in their opinion, the volume of traffic or the degree of risk justifies such services.
- (3) Contracting Governments planning and implementing VTS shall, wherever possible, follow the guidelines developed by the Organization. The use of VTS may only be made mandatory in sea areas within the territorial seas of a coastal State.⁷⁷
- (4) Contracting Governments shall endeavour to secure the participation in, and compliance with, the provisions of vessel traffic services by ships entitled to fly

⁷⁶ *Ibid*, para. 3.2.2.

⁷⁷ Resolution A.857(20) at para. 2.2.2 (note 75 above) also notes that a contracting government, in planning and establishing a VTS, should ensure that a legal basis for the operation of a VTS is provided for and that the VTS is operated in accordance with national and international law.

their flag.

Despite the benefits of VTS in assisting in navigational safety and environmental protection, the IMO VTS Guidelines make it clear that decisions concerning the actual navigation and manoeuvring of a vessel remain solely with the master.⁷⁸ The VTS Guidelines also highlight the importance of pilotage in a VTS and reporting procedures for ships passing through an area where a VTS operates.⁷⁹ The use of pilotage services in areas where traffic is heavy or navigation particularly hazardous can have clear benefits in terms of risk reduction. Accordingly, the IMO has approved a number of pilotage services worldwide including many in environmentally sensitive areas (Table 5.2).

⁷⁸ Resolution A.857(20), para. 2.6.2 (note 75 above).

⁷⁹ Hughes, p. 404 (note 69 above).

Table 5.2. IMO Resolutions Encouraging the Use of Ships' Pilots in Certain Areas

Resolution	Details of Pilotage Regime
Resolution A.480(IX) (adopted 1975)	Recommends the use of qualified deep-sea pilots in the Baltic and Resolution A.620(15) (adopted 1987) recommends that ships with a draught of 13 metres or more should use the pilotage services established by coastal States in the entrances to the Baltic Sea
A.486(XII) (adopted 1981)	Recommends the use of deep-sea pilots in the North Sea, English Channel and Skagerrak
A.579(14) (adopted 1985)	Recommends that certain oil tankers, all chemical carriers and gas carriers and ships carrying radioactive material using the Sound (which separates Sweden and Denmark) should use pilotage services
A.668(16) (adopted 1989)	Recommends the use of pilotage services in the Euro-Channel and IJ-Channel (in the Netherlands)
A.710(17) (adopted 1991)	Recommends ships of over 70 metres in length and all loaded oil tankers, chemical tankers or liquefied gas carriers, irrespective of size, in the area of the Torres Strait and Great North East Channel, off Australia, to use pilotage services
A.827(19) on Ships' Routeing (adopted 1995)	Includes in Annex 2 Rules and Recommendations on Navigation through the Strait of Istanbul, the Strait of Canakkale and the Marmara Sea the recommendation that: "Masters of vessels passing through the Straits are strongly recommended to avail themselves of the services of a qualified pilot in order to comply with the requirements of safe navigation."

5.3.7 Ship Reporting Systems (SRS)

Ship Reporting Systems aim to give coastal States notice of the presence, in a designated zone of adjacent waters, of all or specified categories of vessels. A SRS may apply to transiting traffic as well as vessels entering a port. A typical system may require the reporting of the vessel name, radio call sign, position, course speed (and any additional information relevant to its purpose) to a coastal station when entering or departing the zone.⁸⁰

SRS are also recognised as contributing to the protection of the marine environment,⁸¹ following amendments to Regulation V/8.1 of SOLAS (made at the same time as those amendments to Regulation V/8 discussed above). The major contribution of such a measure in terms of protection of the environment is to serve as a mechanism for notifying coastal States of the presence of ships that may present a threat. In this way, coastal States may respond more effectively in the event that such a vessel becomes distressed. If a ship leaves its planned course, or if circumstances point to a risk of collision or grounding, the coastal State can then give a timely warning or take other action deemed appropriate. It can also further help to control passage of vessels that by their nature pose more risk to the environment than others, such as those carrying potentially polluting cargoes. Interactive reporting between a shore-based authority and a ship enables a coastal State to determine the intended movement of a ship through an area, any operational defects or difficulties affecting the ships and the nature of any

⁸⁰ Plant, p. 18 (note 39 above).

⁸¹ SOLAS, Regulation V/11 states that:

Ships' reporting systems contribute to the safety of life at sea and efficiency of navigation and/or protection of the marine environment.

hazardous cargo. This also enables the shore-based authority to determine precise details of any hazardous cargoes in the case of an emergency or threat to the environment.⁸²

Despite these benefits, a SRS does not permit the routing of vessels away from sensitive areas in the same manner as a ships' routing system. If the purpose of such a measure were to prevent certain classes of ships from entering or navigating within a specific area, then this would be in contravention of the fundamental principles of the LOSC, if those ships were otherwise in compliance with international rules and standards. However, the innovative application of such a measure may well contribute to the protection of the marine environment in specific circumstances, by providing mariners with information about specific environmental conditions. For example, the establishment of a SRS may enable a coastal authority to warn a ship of environmental or other hazards, and of the need to take special care if passing through an area where there are critical environmental interests to be protected. At the same time, the authority can identify such things as the identity of a vessel, its intended movement and next port of call, speed, and the general categories of any hazardous cargoes on board (e.g., oil, noxious liquid substances, radioactive materials). In case a violation of discharge regulations is detected, knowledge of the ship's whereabouts and its next port of call may assist enforcement efforts. Therefore, in conjunction with ships' routing systems, a SRS may contribute to the overall protection of a given area.

⁸² MEPC 46/6/1, para 2.3.3 (note 19 above).

By virtue of amendments to SOLAS, reporting systems may now be voluntary or mandatory. The IMO SRS Guidelines,⁸³ set forth guidelines for voluntary systems and criteria for mandatory systems. Mandatory systems must be adopted by the MSC and implemented in conformity with the IMO SRS Guidelines. There are now a number of areas throughout the world where mandatory reporting is required. Australia, for example, has two reporting systems: the Australian Ship Reporting System (AUSREP) and Torres Strait and Great Barrier Reef (Inner Route) Ship Reporting System (REEFREP). The latter system covers the Torres Strait and Great Barrier Reef, while the AUSREP system covers the western and southern approaches to the continent, as well as most of the Australian coastline.⁸⁴ Similarly, the USA has implemented two IMO-approved mandatory SRS in order to provide important protection for endangered large whale species, in particular the critically endangered northern right whale.⁸⁵

5.3.8 To PSSA or not to PSSA?

Given the purported intrinsic benefits of PSSA designation, it might be reasonably assumed that member States would preferentially apply such a measure specifically established for the protection of sensitive marine areas. However, as will be seen below, despite the requirements for routing measures now incorporating largely the same environmental criteria as for PSSAs, State practice does not support this assumption. In its consideration of the options available to protect the area around the Poor Knights

⁸³ IMO Resolution MSC.43(64), *Guidelines and Criteria for Ship Reporting Systems*. Adopted 9 December 1994.

⁸⁴ Hughes, p. 409 (note 69 above). For details of both systems, see the *AUSREP and REEFREP Booklet* available online at http://www.amsa.gov.au/Shipping_Safety/AUSREP_and_REEFREP/AUSREP_and_REEFREP_booklet.asp.

⁸⁵ NAV 44/14, *Subcommittee on Safety of Navigation forty-fourth session: Report to the Maritime Safety Committee*, 4 September 1998, Annex 8, para. 1.

marine reserve, New Zealand considered the possible application of the PSSA concept.⁸⁶ Given that New Zealand wished to exclude shipping from the area, the designation of an area to be avoided was essential irrespective of whether PSSA designation was sought. Notwithstanding the possible benefits that may be derived from a PSSA designation, in its analysis, New Zealand concluded that the area to be avoided as a measure in its own right would provide the same level of protection as a PSSA designation. Furthermore, by simply adopting the area to be avoided there was no need to undertake the lengthy process of applying for a PSSA through the IMO.

Similarly, when proposing the Florida Keys area as a PSSA the USA also considered whether three other areas⁸⁷ should be proposed for PSSA designation. In doing so the USA went through an elaborate reasoning process to determine whether the advantages of PSSA status outweighed the extra time it took to obtain it, and the consequent delay, in adopting protective measures that had to go through two or more committees.⁸⁸

5.4 ASSESSMENT AND APPROVAL OF PSSA PROPOSALS BY THE IMO

While the application requirements for member States submitting proposals to the IMO are clearly set out, the process of assessing and approving such applications within the IMO is poorly defined and generally undertaken in an *ad hoc* manner. The PSSA

⁸⁶ The author was responsible for undertaking both the assessment of the options available to protect the area, and the preparation and presentation of the submission to the IMO seeking approval for the area to be avoided.

⁸⁷ The three areas were: (i) the Monterey Bay National Marine Sanctuary; (ii) the Flower Gardens Bank National Marine Sanctuary; and (iii) the area off the east coast of the USA that is subject to a mandatory ship reporting scheme to protect Right Whales (refer to Section 3.5.2.2 above). Lindy Johnson (NOAA) personal communication.

⁸⁸ While the USA opted not to pursue PSSA status for these areas, it did pursue routeing measures for two of the areas as follows: (i) the Flower Gardens Bank National Marine Sanctuary in the form of two no anchoring areas; and (ii) the area between Pigeon Point and Point Sur in the form of three recommended tracks for use by certain ships. See also the summary in Appendix D.

Guidelines set forth a number of criteria for the assessment of PSSA proposals.⁸⁹ In assessing each proposal, the IMO should take into account these criteria and, in particular, should consider, *inter alia*:

- (1) The full range of protective measures available and determine whether the proposed APMs are appropriate to address effectively the assessed risk of damage to the proposed area by identified international shipping activities;
- (2) Whether such measures might result in increased potential for significant adverse effects by international shipping activities on the environment outside the proposed PSSA; and
- (3) Whether the size of the area is commensurate with that necessary to address the identified need.

As noted above, identification of a PSSA and its protection with legal measures are separate but related matters. That this is the case is clearly highlighted by the fact that different IMO bodies have a role to play in both processes. In fact, three IMO bodies are primarily involved in the overall process of approving a PSSA application.⁹⁰ The MEPC has the role of undertaking an initial evaluation of all PSSA proposals submitted to the IMO. This involves assessing each application against a set of evaluation criteria to confirm that all aspects of a PSSA application have been met. Consideration of APMs

⁸⁹ PSSA Guidelines, para. 8.2 (note 1 above).

⁹⁰ MEPC, MSC and the NAV Sub-committee all have a formal role to play in the consideration of a PSSA proposal. In addition the Legal Committee and even the IMO Assembly may become involved in considering legal arguments and adopting resolutions giving effect to specific APMs, respectively. For example, the 24th Session of the IMO Assembly recently adopted Resolution A.976(24). *Ships' Routeing – Establishment of an Area to be Avoided in the Galapagos Archipelago*. Adopted 1 December 2005. The area to be avoided is the primary APM for the Galapagos PSSA.

relating to discharge standards is also undertaken by the MEPC. However, the MEPC's competence in this regard does not extend to evaluating and adopting APMs that are consistent with the requirements of SOLAS. Within the IMO, competence for matters relating to SOLAS is tasked to the MSC⁹¹ and the NAV Sub-committee. Thus, where a PSSA proposal includes a ships' routeing measure, SRS or VTS, the measure must be approved by the MSC before final designation of the area as a PSSA can be confirmed by the MEPC. The procedure for considering a PSSA application by IMO is illustrated in Figure 5.2 below.

⁹¹ IMO Convention, Article 28.

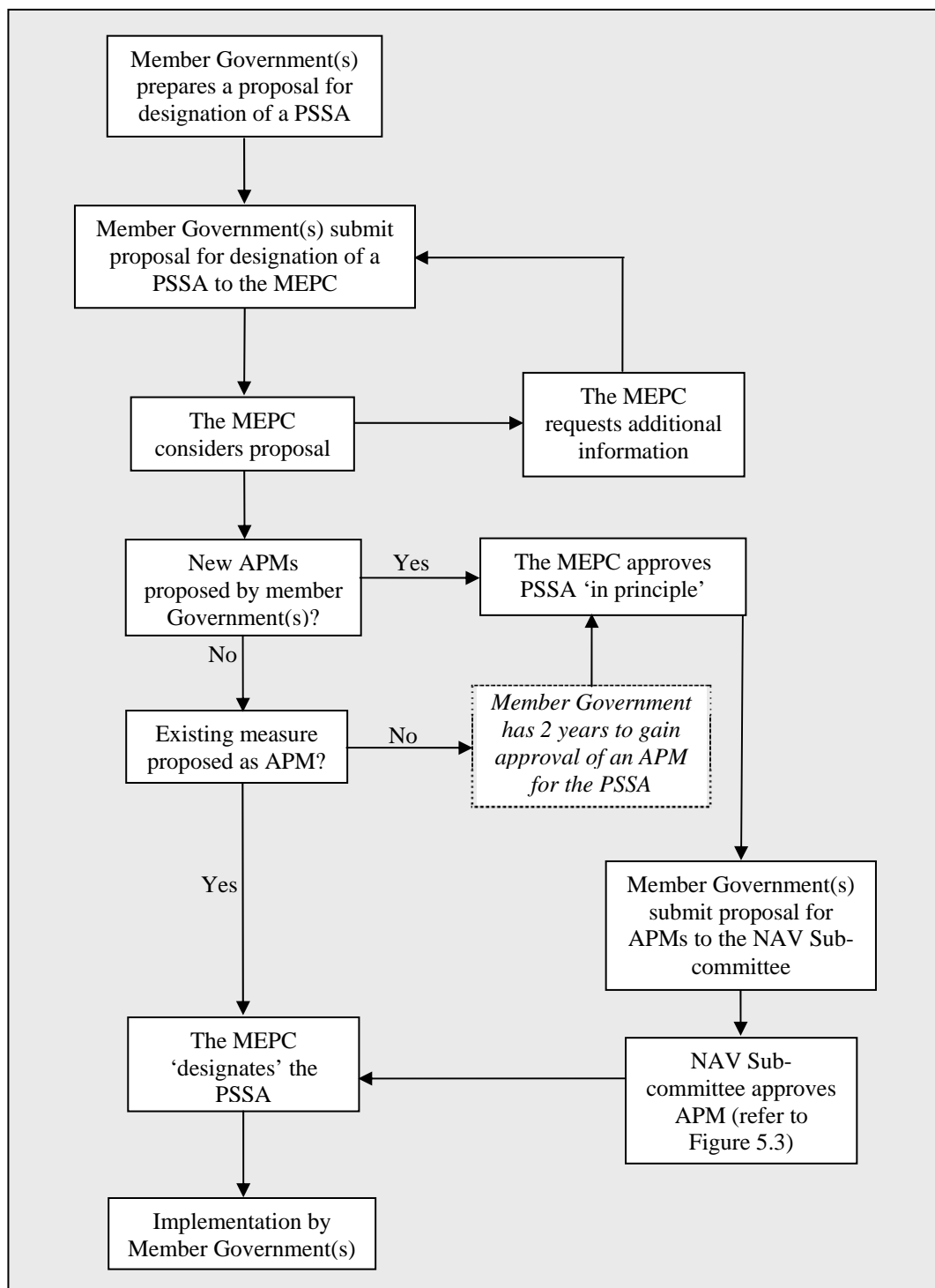


Figure 5.2. IMO Procedure for Consideration and Designation of PSSAs

5.4.1 Consideration by MEPC

The Guidelines make it clear that the primary responsibility for the consideration of any PSSA proposal rests with the MEPC, since it is the MEPC that ultimately approves the final designation of a PSSA.⁹² The MEPC meets approximately every eight months for a full plenary session, each meeting lasting five days. While the full Committee is required to make decisions, approve resolutions and to make recommendations to other IMO bodies, much of the work of the MEPC is undertaken through Working Groups, Drafting Groups, Technical Groups and Intercessional Correspondence Groups. The rules of procedure of the IMO generally limit the number of subsidiary bodies that can operate at any one time.⁹³ As a result, the work of the MEPC is somewhat restricted by the maximum number of groups it can form at any one time.⁹⁴ Since 2000, much of the focus of the MEPC has been centred on three main work areas: ballast water; air emissions from ships; and ship recycling. Each of these items has been a standing item at every session of the MEPC since 2001, requiring the formation of a Working Group in each case.⁹⁵ As a result, the MEPC has been unable to establish a permanent Working Group to address PSSA issues. Thus, since the adoption of Resolution A.927(22), the

⁹² PSSA Guidelines, para. 8.3.1 (note 1 above).

⁹³ Rule 19 (Subsidiary Bodies) of the Rules of Procedure of the MEPC.

⁹⁴ Currently under the Rules of Procedure, the MEPC may establish up to three Working Groups. In practice, subsidiary bodies are often established during sessions of the MEPC, and allocated titles in order to comply with the rules of procedures.

⁹⁵ During recent deliberations of the MEPC, a number of delegations have suggested the establishment of a formal PSSA Working Group. While such a move might seem a sensible one given the limitations facing the MEPC in evaluating PSSA proposals, it should also be recognised that such a move is likely to result in PSSA proposals only being considered when there exists within the MEPC agenda, sufficient Working Group spaces to allow such a Working Group to be established. As noted above, the MEPC has for some years had its full quota of three Working Groups permanently established to consider ongoing issues relating to ballast water, air emissions and ship recycling. As such, a cynical view of such calls to establish a PSSA Working Group may conclude that such a proposal was designed to ensure that the consideration and approval of PSSA proposals was in fact slowed down considerably.

consideration of PSSA proposals within the MEPC has generally been undertaken in an *ad hoc* manner by an informal Technical Group, formed between plenary sessions of the committee. As with all IMO subsidiary bodies, membership of the Technical Group is open to any member State or observer of the IMO. While this provides opportunities for participation to all member States and observers, in practice only a limited number of States and observer groups do so. Maritime and flag States take a keen interest in the proceedings as do environmental NGOs. Those States with an interest in a specific proposal will also usually participate. However, while it may appear that such an approach affords all those with an interest in an application to participate in the process, the procedure presents a number of challenges.

First, in assessing any PSSA proposal, there is a need to establish a Technical Group with a range of technical skills, in order to fully evaluate the proposal against all relevant criteria. In particular, these include maritime, legal and ecological skills. However, in practice the makeup of the Technical Group often fails to guarantee that such a mix is represented. Furthermore, in most cases those that are present may not be intimately familiar with the area in question, and as a result may not be best placed to critically review the applications against the criteria. Moreover, despite having been established for over 10 years, the PSSA concept is still clearly misunderstood by many member States.⁹⁶ As a result, discussions within the Technical Group are often characterised and complicated by misinformation and a lack of understanding of both the purpose of a PSSA, and the application and evaluation of the criteria.

⁹⁶ Observation by the author during attendance at numerous sessions of the PSSA Technical Group at the MEPC meetings (2003-2005).

A second issue that arises relates to the submission and presentation of a PSSA proposal itself. While it is acknowledged that any proposals must be presented to the Technical Group by a representative of the proposing State(s), who must be available to assist the Technical Group in their deliberations by addressing any queries the group might have, practice within the IMO has gone further than this. In some cases, proposing States enter protracted debates with the review group to argue their case.⁹⁷ This presents an interesting challenge for those involved, since, as noted above, the Technical Group rarely includes experts with a detailed knowledge of the area. It is therefore possible for a proposing State to argue against the Technical Group for a successful outcome.⁹⁸

A third issue that should be considered, is the form of the evaluation itself. Consideration of recent proposals has tended to utilise a checklist approach, whereby the Technical Group confirm against a checklist that all relevant matters pertaining to a PSSA proposal have been addressed. A copy of the checklist is attached at Appendix E. The generic nature of the checklist reflects the broad range of criteria that must be satisfied. However, as can be seen from the checklist, in many instances what is required is a simple confirmation of whether a criterion is present or not. For all but the most degraded marine areas, it would be difficult to argue that at least one of the criteria was not present and taking into account the possible lack of expertise in the Technical Group, it is very difficult for it to refute the claims of the proposing State, that an individual criterion is present in a defined area. Numerous proposals have been

⁹⁷ This was particularly true in the case of the WE PSSA where the proposing States argued against every criticism that was raised against the application by the Technical Group.

⁹⁸ Roberts *et al* argue that this precise scenario arose during the deliberations on the Western European PSSA proposal. See J. Roberts, T. Workman, M. Tsamenyi and L. Johnson, "The Western European PSSA: A 'politically sensitive sea area'," *Marine Policy* 29 (2005), p. 440.

considered with respect to improving or even deleting the current checklist.⁹⁹ However, at this stage, no decision has been made in this regard and the process remains in place.

The initial assessment undertaken by the MEPC, has the effect of confirming that all of the criteria have been met. However, this in itself is not sufficient to enable the final designation of a PSSA. Additional criteria regarding the establishment of APMs may still need to be satisfied. In this event the MEPC will approve the PSSA ‘in principle’. The proposing State(s) then have two years in which to secure the adoption of APMs. In theory, to be approved in principle, the MEPC should have already undertaken an assessment to ensure that the proposed APMs are the preferred method for providing protection for the area to be identified as a PSSA.¹⁰⁰ Furthermore, while recognising this two year period, the PSSA Guidelines do require that any application for PSSA designation, which does not contain a proposal for an APM, should at least include information pertaining to the types of measures it is considering. In practice, the PSSA Guidelines present an interesting contradiction, since it is not possible for the MEPC to determine that the proposed APM is the most appropriate form of protection, as required under paragraph 7.3 of the PSSA Guidelines,¹⁰¹ unless the Committee is furnished with sufficient information on the proposed APM, on which to base this evaluation.

⁹⁹ For a detailed overview of the discussions on this subject refer to Section 7.2.4.1 below.

¹⁰⁰ PSSA Guidelines, para 7.3 (note 1 above).

¹⁰¹ Para. 7.3 of the PSSA Guidelines states that:

The application should clearly set forth a summary of the objectives of the proposed PSSA designation, the location of the area, the need for the protection and the proposal for associated protective measures. The summary should include the reasons why the proposed associated protective measures are the preferred method for providing protection for the area to be identified as a PSSA.

Furthermore, para. 8.2.1 requires the IMO to consider whether:

Footnote continued on next page.

5.4.2 Consideration by NAV and MSC

In accordance with normal IMO procedures, the consideration and adoption of APMs giving effect to the provisions of SOLAS is undertaken by the MSC and the NAV Sub-committee. A technical evaluation of all such proposals is undertaken by the NAV Sub-committee, who make a recommendation on the appropriateness of the measure to the MSC.¹⁰² It is thus the responsibility of the MSC to adopt such measures for PSSAs. Notwithstanding this, there remains a degree of confusion as to whether the MEPC may also approve APMs that have been considered by the NAV Sub-committee.

Figure 5.3 illustrates the general procedure for approving routeing measures. This is also applicable to SRS and VTS.

The proposed associated protective measures are appropriate to address effectively the assessed risk of damage to the proposed area by international shipping activities.

¹⁰² For details of the application requirements for proposal to the NAV Sub-committee see IMO Circular MSC/Circ.1060, *Guidance note on the preparation of proposals on ships' routeing systems and ship reporting systems for submission to the sub-committee on safety of navigation*, 6 January 2003.

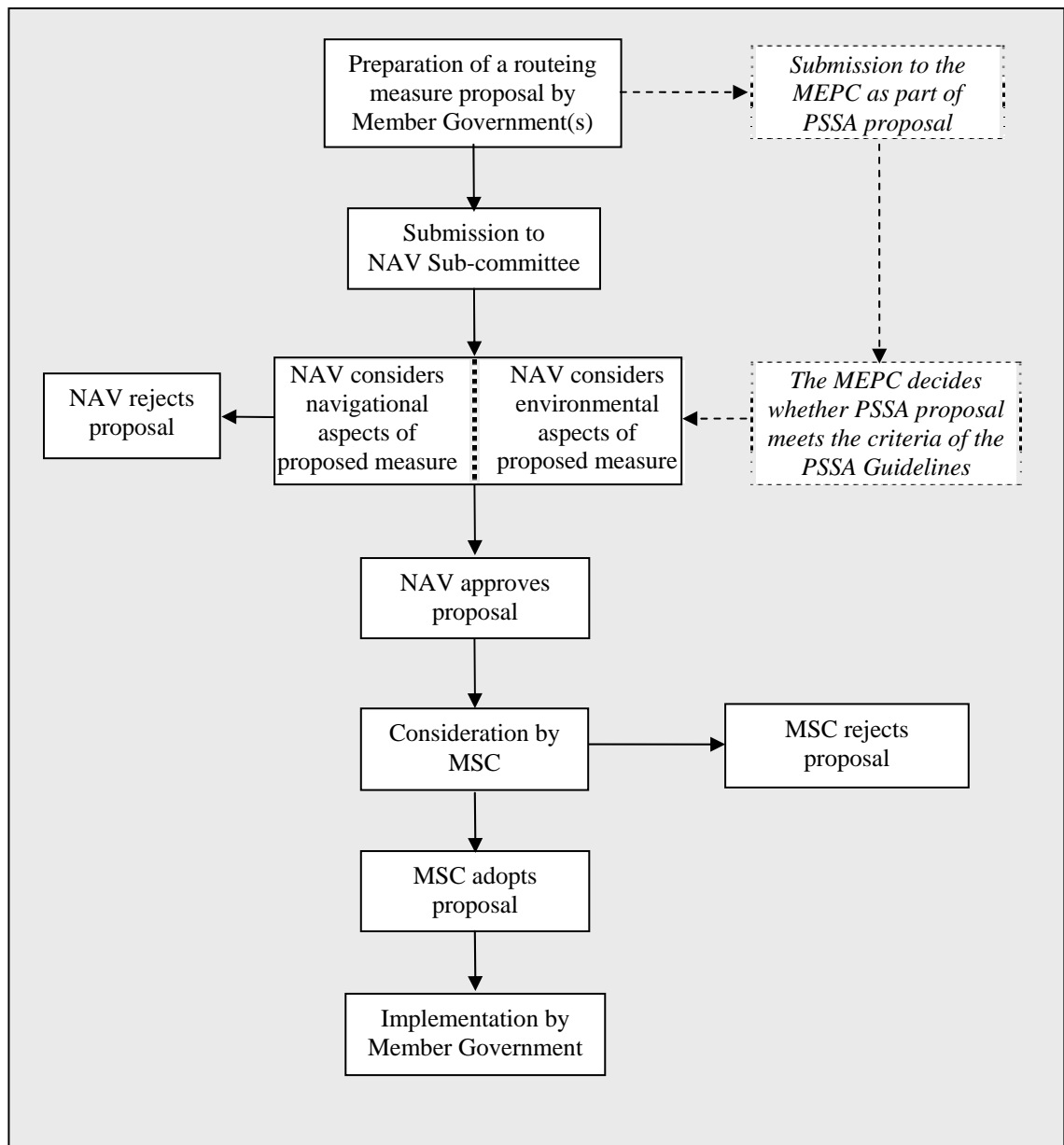


Figure 5.3. Consideration and Adoption of Proposals for Ships Routing Measures and Ship Reporting Systems

A considerable amount of confusion has existed with regard to the relationship between the various IMO committees and sub-committees insofar as the approval of PSSA proposals is concerned. A number of alternative proposals have been considered by the MEPC over time. Initially it was considered appropriate that, once a PSSA proposal had

been submitted to the MEPC, it was the responsibility of that Committee to forward proposals for specific APMs to the MSC and the NAV Sub-committee.¹⁰³ However, this proved to be unworkable for a number of reasons. In particular, the vague terminology in the PSSA Guidelines potentially required the MEPC to simply forward a copy of the PSSA proposal to the relevant body, along with the outcome of its initial review. This approach, however, had the drawback that the current guidelines do not require the submission of an actual proposal for specific APMs as part of the application process. Accordingly, the NAV Sub-committee requested that actual proposals for APMs should be submitted to it directly and that it not be required to extract necessary information either from a PSSA application itself, or from the proposing State at the meeting where the proposal is under consideration.¹⁰⁴ For measures that require approval by the MSC, the NAV Sub-committee should forward its recommendations for approval of the APM to the MSC. The MSC shall then notify the MEPC of its decision.

As a result of this interaction between the various committees and sub-committees, the process of designating a PSSA is a lengthy one, involving a number of procedural steps and submissions to various bodies. Proposing an area for designation as a PSSA is therefore not a task to be undertaken lightly. A considerable amount of technical information and supporting evidence is required to be collected and presented to the

¹⁰³ In fact, para. 8.3.2 of PSSA Guidelines states that:

The MEPC should refer the application, with its associated protective measures, to the appropriate Sub-Committee, or Committee (which could be the MEPC itself) that is responsible for addressing the particular associated protective measures proposed for the area of the outcome of the review.

¹⁰⁴ NAV 47/13, *Subcommittee on Safety of Navigation forty-seventh session: Report to the Maritime Safety Committee*, 26 July 2001, para. 3.60.

IMO. Some PSSA proposals take up to two years for their initial submission to their final designation and implementation thereafter.¹⁰⁵

5.4.3 Approval of a PSSA

The guidelines make it clear that final designation of a PSSA is undertaken by the MEPC and can only be achieved after the PSSA had been identified and the relevant APMs have been adopted and accepted as addressing the identified vulnerability.¹⁰⁶ Once designated, the IMO must ensure that the effective date of implementation is as soon as possible, subject to the IMO's rules and procedures. This may include the requirement to have all APMs identified on charts and relevant updates to be made to the GPSR.

5.5 CONCLUSION

The requirements for the submission of a PSSA proposal are clearly set forth in the PSSA Guidelines. The Guidelines make it clear that the identification of an area as a PSSA and the protection of that area through legal measures are two separate but related issues. Procedurally these two matters are dealt with separately, but it is clear that the final designation of an area as a PSSA is reliant on both issues being resolved.

Responsibility for considering and approving PSSA proposals rests with a number of IMO committees and sub-committees. However, while the application process is clearly documented, the manner in which the IMO has historically considered such applications

¹⁰⁵ See for example the proposals by Australia and Papua New Guinea to extend the existing Great Barrier Reef PSSA to include the Torres Strait region. The proposal was submitted to MEPC in October 2003. The pilotage regime proposed as an APM was finally adopted by the MSC in December 2004 and the final designation of the PSSA by MEPC was agreed in July 2005.

¹⁰⁶ PSSA Guidelines, para. 8.3.6 (note 1 above).

has been *ad hoc* in nature, and has evolved over time. Currently the mechanism for considering such proposals relies on the convening of an informal Technical Group, which may be drawn from any member States or interested observers. Consideration of the proposal is guided by a somewhat vague checklist which, as it is presently drafted, fails to provide sufficient rigour to the review process to ensure that all PSSA proposals are as robust as they are required to be. As a result, several PSSA proposals have been considered and adopted by the IMO on the basis of an inadequate review process. It is these issues that the thesis addresses in the subsequent chapters.

Notwithstanding the recent increase in interest in the PSSA concept, the application of ships' routing measures as a means to regulate shipping for the specific purpose of protecting sensitive areas of the marine environment is widely accepted by the international community. Furthermore, despite the establishment of the PSSA concept over 14 years ago, current State practice suggests that the application of ship's routing measures remains a more favourable option for the protection of sensitive areas from the impacts of shipping than does the PSSA concept.

CHAPTER 6

STATE PRACTICE: APPLICATION OF THE PSSA CONCEPT

6.1 INTRODUCTION

Since the adoption of Resolution A.720(17) by the IMO in 1991, the PSSA concept has undergone a series of revisions, which can largely be attributed to the influence of State practice in the implementation of the PSSA concept. By way of example, and as noted above, both the Great Barrier Reef and the Sabana-Camagüey PSSA proposals were instrumental in significant developments in the history of the PSSA concept: the Great Barrier Reef, because it largely precipitated the adoption of Resolution A.720(17) and initiated the designation of PSSAs;¹ and, the Sabana-Camagüey proposal, because, due to the controversy surrounding the application,² it resulted in the adoption of Resolution A.885(20)³ and also the introduction of the concept of ‘approval in principle’. More recently, a number of PSSA proposals have gone beyond what many believe to be appropriate for the application of the PSSA concept. These actions have raised doubts over the efficacy of the entire concept, with some member States calling for a moratorium on PSSA designations and a ‘back to basics’ review of the entire concept and its basis in international law.⁴

¹ See P. Ottesen, S. Sparkes and C. Trinder, “Shipping threats and protection of the Great Barrier Reef Marine Park - The role of the particularly sensitive sea area,” *International Journal of Marine and Coastal Law* 9 (1994), pp. 518-522.

² For a discussion on this application see for example K.M. Gjerde and J.S.H. Pullen, “Cuba’s Sabana-Camagüey Archipelago: The second internationally recognised particularly sensitive sea area,” *International Journal of Marine and Coastal Law* 13 (1998), pp. 246-262.

³ For a discussion on how the proposal affected amendments to the guidelines through Resolution A.885(2) refer to Section 4.3.2 above.

⁴ See for example V. Frank, “Consequences of the *Prestige* sinking for European and international law,” *International Journal of Marine and Coastal Law* 20 (2005), pp. 36-37; See generally J. Roberts, T.

Footnote continued on next page.

To date 11 PSSAs have been designated by the IMO (Table 4.1 at p.120). However, it is beyond the scope of this thesis to evaluate each one of them. Instead, and in order to illustrate a number of the key issues surrounding the PSSA concept, Part I of this chapter presents a number of case studies to illustrate the way in which States have interpreted and applied the PSSA Guidelines and in particular highlights some of the more significant issues that have arisen with State practice in recent years. Particular attention will be given to the Western European, Baltic Sea and Torres Strait proposals, which have all been highly controversial and in some cases have resulted in amendments to the existing PSSA Guidelines. The Florida Keys PSSA proposal will also be examined, since it has been seen by many as a ‘model’⁵ PSSA proposal and has been instrumental in the establishment of IMO procedures for the preparation of PSSA proposals.

To date, no comprehensive analysis has been undertaken to evaluate whether the reported benefits of PSSA designation are being realised through the current application of the concept. Using the case studies to underpin the analysis, Part II of this chapter analyses the extent to which each of these suggested benefits are being realised.

The analysis of State practice also highlights a number of issues which have become apparent with the PSSA concept. These issues have the potential to impact significantly upon the efficacy and credibility of the PSSA concept in the future. As such the case

Workman, M. Tsamenyi and L. Johnson, “The Western European PSSA: A ‘politically sensitive sea area’,” *Marine Policy* 29 (2005), pp. 431-440.

⁵ MEPC 46/23, *Report of the Marine Environment Protection Committee on its forty-sixth session*. 16 May 2001.

studies presented in this chapter also underpin a detailed analysis of these issues, presented in Chapter 7 below.

PART I: CASE STUDY ANALYSIS - STATE PRACTICE WITH THE PSSA CONCEPT

6.2 THE WESTERN EUROPEAN PSSA

6.2.1 Background

During the past 12 years, numerous European coastal States have suffered maritime accidents resulting in marine pollution events that have had significant environmental and socio-economic impacts on the coastal States concerned, as well as demanding millions of dollars in cleanup and compensation costs, including substantial payments from the international pollution compensation funds (Table 3.1 at p. 68).⁶ High-profile casualties include *MV Braer*,⁷ *MV Sea Empress*,⁸ *MV Erika*,⁹ *MV Ievoli Sun* and *MV*

⁶ Compensation for pollution damage caused by spills from oil tankers is governed by an international regime elaborated under the auspices of the IMO. The framework for the regime comprises the 1992 Civil Liability Convention and the 1992 Fund Convention. The 1992 Civil Liability Convention governs the liability of shipowners for oil pollution damage. The Convention lays down the principle of strict liability for shipowners and creates a system of compulsory liability insurance. The shipowner is normally entitled to limit his liability to an amount which is linked to the tonnage of his ship. The International Oil Pollution Compensation Fund 1992, generally referred to as the IOPC Fund 1992, was set up under the 1992 Fund Convention and is supplementary to the 1992 Civil Liability Convention. The Fund Convention establishes a regime for compensating victims when the compensation under the applicable Civil Liability Convention is inadequate.

⁷ For an overview of the *Braer* oil spill and its impacts see W. Ritchie and M. O'Sullivan (eds) *The Environmental Impact of the Wreck of the Braer* (Edinburgh: The Scottish Office, 1994); Marine Pollution Control Unit (1993). *The Braer Incident, Shetland Islands, January 1993* (London: HMSO, 1993).

⁸ For an overview of the *Sea Empress* oil spill and its impacts see SEEC, *The Environmental Impact of the Sea Empress Oil Spill: Final Report of the Sea Empress Environmental Evaluation Committee (SEEC)* (Government Stationary Office, London, 1998); MPCU, *The Sea Empress Incident. A Report by the Marine Pollution Control Unit*, (Southampton, UK: The Coastguard Agency, 1996).

⁹ For an overview of the *Erika* oil spill and its impacts see generally "The Erika oil spill: environmental contamination and effects in the Bay of Biscay," Special issue of *Aquatic Living Resources* 17 (July-September 2004), pp. 235-394.

Prestige.¹⁰ In response to a public demand for action, several European States sought designation, by the IMO, of an extensive marine area as a PSSA (Western European PSSA).¹¹ The application for a PSSA by these European States included an extensive sea area encompassing the west coasts of the United Kingdom, Ireland, Belgium, France, Spain and Portugal, from the Shetland Isles in the north to Cape Vicente in the South, including the English Channel and its approaches¹² (Figure 6.1).

¹⁰ For an overview of the impacts of the *Prestige* spill see X.N. Rodriquez, “Effects of the oil spill from the *Prestige* on the environment and its subsequent regeneration,” *Proceedings of the 17th Annual Conference Oil Pollution 2004. Claims Handling and Clean-up Response*, (Lloyd’s List Events, London, 15-16 March 2004). For an overview of the political consequences of the spill see generally Frank (note 4 above).

¹¹ See MEPC 49/8/1, *Designation of a Western European particularly sensitive sea area*, submitted by Belgium, France, Ireland, Portugal, Spain and the United Kingdom, 11 April 2003.

¹² MEPC 49/8/1, para. 5 (note 11 above).

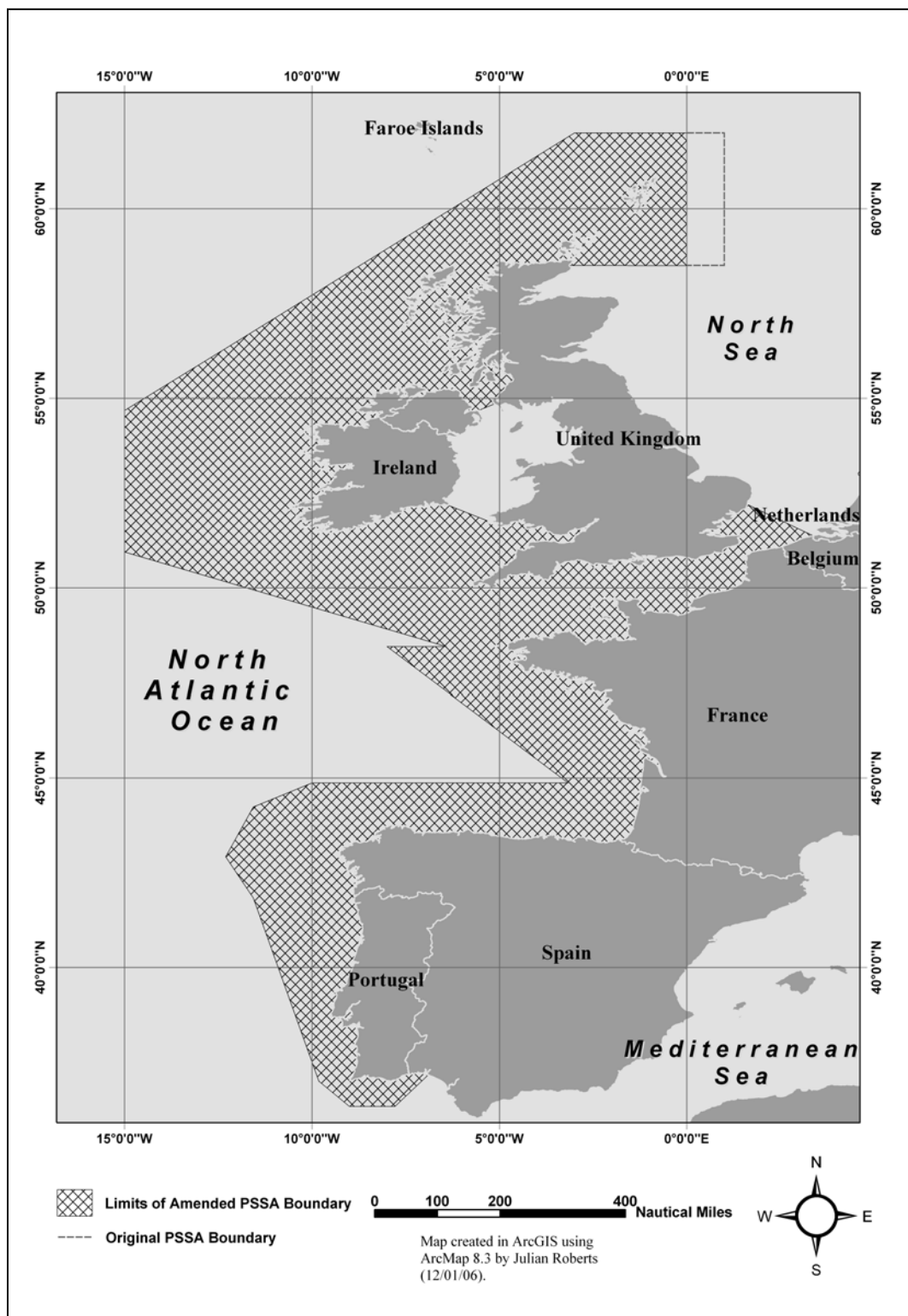


Figure 6.1. Limits of the Western European PSSA

The area encompassed by the PSSA includes a wide range of sites with conservation value such as Special Areas of Conservation (designated under the European Habitats Directive),¹³ Special Protection Areas (designated under the European Birds Directive),¹⁴ RAMSAR sites, World Heritage Sites and an unknown number of nationally established MPAs. The waters of Spain, France, Ireland and the United Kingdom are considered to be of international importance for a large number of seabird species, are recognised for their high biological productivity and support significant economic activity, including extensive aquaculture resources and highly productive fishing grounds.¹⁵ The submission to the MEPC, by the proposing States, provides a comprehensive summary of the significance and vulnerability of the area in question. This section will not focus on a detailed analysis of the specific values and vulnerability of the area in question, but will look more closely at the APMs and the consideration of the proposal by the IMO.

6.2.2 Existing Navigation Regime

The proposed PSSA area includes some of the most significant shipping routes in the world, because of the number of ships and the quantities of dangerous or polluting cargoes transported.¹⁶ Approximately 25% of the world's commercial traffic converge towards the English Channel. Furthermore, the area is subject to significant cross channel commercial traffic between a number of the proposing States. Since 1966 some

¹³ *Council Directive of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora* (92/43/EEC) (OJ L 206, 22.7.1992, p. 7) (hereafter Habitats Directive).

¹⁴ *Council Directive of 2 April 1979 on the conservation of wild birds* (79/409/EEC) (OJ L 103, 25.4.1979, p. 1) (hereafter Birds Directive).

¹⁵ MEPC 49/8/1, para. vii (note 11 above).

¹⁶ MEPC 49/8/1, para. 4.1.2 (note 11 above).

27 casualties, which resulted in significant marine pollution events, have occurred in the waters that are the subject of this PSSA application.¹⁷

Considering the volume of traffic, the nature of cargoes carried, the standards of vessels combined with meteorological, oceanographic and hydrographic conditions of the area, and the history of accidents, there is good reason to be concerned at the vulnerability of the area to shipping activities. As a result, a number of measures have been established to reduce the risk of shipping casualties. For example, the sea area subject to this proposal currently includes the following IMO-designated ships' routeing measures:¹⁸

- Fourteen traffic-separation schemes.
- Two deepwater routes.
- Seven areas to be avoided.
- Four mandatory ship-reporting systems.

In addition, comprehensive VTS systems have been put in place by a number of coastal States including the provision of oil spill support vessels and emergency towing vessel capabilities.¹⁹

¹⁷ Data on international oil spills is collated by ITOPF. See <http://www.itopf.org/stats.html>.

¹⁸ The IMO Ships' Routeing manual includes details of all ships routeing measures and ship reporting systems approved by the IMO: IMO, *Ships' Routeing 7th Edition. Updated to include amendments adopted up to December 2003*. (London: IMO, 2003).

¹⁹ For an overview of the various oil spill response arrangements established in European waters see for example M. O'Brien, R. Johnson and H. Thomas, "International co-operation on oil spill response in European waters," in *Proceedings of the International Oil Spill Conference (InterSpill) Clean Seas – Global Concern, Local Solutions* (Trondheim, Norway, 14-17 June 2004).

6.2.3 Associated Protective Measures

In addition to these existing measures, two APMs were suggested in the application:

- (1) A ban on the transit of single-hull tankers carrying heavy fuel oil through the area;
and
- (2) A 48-hour prior reporting requirement.²⁰

The application also noted that:

at a later date, further associated measures may be proposed in accordance with paragraph 8.4 of Annex II to Resolution A.927(22).²¹

As such the proposing States sought approval for the following:

Prohibiting the carriage of heavy grades of oil²² through the PSSA in vessels of more than 600 dwt, except in double-hull tankers, which will be obliged to comply with a reporting obligation with a 48-hour notice period. For all tankers between 600 and 5000 dwt, the provisions shall apply as from 2008.²³

It should be noted that the application for this PSSA took place against the background of European Union (EU) concerns over the accelerated phasing out of single-hull tankers and a ban on the carriage of heavy grades of oil by single-hull tankers.²⁴

²⁰ Roberts *et al*, p. 431 (note 4 above).

²¹ MEPC 49/8/1, para. 10(ii) (note 11 above).

²² Heavy grades of oil may be defined as including: crude oils having a density at 15°C higher than 900kg/m³; fuel oil having a density at 15°C higher than 900kg/m³ or a kinematic viscosity at 50°C higher than 180 mm²/s; and bitumen and tar and their emulsions. MARPOL Annex I, Regulation 20.

²³ MEPC 49/8/1, para. 10(i) (note 11 above).

²⁴ In the wake of the *Prestige* incident, the substantive issue, which took priority at MEPC 49, was the demand for further amendments to Annex I of MARPOL, which resulted in the Committee developing a revised draft text of amendments to Regulation 13G and a new draft Regulation 13H of MARPOL Annex

Footnote continued on next page.

Although a complete discussion of this complicated area of IMO policy is outside the scope of this thesis, it should be recognised that the IMO was under considerable pressure from the EU to introduce increasingly stringent measures aimed at phasing out the carriage of heavy grades of oil in single-hull tankers.²⁵ Failure to adopt such measures at an international level may have resulted in unilateral action on the part of the EU to implement an accelerated phase-out of single-hull oil tankers without the backing of the IMO,²⁶ which may have had a destabilising influence on the framework of international law of the sea.²⁷

6.2.4 Consideration by IMO

In order to fully consider the application for the Western European PSSA (WE PSSA), the MEPC convened an informal technical group to undertake a detailed evaluation of the application in the context of the PSSA Guidelines. The group concluded *inter alia* that the proposal met a number of the ecological, social, cultural and economic, and scientific and educational criteria as set out in the Guidelines and that the area was vulnerable to damage from international shipping. As such, it was agreed that the

I, which dealt with the phase-out of single-hull tankers and requirements for tankers carrying heavy grades of oil. For a general discussion on this subject see generally, Frank, (note 4 above).

²⁵ See for example, MEPC 49/16/1, *Interpretations and amendments of MARPOL 73/78 and related instruments: Proposed amendments to Annex I of MARPOL 73/78*, submitted by Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, the United Kingdom and the European Commission, 10 April 2003; see also MEPC 49/22, *Report of the Marine Environment Protection Committee on its forty-ninth session*, 8 August 2003, paras. 16.1-16.20.

²⁶ At a special session that sat in December 2003, the MEPC adopted a proposal for the accelerated phase-out of single-hull tankers that met the concerns of these EU States. See MEPC 50/3, *Report of the Marine Environment Protection Committee on its fiftieth session* 8 December 2003.

²⁷ S. Jones, "International law in jeopardy from EU," *Motor Ship*, June 2003, p. 18.

application did indeed meet the criteria for designation as a PSSA.²⁸ However, during the deliberations on this proposal, both in the informal technical group and the plenary session of the MEPC, a number of significant issues arose that are worthy of further consideration.²⁹

6.2.4.1 Extent of the Proposed PSSA

A number of delegations expressed concerns over the large size of the proposed area and the precedent that this may set for coastal States seeking PSSA designation in the future. In particular, they questioned the basis for designating such a wide geographical sea region as a PSSA.³⁰ Given the large number of discrete sensitive areas within the proposed area, several delegations observed that consideration should have been given to proposing a number of smaller PSSAs within the area.³¹

Some concessions, however, were made in respect of the size of the area. The proposing States acknowledged the concerns raised by Norway, that the extent of the area would have the effect of pushing single-hull tankers carrying heavy fuel towards Norway and increase the risk for the Norwegian coast. As such, they agreed to a reduction in the size

²⁸ MEPC 49/WP.10, *Identification and protection of special areas and particularly sensitive sea areas: Report of the informal technical group*, 16 July 2003, para. 3.2.

²⁹ For a detailed description of the discussions, at both the informal technical group and the plenary session of the main Committee, see MEPC 49/22, paras. 8.1-8.28 (note 25 above).

³⁰ *Ibid.*, para. 8.24.3.

³¹ *Ibid.*, para. 8.24.4. The plenary session was observed by the author, who also participated in the debate over whether approval should be granted to the proposal. As such, these observations represent the author's impressions gained during the discussions.

of the area east of the Shetland Isles to bring the easterly line to 0° longitude³² (Figure 6.1).

6.2.4.2 Proposed Associated Protective Measures

Perhaps the most significant concern raised was regarding the legal basis for the proposed measure to ban the carriage of heavy fuel oil in single-hull tankers through the proposed PSSA.³³ A large number of member States raised concerns that the proposal would set a precedent, which could be dangerous for the innocent passage and freedom of navigation, and that, in this context, prohibiting the passage of single-hulls was contrary to the principle of freedom of navigation and, hence, not a measure capable of being adopted by the IMO.³⁴ In response to questions concerning the legal basis for the measure, it was suggested by the proposing States that Resolution A.927(22) provided a legal basis to implement the proposed measure.³⁵ While this position was supported by some member States and NGOs, others objected on the basis that a resolution is not a legally binding instrument and cannot serve as the basis to change the operation of ships.³⁶

In response to the wide-ranging concerns over the proposed APM, the proposing States agreed to withdraw the measure and, instead, to only propose the 48-hour reporting

³² MEPC 49/WP.10, para. 3.3.13 (note 28 above).

³³ This is clearly reflected in the report of the Committee. See MEPC 49/22, paras. 8.12-8.26 (note 25 above).

³⁴ Roberts *et al*, p. 437 (note 4 above).

³⁵ MEPC 49/22, para. 8.21.7 (note 25 above).

³⁶ *Ibid.*

requirement as the APM.³⁷ Although such a concession would appear to have been the result of overwhelming criticism of the APM, it should be noted that it was made only after significant progress had been made in another Working Group in respect of amendments to the accelerated phase-out of single-hull tankers – a process that would ultimately deliver to the proposing States the same, if not greater, protection to that proposed under the APM. Notwithstanding this observation, the withdrawal of the APM concerning the ban on single-hull tankers, was sufficient to convince the majority of delegations who spoke to support the proposal.

In their consideration of the proposal, the informal Technical Group could not reach a conclusion on whether the proposed APMs addressed the vulnerability of the area, because the legal basis – and thus the very fact of whether the single-hull ban could be adopted, was questioned. Despite the issue being raised by the Technical Group, no conclusion was reached by the MEPC with respect to the appropriateness of the APMs and their ability to provide protection.³⁸ Arguably, the existing protective measures have failed to provide the coastal States with the level of protection they desire, and it is highly doubtful that the 48-hour reporting requirement in itself will provide such protection. Given that the concerns expressed by the proposing States related to the impact of spills of heavy fuel oil, and that the measure aimed at controlling vessels carrying these types of oils was subsequently withdrawn, it remains to be seen what benefit can be derived from the designation of this PSSA.

³⁷ *Ibid.*, para. 8.23.

³⁸ MEPC 49/22, para. 8.20 (note 25 above).

Despite being highly controversial, and leading to demands by several States to re-examine, and perhaps constrain the use of the PSSA concept, the MEPC finally designated the area as a PSSA in October 2004.³⁹ In doing so, the MEPC took what many observers consider to be a significant step in respect of the application of this protective measure, which may have implications for the future use, application and acceptability of the PSSA concept.

6.3 EXTENSION OF THE GREAT BARRIER REEF PSSA TO INCLUDE THE TORRES STRAIT

6.3.1 Background

The Torres Strait is situated between the Cape York Peninsula, at the northern-most point of Australia, and the island of Papua New Guinea (Figure 6.2 at p. 214). The region is topographically a very complex, shallow body of water, heavily studded with reefs and islands. The waters of the Strait are characterised by fast moving, shallow waters with numerous islands, islets and coral reefs and cays.⁴⁰ The region is recognised as an area of high marine biodiversity and outstanding conservation significance and is populated by indigenous peoples who have always had an intimate relationship with the sea and its resources, and continue to do so both culturally and economically.⁴¹

³⁹ MEPC 52/24, *Report of the Marine Environment Protection Committee on its fifty-second session*, 18 October 2004, para. 8.4. The designation was achieved through the adoption of IMO Resolution MEPC.121(52), *Designation of the Western European waters as a particularly sensitive sea area*. Adopted 18 October 2004.

⁴⁰ For a full description of the area, including the extensive environmental and socio-economic values, see MEPC 49/8, *Extension of existing Great Barrier Reef PSSA to include the Torres Strait region*, submitted by Australia and Papua New Guinea, 10 April 2003.

⁴¹ J.C. Macdonald, "The Australian REEFREP system: A coastal vessel traffic information service and ship reporting system for the Torres Strait region and the inner route of the Great Barrier Reef," *Journal of Navigation* 49 (1996), pp. 299-300.

While the Torres Strait itself is approximately 90 nautical miles wide and 150 nautical miles long, the useable routes for larger vessels are extremely limited.⁴² Despite its width, the effective passage for shipping through the Strait is narrow,⁴³ due largely to the shallow nature of much of the Strait. Torres Strait was recognised as an international strait even before the adoption of the transit passage provisions of the LOSC.⁴⁴

Australia had for some time been concerned at the risk posed by the increasing number of ships carrying hazardous substances and the decline in the uptake of pilots in the area. A 1995 study on shipping in the Great Barrier Reef and Torres Strait found that proximity to reefs or land, presence of trawlers and whether ships were piloted or not, were some of the key factors in collisions or grounding in the waters of the region.⁴⁵ In 2000, areas within the Great Barrier Reef Marine Park that were at highest risk from a shipping incident were identified in a study by Maritime Safety Queensland and the Great Barrier Reef Marine Park Authority and included the Great North East Channel.⁴⁶ Furthermore, research undertaken on behalf of Australia by representatives of the US and Canadian Coastguards, suggests that compulsory pilotage could reduce the risk of

⁴² S. B. Kaye, "Regulation of Navigation in the Torres Strait: Law of the Sea Issues," in D. Rothwell and S. Bateman, (eds) *Navigational Rights and Freedoms and the New Law of the Sea* (The Hague/Boston: Martinus Nijhoff Publishers, 2000), p. 119.

⁴³ At its narrowest point, in the Prince of Wales Channel, the Strait is no more than 800 metres wide.

⁴⁴ D.R. Rothwell, "Navigational rights and freedoms in the Asia Pacific following entry into force of the Law of the Sea Convention," *Virginia Journal of International Law* 35 (1995), p. 618.

⁴⁵ V. Chadwick, J. Aston and G. Manson, "Rezoning the Great Barrier Reef Marine Park: Implications for ship safety, pollution prevention and response," in *Proceedings of the Tenth International Oil Spill Conference (SPILLCON)*, (Brisbane, Australia: August 2004), p. 5.

⁴⁶ *Ibid.*

groundings by between 45% and 57% and collisions by 57% to 67%, depending on the specific location within the Torres Strait.⁴⁷

In response to these concerns, Australia and Papua New Guinea submitted a joint proposal seeking an extension to the existing Great Barrier Reef PSSA to include the waters of the Torres Strait.⁴⁸ Two APMs were suggested in the application:

- (1) An amendment to the existing charting measure in the waters of the Great North East Channel to a two-way route through Torres Strait; and
- (2) The extension of the compulsory pilotage regime currently applicable in the Great Barrier Reef, to apply to vessels when navigating the Torres Strait and the Great North East Channel.⁴⁹

The PSSA was finally designated in July 2005.⁵⁰ The decision to designate the PSSA follows a lengthy series of debates undertaken in several separate IMO fora, between 2003 and 2005. In particular, consideration of the proposal for an extension of the Great Barrier Reef compulsory pilotage regime proved controversial, and raises some important issues with regard to the balance between a coastal State's rights to protect the marine environment and traditional freedoms of navigation in straits used for international navigation.

⁴⁷ See generally NAV 50/INF.2, *Results of a safety of navigation assessment conducted for the Torres Strait*, submitted by Australia, 2 April 2004.

⁴⁸ See generally MEPC 49/8, (note 40 above).

⁴⁹ MEPC 49/8, para. 1.3 (note 40 above).

⁵⁰ MEPC 53/24, *Report of the Marine Environment Protection Committee at its fifty-third session*, 22 July 2005, para. 8.33.2. Designation was achieved through the adoption of IMO Resolution MEPC.133(53) *Designation of the Torres Strait as an extension of the Great Barrier Reef particularly sensitive sea area*. Adopted 25 July 2005.

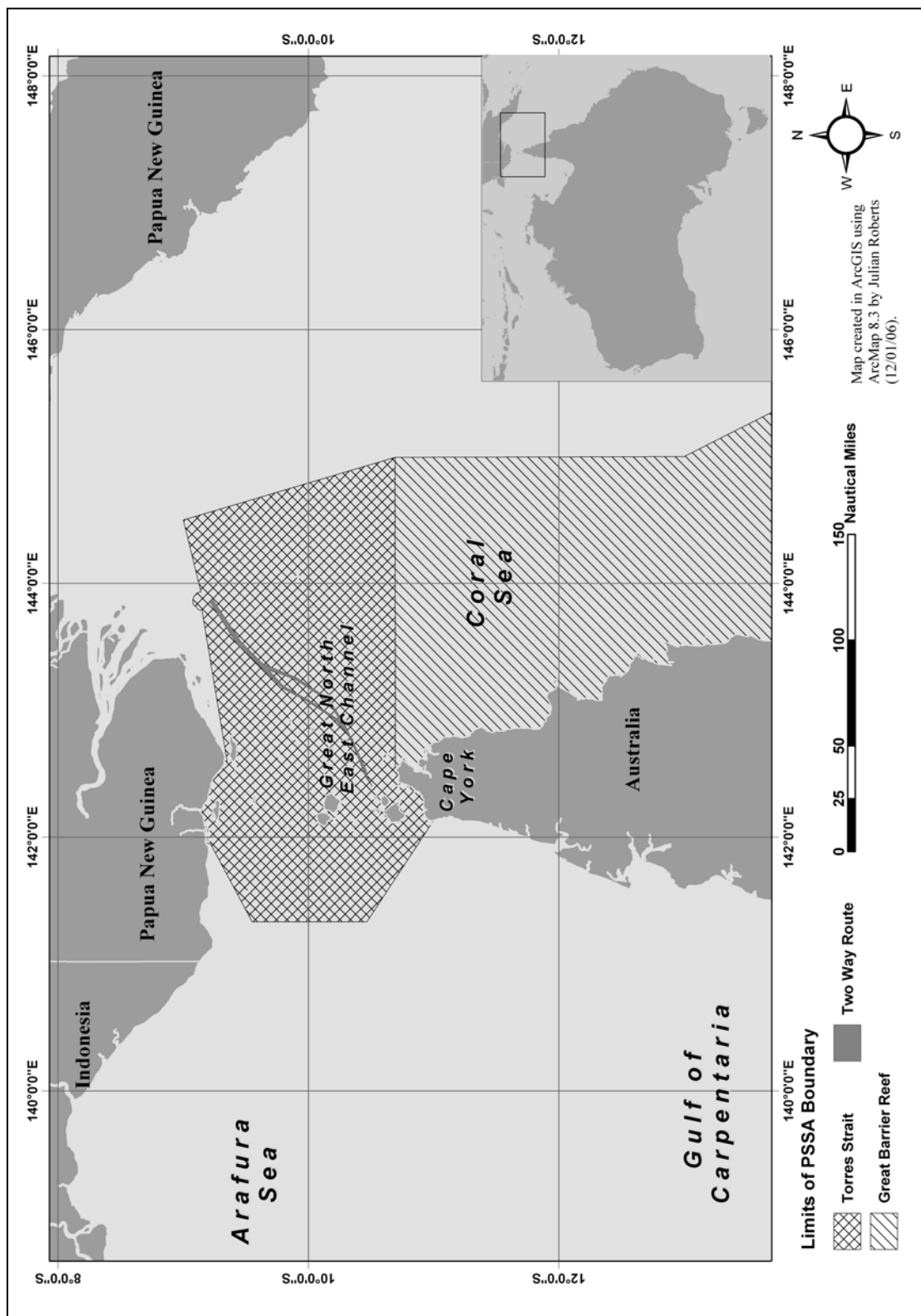


Figure 6.2. Torres Strait and the Boundary of the PSSA

6.3.2 Existing Navigation Regime

The Torres Strait is used primarily by large vessels trading between ports in southern Asia, Australia and New Zealand, South America, Papua New Guinea and Pacific Island States.⁵¹ All vessels entering the Strait from the west must pass through the Gannet or Varzin Passages to the north of Cape York, and then enter the Prince of Wales Channel (Figure 6.2). Those vessels transiting the Strait for Papua New Guinea or South Pacific ports will then head northward through the Great North-East Channel, while those vessels wishing to proceed to Australian ports to the south, may continue down the “inner route” of the Great Barrier Reef.⁵²

At the time of the PSSA application, the two principal navigation measures in existence to protect the Torres Strait from the risk from international shipping were a mandatory ship reporting regime⁵³ and a pilotage regime. In order to understand the context of the proposed compulsory pilotage measure, it is necessary to outline the historical development of the pilotage regime that exists for both the Torres Strait region and the Great Barrier Reef.

White⁵⁴ observes that a system of pilotage has existed through the Torres Strait and Great Barrier Reef since gazettal of Queensland Governmental Regulations in 1884, and

⁵¹ MEPC 49/8, para. 4.1.1 (note 40 above).

⁵² Kaye, pp. 119-120 (note 42 above).

⁵³ The mandatory Torres Strait and Great Barrier Reef Inner Route Ship Reporting System (REEFREP) has operated since 1997. For a full discussion of this regime see generally Macdonald (note 41 above). Chadwick *et al* argue that the system is the most effective management mechanisms in the region: Chadwick *et al*, p. 7 (note 45 above).

⁵⁴ M. White, “Navigational rights in sensitive marine environment: The Great Barrier Reef,” in D. Rothwell and S. Bateman (eds) *Navigational Rights and Freedoms and the New Law of the Sea* (The Hague/Boston: Martinus Nijhoff Publishers, 2000), p. 251.

this system provided an invaluable service for over 100 years. However, in 1987, as a result of concerns over the potential for pollution damage to the environment of the Great Barrier Reef, the IMO adopted a resolution⁵⁵ recommending that all vessels carry a pilot when navigating the inner route of the Great Barrier Reef.⁵⁶ Despite this measure, concerns remained about the risk posed by ships transiting the area without a pilot. Accordingly, the Australian Government opted for a campaign to gain international consensus and endorsement from the IMO, for a compulsory pilotage regime. In doing so, in 1990 Australia sought the support of the IMO through the MEPC for the Great Barrier Reef to be identified as a PSSA.⁵⁷ Australia's proposals with respect to the Great Barrier Reef resulted in the adoption of two resolutions at the 30th session of the MEPC.⁵⁸ The first recognised the Great Barrier Reef as a PSSA,⁵⁹ the second:

recommending member States to recognise the need for effective protection of the Great Barrier Reef region and to inform ships flying their flags to comply with the system of pilotage introduced by Australia.⁶⁰

⁵⁵ IMO Resolution A.619(15), *Use of pilotage services in the Torres Strait and Great Barrier Reef area*. Adopted 19 November 1987.

⁵⁶ S. Raaymakers, "Ship sourced oil pollution in the Great Barrier Reef: Causes, frequency, response and prevention," in P. Ottesen (ed) *Hulls, Hazards and Hard Questions, Shipping in the Great Barrier Reef: Reducing the Risk of Spilling Oil and Other Hazardous Substances: Proceedings of a meeting of experts held in Canberra, 14-15 April 1993*, (Townsville Australia: Great Barrier Reef Marine Park Authority: 1993), p.18.

⁵⁷ Ottesen *et al*, p. 519 (note 1 above); See MEPC 30/19/4, *Identification of particularly sensitive sea areas, including development of guidelines for designating special areas under Annex I, II and V*, submitted by Australia, 19 September 1990.

⁵⁸ G. Peet, "Particularly sensitive sea areas – A documentary history," *International Journal of Marine and Coastal Law* 9 (1994), pp. 483-484.

⁵⁹ Resolution MEPC.44.(30). *Identification of the Great Barrier Reef Region as a Particularly Sensitive Sea Area*. Adopted 16 November 1990.

⁶⁰ Resolution MEPC.45(30). *Protection of the Great Barrier Reef Region*. Adopted 16 November 1990.

As a result, the Australian Government was subsequently able to declare compulsory pilotage areas for the inner route between Cairns and Cape York and Hydrographers Passage,⁶¹ through an amendment to the Great Barrier Reef Marine Park Act (1975) in October 1991. Under the legislation,⁶² all ships 70 metres in length and over, and all loaded oil tankers, chemical carriers and liquefied gas carriers, irrespective of size, are required to carry pilots when navigating the hazardous northern part of the Reef and Hydrographers Passage.⁶³ Pilotage is not compulsory for the rest of the Great Barrier Reef, the Torres Strait and Great North East Channel.

It should be noted that, while it is a generally held belief that the Great Barrier Reef pilotage regime is considered to be an IMO approved compulsory pilotage regime, nowhere in the IMO resolution does it actually refer to compulsory pilotage. It simply recommends member States to inform ships flying their flags to comply with “the system of pilotage introduced by Australia”, although it is accepted that this is a compulsory system.⁶⁴ Thus the legislation set forth in the Great Barrier Reef Marine Park Act (1975) must be read in the context of the relevant IMO recommendations, which provide international endorsement for the regime.⁶⁵ It should further be noted that

⁶¹ White, p. 252, (note 54 above).

⁶² Great Barrier Reef Marine Park Act (1975) Sections 59A to 59M (Australia).

⁶³ Each year, approximately 2000 ships undertake around 7,000 voyages through the inner shipping routes of the Great Barrier Reef. At any one time, there will be about 20 to 50 ships within the Marine Park. About 20% of vessels utilising the inner shipping route are transit vessels and do not trade at the 10 major trading ports located adjacent to the Marine Park. See Chadwick *et al*, p. 4 (note 45 above).

⁶⁴ Part VIIA of the Great Barrier Reef Marine Park Act (1975) is, in fact, entitled “Compulsory Pilotage” and s.59A defines the purpose of the Part as:

to impose a scheme of compulsory pilotage on regulated ships within the compulsory pilotage area of the Great Barrier Reef Region.

⁶⁵ F. Spadi, “Navigation in marine protected areas: National and international law,” *Ocean Development and International Law* 31 (2000), p. 293.

although Australia was successful in having compulsory pilotage accepted for the inner routes, this regime applies within Australian internal and territorial waters.⁶⁶

In Torres Strait, the implementation of a similar regime was problematic because of the status of the region as an international Strait.⁶⁷ Accordingly, Australia and Papua New Guinea sought to promote a voluntary pilotage regime for the Torres Strait. In 1987, the IMO Assembly adopted a resolution promoting voluntary pilotage.⁶⁸ While the regime was partially successful,⁶⁹ a large number of unpiloted vessels continued to transit the region. The result was a 1991 resolution, superseding the earlier one, recommending that certain classes of ships use pilotage services when navigating the Torres Strait and the Great North East Channel.⁷⁰

Australia has become concerned that the number of vessels observing the recommendation for pilotage through the Strait has been in decline.⁷¹ Australia noted that between 1995 and 2001 the level of compliance with the recommended pilotage

⁶⁶ LOSC, Article 8 provides:

Where the establishment of a strait baseline in accordance with the method set forth in article 7 has the effect of enclosing as internal waters areas which had not previously been considered as such, a right of innocent passage as provided in this Convention shall exist in those waters.

⁶⁷ Kaye, p. 126 (note 42 above).

⁶⁸ Resolution A.619(15) (note 55 above).

⁶⁹ Kaye (at p.126) notes that while the measure ensured that approximately 90% of vessels transiting Torres Strait engaged a pilot, in excess of 200 vessels including tankers and large container vessels proceeded without pilotage (note 42 above).

⁷⁰ IMO Resolution A.710(17), *Use of pilotage services in the Torres Strait and the Great North East Channel*. Adopted November 1991. The Resolution introduced a regime of recommended pilotage in the Torres Strait, which recommends that:

all ships of 70m in length and over and all loaded oil tankers, chemical tankers or liquefied gas carriers, irrespective of size, use the pilotage services licensed under Australian Commonwealth, State or Territory law, when navigating the Torres Strait and the Great North East Channel between Booby Island and Bramble Cay.

⁷¹ See NAV 50/3, *Torres Strait PSSA associated protective measure - compulsory pilotage*, submitted by Australia and Papua New Guinea, 22 March 2004, para. 5.6.

requirements has declined from 70% to 55% respectively. This equates to approximately 500 un-piloted transits each year.⁷² Adding to these concerns is the increasing number of ships carrying hazardous substances through the Strait.⁷³

6.3.3 Associated Protective Measures

As already noted, two APMs were proposed in the application:

- (1) Amendment of the existing charting measure in the waters of the Great North East Channel, Torres Strait to a two-way route; and,
- (2) Extension of the present compulsory pilotage area into Torres Strait.

Since the amended two-way route was approved by the NAV Sub-committee at its 49th session⁷⁴ and the MEPC agreed that the proposal met the criteria set out in the PSSA Guidelines,⁷⁵ the deliberations over this PSSA focussed entirely on the proposed extension of the Great Barrier Reef compulsory pilotage regime.

Australia and Papua New Guinea argued that the replacement of the current recommended pilotage scheme in the Torres Strait, with a scheme of compulsory pilotage was consistent with international law, and that neither the LOSC, nor its *travaux préparatoires* indicate that a scheme of compulsory pilotage could not be

⁷² See MEPC 49/8, para. 5.9 (note 40 above).

⁷³ See NAV 50/3, para. 5.6 (note 71 above).

⁷⁴ At the time of the submission of the PSSA proposal to MEPC 49, NAV 49 had already approved the two-way route. See NAV 49/19, *Subcommittee on Safety of Navigation 49th session: Report to the Maritime Safety Committee*, 28 July 2003, para. 3.29.

⁷⁵ MEPC 49/22, para. 8.19 (note 25 above).

introduced in the Torres Strait.⁷⁶ Furthermore, given that the IMO had already agreed to sea-lanes to ensure the safety of navigation through the Torres Strait, it was argued that the specific and unique circumstances of the Torres Strait required a system of pilotage as a necessary adjunct to ensure the safe passage of ships through those sea lanes.⁷⁷ As such, in the view of the proponents, the measure was entirely consistent with international law, since in their view, the LOSC clearly allows States to establish a special need to protect a particular international strait, over which they exercise sovereignty and jurisdiction, and measures aimed at environmental protection can be implemented after approval by the IMO.⁷⁸

6.3.4 Consideration by IMO

While it was generally agreed that the proposed compulsory pilotage scheme was operationally feasible and largely proportionate to provide protection to the marine environment,⁷⁹ and despite the arguments put forward by Australia and Papua New Guinea, there existed a clear dichotomy of views among member States. Those States

⁷⁶ For an overview of this argument see: LEG 89/15, *Torres Strait PSSA associated protective measure – compulsory pilotage*, submitted by Australia and Papua New Guinea, 24 August 2004; and, LEG 89/16, *Report of the legal committee on the work of its eighty-ninth session*, 4 November 2004, para. 228. It should be noted that this position is different from the earlier position of the Australia Government that took the view that international law prevented it from legislating to compel the use of pilotage services, and the best that could be hoped for was a voluntary scheme. See Kaye, p. 126 (note 42 above)

⁷⁷ See LEG 89/16, para. 24 (note 76 above).

⁷⁸ *Ibid*, para. 19. It is, however, unclear to which Article(s) of the LOSC this view is based upon. Reference is given in the submission to the Legal Committee to the discussions held at the Third Law of the Sea Conference; however, where the text of the Convention specifically provides for such exceptional measures in the context of a strait used for international navigation is unclear.

⁷⁹ See NAV 50/19, *Subcommittee on Safety of Navigation 50th session: Report to the Maritime Safety Committee*, 28 July 2004, para. 3.29.14. However, in reaching this conclusion the Sub-committee recognised that the following issues had not been considered: (i) whether the proposed measure was the only measure which could improve the safety of navigation in the area; (ii) what other feasible APMs could be implemented; and (iii) the effect of implementing other feasible measures in general and in comparison with the effect of the implementation of the proposed measure. This led to some delegations saying that a justification and demonstration of the compelling need of the proposed measure had not been submitted to NAV.

who supported the proposal accepted that the introduction of a compulsory pilotage scheme through IMO procedures was in full compliance with the overall principles of freedom of navigation.⁸⁰ They acknowledged the legitimate interest of coastal States to adopt pilotage schemes in order to protect sensitive environments in their waters. Those States believed that Australia and Papua New Guinea had demonstrated the compelling need for the introduction of compulsory pilotage in the Torres Strait due to its unique character and that since the LOSC did not contain specific articles either to sanction or prevent compulsory pilotage, such a measure may be introduced legally under the auspices of the IMO.⁸¹

In contrast, concerns were raised by a number of member States with regard to the legal basis of establishing a compulsory pilotage regime in a strait used for international navigation. Those opposing the measure expressed the view that compulsory pilotage in a strait used for international navigation was contrary to the provisions of Article 38 of the LOSC, since the freedom of navigation through such a strait superceded the rights of coastal States to regulate traffic in their territorial seas.⁸² To the opposing States, the fact that the LOSC was silent on the matter of pilotage in straits did not signify that it was possible to establish compulsory pilotage in a strait used for international navigation. Many States considered that the introduction of compulsory pilotage was in and of itself an impediment to transit passage and that imposing pilotage on a compulsory basis implied the intention to impose some form of sanctions on those vessels, which did not

⁸⁰ See LEG 89/16, para. 228 (note 77 above).

⁸¹ *Ibid*, para. 230.

⁸² LEG 89/16, para. 232 (note 76 above).

take a licensed pilot.⁸³ More specific concerns were also raised as to the competence of the IMO to consider proposals for compulsory pilotage in international straits and whether any of the IMO instruments provided a satisfactory legal basis for such a measure to be adopted.⁸⁴

In response to this concern, the proposing States argued that the proposed measure would not have the effect of impeding transit passage, but would in fact enhance transit passage through the Strait, since the measure is designed to facilitate the safe passage of vessels.⁸⁵ They further argued, that in the event of a grounding and pollution incident, the incident alone would have the effect of impeding the passage of other vessels.⁸⁶ Despite the divergent opinions, a satisfactory resolution emerged after Australia proposed a compromise solution.⁸⁷ The solution was the adoption of a new resolution, identical to Resolution MEPC.45(30), regarding pilotage and the Great Barrier Reef,⁸⁸ but including the following:

- (1) note the fact that the Torres Strait has been identified as a PSSA;
- (2) extend the existing associated protective measure of a system of pilotage within the Great Barrier Reef to include the Torres Strait; and

⁸³ *Ibid.*, paras. 232-233.

⁸⁴ Specifically concerns were raised as to whether Resolution A.927(22) was adequate to address such important issues and whether the adoption of such a measure may require an amendment to SOLAS to provide for a legal basis.

⁸⁵ LEG 89/16, para. 29 (note 76 above).

⁸⁶ *Ibid.*

⁸⁷ See MSC 79/23, *Report of the Maritime Safety Committee on its seventy-ninth session*, 15 December 2004, para. 10.13.

⁸⁸ Resolution MEPC.45(30) (note 60 above).

(3) revoke Resolution MEPC.45(30).⁸⁹

On that basis, the MEPC considered the draft resolution and adopted it in July 2005.⁹⁰ However, in doing so, a large number of States expressed the view that support for its adoption was conditional on the measure being recommended only, as set forth in the resolution. More importantly, it was clearly noted by some States that the proposed resolution did not provide an international legal basis for mandatory pilotage for ships in transit in the Torres Strait or any other strait used for international navigation.⁹¹ Moreover, those States made it clear that if the Committee took an alternative view, they would not be able to support the resolution. Thus, the lack of a specific reference to ‘compulsory pilotage’, and a general acceptance of the recommended nature of the resolution, seems to have satisfied the majority of those States that opposed the proposal in the first place.

⁸⁹ The operative paragraph of the new MEPC Resolution would read as follows:

RECOMMENDS that Governments recognise the need for effective protection of the Great Barrier Reef and Torres Strait region and inform ships flying their flag that they should act in accordance with Australia’s system of pilotage for merchant ships 70 m in length and over or oil tankers, chemical tankers and gas carriers, irrespective of size when navigating:

the inner route of the Great Barrier Reef between the northern extreme of Cape York Peninsula (10°41’S and 16°40’S) and in Hydrographers Passage; and

the Torres Strait and the Great North East Channel between Booby Island (latitude 10°36’S, longitude 141°54’E) and Bramble Cay (latitude 09°09’S, longitude 143°53’E).

⁹⁰ Resolution MEPC.133(53), (note 50 above).

⁹¹ The USA in particular made this point very clear, and stated that it could not support the Resolution if the Committee took a contrary view. However, it also noted that should the Committee adopt the Resolution on the basis of recommended pilotage, it would implement its recommendations in a manner consistent with international law and the right of transit passage. This position was supported by numerous delegations and received no opposition from Australia. MEPC 53/24, paras. 8.5-8.7 (note 50 above).

6.4 THE BALTIC SEA

6.4.1 Background

The Baltic Sea was designated a PSSA in 2005,⁹² following submission of a proposal by all of the Baltic States⁹³ (with the exception of the Russian Federation), to the 51st session of the MEPC.⁹⁴ The PSSA includes the entire Baltic Sea area with the exception of Russian sovereign waters (Figure 6.3), and was primarily proposed to raise awareness of the sensitivity of the Baltic Sea area⁹⁵ and to protect the sensitive marine environment of the Baltic Sea from impacts caused by shipping.⁹⁶ In developing the PSSA proposal, the proposing States undertook a detailed analysis of both the vulnerability of the area to the impacts of international shipping and an analysis of the most effective management measures to address the identified vulnerabilities.

⁹² The designation was achieved through the adoption of an IMO Resolution: MEPC.136(53) *Designation of the Baltic Sea area as a particularly sensitive sea area*. Adopted 22 July 2005.

⁹³ The proposing States were: Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland and Sweden. The Russian Federation was invited to participate in discussions over the designation of the Baltic Sea area as a PSSA but consistently refused to accept the proposal.

⁹⁴ MEPC 51/8/1, *Designation of the Baltic Sea area as a particularly sensitive sea area*, submitted by Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland and Sweden, 19 December 2003.

⁹⁵ *Ibid*, para. 1.4.

⁹⁶ *Ibid*, para. 5.1.

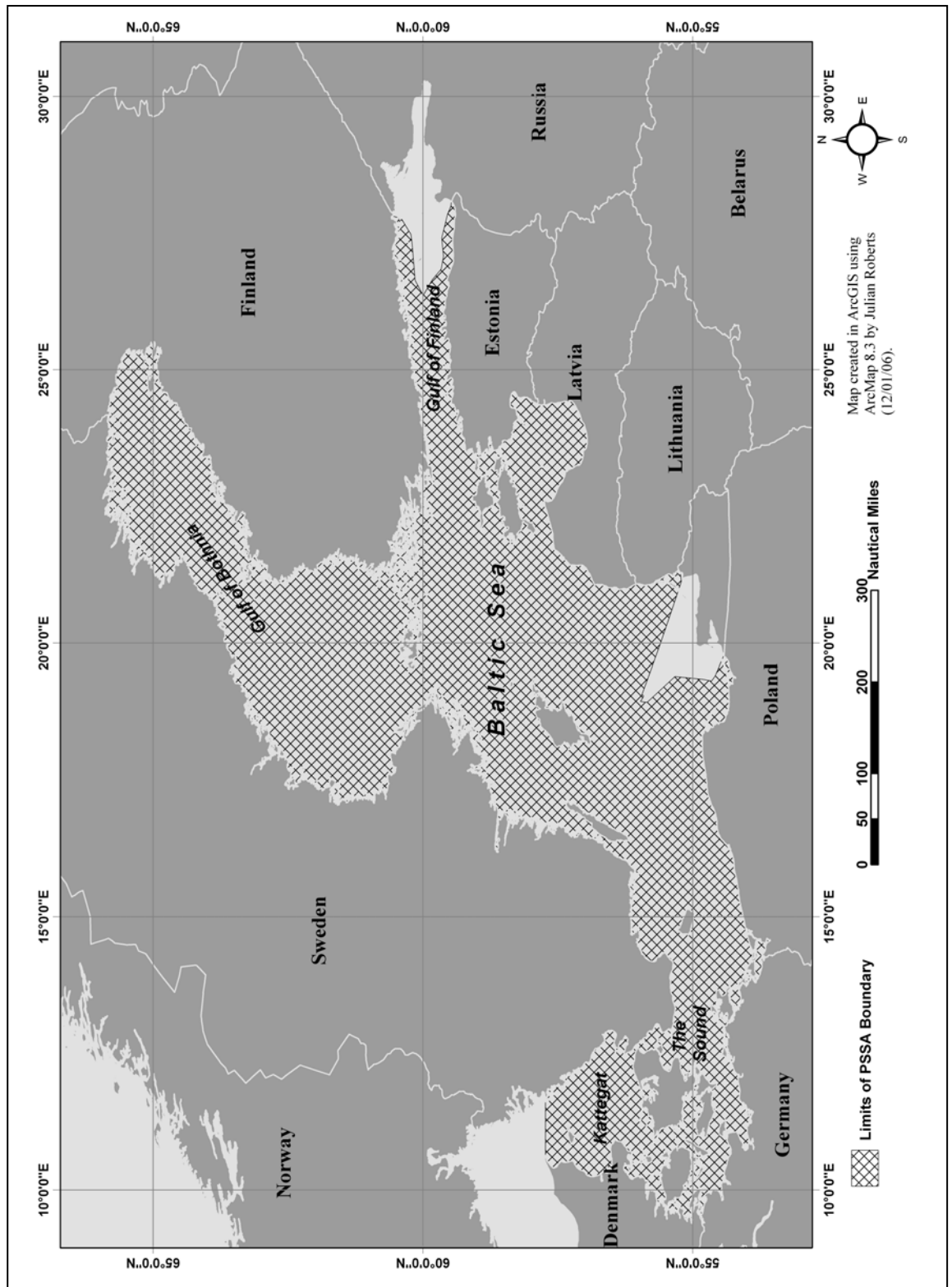


Figure 6.3. The Baltic Sea and the Boundary of the PSSA

The Baltic Sea is a relatively shallow semi-enclosed sea with a total area of about 370,000 km², surrounded by the countries of Northeastern Europe and Scandinavia.⁹⁷

The Baltic is characterised by brackish water conditions that result from riverine and precipitation inputs of freshwater and on the periodic wind driven inflow of saline water from the North Sea through the Danish Straits. As a result, it is considered unique. The uniqueness of the Baltic Sea is reflected in the broad range and number of international conservation network designations⁹⁸ such as Important Bird Areas,⁹⁹ Baltic Sea Protected Areas established by the Helsinki Commission,¹⁰⁰ RAMSAR sites, National Parks, wildlife sanctuaries and several large NATURA 2000 areas established under the European Habitats Directive.

The region has a long history of marine pollution incidents, and correspondingly a comprehensive navigational safety regime. However, despite this, there is still evidence of damage arising from the discharge of oil and other harmful substances, and it is agreed that over 700 illegal discharges occur in Baltic waters on an annual basis.¹⁰¹

⁹⁷ The Baltic states are: Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, The Russian Federation and Sweden.

⁹⁸ For a comprehensive overview of marine protected areas established in the area see for example G. Kelleher, C. Bleakley and S. Wells, *A Global Representative System of Marine Protected Areas: Volume I Antarctic, Arctic, Mediterranean, Northwest Atlantic, Northeast Atlantic and Baltic*, (Washington DC: World Bank, 1995), pp. 153-183.

⁹⁹ H. Skov, G. Vaitkus, K.N. Flensted, G. Girshanov, A. Kalamees, A. Kondratyev, M. Leivo, L. Luigujoe, C. Mayr, J.F. Rasmussen, L. Raudonikis, W. Scheller, P.O. Sidlo, A. Stipniece, B. Struwejuhl and B. Welander, *Inventory of Coastal and Marine Important Bird Areas in the Baltic Sea* (Cambridge, UK: BirdLife International, 2000).

¹⁰⁰ The Baltic Marine Environment Protection Commission (The Helsinki Commission, or HELCOM) works to protect the marine environment of the Baltic Sea from all sources of pollution through intergovernmental cooperation between Denmark, Estonia, the European Community, Finland, Germany, Latvia, Lithuania, Poland, Russia and Sweden. HELCOM is the governing body of the HELSINKI Convention.

¹⁰¹ MEPC 51/8/1, para. 4.20 (note 94 above). On the 30th August 2002 HELCOM detected 9 deliberate and illegal oil spills in the Gulf of Finland in 24 hours of surveillance, one of which was 50km long.

Furthermore, according to the proposing States, a large number of shipping incidents occur within the waters, mostly in the vicinity of ports and straits, especially the entrance to the Baltic and in the Gulf of Finland.¹⁰²

6.4.2 Existing Navigation Regime

The Baltic Sea is a heavily trafficked region. Approximately 65,000 ships pass through the narrow deepwater route between Germany and Sweden on an annual basis.¹⁰³ In the Gulf of Finland alone, oil transport has more than doubled since 2000, increasing from 40 million tonnes in 2000 to 110 million tonnes in 2004, and is predicted to increase to 190 million tonnes by 2010.¹⁰⁴ The high densities of shipping and the nature of the cargoes carried in bulk, combined with the limited sea room in certain parts of the Baltic make the area extremely vulnerable to harm from ship groundings, collisions, and pollution from accidental and operational discharges.

In recognition of this, an extensive and comprehensive navigation safety regime, to protect the Baltic Sea area, has been developed over time. This is evidenced by the fact that the Baltic Sea has a section devoted to it in the IMO Ships' Routeing Manual.

¹⁰² A.C. Brusendorff, "Report and assessment on the implementation of measures by the contracting parties laid down in the declaration on the safety of navigation and emergency capacity in the Baltic Sea area (Helcom Copenhagen Declaration)" in *Proceedings of the Joint IMO/HELCOM/EU Workshop - Environmental Impacts Due to the Increased Density of Shipping in the Baltic Sea Area – Copenhagen Plus 1* (Rostock-Warnemünde, Germany: 11-12 March 2003), p. 19. Available at <http://www.helcom.fi/stc/files/Publications/Proceedings/bsep86.pdf>.

¹⁰³ It is reported that approximately 2000 ship movements a day occur within the Baltic Sea area, including oil tankers, ships carrying hazardous substances and approximately 50 large passenger ferries. F. Holzwarth, "Opening Address" in *Proceedings of the Joint IMO/HELCOM/EU Workshop - Environmental Impacts Due to the Increased Density of Shipping in the Baltic Sea Area – Copenhagen Plus 1* (Rostock-Warnemünde, Germany: 11-12 March 2003), p. 16. Available at <http://www.helcom.fi/stc/files/Publications/Proceedings/bsep86.pdf>.

¹⁰⁴ This is partially attributable to the development of new large oil terminals in the Baltic Republics and in the Russian Federation, giving rise to a consequential increase in shipping density from the Eastern part of the Baltic Sea. With its semi-enclosed status the Baltic Sea places restrictions on ships navigation.

Among the measures in place include designation of the Baltic Sea areas as a MARPOL Special Area and as a NOx (Nitrogen Oxides) Emission Control Area, traffic separation schemes, deepwater routes, compulsory pilotage and mandatory ship reporting systems.

Ongoing measures to improve navigation safety in the Baltic Sea area have been supported both at a regional and international level. Following the *Erika* and *Prestige* incidents, an extraordinary Ministerial Meeting of the Helsinki Commission was held in Denmark to discuss mechanisms for improving navigation safety in the Baltic. A key outcome of that meeting was a ministerial declaration on safety of navigation and emergency capacity in the Baltic.¹⁰⁵ The meeting also agreed on a number of initiatives to enhance the safety of navigation and to prevent pollution in the Baltic Sea.¹⁰⁶ Among matters addressed by the declaration, improving existing routing measures in the Baltic, enhancing the use of pilotage and enhancing the use of AIS have all been actively pursued by Baltic coastal States.

6.4.3 Associated Protective Measures

At the time of submission of the PSSA proposal, the proposing States did not identify any new APMs to provide additional protection to the PSSA.¹⁰⁷ They did, however, note that they:

may come back within two years to propose associated protective measures concerning, for example: (i) compulsory reporting and traffic surveillance; (ii)

¹⁰⁵ Helsinki Commission - Baltic Marine Environment Protection Commission *Declaration on the Safety of Navigation and Emergency Capacity in the Baltic Sea area* (Helcom Copenhagen Declaration). Adopted 10 September 2001 in Copenhagen by the HELCOM Extraordinary Ministerial Meeting.

¹⁰⁶ See NAV 50/INF.5, *HELCOM Expert Working Groups*, submitted by Denmark, Germany and Sweden, 29 April 2004.

¹⁰⁷ MEPC 51/8/1, para. 1.5 (note 94 above).

routeing systems; (iii) escort tugs; (iv) pilotage; and (v) areas to be avoided.¹⁰⁸

Accordingly, the proposing States did submit proposals for several new and amended APMs, including several new and amended traffic separation schemes and associated routeing measures,¹⁰⁹ a deepwater route between two existing traffic separation schemes and two areas to be avoided to protect the Hoburgs Bank and Norra Midsjöbanken in the southern Baltic Sea.¹¹⁰ The proposal for the various APMs was considered by the NAV Sub-committee at its 51st session. In their submission to the Sub-committee, the proposing States argued that the areas to be avoided should be mandatory according to SOLAS regulation V/10-1,¹¹¹ on the basis of the ecological significance of the banks, and in particular, their significance in the context of protecting marine biodiversity.¹¹² Accordingly, it was argued that the establishment of the areas to be avoided would reduce the risk of accidents and oil spills in the area.¹¹³

6.4.4 Consideration by IMO

Consideration of the Baltic Sea PSSA was highly controversial due to significant opposition to the proposal by the Russian Federation. At the outset, while the Russian

¹⁰⁸ MEPC 51/8/1, para. 5.10 (note 94 above)

¹⁰⁹ The associated measures are a precautionary area and two inshore traffic zones within Swedish and Danish waters.

¹¹⁰ For a full description of each of these new APMs see NAV 51/3/6, *New traffic separation schemes in Bornholmsgat and North 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*, submitted by Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland and Sweden, 3 March 2005.

¹¹¹ *Ibid.*, para. 27.

¹¹² This argument was supported by WWF who had been instrumental in the proposal to designate the PSSA in the first place. See NAV 51/3/14, *New traffic separation schemes in Bornholmsgat and North 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 – Comments on document NAV 51/3/6*, submitted by WWF, 12 April 2005.

¹¹³ *Ibid.*, para. 4.3.

Federation had been invited to participate in discussions over the possible designation of the Baltic Sea as a PSSA, Russia had clearly articulated the position that it did not support such a move on the part of the Baltic States. Accordingly, the subsequent submission for designation of the Baltic Sea as a PSSA excluded Russian sovereign waters. It has been argued that the Russian position was driven largely by the rapid expansion in Russian oil production and the corresponding increase in the shipment of crude oil from Russian ports.¹¹⁴ The designation of the area as a PSSA, it was argued, may impose restrictions or increased costs on the movement of oil from Russian ports and therefore the establishment of the PSSA created an economic disincentive for Russia to support the proposal. Notwithstanding this argument, the Russian Federation argued against the PSSA designation for two principle reasons:¹¹⁵

- (1) They did not accept that wide geographic areas such as the Baltic Sea and the North East Atlantic should be designated as PSSAs. In their view, PSSAs should be confined to geographically limited sea areas with unique eco-systems and not the wide geographical regions envisaged in the proposed Baltic and WE PSSAs;
- (2) They argued that identification of the PSSA with no new APMs, or only those APMs already available through IMO measures did not provide any additional protection to the area and therefore did not justify designation as a PSSA. The decision on designation should be made only if the inadequacy of existing

¹¹⁴ See for example the comments made by Dr Simon Walmsley (WWF-UK) to RadioFreeEurope journalist Jeremy Bransten, Wednesday 31 March 2004. "UN Group Considering Placing Baltic Sea Under Protection," Jeremy Bransten, <http://www.rferl.org/featuresarticle/2004/03/1c23bead-e3e8-4b7f-b4be-47f5ed337813.html>.

¹¹⁵ See *Statement by the Russian Federation concerning the designation of the Baltic Sea as a PSSA*: MEPC 51/22, *Report of the Marine Environment Protection Committee on its fifty-first session*. 22 April 2004, Annex 8.

implemented measures had been proven. It was noted that the Baltic Sea was already subject to numerous IMO approved protective measures and that the proposing States had not demonstrated, in a compelling manner, that if these existing measures were inadequate, the PSSA and any new APMs would address the existing lack of protection for the Baltic Sea. In their view, the designation of the Baltic as a PSSA did not provide any additional protection to the area.

Accordingly, Russia stated that they failed to understand what practical purpose was served by according PSSA status to the Baltic Sea.

Despite the significant opposition by the Russian Federation, and support for their position by a number of other States,¹¹⁶ the MEPC accepted the arguments put forward by the proposing States and concluded that the proposal met all but one of the criteria set forth in the PSSA Guidelines and that the area was vulnerable to damage from international shipping. On this basis, the Committee designated the PSSA in principle in October 2004. In doing so the Committee noted that the countries concerned would submit detailed proposals for APMs to the NAV Sub-committee in 2005, which should provide recommendations to the MEPC.¹¹⁷

The response by the Russian Federation to this decision was similarly combative, arguing that designation of the Baltic Sea as a PSSA without Russian endorsement, was against the principles of the PSSA Guidelines, since the views of all parties with an

¹¹⁶ Support for the position of the Russian Federation was received by several shipping industry groups as well as the delegations of Panama and Liberia.

¹¹⁷ MEPC 51/22, para. 8.53 (note 115 above).

interest in the area had not been taken into account.¹¹⁸ Russia's objection was duly noted by the Committee but the decision to approve in principle the Baltic Sea as a PSSA was maintained. On the basis that the PSSA had been approved in principle and that several new APMs had been approved by the NAV Sub-committee to provide protection to the area, the final designation of this PSSA was approved in July 2005.¹¹⁹

6.5 FLORIDA KEYS NATIONAL MARINE SANCTUARY

6.5.1 Background

The Florida Keys was designated a National Marine Sanctuary (FKNMS) under domestic legislation in 1990,¹²⁰ in order to protect the coral reefs, sea grasses, mangroves and other marine resources of the Florida Keys.¹²¹ Numerous threats to the area have been identified, including oil and gas developments, maritime activities and land-based activities. While the grounding of three large ships on the coral reef in 1989

¹¹⁸ See *Statement by the Russian Federation after the Committee approved in principle the designation of the Baltic Sea as a PSSA: MEPC 51/22 Report of the Marine Environment Protection Committee on its fifty-first session*. 22 April 2004, Annex 8.

¹¹⁹ Designation was achieved by way of Resolution MEPC.136(53), (note 92 above).

¹²⁰ National Marine Sanctuaries are typically designated by the Secretary of Commerce through an administrative process established by the Marine Protection Research and Sanctuaries Act. See L. Bunce, L. Cogan, K. Davis and L. Taylor, "The National Marine Sanctuary Program: Recommendations for the program's future," *Coastal Management* 22 (1994), p. 422. However, recognising the importance of the Florida Keys ecosystem and the degradation of the ecosystem due to direct and indirect physical impacts, Congress passed the Florida Keys National Marine Sanctuary and Protection Act in 1990. The Florida Keys is one of 13 USA marine parks designated a National Marine Sanctuary. The 13 are: Fagatelle Bay; Stellwagen Bank; Olympic Coast; Gray's Reef; Channel Islands; Monterey Bay; Florida Keys; Hawaiian Islands; Cordell Bank; Flower Gardens; Gulf of Farallones; Olympic Coast; and Thunder Bay. See T. Morin "Sanctuary Advisory Councils: Involving the public in the National Marine Sanctuary Program," *Coastal Management* 29 (2001), p. 329.

¹²¹ D. Suman, M. Shrivani and J.W. Milon, "Perceptions and attitudes regarding marine reserves: a comparison of stakeholder groups in the Florida Keys National Marine Sanctuary," *Ocean and Coastal Management* 42 (1999), p. 1020.

is largely attributed as the catalyst for action to establish the FKNMS,¹²² it was the cumulative events of environmental degradation, in conjunction with the physical impacts of the grounding that prompted Congress to designate the Florida Keys a National Marine Sanctuary. However, the groundings did cause the USA Government to take action through the IMO to further protect the area from shipping, by the establishment of several IMO-approved ships' routing measures.¹²³ Notwithstanding the measures previously taken to protect the area, the USA had for some time been concerned at the threat posed to the Florida Keys barrier reef system by international shipping, as well as the hazard to navigation that the reef itself posed.¹²⁴

To address this concern, the Florida Keys region was designated a PSSA in 2002,¹²⁵ following submission of a proposal by the USA to the 46th session of the MEPC.¹²⁶ The proposed PSSA included the Florida Keys National Marine Sanctuary and the Dry Tortugas National Park (Figure 6.4), and was primarily proposed to protect the unique coral reef tract and its related ecosystem from potential threats from international

¹²² M. R. Boswell, "Adaptive-management planning for regional ecosystems: Shifting the knowledge-action link from 'planning' to 'learning'," in *Proceedings of the American Collegiate Schools of Planning 2000 Annual Conference* (Atlanta, Georgia: November, 2000), p. 15.

¹²³ The measures included the adoption of 4 areas to be avoided to protect the Florida Keys themselves, Key West Harbour, Marquesas Key and the Dry Tortugas National Park. Refer to *Ships Routing: Part D*, p. II/3-1 (note 18 above). For details of the proposal refer to NAV 36/3/3, *Routing of ships, area to be avoided off the Florida coast*, submitted by the United States, 24 May 1990.

¹²⁴ The US Coral Reef Task Force identified 8 specific and widely accepted threats as being particularly important for the protection of coral reefs in USA waters, including *inter alia* vessel grounding and anchor damage. Coral Reef Task Force. *National Action Plan to Conserve Coral Reefs* (Washington DC: United States Coral Reef Task Force, March 2002), p. 3. Available at <http://www.coralreef.gov/library/index.html>.

¹²⁵ The designation was achieved through the adoption of IMO Resolution MEPC.98(47), *Identification of the sea area around the Florida Keys as a particularly sensitive sea area*. Adopted 8 March 2002.

¹²⁶ MEPC 46/6/2, *Designation of the marine area around the Florida Keys as a particularly sensitive sea area*, submitted by the United States, 19 January 2001.

shipping activities.¹²⁷ In developing the PSSA proposal, the USA undertook a detailed analysis of both the vulnerability of the area to the impacts of international shipping and an analysis of the most effective management measures to address the identified vulnerabilities.

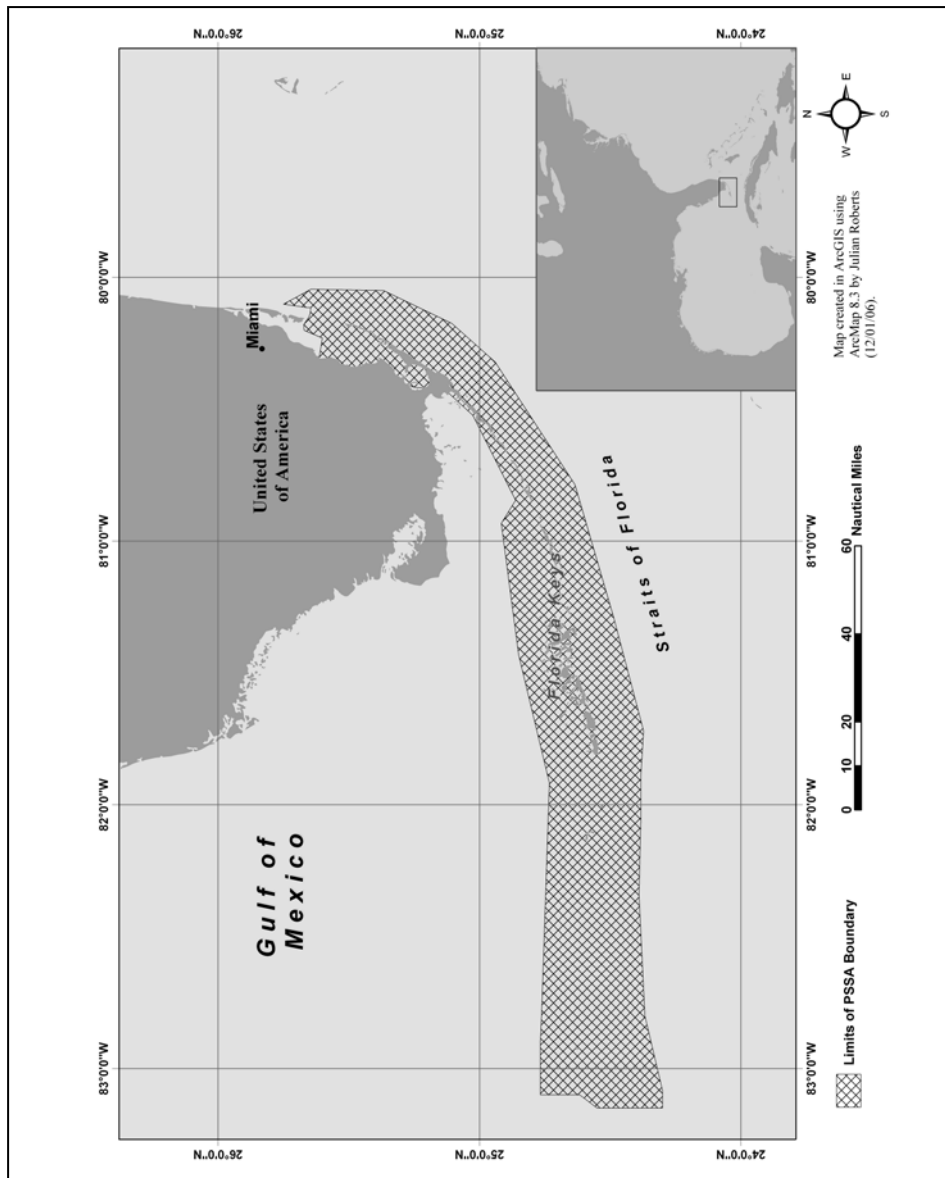


Figure 6.4. Limits of the Florida Keys PSSA

¹²⁷ MEPC 46/6/2, para. 6.1.1 (note 126 above).

The USA submission to MEPC included a comprehensive summary of the significance and vulnerability of the area in question and clearly identified that the proposed PSSA met a large number of the criteria set forth in Resolution A.720(17) (as amended by Resolution A.885(21)).¹²⁸ As such, this case study will not dwell on the specific values of the area but will instead focus more on the process of establishing the PSSA.

6.5.2 Existing Navigation Regime

The Straits of Florida are recognised as one of the most heavily trafficked areas in the world,¹²⁹ with some 8,000 large cargo vessels and several hundred cruise ships annually transiting the Straits. Furthermore, the Straits have been identified by the US Navy as one of the 12 most strategic straits in the world due largely to the significant volume of oil and refined petroleum products transported through the Strait *en route* to USA domestic markets.¹³⁰ The high densities of shipping, in combination with the physical hazard posed by the reef itself, make the area extremely vulnerable to harm from ship groundings, collisions, anchoring damage, and pollution from accidental and operational discharges. To address these concerns, a number of measures have been put in place to protect the area from shipping. Notable among these are the establishment of a series of areas to be avoided established in 1991, which apply to all vessels carrying cargoes of oil and other hazardous materials, and all other vessels greater than 50 metres.¹³¹ The

¹²⁸ It should be noted that the proposal was submitted before Resolution A.927(22) had been adopted and was therefore assessed against the earlier set of PSSA Guidelines.

¹²⁹ It is estimated that approximately 40 percent of the world's commerce passes within a day and a half sailing time of Key West, usually *en route* to or from the Panama Canal or ports in the Gulf of Mexico. To take advantage of the additional speed afforded by the current, north and eastbound ships historically follow the axis of the Gulf Stream.

¹³⁰ MEPC 46/6/2, para. 4.1.4.1 (note 126 above).

¹³¹ See note 18 above (*Ships' Routing*).

areas to be avoided were established in recognition of the threat posed not only by physical damage but also by contaminants and pollutants, such as oil that may be discharged in the event of grounding.¹³² The areas to be avoided were implemented at the same time as the FKNMS was established and were thus one of the primary regulatory measures for the protection of the sanctuary. It is reported that the designation of the areas to be avoided has resulted in a significant decrease in the number of major ship groundings on the coral reefs. Prior to 1990 there was a major ship grounding involving vessels greater than 50 m in length, nearly every year, while only two have occurred since the creation of the areas to be avoided.¹³³

Recognising the significant damage that had been caused by anchoring in these unique areas, the USA introduced a number of domestic measures to protect the coral, specifically within the area of the Tortugas Ecological Reserve and Tortugas Bank. To address the destruction of coral by large commercial vessels, a sanctuary regulation prohibiting the destruction of coral by anchoring was promulgated in 1997. However, despite wide publication of this regulation,¹³⁴ ships continued to violate this no-anchoring regulation.¹³⁵

¹³² NAV 36/3/3 (note 123 above).

¹³³ National Oceanic and Atmospheric Administration (NOAA), *Florida Keys National Marine Sanctuary Draft Revised Management Plan* (Washington DC: U.S. Department of Commerce NOAA - National Marine Sanctuary Program, February 2005), p. 9.

¹³⁴ Notably on nautical charts, in notices to mariners, the United States Coast Pilot, the United States Code of Federal Regulations, and on the NOAA sanctuary web page: <http://www.sanctuaries.nos.noaa.gov/>.

¹³⁵ NAV 47/3/1, *No anchoring areas in the Tortugas Ecological Reserve and the Tortugas Bank in the Florida Keys*, submitted by the United States, 15 February 2001, para. 13.

6.5.3 Associated Protective Measures

In addition to the existing areas to be avoided, two additional APMs were proposed for the protection of the PSSA:

- (1) The establishment of three mandatory no anchoring areas to prevent damage to the coral reef from anchoring; and
- (2) An amendment to the northernmost area to be avoided in order to improve safety of navigation and reduce the risk of collision.

In undertaking the assessment for the proposed PSSA, the USA clearly identified that the primary purpose of the PSSA was to protect the unique coral reef tract and its related ecosystem from potential threats from international shipping activities.¹³⁶ In their analysis the USA identified those areas that were most at risk from international shipping as well as the potential vulnerabilities of those areas. Particular attention was focused on the Tortugas Ecological Reserve and the Tortugas Bank, the two areas being of particular ecological significance even within the context of the FKNMS. Damage to this area by ships anchoring has been widely documented¹³⁷ and it was therefore

¹³⁶ MEPC 46/6/2, para. 6.1.1 (note 126 above). The significance of habitat damage to coral reefs by *inter alia* anchor damage has been recognised recently in the National Action Plan (note 124 above). The Action Plan identifies as one of its key conservation objectives:

Initiate actions at the national and international levels to prevent vessel groundings and other vessel-related impacts by improving seamanship, strengthening aids to navigation, enhancing vessel traffic management measures; installing and maintaining mooring buoys in areas where anchor damage is likely, enhancing local and regional emergency response capabilities, strengthening and standardising enforcement and damage assessment actions, and, where needed, developing additional legal authorities.

¹³⁷ See for example generally J. Tilmant, L. Canzanelli, R. Clark, R. Curry, B. Graham, M. Mayr, A. Moulding, R. Mulcahy, S. Viehman and T. Whittington, "Restoration of coral reef habitats within the national park system," in D. Harmon, B. M. Kilgore and G. E. Vietzke (eds) *Protecting Our Diverse Heritage: The Role of Parks, Protected Areas, and Cultural Sites* (Hancock, Michigan: The George Wright Society, 2004), p 234; J.H. Hudson and W.B. Goodwin, "Assessment of vessel grounding injury

Footnote continued on next page.

considered that the adoption of no anchor areas in the vicinity of these two areas would significantly contribute to the overall level of protection for these two specific areas. Accordingly, and in response to a request by the MEPC, the USA submitted a detailed proposal to the 47th session of the NAV Sub-committee, for the establishment of three no anchoring areas: two in the Tortugas Ecological Reserve and one in the Tortugas Bank in the Florida Keys.¹³⁸ In doing so, the USA noted that the establishment of these no anchoring areas would be one of the associated protective measures to protect the area proposed for PSSA designation from the risk of damage by international shipping activities.¹³⁹

At the same meeting, the USA also submitted a proposal seeking an amendment to reconfigure the northernmost part of the area to be avoided, in order to eliminate a portion, which extended out to a further distance off the coral reef tract than other portions of the area to be avoided.¹⁴⁰ Having undertaken a thorough analysis of the area as part of the PSSA proposal, it was found that the existing area to be avoided resulted in a potential convergence of north-easterly and south-westerly bound traffic and was thereby considered to present a heightened risk of collision. Accordingly, the proposed amendments sought to increase the distance between these two opposing traffic patterns, thereby increasing maritime safety in the area. Thus, the amendment had the effect of

to coral reef and seagrass habitats in the Florida Keys National Marine Sanctuary, Florida: protocols and methods,” *Bulletin of Marine Science* 69 (2001), pp. 509–516; W. F. Precht, R. B. Aronson and D.W. Swanson, “Improving scientific decision-making in restoration of ship-grounding sites on coral reefs,” *Bulletin of Marine Science* 69 (2001), pp. 1001-1012; J.P. Ebersole, “Recovery of fish assemblages from ship grounding on coral reefs in the Florida Keys National Marine Sanctuary,” *Bulletin of Marine Science* 69 (2001), p. 656.

¹³⁸ See NAV 47/3/1, (note 135 above).

¹³⁹ NAV 47/3/1, para. 1 (note 135 above).

¹⁴⁰ NAV 47/3, *Amendment of the northernmost area to be avoided off the Florida Coast*, submitted by the United States, 15 February 2001.

reducing the overall size of the area to be avoided in order to improve safety of navigation in the vicinity of the PSSA.

6.5.4 Consideration by IMO

Consideration of the proposal by the MEPC was straight forward. The submission was extremely comprehensive and was widely commended by the Committee. In fact it was agreed that the USA proposal should serve as a model for member States when proposing their PSSAs in the future.¹⁴¹ Having considered the proposal, the Committee agreed that it met all of the requirements laid down in the PSSA Guidelines. Final designation of the PSSA was approved by the MEPC at its 47th session.¹⁴²

PART II: BENEFITS OF PSSA STATUS

6.6 ANALYSING THE BENEFITS OF PSSA DESIGNATION

At the outset of this thesis, the following benefits were attributed to PSSA designation:

- (1) Providing a comprehensive management tool whereby the vulnerability of an area to damage from international shipping activities can be examined and a measure adopted by the IMO can be tailored to address the identified vulnerability;
- (2) Giving coastal States the opportunity to adopt additional protective measures to address the particular risks associated with international shipping in the area;

¹⁴¹ MEPC 46/23, para. 6.8 (note 5 above).

¹⁴² MEPC 47/20, *Report of the Marine Environment Protection Committee on its forty-seventh session*. 18 March 2002, para. 8.10.

- (3) Providing global recognition of the special significance of a designated area through identification of PSSA status on international charts, thereby informing mariners of the importance of taking extra care when navigating through a region; and
- (4) That PSSA designation may provide for approval of exceptional measures, which, although justified by internationally recognised exceptional circumstance, cannot find a precise legal basis in existing international instruments.¹⁴³

Despite the PSSA concept having been in place for 14 years, the application of the concept has only become widespread over the past five years.¹⁴⁴ To date no comprehensive analysis has been undertaken to evaluate whether these benefits are being realised through the designation of certain areas as PSSAs. Therefore, on the basis of the case studies presented above, this section considers to what extent each of the suggested benefits of PSSA designation are being realised. In each case, conclusions will be drawn as to why particular benefits may or may not be realised, based on the specific circumstances of the individual PSSA proposals examined.

¹⁴³ K.M. Gjerde, "Protecting particularly sensitive sea areas from shipping: A review of IMO's new PSSA guidelines," in H. Thiel & 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*, BfN-Skripten 43 (Bonn: German Federal Agency for Nature Conservation, 2001), pp. 125-126; K.M. Gjerde and J.S.H. Pullen, "Cuba's Sabana-Camagüey Archipelago: The second internationally recognised particularly sensitive sea area," *International Journal of Marine and Coastal Law* 13 (1998), p. 252; See also MEPC 36/21/4 *Report of the third international meeting of legal experts on particularly sensitive sea areas*, submitted by the IMO Secretariat, 4 August 1994, paras. 10-17.

¹⁴⁴ During the period 1991-2001 only two PSSAs were designated, namely the Great Barrier Reef and the Sabana-Camagüey. Since the adoption of revised Guidelines in 2001, a further nine PSSAs have been designated.

6.6.1 Comprehensive Management Tool

One of the purposes of the PSSA concept, and one of its identified benefits, is to provide a comprehensive assessment tool whereby the identified environmental vulnerability is linked with the most appropriate measure(s) to prevent, reduce or eliminate the vulnerability.¹⁴⁵ In doing so, the process aims to ensure that the most appropriate measure to address the environmental vulnerability is identified and applied in such a manner as to ensure the least practicable restriction on shipping traffic, while ensuring effective protection of the area in question.¹⁴⁶ It is therefore incumbent on the applicant(s) not only to identify and justify the specific environmental values that are vulnerable, but also to demonstrate that the proposed measures address that identified vulnerability.¹⁴⁷ The example of the Florida Keys PSSA provides a clear example of how this process can work in practice. However, recent State practice in the application of the PSSA Guidelines demonstrates that not all States undertake such a rigorous analysis as the USA and others did in their PSSA proposals.¹⁴⁸ Moreover, the IMO process for evaluating such proposals has in some cases failed to address this lack of rigour, resulting in the designation of PSSAs where the linkage between the

¹⁴⁵ Anon, "Particularly sensitive sea areas: Using a comprehensive planning tool to protect habitats from shipping," *MPA News* 3 (2002), p. 1; Lindy Johnson (NOAA) personal communication.

¹⁴⁶ 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*, submitted by the United States, 9 July 2004, para. 1.

¹⁴⁷ That this is the case is highlighted by the wording in the IMO guidance document on PSSA submissions, MEPC/Circ.398, *Guidance document for submission of PSSA proposals to IMO*, 27 March 2003. Section 3.5.

¹⁴⁸ The first time this issue emerged was with the consideration of the Sabana-Camagüey Archipelago. Subsequently the Malpello Islands, Western European and Baltic Sea PSSAs have all suffered from a similar lack of rigour.

environmental vulnerability and the protection provided by the APMs is questionable.¹⁴⁹

This in turn has had the effect of calling into question the integrity of the entire PSSA concept.¹⁵⁰

6.6.1.1 Florida Keys

When the USA undertook its evaluation for the Florida Keys PSSA proposal, it used a risk-based approach to identify the areas under greatest threat from international shipping and also identified the specific vulnerability of those areas to the range of impacts associated with shipping activities. Thus, at the time of the submission of their PSSA proposal, the USA was able to clearly demonstrate that it had identified those areas of greatest environmental significance that were at risk from shipping and subsequently could demonstrate that it proposed the adoption of specific legal measures narrowly focused to address the specific vulnerability thereby identified.¹⁵¹ In undertaking the assessment for the proposed PSSA, the USA clearly identified that the primary purpose of the PSSA was to protect the unique coral reef tract and its related ecosystem from potential threats from international shipping activities,¹⁵² in particular

¹⁴⁹ This was particularly apparent with the Western European proposal where the technical review group failed to draw conclusions on 2 of the 3 factors that should be addressed when considering such a proposal.

¹⁵⁰ Concerns have been raised over the risk of the PSSA concept becoming undervalued. See for example the joint submission of a number of industry NGOs, who observe:

It is becoming increasingly evident that, if allowed to proliferate unchecked, the PSSA designation will lose its special significance and thereby become devalued.

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*, submitted by BIMCO, the International Chamber of Shipping (ICS), INTERCARGO, INTERTANKO, OCIMF and the International Parcel Tankers Association (IPTA), 4 February 2004, para. 8.

¹⁵¹ See MEPC 52/8, para. 5 (note 146 above).

¹⁵² MEPC 46/6/2, para. 6.1.1 (note 126 above).

anchor damage to the coral reef.¹⁵³ It was therefore considered that the adoption of no anchor areas in the vicinity of these two areas would significantly contribute to the overall level of protection for these specific areas. The example of the Florida Keys, and others,¹⁵⁴ therefore does support the case for this important benefit of the PSSA concept.

While the USA clearly identified that the designation of the PSSA itself would serve to highlight the environmental sensitivity of the area to mariners, arguably one of the most significant benefits of this PSSA was the evaluation process itself, rather than the actual designation of the boundaries of the PSSA.¹⁵⁵ The most obvious outcome of this was the proposal to amend the northern area to be avoided to reduce its size. The process of evaluating and preparing the PSSA proposal included comprehensive consultation with the shipping industry and it was through this process that the USA became aware of the potential threat posed by one of the existing protective measures.¹⁵⁶ Notwithstanding any intrinsic benefits that may be derived from the identification of a PSSA boundary, as a management tool, the PSSA concept provides benefits by way of a comprehensive mechanism to assess an area's vulnerability to damage (or threat thereof) by international shipping, and to adopt IMO measures that are tailored to addressing that vulnerability. That this is the case is clearly illustrated by the Florida Keys example.

¹⁵³ Refer to note 137 above.

¹⁵⁴ Similarly, the Great Barrier Reef, Paracas and Galapagos proposals also clearly identified a vulnerability and proposed specific measures to address that vulnerability.

¹⁵⁵ According to Lindy Johnson (NOAA) the biggest benefit realised by the PSSA proposal was the holistic evaluation of the entire area and shipping activities within it. While the anchoring problem was an obvious issue, the evaluation identified a number of other issues that were required to be addressed through the process.

¹⁵⁶ Lindy Johnson, personal communication.

6.6.1.2 Western European PSSA

The WE PSSA proposal illustrates a different scenario, whereby the application failed to clearly assess the specific values that were under threat from international shipping and also failed to demonstrate any specific link between those values that were identified and the proposed APM.¹⁵⁷ Both the WE PSSA and the Baltic Sea proposals represent very large geographic areas. Considerable opposition to the designation of such large areas was voiced by a number of States. While in neither case was there any suggestion that the areas did not contain sensitive values worthy of protection,¹⁵⁸ it is arguable whether these two areas are significantly vulnerable throughout to warrant designation of the entire areas as PSSAs. In the proposals submitted in support of the PSSA proposal, the environmental values were described in very general terms in order to justify the application of the widest range of PSSA criteria.

As a specific example of the tenuous link between the environmental vulnerability and the threat posed by shipping, one of the significant environmental vulnerabilities identified in the application was the threat to deepwater coral. The proposing States argued that the deepwater coral ecosystem was extremely vulnerable and that the main threats to the reef were from pollution from vessels and land-based sources, bio-prospecting and climate change. Considerable mileage was gained by the proponents, during the discussions at the 49th session of the MEPC, of the significance of these coral reefs.¹⁵⁹ While pollution is certainly a threat facing shallow reef building corals in

¹⁵⁷ Roberts *et al*, p. 437 (note 4 above).

¹⁵⁸ Consideration of both proposals by the relevant Technical Groups concluded that each area met a large number of the criteria.

¹⁵⁹ Author's observations from attending the session at MEPC 49.

tropical waters, no evidence that these activities pose a threat to such deep dwelling corals has been presented. Since the reefs are not located near any shipping routes, Long and Grehan¹⁶⁰ argue that the major threats to the coral reefs are identified as being from fishing activity (specifically deepwater trawling) and the potential impacts associated with offshore oil and gas extraction. While it is possible that an oil spill in the vicinity of the coral reefs may impact the reefs themselves, such a scenario is extremely unlikely since few oil spills exhibit the tendency to sink and blanket the seabed.¹⁶¹

Similarly, the vulnerability to shipping impacts was also dealt with in very general terms making it hard to identify what the specific areas of vulnerability were. This contrasts markedly with the Florida Keys proposal, whereby the USA clearly identified specific sites that warranted additional protective measures.

6.6.1.2.1 Identification of Measures to Address the Vulnerability

Notwithstanding that the area was already subject to a number of IMO approved measures which provide protection from the impacts of shipping, as noted above, initially the proponents of the WE PSSA proposed the banning of the carriage of fuel oil in single-hull tankers. In their proposal, the proponents clearly identified that:

the effect which the countries proposing the PSSA are most concerned to achieve is to

¹⁶⁰ R. Long and A. Grehan, "Marine habitat protection in sea areas under the jurisdiction of a coastal member state of the European Union: The case of deep-water coral conservation in Ireland," *International Journal of Marine and Coastal Law* 17 (2002), pp. 239-240.

¹⁶¹ See for example: F. Merlin, J.P. Sessarego, X. Lurton, J. Marchal, B. Zerr, P. Cervenka, J. M. Augustin, E. de Nanteuil, R.K. Hansen, Y. Guedes and F. Parthiot, "Sonar detection and monitoring of sunken heavy fuel oil on the seafloor," in *Proceedings of the European Oil Spill Conference (Interspill)* (Trondheim, Norway: 14-17 June, 2004); T. Deakin, R.J. Meech, B. Fichaut and D.I. Little, "Some observations on heavy fuel oil spills: trends, impacts and comparisons with crude oil spills" in *Proceedings of the twenty-sixth Arctic and Marine Oilspill Program (AMOP) Technical Seminar*, (Victoria, Canada: June 10-12, 2003), pp.971-998.

achieve a shift in traffic of heavy grades of oil from single hull vessels to double hull vessels.¹⁶² The second effect of the measure will be to bar such vessels carrying such cargoes from passage through the water covered by this PSSA designation.¹⁶³

However, this measure was later withdrawn in the face of considerable opposition.¹⁶⁴ Accordingly the only measure that was proposed as part of the PSSA was the 48-hour reporting. The purpose and effect of the proposed reporting obligation with a 48-hour notice period was questionable, particularly in light of the stated aims of the proponents and the considerable emphasis on damage arising from oil spills. Thus, in the light of the withdrawal of the single-hull tanker ban, many States argued that the whole rationale for the PSSA was questionable.

An explicit part of any PSSA application is the requirement to demonstrate how the APMs, existing or proposed, will provide the needed protection from the threats of damage posed by international maritime activities that may occur in and around the area.¹⁶⁵ Given that the concerns expressed are related to the impact of spills of heavy fuel oil, and that the proposing States have withdrawn the measure aimed at controlling vessels carrying these types of oils, it remains to be seen what benefit can be derived from the current proposal.

6.6.1.3 Observations

The utility of the PSSA concept is clearly apparent in those examples where a rigorous assessment has been undertaken, although it should be recognised that there is no need

¹⁶² MEPC 49/8/1, para. 5.3.2 (note 11 above).

¹⁶³ *Ibid*, para. 5.3.3.

¹⁶⁴ Roberts *et al*, p 432 (note 4 above).

¹⁶⁵ PSSA Guidelines, para. 7.4.2.1.

to go through the process of designating an area as a PSSA in order to undertake such an evaluation of the threat and to adopt appropriate protective measures to address that threat. Notwithstanding that, however, the linkage between the vulnerability and the APMs adopted to protect the PSSA needs to be demonstrated. In some cases this linkage has not been apparent and as a result questions have been raised over the application of the concept.

6.6.2 Adoption of Additional Protective Measures

The second identified benefit of PSSA designation is that it gives coastal States the opportunity to adopt additional protective measures to address the particular risks associated with international shipping in the area.¹⁶⁶ In designating an area as a PSSA, the IMO requires the adoption of at least one APM, or where IMO measures already exist to protect the area, it must be shown how the area is already being protected by such measures.¹⁶⁷ The type of protective measures to be applied is left to be determined by the IMO, within the general categories of rules, standards, and navigational practices designed to prevent pollution. Through the adoption of these measures under the specific IMO instruments, States have already agreed implicitly that their adoption would not impede freedom of navigation. On the other hand, where there exists no provision in any existing instrument for a specific measure, and where that measure may be used, for example, as a basis for prohibiting entry into a specific area, then the prohibition may violate the principle of freedom of navigation and is unlikely to be approved by the IMO.

¹⁶⁶ See for example Ottesen *et al*, p. 507-522 (note 1 above), who argue that the designation of the Great Barrier Reef as a PSSA allowed the adoption of the pilotage measure.

¹⁶⁷ Refer to discussion in Section 5.2.1.3 above.

However, while concerns have been raised about the potential APMs that may be adopted in the future, PSSA designation is not a precondition for the adoption of any APMs. Therefore, this benefit is more a perception than a reality since the designation of a PSSA does not increase or change the unilateral capacity of a coastal State to control and regulate the passage of ships through the area.¹⁶⁸ As highlighted in Chapter 5 above, numerous States have implemented routeing measures for the purpose of environmental protection without going through the process and identifying and designating that area as a PSSA.

6.6.3 Approval of Exceptional Measures

It has been argued that one of the benefits of PSSA designation is that it may allow for the adoption of exceptional measures that, while warranted, may not be able to find a specific legal basis in an existing instrument.¹⁶⁹ While measures such as Special Areas and routeing measures that are clearly already provided for can be adopted to provide protection to a PSSA, surely, the most significant benefits derive from proposing measures that are not currently provided for.¹⁷⁰ A number of examples can be viewed where proponents did propose extraordinary or more stringent measures than would

¹⁶⁸ Frank, p. 36 (note 4 above).

¹⁶⁹ K. M. Gjerde, pp. 125-126 (note 143 above); MEPC 36/21/4, para. 33 (note 143 above). Numerous suggestions have been made as to the types of measure that may be adopted by the IMO. See for example MEPC 46/6/1 *Additional protection for Particularly Sensitive Sea Areas (PSSAs)*, submitted by the IMO Secretariat, 19 January 2001. The paper lists a number of measures that could be considered for adoption to protect PSSAs. In support of the Baltic Sea PSSA, Greenpeace International proposed that additional APMs should be introduced related to ship construction, crew training, monitoring of vessels carrying hazardous cargoes and extension of liability of ship-owners and operators: MEPC 51/8/6, *Comments on the submission by Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland and Sweden*, submitted by Greenpeace International, 6 February 2004.

¹⁷⁰ The Great Barrier Reef is often cited as an example of where PSSA designation provided for the implementation of a compulsory pilotage regime. See for example Anon, p. 2 (note 145 above). However, pilotage regimes have been adopted in numerous places around the world without the need for PSSA designation to provide a justification. See Table 5.2 at p. 180 above.

normally be applied. However, in most cases the IMO has not accepted the measure as legitimate to provide protection to the PSSA.

6.6.3.1 Torres Strait

In the case of the Torres Strait PSSA, the proposing States sought the approval for a regime of compulsory pilotage to apply within the PSSA area, arguing that such a measure was consistent with the provisions of the LOSC and that the introduction of compulsory pilotage in the Strait was a necessary adjunct to the two-way route previously adopted for the area.¹⁷¹ Although the IMO did not adopt a system of compulsory pilotage for the Torres Strait, it is clear that Australia plans to follow the same approach as that used for the Great Barrier Reef and to enact domestic legislation that ships using the Torres Strait carry a pilot as a mandatory requirement.¹⁷² New laws to extend the Great Barrier Reef pilotage regime to the Torres Strait were debated in the Australian Senate in August 2005. As a result, the Australian Maritime Safety Authority (AMSA) expects compulsory pilotage in Torres Strait to be in place by early 2006.¹⁷³ Indeed, if this were not the case then there was little to be gained from the process, since a system of recommended pilotage approved by IMO was already in place.

However, the Australian approach raises two questions: first, what mechanism is available to Australia to implement compulsory pilotage in a strait used for international navigation?; and second, would such a measure constitute an action that would result in

¹⁷¹ See Section 6.3.3 above.

¹⁷² J. Roberts, "Compulsory pilotage in international straits: The Torres Strait PSSA proposal," *Ocean Development and International Law*, 37 (2006), 93-112.

¹⁷³ See D. Worwood, "Thrashing like Torres sharks," *Fairplay* 354 (2005), p. 15.

transit passage being hampered or suspended pursuant to Articles 38, 42 and 44 of the LOSC?

6.6.3.1.1 Implementation of a Compulsory Pilotage Regime

It is clear that Australia and Papua New Guinea have the international legal authority to regulate ships in Torres Strait as a condition of port entry.¹⁷⁴ Pursuant to Article 211(3) of the LOSC, States may establish particular requirements for the prevention, reduction and control of pollution as a condition for the entry of foreign vessels into their ports. Accordingly, as Molenaar argues, this jurisdiction allows a port State not only to deny access in principle, but also to prescribe non-discriminatory laws and regulations that determine conditions for the entry into ports.¹⁷⁵ Furthermore, Molenaar and others argue that port State jurisdiction under the LOSC is, in principle, unlimited.¹⁷⁶ Therefore it would be legitimate to require all ships transiting the Strait, for the purpose of entering or leaving a port of either State, to carry a pilot.¹⁷⁷ However, there appears to be no other international legal mechanism that would enable Australia to regulate pilotage in the Torres Strait.

¹⁷⁴ S.59C of the Great Barrier Reef Marine Park Act 1975 currently makes it an offence for a ship to enter an Australian port having navigated through the compulsory pilotage area without a pilot.

¹⁷⁵ E. J. Molenaar, *Coastal State Jurisdiction over Vessel-Source Pollution* (The Hague: Kluwer Law International, 1998), p. 101.

¹⁷⁶ *Ibid*, p. 104. While there is little doubt of a port State's rights to impose port entry conditions applicable to a ship while transiting its territorial sea, the LOSC does not address the issue of port State control in respect of straits used for international navigation. However, Johnson argues that, since a port is an area of absolute sovereignty, a port State should be able to set conditions for entry into its ports, regardless of the location of the ships. Furthermore, if proper notification is given to a ship of the existence of such conditions and the vessel still voluntarily enters port, it can be argued that the vessel has agreed to be bound by such conditions. See L.S Johnson, *Coastal State Regulation of International Shipping* (Dobbs Ferry, NY: Oceana Publications, 2004), p. 42. For a comprehensive overview of the rights of access to ports used for international trade see generally L. de La Fayette, "Access to ports in international law," *International Journal of Marine and Coastal Law* 11 (1996), pp. 1-22.

¹⁷⁷ Lindy Johnson (NOAA) personal communication.

As noted above, the compulsion relating to pilotage within the Great Barrier Reef PSSA area is brought about through the relevant provisions of the Great Barrier Reef Marine Park Act 1975. Since compulsory pilotage applies only within the territorial sea of Australia, and since the IMO has adopted a resolution concerning this measure, the establishment of such navigation controls aimed at environmental protection appears wholly consistent with the provisions of the LOSC. However, since such powers do not extend to straits used for international navigation, how does Australia propose to implement a compulsory pilotage regime in the Torres Strait?

Australia and Papua New Guinea are of the view that the amended IMO resolution provides support for such a position and that based on the LOSC, a mandatory pilotage scheme is a necessary adjunct to the IMO-approved two-way routing in the Torres Strait and is therefore vital for the safety of navigation through the Torres Strait. However, given the divergence of opinion expressed during consideration of this proposal, and the numerous interventions at the MEPC, voicing support for a recommended regime only, it is highly questionable whether the IMO member States will accept the implementation of such a scheme.

6.6.3.1.2 Impact on Transit Passage

The second issue is the effect compulsory pilotage might have on a ships' right to unimpeded transit passage through the Torres Strait. This will only be determined over time if Australia proceeds as predicted. What will be critical in determining the effect will be the manner in which Australia seeks to address those vessels not complying with the compulsory pilotage. It has been suggested that the imposition of compulsory

pilotage implies the intention to impose some form of sanctions on those vessels which do not take a pilot.¹⁷⁸ However, there appears to be no basis on which Australia could take such action. Article 233 of the LOSC provides that strait States may take enforcement action if a foreign vessel has violated the laws and regulations mentioned in Article 42(1)(a) and (b) and thereby endangered the marine environment of a strait.¹⁷⁹ Thus, only in the event of a violation of navigation safety regulations during transit passage that results in or threatens to give rise to ‘major damage’ to the marine environment of a strait may the strait State take measures for the enforcement of such laws,¹⁸⁰ subject to observing the guarantees provided in Article 233.¹⁸¹ While the LOSC does not define what amounts to ‘major damage’ it cannot be conceived to apply to a vessel that, while failing to take on a pilot, proceeds through the strait otherwise presenting no threat to the marine environment. As Bordunov notes:

the sovereignty of the State may not be used as grounds for enlarging legislative power distinct from that granted by the LOSC, nor for appropriating additional powers aimed at enforcing the laws extending to transit passage.¹⁸²

¹⁷⁸ See LEG 89/16, para. 232 (note 76 above). Fines of up to AU\$275,000 have been considered for ship owners whose vessels do not take a pilot. Furthermore, AMSA warns that vessels failing to accept pilotage could be denied entry to Australian ports or be subject to prosecution should they subsequently call at an Australian port. Worwood, p. 15 (note 173 above).

¹⁷⁹ M. George, “Transit passage and pollution control in straits under the 1982 Law of the Sea Convention,” *Ocean Development and International Law* 33 (2002), p. 198. Article 233 of the LOSC clearly provides that Sections 5, 6 and 7 of Part XII have no effect on the legal regime that operates in straits used for international navigation.

¹⁸⁰ See T. Scovazzi, “Management regimes and responsibility for international straits: with special reference to the Mediterranean Straits,” *Marine Policy* 19 (1995), p. 141.

¹⁸¹ V.D. Bordunov, “The regime of transit passage under the 1982 Convention,” *Marine Policy* 12 (1988), p. 225.

¹⁸² *Ibid.*

Consequently, Bordunov argues, limitations on the freedom of navigation for the purpose of transit on the basis of laws of the strait State is inadmissible according to the LOSC. Irrespective of whether Australia intends to enact a compulsory pilotage regime at the domestic level, there appears to be no provision within the LOSC that would allow it to enforce such a regime within the Torres Strait.

The LOSC recognises that coastal States have a legitimate right to control certain aspects of navigation that directly relate to the protection and preservation of both the marine and adjacent coastal environments.¹⁸³ Pilotage requirements within internal waters are among the accepted rights of a coastal State. However, this is not the case for all vessels passing through the territorial sea or the waters of an international strait. Rothwell argues that if a coastal State can work within existing international fora to have a regime of compulsory pilotage accepted for certain waters, then it may legitimately seek to enforce such a requirement within its territorial sea.¹⁸⁴ However, pursuant to Article 233, and with the exceptions provided for under Articles 41 and 42, such powers available to a coastal State do not extend to straits used for international navigation. The IMO seems to have accepted this premise and, despite the arguments put forward by Australia and Papua New Guinea, has taken the view that there exists in international law, no legal basis for the establishment of an IMO endorsed regime of mandatory pilotage in a strait used for international navigation. This is despite the obvious environmental vulnerability of the area and the risk posed by international

¹⁸³ Rothwell, p. 605 (note 44 above).

¹⁸⁴ *Ibid.*

traffic. Instead, it has reinforced its support for a system of voluntary pilotage and agreed to promote such a system to all ships.

6.6.3.2 Baltic Sea

As noted above, despite not including any new APMs with the initial proposal, the proponent States for the Baltic Sea PSSA submitted proposals for several APMs to the 51st session of the NAV Sub-committee. While all of the measures were approved by the Sub-committee, concerns were raised over the mandatory nature of the proposed areas to be avoided. The areas to be avoided lie entirely within the Swedish EEZ, and therefore IMO approval was a pre-requisite for their implementation.

The concept of mandatory versus recommended routeing measures was also considered by the Donaldson Inquiry, which concluded *inter alia*, that provision of clear explanations of why particular guidance was being given was more likely to deliver high levels of compliance than the imposition of a mandatory rule that could not be enforced.¹⁸⁵ While the inquiry was not convinced of the benefits of mandatory schemes in general, it did concede that certain areas may benefit from special protection in the form of elimination of traffic. In this context the inquiry did consider the applications of mandatory areas to be avoided.¹⁸⁶

The Donaldson Inquiry acknowledged that it was difficult to ascertain the extent to which ships' Masters heed IMO endorsed advice, although based on their own research

¹⁸⁵ HMSO *Safer Ships, Cleaner Seas*. Report of Lord Donaldson's Inquiry into the Prevention of Pollution from Merchant Shipping. (London: HMSO, 1994), paras. 14.92-14.94.

¹⁸⁶ L. M. Warren and M. W. Wallace, "The Donaldson inquiry and its relevance to particularly sensitive sea areas," *International Journal of Marine and Coastal Law* 9 (1994), p. 528.

they concluded that Masters routinely follow advice printed on charts without considering whether it is ‘voluntary’ or ‘mandatory’.¹⁸⁷ The experience of New Zealand in the implementation of the area to be avoided around the Poor Knights Islands marine reserve (Section 5.3.5 above), suggests that the status of a routeing measure does affect how mariners perceive their obligations in respect of the measure. As this was the first time a proposal was made for a ‘mandatory’ as opposed to a ‘recommended’ area to be avoided, the adoption of this measure represented a significant step and a precedent for the IMO. However, due to a procedural error in the application, the approval of the area to be avoided provided that:

In order to avoid risk of pollution and damage to the environment of this sensitive area, all vessels greater than 45 metres in length (except as specified below) *should* avoid the following area.¹⁸⁸ [Emphasis added].

The wording ‘should’ is generally applied to recommended routeing measures. In accordance with SOLAS¹⁸⁹ and consistent with other mandatory measure adopted by the IMO,¹⁹⁰ the operative wording to be applied is ‘shall’. Since this was the first IMO approved mandatory area to be avoided, this minor error was not initially identified. In New Zealand, the typographic error in the text accompanying the area to be avoided was taken by some masters as an indication that there was no compulsion to avoid the

¹⁸⁷ *Safer Ships, Cleaner Seas*, para. 14.92 (note 185 above).

¹⁸⁸ IMO Circular SN/Circ.234 *with respect to the mandatory area to be avoided off the northeast coast of the North Island of New Zealand*. 28 May 2004. Ref. T2-NAVSEC/2.7.1.

¹⁸⁹ SOLAS, Regulation V/10, para. 7 states that:

A ship shall use a mandatory ships’ routeing system adopted by the Organisation as required for its category or cargo carried and in accordance with the relevant provisions in force unless there are compelling reasons not to use a particular ships’ routeing system.

¹⁹⁰ Prior to the adoption of the New Zealand area to be avoided, three mandatory measures had been adopted by the IMO: a deep water route in the German Bight; three mandatory no anchoring areas for the Flower Gardens; and three mandatory no anchoring areas for Florida Keys.

area, since the measure was recommended only. As such, a number of ships proceeded to transit the area on this basis. Therefore, it may be argued that mandatory status for a routeing measure has the ability to achieve a higher level of compliance with that measure, thereby providing a greater degree of protection to the area in question. It is also important from an enforcement and compliance perspective, since only mandatory measures can be enforced internationally beyond the territorial sea.

The IMO will not adopt a proposed routeing measure until it is satisfied that the proposed system will not impose unnecessary constraints on shipping and it is completely in accordance with the requirements of SOLAS and the GPSR. In particular, an area to be avoided will not be adopted if it would impede the passage of ships through an international strait. When determining areas to be avoided for all ships or certain classes of ships, the necessity for creating such areas should be well demonstrated.¹⁹¹ In the case of the Baltic Sea, the proponents argued that the areas to be avoided should be mandatory due to the environmental significance of the area to be protected. The NAV Sub-committee however did not accept this argument, preferring instead to approve non-mandatory (recommended) areas to be avoided in both cases.¹⁹² Given that SOLAS now provides for the establishment of mandatory routeing measures, for the purposes of environmental protection, subject to satisfactorily demonstrating the need for such mandatory status, it must be assumed that the Baltic States did not provide a sufficiently strong argument to support the adoption of such a measure. Despite the

¹⁹¹ General Provisions on Ships' Routeing, para. 5. 6.

¹⁹² The NAV Sub-committee expressed the opinion that the PSSA proposal did not justify the establishment of mandatory areas to be avoided. The delegation of Sweden, while accepting of the decision, stated that were not satisfied with this decision. Accordingly, the matter is to be revisited at 52nd session of the Sub-committee in June 2006. See NAV 51/19, *Subcommittee on Safety of Navigation fifty-first session: Report to the Maritime Safety Committee*, 4 July 2005, para. 3.50.

supposed significant status of PSSA designation, identification of the area as a PSSA in and of itself, clearly was not a significant factor in the decision as to whether the areas to be avoided should be mandatory for the purpose of protecting the marine environment.

6.6.3.3 Western European PSSA

In the case of the WE PSSA, the proponents originally proposed a ban on the carriage of heavy grades of fuel oil in single hull tankers discussed in Section 6.2.3 above. However, opposition to the measure was strong and the measure was eventually withdrawn once it became apparent that the objectives of the proposing States would be satisfied by amendments to the accelerated phase-out requirements for single-hull tankers under MARPOL 73/78.¹⁹³ However, prior to the decision to withdraw this measure from the proposal, significant concerns were raised with regard to the legal basis for such a measure in the context of the proposed PSSA. No clearly identifiable legal basis was put forward by the proponents, although it was suggested that the PSSA guidelines themselves provided the legal basis for the adoption of such a measure.

The LOSC recognises coastal States' rights to regulate discharges from ships but does not permit unilateral regulation of rules and standards that relate to CDEM, unless such rules give effect to "generally accepted international rules or standards."¹⁹⁴ While a coastal State may regulate transit within its territorial waters, for the purposes of environmental protection, as discussed in Section 3.5.2 above, pursuant to Article 21(2) of the LOSC, such regulations cannot extend to the prescription of national CDEM

¹⁹³ See Roberts *et al*, p 437 (note 4 above).

¹⁹⁴ LOSC, Article 21(2).

standards that are higher than international standards on foreign ships.¹⁹⁵ However, as in the case of the Torres Strait PSSA, the proposing States do have the right to enforce such a measure as a condition of port entry¹⁹⁶ since port entry requirements may cover a range of safety, antipollution and seaworthiness standards, including CDEM standards higher than internationally accepted norms.¹⁹⁷ Furthermore, such unilateral action applied to ships transiting the EEZ seems wholly inconsistent with the provisions of the LOSC.¹⁹⁸ Thus, notwithstanding that the measure was in fact withdrawn, given the level of opposition to the measure it is doubtful that agreement would have been reached on the PSSA proposal had the proponents continued to seek approval for such a measure.¹⁹⁹

6.6.3.4 Observations

Despite the arguments that PSSA designation provides for the approval of exceptional measures, the examples discussed above, demonstrate that there are clearly limits as to

¹⁹⁵ Frank, p. 13 (note 4 above).

¹⁹⁶ Following the *Prestige* incident, Spain, followed by France, Portugal and Italy, all unilaterally banned single hull tankers carrying heavy grades of oil, regardless of their flags, from entering their ports or internal waters.

¹⁹⁷ Franck, p. 9 (note 4 above). See also de La Fayette, pp. 2-3, (note 176 above). Following the grounding of the tanker *Exxon Valdez*, the USA unilaterally introduced legislation through OPA' 90, which *inter alia* requires foreign tankers travelling in US waters to have double hulls. Churchill and Lowe argue that, while the measure is in accordance with the jurisdiction of port States under both customary law and the LOSC, it may be questioned how far it is in accordance with the spirit of the convention, which aims to discourage unilateral CDEM standards for ships: R.R. Churchill and A. V. Lowe, *The Law of the Sea*, 3rd Edition (Manchester, UK: Manchester University Press, 1999), p. 353. For a general discussion on the application of Article 21(2) and the adoption of CDEM standards unilaterally see Johnson, pp. 73-81 (note 176 above).

¹⁹⁸ Johnson argues that there is serious question as to whether the IMO would ever approve the adoption of a CDEM standard that differs from an international rule and standard, except for ships operating within a discrete limited area. See Johnson, p. 111 (note 176 above)

¹⁹⁹ It has been suggested by some observers that had the proposing States wished to proceed with this measure, one way to establish a legal basis for the measure would have been to have it agreed as one of the discharge standards relating to the Special Area that is designated for the area. In doing so, there would have been a need to seek an amendment to MAROL 73/78, thereby providing a legal basis for the measure. However, arguably this would not have negated the requirement for PSSA designation, since the measure would have been legitimately introduced by other legal means.

how far the IMO is currently prepared to go in adopting measures for the purposes of environmental protection, where (i) there exists no generally accepted international rules and standards in international law for the adoption of such measures, and (ii) where such measures may violate the principle of freedom of navigation. As such, the IMO has sent a clear signal that any measure proposed for the protection of a PSSA must have a clear legal basis. Furthermore, even where the measure is clearly provided for in an existing instrument, such as the case of a mandatory area to be avoided, the IMO has proved reluctant to establish such a measure where it has not been adequately demonstrated that such a restrictive measure is warranted. While a number of observers have proposed new measures that could be applied within the framework of a PSSA, to date the IMO has only applied those measures that are generally available through existing instruments and have a clear legal basis in international law.

6.6.4 Intrinsic Benefits of PSSA Designation

Notwithstanding the protection that can be provided by the application of specific APMs to address an identified vulnerability, it is widely argued that designation of an area as a PSSA provides global recognition of the special significance of a designated area through identification of PSSA status on international charts, thereby informing mariners of the importance of taking extra care when navigating through a region. As a result it is argued by some, that designation of an area as a PSSA has an intrinsic value in its own right.²⁰⁰

²⁰⁰ For a summary of these arguments, refer to Section 4.2 above.

To date, every PSSA proposal submitted to the IMO, with the exception of the Wadden Sea and the Baltic Sea proposals, has identified at least one new APM to be adopted to protect the area. The Wadden Sea proposal relied entirely on the existing measures in place at the time of the application.²⁰¹ Since the area was well defined, and had clear environmental values throughout, the proposal proceeded without any concerns being raised.

6.6.4.1 Baltic Sea

The Baltic States, in their submission, did not identify any new measures at the outset, noting that the area was already subject to a number of IMO protective measures, and that they would submit proposals for new APMs within 2 years of the submission of the original PSSA proposal.²⁰² In contrast to the response to the Wadden Sea proposal, this approach elicited a strong response from a number of maritime States, in particular the Russian Federation, who argued against the proposal. In the specific case of the Baltic Sea, it was argued that since the area was already designated as a MARPOL Special Area, and since numerous IMO approved ships' routing measures had been adopted, the designation of the area as a PSSA with no additional measures provided no added value.²⁰³

²⁰¹ See MEPC 48/7/2, *Designation of the Wadden Sea as a particularly sensitive sea area*, submitted by Denmark, Germany and the Netherlands, 28 June 2002. These measures included a mandatory ship reporting scheme, a comprehensive ships' routing scheme, and inclusion in the wider North Sea Special Area designation.

²⁰² MEPC 51/8/1, para. 5.10 (note 94 above).

²⁰³ MEPC 51/22, para. 8.27.3 (note 115 above).

In their proposal, the Baltic States provided evidence of the threat to the Baltic, from unreported and unlawful discharges of oil²⁰⁴ and the increasing threat of significant pollution damage arising from a shipping casualty.²⁰⁵ It could therefore be argued that any measures to increase the protection of the area should focus on increasing compliance with the discharge requirements of the Special Area and reducing the likelihood of shipping casualties in specific high risk areas. Clearly, on the basis of the information presented in their application, the range of existing measures in force at the time of the submission were inadequate to provide the required protection to the area. As such, the argument put forward by the Russian Federation has some merit. To address this, the Baltic States eventually submitted proposals for a range of new APMs, although none of these address the issue of unreported and unlawful discharges. Instead they focus entirely on the risk of collision and groundings. Notwithstanding the catastrophic short term impacts that can arise following major oil spills, international data clearly demonstrates that the greatest cause of ship-sourced marine pollution derives from operational discharges rather than accidental discharges.²⁰⁶

The arguments put forward by the Russian Federation received support from a number of maritime States and industry NGOs.²⁰⁷ In joint submissions to the MEPC, a number

²⁰⁴ MEPC 51/8/1, para. 4.20 (note 94 above).

²⁰⁵ *Ibid*, paras. 4.22-4.23. The paper notes that 119 shipping accidents occurred in the Baltic Sea during the period 2000-2002 although these were almost entirely in the vicinity of ports and in the narrow straits that form the entrance to the Baltic Sea.

²⁰⁶ See for example the most recent estimates of oil inputs into the sea published by the US National Research Council: National Research Council, *Oil in the Sea III: Inputs, Fates and Effects* (Washington DC: National Academy Press, 2002), Chapter 3. See also the report of the OECD Maritime Transport Committee: OECD Document DSTI/DOT/MTC(2002)8/FINAL, *Cost Savings Stemming from Non-Compliance with International Environmental Regulations in the Maritime Sector*, (Paris: OECD, 2003), pp. 10-11.

²⁰⁷ See for example MEPC 51/22, para. 8.29 (note 115 above).

of States²⁰⁸ and industry NGOs²⁰⁹ argued for a more robust analysis of the need for additional protective measures in the context of PSSAs, as well as a more rigorous analysis of the actual protection that such APMs would provide. It was argued that any decision on designation of a PSSA should only be made if the inadequacy of existing implemented measures had been proven.²¹⁰ To address this, the proponent States argued that prior to any decision on designation of a new PSSA, a careful analysis of the scope and adequacy of already existing measures be carried out. The logical conclusion of this argument appears to be that, if existing measures are adequate to protect the area in question, no benefit would be derived from PSSA designation. Moreover, if the measures are not considered adequate, then designation as a PSSA on the basis of the existing measures is arguably not addressing the environmental vulnerability. It therefore logically follows that, on the basis of this argument, any proposed PSSA must have at least one new APM proposed, irrespective of whether existing measures are in place.²¹¹ This issue was highlighted during the first international meeting of legal experts on PSSAs, when some participants argued that the PSSA concept was

²⁰⁸ See MEPC 51/8/3, (note 150 above) .

²⁰⁹ See 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*, submitted by BIMCO, the International Chamber of Shipping (ICS), INTERCARGO, INTERTANKO, OCIMF and the International Parcel Tankers Association (IPTA), 4 February 2004.

²¹⁰ In a subsequent submission to MEPC 53, the Russian Federation further argued that in future proposals for a new PSSA could not be based solely on existing IMO measures already implemented in the area concerned. See MEPC 53/24, para. 8.22.4 (note 50 above).

²¹¹ This is contrary to the existing requirements of the PSSA Guidelines.

duplicative of existing measures and that there was no need to gain approval of an area as a PSSA in order to protect it.²¹²

However, this argument does overlook the potential intrinsic value and the non-legal effects of designation as a PSSA.²¹³ As previously discussed, many observers argue that designation as a PSSA is of value in and of itself, since designation as a PSSA serves to highlight to the shipping industry the importance of taking extra care when approaching the area.²¹⁴ To test this assumption, as part of this PhD research, a simple questionnaire was distributed to professional mariners with recent or current sea time. The results of the questionnaire provide some useful insights into perceptions of the PSSA concept and are therefore discussed in the following section.

6.6.4.2 Research Approach

6.6.4.2.1 Research Questionnaire

The questionnaire sought to assess the level of awareness of the PSSA concept among respondents, and to assess how designation of an area as a PSSA might affect decision making in relation to passage planning and the operation of the ship. The questionnaire was issued in two parts (see Appendix E) in order to assess:

²¹² MEPC 33/INF.27, *Report of the international meeting of legal experts on particularly sensitive sea areas*, University of Hull, 20-21 July 1992, submitted by the IMO Secretariat, 1 September 1992, para. 12.2.1.

²¹³ See Frank, pp. 38-39 (note 4 above).

²¹⁴ K.M. Gjerde and D. Freestone, "Particularly sensitive seas areas - An important environmental concept at a turning point," *International Journal of Marine and Coastal Law* 9 (1994), p. 435. WWF has previously argued that marking the area on a chart without any APMs approved has value in itself, since by doing so the environmental significance of the area can be highlighted to mariners. As such, it has been argued that marking the boundary of the PSSA on a chart could be seen as an APM in and of itself. See MEPC 43/6/6, *Procedure for identifying particularly sensitive sea areas*, submitted by WWF, 1 April 1999. The position of WWF on this matter has been reiterated during recent discussions concerning amendments to Resolution A.927(22).

- (i) The extent to which PSSA designation alone may change the behaviour of a ship's master or deck officer; and
- (ii) The value of the APM in protecting the values of a PSSA. Having completed and submitted part one, respondents were provided the second part and asked to describe how the additional information may affect their response to the first questionnaire.

Two core groups of respondents were selected. The first group were master mariners and deck officers on ships undergoing Port State Control (PSC)²¹⁵ inspections in three New Zealand ports.²¹⁶ The second were a group of professional mariners undertaking training for their professional Master Mariner's examination at the Southampton Institute in the UK. Additional, *ad hoc* responses were received from a number of mariners who responded to a request for research participants through the Nautical Institute's monthly news letter *Nautelex*. As such, all respondents had current or recent deep sea navigation experience. The questionnaires were either distributed by hand, as in the case of ships undergoing PSC inspections in New Zealand ports, or electronically by email.

²¹⁵ New Zealand is a founding member of, and Party to, the Memorandum of Understanding on Port State Control in the Asia-Pacific Region (Tokyo MoU). Port States are entitled to control foreign ships visiting their own ports to ensure that any deficiencies found are rectified before they are allowed to sail. Port State control is regarded as complementary to the flag State control. Thus, PSC is the inspection of foreign ships in national ports to verify that the condition of the ship and its equipment comply with the requirements of international regulations and that the ship is manned and operated in compliance with these rules.

²¹⁶ The ports were Whangarei (including the New Zealand refinery at Marsden Point), Auckland and Tauranga. These three ports are the primary first port of call for all international ships visiting New Zealand, and represent a significant proportion of all port visits to New Zealand.

A total of 66 questionnaires were completed and returned for analysis. A simple qualitative analysis of the questionnaires was completed and the results reported below.

6.6.4.2.2 Results

The questionnaire sought to examine two key areas:

- (i) the level of awareness of the PSSA concept among respondents; and
- (ii) what (if any) impact, designation of an area as a PSSA may have on operational decisions made in respect of navigating in the vicinity of the area.

Level of awareness

Of those who responded, approximately 38% (25 respondents) stated that they had seen a PSSA, similar to the example highlighted in the questionnaire, marked on a chart, although only approximately 20% (13 respondents) stated that they had sailed through one. However, when asked where these areas were, several respondents identified areas that have not been designated as a PSSA, but rather have been approved as areas to be avoided in accordance with the GPSR.²¹⁷ Only five respondents clearly identified existing PSSAs as areas they had travelled through – in all cases the Great Barrier Reef/Torres Strait region. While 15 respondents stated that they had no idea what PSSA status represented, the majority of respondents clearly recognised that the status of PSSA attached some level of environmental significance to the area, where special care was required, although few were fully aware of what PSSA designation actually meant.

²¹⁷ Areas that were identified included Straits of Juan De Fuca (USA), Cape Flattery (USA), the Three Kings Islands (New Zealand) and the Great Barrier Reef (Australia). Only the Great Barrier Reef is a PSSA, the others are all areas to be avoided listed in the IMO Ships' Routeing Manual.

Furthermore, of those that identified the area as being environmentally significant, nearly 50% identified the chart symbol as denoting an area to be avoided.

Effect of PSSA designation on operational decision making

In considering how PSSA designation might impact on the operational decision making for navigation in the vicinity of the PSSA, two options were given to respondents. First they were asked how they would respond based on identification of the area as a PSSA with no specified APM. Subsequently, they were asked to respond to the same question on the basis of a specific APM (in the example a two-way route was depicted) associated with the same PSSA.

Generally speaking, those respondents who clearly identified a PSSA as representing an area with some environmental significance stated that they would exercise some form of caution in or around the area. 31 respondents stated that they would avoid the area if practicable. Many of these also stated that they would take extra precautions in the vicinity of the area including prohibiting discharges. Factors that were identified as being relevant in this decision making process were instructions provided in the relevant Notice to Mariners, other restrictions applicable to the area, emergency circumstances that may warrant entering the area, and commercial factors such as the time difference involved in routeing around the area. Several of those respondents who did not understand what a PSSA was, also stated that they would avoid the area or would comply with specified measures for the area.

Six respondents stated that they would take extra precautions when transiting the area, such as ensuring no discharges occurred within the area and no anchoring. 21 respondents stated that any operational decision regarding navigating in the vicinity of

the PSSA would depend on relevant Notices to Mariners, local rules or existing routeing measures. Only nine respondents stated that PSSA designation would not influence their operational decisions, or provided no response.

When provided with the option to use an IMO approved two-way route, respondents showed a strong preference for following the two-way route. Many of those that had not previously stated that they would avoid the area, stated that they would follow the two-way route (19 respondents) since it clarified the measures applicable to the area. However, some respondents still reserved the right to decide based on environmental factors, scheduling and on company standing orders.

6.6.4.2.3 Discussion

While the sample size for the questionnaire is small, analysis of the responses received does highlight several key points of interest. First, while there is an apparent level of awareness of the PSSA measure, it appears that some confusion exists among respondents as to the difference between a PSSA and an area to be avoided. Many of the respondents clearly identified the area in the questionnaire as an area to be avoided, noting that they had seen similar areas marked on charts elsewhere. Second, notwithstanding the confusion over what was represented on the chart, while most respondents stated that they would avoid the area if operationally feasible, when given the option of a specific routeing measure, preference was shown for using that measure, and compliance with the regulations or recommendations in force for the area was clearly recognised as the most appropriate operational decision for operating in the vicinity of the area.

While this might suggest that designation of an area as a PSSA clearly does affect the behaviour of mariners, the responses should be treated with caution. In particular, recent experience of the implementation of the mandatory area to be avoided in New Zealand does not support the high degree of confidence suggested by the analyses of questionnaires. The area to be avoided came into force internationally on 31 December 2004.²¹⁸ The mandatory status of the area to be avoided is reflected in New Zealand domestic legislation which came into force to coincide with the entry into force of the measure internationally.²¹⁹ The area to be avoided lies on a route whereby ships travelling to New Zealand may transit inside the designated area. In order to educate mariners of the existence of the measure, the New Zealand government released an updated marine chart showing the limits of the area to be avoided in accordance with International Hydrographic Organisation recognised chart symbols.²²⁰ A Marine Notice²²¹ was also circulated advising of the entry into force of the measure.

During the period January to September 2005, the New Zealand national maritime administration²²² received numerous calls from local residents and boat owners operating within the designated area to be avoided, advising of ships failing to comply with the measure. Similarly, during the same period, PSC inspections were undertaken on a total of 62 international vessels that were identified as having transited through the

²¹⁸ Circular SN/Circ.234 (note 188 above).

²¹⁹ *Marine Protection Rule Part 190* Gazetted on 25 November 2004 pursuant to Section 269 of the Maritime Transport Act 1994. New Zealand Gazette number 153, p. 3791.

²²⁰ Chart Reference New Zealand NZ 521. January 1995 Edition. Issued by Land Information New Zealand.

²²¹ Marine Notice – 01-2005 *Mandatory Area to be Avoided North -East Coast of New Zealand*, issued by Maritime Safety Authority of New Zealand, March 2005.

²²² The Maritime Safety Authority of New Zealand changed its name to Maritime New Zealand on 1 July 2005.

area. Of these, approximately 20% of vessels did not have up to date marine charts showing the location of the area and appeared unaware of the existence of the area to be avoided. A number of other vessels did have the amended charts but had failed to recognise the new measure illustrated on the chart.²²³ However, a significant proportion of vessels were aware of the existence of the new measure but, noting that the wording on the chart stated that ships ‘should’ avoid the area, had made an operational decision to proceed through the area on the basis that it was a recommended measure only.²²⁴ This is despite the clear identification on the chart that the area to be avoided is established to protect an environmentally sensitive area.

Recognising this poor level of compliance, New Zealand embarked on a targeted campaign, aimed at advising shipping agents, shipping companies and all international vessels visiting New Zealand ports, of the existence of the measure. New Zealand also sought approval from the IMO to amend the wording of the routeing measure to state that ships ‘shall’ avoid the area, in line with the wording provided for in SOLAS.²²⁵ The area is also now being monitored using AIS, such that ships entering the area can be clearly identified in real time. Furthermore, a comprehensive programme aimed at enforcement against those ships violating the area to be avoided has also been underway

²²³ In some cases, when inspected, the way-points marked on the chart went directly through the area to be avoided clearly marked on the chart. Hans Wettendorf, (New Zealand PSC Inspector for the port of Whangarei) personal communication. In one case, the navigation officer had clearly identified a 5-nautical mile zone around the marine reserve and the ship had still transited the area.

²²⁴ While a number of reasons were given during PSC inspections, specific reference was made by at least half those interviewed to the fact that the charted measure was recommended in nature, and that there was no compulsion on ships to avoid the area indicated on the chart. Chris Poulter, (New Zealand PSC Inspector for the port of Auckland) personal communication. Of the ships inspected in Whangarei, approximately 50% argued that the measure was recommended only: Hans Wettendorf, personal communication.

²²⁵ See IMO Circular SN/Circ.234/Corr.1, *Routeing measures other than traffic separation schemes, Corrigendum*, 23 May 2005: Ref. T2-OSS/2.7.1, which amends the description of the area to be avoided from ‘should avoid’ to ‘shall avoid’.

since August 2005.²²⁶ Since the implementation of these additional measures, compliance with the measure has increased markedly, with the number of ships reported transiting the area having declined significantly.²²⁷

6.6.4.3 Observations

It is clear from the New Zealand experience, that simply marking an area on a chart as being environmentally significant, does not offer automatic protection to the area. Numerous factors are taken into account by a ship's crew, when making operational decisions with regard to the navigation of a ship, including the schedules for port arrival and departure, the status of a specific protective measure, specific company policies and directives,²²⁸ information provided to companies, agents and by Notice to Mariners', as well as safety and environmental factors in the area to be transited.

When implementing such a measure at a national level it is not sufficient to rely on the information provided on marine charts to inform mariners of the need to take special precautions when navigating in the vicinity of environmentally sensitive areas. The implementation of such a measure requires rigorous monitoring of the effectiveness of the measure, as well as targeted education to ensure that all relevant parties are aware of the requirement for such precautions and the reasons for these precautions. As such,

²²⁶ In November 2005, New Zealand PSC Inspectors issued infringement notices against the master and owner of one ship found entering the area, totalling NZ\$16,000.00: Tim Workman (Maritime NZ legal advisor) personal communication. In some cases ships have been detained and issued deficiency notices for non-compliance with procedures required under the International Safety Management Code.

²²⁷ Evidence from personal communication with Port State Control inspectors.

²²⁸ As an example both Shell and BP have specified as a requirement in their standing orders that all vessels under charter to them must comply with all measures in New Zealand.

these are all aspects that should be considered when planning for the establishment and implementation of a routeing measure or a PSSA.

It is clear from the questionnaire, that there is not a high level of awareness of the PSSA concept among mariners. Notwithstanding this however, there is some evidence from the questionnaire research that, when made aware of such an area, mariners will identify the PSSA concept with areas of environmental significance, where greater caution is required. However, given the limited scope of this research, further investigation of this aspect of the effectiveness of the PSSA concept seems warranted in the future.

6.7 CONCLUSIONS

It is clear from the case studies presented above, that States are interpreting and applying the PSSA concept in different ways. In some cases States appear to be designating areas as PSSAs more for their iconic status rather any demonstrated protection that can be derived from such designation. Moreover, recently there have been a number of cases whereby States have attempted to use PSSA designation to support the adoption, by the IMO, of measures that may interfere with navigational freedoms. Other States however, have clearly utilised the PSSA concept as a decision support process to evaluate the specific threat posed by international shipping, thereby allowing them to narrowly tailor the most effective measures to address that threat.

Despite the many benefits that are argued for PSSA designation, an examination of State practice raises a number of questions about the real benefits of PSSA designation, as the concept is currently constructed. In terms of legal protection it is clear that designation of an area as a PSSA provides no additional benefit to the adoption of ships' routeing measures, SRS and VTS, which may be implemented with or without the

designation of a PSSA. Therefore the only additional benefits that can be realised are those non-legal, intrinsic benefits that result in the global recognition of an area as a PSSA. However, the idea that simply identifying an area on a chart as particularly sensitive is misguided, since numerous factors must be taken into account by a ship's crew when making operational decisions regarding navigation. Even the adoption of specific ships' routing measures has not, on their own, been sufficient to indicate to mariners that extra caution is warranted while operating within a defined area. However, where such intrinsic benefits do appear to have been apparent is where the designation has been accompanied by targeted campaigns to educate mariners of the special significance of the area, supported by comprehensive monitoring and enforcement.

Thus, notwithstanding the benefits that may be realised by using the PSSA as a vehicle for educating mariners of the special significance of the area, arguably the most significant benefits that can be realised by the process of identifying and designating a PSSA are those related to the first benefit listed above, namely the process of evaluating the environmental vulnerability of an area and linking that vulnerability with the most appropriate measure(s) to prevent, reduce or eliminate that vulnerability. The benefits of this approach were clearly realised in the case of the Florida Keys, and in other previous examples. However, in order to fully realise the benefits of this approach there is a need for PSSA proposals to be comprehensive in their analysis and for the process by which such proposals are evaluated to be undertaken in a rigorous and consistent manner. While the requirements for PSSA proposals appear to be clearly set forth in the PSSA Guidelines, the interpretation and application of these requirements, as demonstrated by both State and IMO practice has, in some cases, been inconsistent. The apparent lack of rigour demonstrated in the preparation and consideration of some recent proposals has

resulted in unforeseen political manoeuvring by some States and industry bodies to constrain and redirect the PSSA concept. As a result, questions have been raised over the value of the PSSA concept and its future value as a tool to protect marine biodiversity from the impacts of shipping.

CHAPTER 7

ISSUES IDENTIFIED WITH THE PSSA CONCEPT THROUGH AN EXAMINATION OF STATE AND IMO PRACTICE

7.1 INTRODUCTION

While the analysis of State and IMO practice, presented in Chapter 6, has been useful in considering what benefits have been realised through designation of specific PSSAs, it also highlights a number of issues which either have impacted, or may in future impact significantly upon the efficacy and credibility of the PSSA concept. This chapter therefore presents an analysis of the issues identified through the recent application of the PSSA Guidelines¹ and considers to what extent these issues may impact the future application of the PSSA concept by the international community. In particular, the following key issues are discussed:

- (1) Defining the limits of what constitutes a PSSA;
 - (2) The linkage between the environmental vulnerability of the area in question and the proposed measures to protect it from international shipping;
 - (3) What constitutes an appropriate APM and the legal basis for such measures;
 - (4) Issues relating to the IMO process for assessing and approving PSSA proposals;
- and

¹ Unless otherwise stated, hereafter, any reference to the PSSA Guidelines means the 2001 *Guidelines for the identification and designation of particularly sensitive sea areas* contained within Annex 2 to IMO Resolution A.927(22) *Guidelines for the designation of Special Areas under MARPOL 73/78 and guidelines for the identification and designation of particularly sensitive sea areas*. Adopted 29 November 2001.

- (5) The lack of a strategic direction or management framework for the ongoing development of the PSSA concept.

These issues, if not addressed, have the potential to undermine the credibility of the concept, thereby reducing its effectiveness. Moreover, if the concept is to attach a certain iconic status to a given area, there is a need to ensure that designating an area as a PSSA warrants the special status associated with such a designation. Measures have already been taken to address some of these issues, however, a number of significant issues remain unresolved. Having identified and discussed the various issues, this chapter therefore provides an analysis of the potential measures that have been, or could be, taken to address these issues. In doing so, the chapter provides an overview of the outcome of a recent revision of the PSSA Guidelines, initiated as a direct response to the Western European PSSA submission. While the revision of the Guidelines addresses a number of the issues previously identified, it has not identified all of them. Accordingly, this chapter will also provides recommendations on alternative and additional measures that should be implemented in the future, in order to support and develop the PSSA concept further.

7.2 ISSUES IDENTIFIED WITH STATE PRACTICE

As noted above, State practice with the PSSA concept highlights a number of issues which may impact significantly upon the future efficacy and credibility of the PSSA concept. In some cases the issues reflect a broad lack of understanding of the role and limitations of PSSAs. However, some significant issues are clearly identifiable, which reflect the manner in which States have chosen to apply the PSSA Guidelines and, more importantly, on the manner in which the IMO has responded to such applications. These issues are analysed in detail below.

7.2.1 Defining the Scope of a PSSA

In terms of the future application of the PSSA concept, a fundamental question that remains to be addressed is whether the PSSA concept should be limited only to the most outstanding, clearly defined and geographically limited areas, or whether it should be more broadly applied to any environmentally sensitive area as a management framework from which to develop appropriate protective measures.² Opinion within the IMO on this is clearly divided, given the different approaches taken by States in designating PSSAs.

A number of States and industry observers have raised concerns over the risk of the PSSA concept becoming undervalued. In a joint submission to the MEPC, a number of industry NGOs observed:

It is becoming increasingly evident that, if allowed to proliferate unchecked, the PSSA designation will lose its special significance and thereby become devalued.³

The issue was also addressed as part of the Lord Donaldson Inquiry, which conclude that:

it is impossible to give high level protection to all areas which might deserve it. ... The more numerous and larger the areas highlighted as particularly sensitive, the greater the risk of assumptions that the remainder is of no environmental significance.

² K M. Gjerde and D. Freestone, "Particularly sensitive seas areas - An important environmental concept at a turning point," *International Journal of Marine and Coastal Law* 9 (1994), pp. 431-468.

³ 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*, submitted by BIMCO, the International Chamber of Shipping (ICS), INTERCARGO, INTERTANKO, OCIMF and the International Parcel Tankers Association (IPTA), 4 February 2004, para. 8.

It must follow that only limited areas can be singled out for any special status.⁴

While the PSSA Guidelines do not address this issue explicitly, there is an implication that sites identified for designation as a PSSA should be outstanding examples of their type since, as the PSSA Guidelines note, 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 international, regional or national importance.⁵ By inference, this suggests that it was envisaged at the time of drafting the guidelines that candidate sites for PSSA designation would also exhibit similar outstanding characteristics to those other international designations identified. Numerous examples currently exist of PSSA sites that also meet the requirements of one or more of these designations. For example, the Great Barrier Reef and Galapagos Islands are both included on the World Heritage List and the Wadden Sea is designated as a RAMSAR Site. Similarly, a number of World Heritage Sites, RAMSAR Sites and Biosphere Reserves are located within the boundaries of the Western European PSSA and the Baltic Sea, although neither area is currently designated as such in its entirety.

The PSSA Guidelines require that at least one of the criteria set forth in section 4 of the PSSA Guidelines (section 4 criteria) must be present throughout the area,⁶ although it is recognised that the same criterion need not be present throughout the entire area.⁷ The

⁴ HMSO, *Safer Ships, Cleaner Seas: Report of Lord Donaldson's Inquiry into the Prevention of Pollution from Merchant Ships* (London: HMSO, 1994), para. 14.118.

⁵ PSSA Guidelines, para. 6.2 (note 1 above).

⁶ PSSA Guidelines, para. 4.4 (note 1 above).

⁷ This is not explicitly stated in the PSSA Guidelines, however it is generally accepted within the IMO that this is the case. In a recent review of the PSSA Guidelines, this specific issue was clarified and agreed upon by the Intercessional Correspondence Group of the MEPC charged with undertaking the

Footnote continued on next page.

rationale for this stringent approach is that if a criterion does not exist in a part of the PSSA, then it is questionable why it should be included in the particularly sensitive sea area; if an area is identified as ‘particularly sensitive’ then all points within it should fit that description.⁸ However, the requirement that every sector of a PSSA has to have a section 4 criterion is viewed by some as being overly restrictive. From a biological perspective, there are likely to be areas of greatest importance surrounded by areas of less importance, which may still warrant protection. Additionally, such a strict interpretation could open up any PSSA proposal to challenges regarding the existence of such criteria. As such, it has been argued that the requirement that a section 4 criterion exist throughout the area could lead to a number of small PSSAs in the same geographical area, where a single PSSA would provide for more comprehensive management and potentially less burdensome measures, since the area could be considered holistically.⁹

Given the broad scope of the criteria presented in the PSSA Guidelines it is not difficult to identify at least one of the criteria that exists in almost all cases throughout the marine environment. As a result, States have used a combination of all, or a large number, of criteria to justify the designation of extensive geographic areas as PSSAs.

review. See MEPC 53/8/2, *Identification and protection of special areas and particularly sensitive sea areas - Report of the Correspondence Group*, submitted by the United States, 15 April 2005, para. 4.4.

⁸ The benefits of requiring a section 4 criteria to exist throughout the area have been identified as: (i) it will ensure that those areas that are most critically in need of protection are protected; (ii) it will cause the proposing member Government to analyse the area carefully and propose only those areas that have section 4 attributes; and (iii) it acts as a safeguard against huge geographic areas being designated. See MEPC 53/8/2, para. 4.4 (note 7 above).

⁹ This argument was put forward by one of the members of the Correspondence Group tasked with a recent review of the PSSA Guidelines as a contribution to a discussion over whether the PSSA Guidelines should require a section 4 criteria to apply to the entire PSSA area or the greater part of the area. See MEPC 53/8/2, para. 4.4 (note 7 above).

This in itself has raised considerable concerns within the IMO. Both the WE PSSA and the Baltic Sea proposals represent very large geographic areas. Considerable opposition to the designation of such large areas was voiced by a number of States. While in neither cases was there any suggestion that the areas did not contain sensitive values worthy of protection,¹⁰ it is arguable whether these two areas are significantly vulnerable throughout to warrant designation of the entire areas as PSSAs.

The issue of size is a very important element, on which the PSSA Guidelines are silent.¹¹ However, the PSSA Guidelines do require that, in assessing each PSSA proposal, the IMO should take into account the criteria, which are set forth in the guidelines, and, in particular, should consider, *inter alia*:

Whether the size of the area is commensurate with that necessary to address the identified need.¹²

In their analysis of the WE PSSA application, the Technical Group failed to record a decision as to whether the size of the proposed PSSA was commensurate with that necessary to address the identified need.¹³ A general finding of the group was that, although parts of the PSSA met many of the criteria, few if any of the criteria were

¹⁰ Consideration of both proposals by the relevant Technical Groups concluded that each area met a large number of the criteria.

¹¹ J. Roberts, T. Workman, M. Tsamenyi and L. Johnson, "The Western European PSSA: A 'politically sensitive sea area'," *Marine Policy* 29 (2005), p. 439.

¹² PSSA Guidelines, para. 8.2.3.

¹³ This is clear from the report of the informal PSSA Technical Group at MEPC 49. See MEPC 49/WP.10, *Identification and protection of Special Areas and Particularly Sensitive Sea Areas: Report of the Informal Technical Group*, 16 July 2003; and also from the subsequent discussions within the plenary session of the MEPC: MEPC 49/22, *Report of the Marine Environment Protection Committee on its forty-ninth session*, 8 August 2003, para. 8.20.

applicable to the PSSA in its entirety.¹⁴ Given the large number of discrete sensitive areas within the proposed area, several delegations argued that a more appropriate approach would have been to identify a number of smaller PSSAs within the area.¹⁵ What is at issue therefore, is not the size of the area *per se*,¹⁶ but rather whether it can be demonstrated that the boundary of the proposed PSSA accurately reflects the limits of the environmental vulnerability. The Great Barrier Reef is also a very large area to have designated as a PSSA. However, this PSSA may be justified on the basis that the Great Barrier Reef is a single biogeographic feature which is sensitive throughout. Ships clearly transit the entire length of the area, both inside and outside the reef, and the measures proposed for its protection apply throughout the PSSA area. The WE PSSA does not exhibit similar characteristics and it was never comprehensively demonstrated that the size of the area was commensurate with that necessary to address the identified

¹⁴ MEPC 49/WP.10, para. 3.3.1-3.3.5 (note 13 above).

¹⁵ The plenary session was observed by the author. As such, these observations represent the author's impressions gained during the discussions. See also MEPC 49/22, para. 8.21.1 (note 13 above).

¹⁶ In their analysis following the WE PSSA, DOALAS concluded that neither the PSSA Guidelines or Article 211(6) of the LOSC places a specific restriction on the size of such areas: LEG 87/WP.3, *Western European Particularly Sensitive Sea Area (PSSA) - Comments made by the Division for Ocean Affairs and the Law of the Sea of the United Nations (DOALOS) in connection with issues raised in document LEG 87/16/1*, submitted by DOALOS; Also reported in *Report of the Legal Committee on the work of its 87th session*, Leg 87/17, 23 October 2003, Annex 7. Frank, at p. 35, also argues that while the IMO guidelines do not impose any particular restriction on the size of the area, they implicitly recognise the possibility of designating large geographic areas as PSSAs since a PSSA may be identified within a Special Area, and *vice versa*. Since most Special Areas include regional seas it follows that a PSSA may also have a rather extended dimension. See V. Frank, "Consequences of the *Prestige* sinking for European and international law," *International Journal of Marine and Coastal Law* 20 (2005), p. 35. Alternatively, Chircop argues that there is nothing within the LOSC that suggests the inclusion of an entire EEZ under the definition of "a particularly, clearly defined area" pursuant to LOSC Article 211(6). Accordingly, Chircop argues:

a PSSA that would encompass an entire EEZ does not appear to be consistent with the delicate balance that UNCLOSIII negotiators attempted to reach and produced.

A. Chircop, "Particularly sensitive sea areas and international navigation rights: Trends, controversies and emerging issues," in Iwan Davies, (ed) *Issues in International Commercial Law* (Aldershot, UK: Ashgate Publishing, 2005), p. 227.

need, as required by the PSSA Guidelines. It is therefore not surprising that the designation of this area raised concerns.

7.2.2 Linkage Between Vulnerability and APMs

Designation of an area as a PSSA should require a demonstrable link between the threat posed by shipping activities and the legal measures to protect the area. This approach was clearly highlighted in the Florida Keys example and, despite the concerns raised over the proposed pilotage regime, also in the Torres Strait example. However, in some cases this link has been far from clear, notably the Western European and Baltic PSSA proposals. The issues surrounding both of these cases have been discussed in detail in Chapter 6 above and it is therefore considered unnecessary to discuss these further in the context of this chapter.

7.2.3 Appropriate APMS

The limits of what constitutes a legitimate APM are not clearly defined in the PSSA Guidelines.¹⁷ Conformity with the LOSC appears to be a prerequisite. The PSSA Guidelines require that the impact on navigation of a proposed APM be considered. In an analysis undertaken by DOALOS, it is accepted that an APM that would violate the principle of freedom of navigation is not acceptable.¹⁸ However, it is also considered that any measure accepted by the NAV Sub-committee as being in conformity with IMO requirements, is *de facto* in conformity with the LOSC “as LOSC defers to IMO

¹⁷ Roberts *et al*, p. 434 (note 11 above).

¹⁸ LEG 87/WP.3, (note 16 above).

on navigational rules, regulations and standards.”¹⁹ Notwithstanding this, the PSSA Guidelines set forth three clear legal bases for an APM²⁰ and it should be incumbent on the applicant(s) to demonstrate that any APMs meet one of these legal bases.

During the past 2-3 years, it has been difficult to ascertain from some PSSA applications submitted whether proposed APMs fulfil the requirements of the pertinent legal instrument establishing them.²¹ Moreover, it is clear from the discussions at the IMO over the past two years,²² that there exists a divergence of opinion on interpretation of the provisions of the LOSC, insofar as it relates to the legal basis for measures to protect a PSSA. Some observers argue that the IMO has legal competence to adopt APMs based on the general provisions of the LOSC and the authority conveyed upon the IMO by the LOSC.²³ They also argue that in addition to the LOSC, other sources of international law may provide a legal basis for the IMO to take specific action. Others argue that the IMO cannot adopt specific measures that affect ships’ operations based only on a general grant of authority under the LOSC, or other rules of international law.

¹⁹ LEG 87/WP.3, para 9 (note 16 above).

²⁰ PSSA Guidelines, para. 7.4.2.1 (note 1 above).

²¹ Lindy Johnson (NOAA), personal communication. A discussion on the legal basis of APMs took place as part of the recent review of resolution A.927(22) under the leadership of Ms Johnson.

²² This observation is based on the author’s own experience as a participant in the PSSA Technical Group since 2003 and from plenary discussions held during meetings of the MEPC. A recent review of the PSSA Guidelines, undertaken intercessionally by a Technical Group of the MEPC, which the author participated in, highlights even further the divergence of opinions.

²³ See for example the arguments put forward by 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*, submitted by WWF, 18 August 2004, paras. 13-17. This position has been supported by Australia during recent work to review the current PSSA Guidelines.

Brazil has previously argued that the CBD provides a legal basis for the establishment of APMs for the protection of PSSAs although there is no basis to such an argument, since the CBD cannot be used to regulate international shipping. Author’s observation through participation in the IMO Correspondence Group charged with a review of the PSSA Guidelines.

A flag state must have certainty with regard to the laws affecting its ships and thus the law must be clear and unambiguous.²⁴ As such, many consider that, while the LOSC provides the IMO with a general mandate to take certain action such as the adoption of rules and standards, there are only a few places where the language addresses the adoption of specific types of measures by the IMO or coastal States. The debate has therefore had the effect of focussing attention on the role and application of APMs and in particular the applications of measures that are already provided for in an existing IMO instrument, versus the development of new and innovative measures. However, as noted in Chapter 6 above, the IMO appears to have taken the position that any proposed measure must have a clear legal basis in an existing IMO instrument, or it must at least be demonstrated how such a legal basis is to be established.

7.2.4 IMO Process

The process whereby the IMO considers proposals for PSSA identification and designation has been outlined in Chapter 5 above. In doing so, it was noted that the process is in many regards *ad hoc* and has developed over time as specific issues have arisen with respect to individual PSSA proposals.²⁵ Recent experience with this process raises a number of concerns in particular, with the form of the reviewing Technical Group and also with regard to the assessment framework that the IMO uses to assess individual applications.

²⁴ Lindy Johnson, personal communication.

²⁵ See for example the developments that occurred following the Sabana-Camagüey, Florida Keys and Western Europe PSSA proposals.

7.2.4.1 Consideration of PSSA Proposals

Following consideration of the WE PSSA, the then chairman of the PSSA Technical Group reported to the MEPC that in his view, the review of such a complex and large area required a more holistic technical review and that in his view the review form was not appropriate for reviewing such an area (a copy of the review form is attached at Appendix F). Furthermore, he advised that more time should be given to future evaluations of complex proposals with a smaller and more targeted Technical Group.²⁶

The form of the assessment framework was identified in two submissions to MEPC 52. In their submission seeking a revision to the PSSA Guidelines,²⁷ the USA urged the committee to:

do away with the PSSA review form, observing that the form was being used as a mere checklist promoting a “yes” or “no” enquiry rather than a thoughtful discussion of the proposed area in relation to the [PSSA] criteria.²⁸

Similarly, the International Chamber of Shipping (ICS) proposed a comprehensive review of the form itself, noting that the existing form did not lead the Technical Group through the assessment process in a sufficiently stringent manner.²⁹ The re-designed form aimed to place the onus on the submitting State(s) to provide the information

²⁶ MEPC 49/22, para. 8.22 (note 13 above).

²⁷ 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*, submitted by the United States, 9 July 2004.

²⁸ *Ibid*, para. 4.

²⁹ See MEPC 52/8/3, *Proposed Amendments to Resolution A.927(22) on the Identification and Designation of Particularly Sensitive Sea Areas (PSSAs) - PSSA Proposal Review Form*, submitted by ICS and INTERTANKO, 6 August 2004, para. 3.

required by the PSSA Guidelines and to make it much more straightforward for the Technical Group to check compliance with the requirements.³⁰

Notwithstanding issues relating to the review form, in the case of the WE PSSA, the situation arose whereby the Technical Group failed to agree upon specific criteria set out in the review form. Despite this, the MEPC proceeded to designate the PSSA, even though not all of the criteria for its identification appear to have been fulfilled. To some extent this is a reflection on the Technical Group structure and process. As noted in Chapter 5, the Technical Group is open to all members and observers of the MEPC and it is often the case that the members of the group are unfamiliar with the area in question. Furthermore, as noted by ICS, the quality of PSSA submissions varies. In many cases the Technical Group has to extract the information from the proponent(s) in support of the PSSA proposal, when it should be the responsibility of the proposing States to ensure that all relevant information has been provided and is clearly identifiable. To address this, it has been suggested that the IMO should convene an expert panel for consideration of PSSA proposals.³¹ However, to date no progress has been made on such a suggestion, and there appear to be numerous hurdles that would prevent such an approach working.³²

³⁰ *Ibid.*

³¹ It has been suggested that GESAMP could be used in a technical review capacity for all PSSA proposals. In a submission to the Correspondence Group tasked with reviewing the PSSA Guidelines, WWF argued that the Technical Group was not the appropriate forum for the consideration of revised criteria for the PSSA Guidelines. They suggested using an *ad hoc* experts group with expertise in marine biodiversity conservation, including spatial planning and coastal area management and marine protected areas, such as exists within the CBD's SBSTTA. Kristina Gjerde (WWF) personal communication to the Correspondence Group.

³² The primary issue against such an approach is that, unlike many other UN bodies, the IMO is formed by its members and the Secretariat performs supporting functions to the members. As such, all IMO members are involved in decision making and the majority of the work is undertaken by the Committees

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7.2.4.2 Designation in Principle

Another contentious issue that has dominated the debate of the PSSA concept for several years is the procedural concept of ‘approval in principle’. It will be recalled from Chapter 5 that the IMO process allows States submitting an application for PSSA designation to submit their proposal without having any APMs proposed. On this basis the MEPC may approve the PSSA in principle,³³ allowing the proposing States up to two years to submit an application for at least one APM.³⁴ Therefore, it applies only to those cases where a PSSA application is submitted without any APM identified in the initial application. In practice, the MEPC has also used this approach in cases where an application has been submitted with a proposed APM, but consideration of the APM is pending before the appropriate sub-committee or committee. In such cases, the MEPC has considered and approved the PSSA in principle. There is, however a significant difference between these two scenarios. Paragraph 7.5 of the PSSA Guidelines requires that an application for designation should address all relevant considerations and criteria in the Guidelines. Furthermore, paragraph 7.3 of the PSSA Guidelines requires that an application must include the reasons why the proposed APMs are the preferred method for providing protection for the area to be identified as a PSSA. In the case where an

and Sub-committees rather than the Secretariat staff. As such the formation of a “standing Technical Group” could be problematic unless all members agree that such a group can represent its views. That said, such a group could make recommendations to the wider committee which all members could decide upon. A second issue against such an approach relates to the funding structure for the IMO. In the case of World Heritage Sites, UNESCO does have funding available specifically to advance the implementation of the World Heritage Convention. No such funding is currently available through the IMO for PSSAs and it is unlikely that such a fund would be established. The final issue relates to the establishment of a group of technical experts that could perform assessments intercessionally. Many IMO delegates are already under resourced and it is the experience of the author that member States are often reluctant to accept long term intercessional obligations.

³³ PSSA Guidelines, para. 8.3.2 (note 1 above).

³⁴ It is noted however, that in doing so the proposing States should submit the types of measure it is considering with the initial application.

APM has been identified or is being proposed, the MEPC can consider all the provisions of the Guidelines. In those cases where an APM has not been identified or proposed with the initial application, it is not possible to consider all the provisions of the PSSA Guidelines. It thus appears that there is an internal inconsistency in the PSSA Guidelines.³⁵

7.2.5 Strategic Framework

The final issue, which is apparent from observing and participating in the deliberations of various PSSA proposals, is the lack of any strategic framework for the ongoing development of the PSSA concept. It will be recalled from Chapter 4, that when the PSSA concept was first introduced at the 1978 TSPP Conference, the IMO was urged to make an inventory of sea areas sensitive to the impacts of shipping.³⁶ Despite significant progress in the development of the PSSA concept itself, no work to complete such an inventory has ever been undertaken and hence applicants are considered on a purely case-by-case basis without any context within which such applications may be developed. Furthermore there is currently no process by which PSSAs that have been designated can be reviewed through the IMO. PSSAs do not currently require any management plans, or any ongoing performance reporting back to the IMO. Concerns have been raised about the possible proliferation of PSSAs in the future, and the impact this might have on the status of PSSAs worldwide. To some extent such concerns reflect the concern by maritime States and the shipping industry that there appears to be no overall framework within which PSSAs can develop. As a result, PSSA submissions

³⁵ See the introductory comments of the coordinator of the intercessional Correspondence Group tasked with reviewing the PSSA Guidelines – MEPC 53/8/2, para. 5 (note 7 above).

³⁶ Refer to Section 4.3 above.

occur on an *ad hoc* basis, and as has been seen from recent examples, such submissions may not truly reflect global conservation priorities.

In comparison to other international conservation designations, and given the high importance that is attached to designation as a PSSA, such a lack of a strategic framework may be viewed as an indication that the PSSA concept is more about the process of identification and designation, than about the status of the designation itself. However, recent examples of State practice suggest that coastal States clearly do view PSSA designation as having iconic status in its own right.

7.3 REVISION OF THE PSSA GUIDELINES

The designation of the WE PSSA, in particular, has had a significant impact on the PSSA concept.³⁷ The recent developments on the designation of the WE PSSA show that there are some gaps relating to the protective measures, size of the area and restrictions on certain types of ships in the PSSA Guidelines.³⁸ In the wake of the WE PSSA decision, several member States, supported by the shipping industry, called for a revision of the PSSA Guidelines,³⁹ which they considered too broad and vague in their

³⁷ While the WE PSSA certainly acted as the catalyst for the discussions that have taken place over the past 2 years, the cumulative effect of a number of PSSA proposals, notably the Baltic Sea and Torres Strait, have also heightened concerns among maritime States and the shipping industry.

³⁸ N. Unlu, "Particularly sensitive sea areas: past, present and future," *World Maritime University Journal of Maritime Affairs* 3 (2004), p. 169.

³⁹ See MEPC 51/8/3, *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*, submitted by Liberia, Panama and the Russian Federation, 23 January 2004; and MEPC 51/8/4, (note 3 above). The need for a review of the Guidelines was also raised and discussed at the 23rd session of the IMO Assembly in December 2003, although the Assembly made no decisions on the issues presented. See for example report of the IMO Assembly, A.23/5(b)/2, *Consideration of the reports of the Committees of the Assembly: Report of the Technical Committee to the Plenary*, 4 December 2003, para. 63.

wording and open to different and excessively liberal interpretations.⁴⁰ Pending completion of such a revision, these member States sought a moratorium on the designation of further PSSAs.⁴¹ While the MEPC has resisted such calls,⁴² at its 51st session, the Committee did approve the possibility of reviewing the PSSA Guidelines, based on specific proposals to be submitted.⁴³ As a result three proposals were submitted to the 52nd session of the MEPC, respectively from the USA,⁴⁴ the Russian Federation⁴⁵ and the shipping industry.⁴⁶

In October 2004, the MEPC considered the three submissions and agreed to establish a Correspondence Group to undertake a review of the PSSA Guidelines, with the objective of clarifying and where appropriate, strengthen the existing Guidelines, using

⁴⁰ Frank, p. 37 (note 16 above).

⁴¹ See MEPC 51/8/3, para 10 (note 39 above); MEPC 51/22, *Report of the Marine Environment Protection Committee on its fifty-first session*, 22 April 2004, para 8.6.2.

⁴² A number of States objected to the establishment of a moratorium by the Committee on the basis that Resolution A.927(22) was adopted by the IMO Assembly and therefore only the Assembly could declare a moratorium on a resolution adopted by it. Furthermore, there was no precedence within the IMO of a moratorium on any of its instruments when being revised or amended. Some delegations also argued that a moratorium would discourage new proposals and all efforts by IMO and its member States to promote the PSSA concept when the PSSA mechanism is considered as the proper response to an identified problem. Accordingly, the Committee acknowledged that Resolution A.927(22) was under the purview of the Assembly and agreed not to recommend establishing a moratorium for the duration of the review of the PSSA Guidelines. See MEPC 51/22, paras. 8-14-8.15 (note 41 above).

⁴³ The Committee noted that the majority of delegations agreed, in principle, that the current PSSA Guidelines adopted by Resolution A.927(22) should be reviewed, provided that specific proposals with appropriate justification were submitted to a future session of the Committee. MEPC 51/22, para. 8.11 (note 42 above).

⁴⁴ MEPC 52/8, (note 27 above).

⁴⁵ 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))*, submitted by the Russian Federation, 6 August 2004.

⁴⁶ MEPC 52/8/2, *Proposed amendments to Resolution A.927(22) on the Identification and Designation of Particularly Sensitive Sea Areas (PSSA)*, submitted by the International Chamber of Shipping (ICS) and INTERTANKO, 6 August 2004.

the USA proposal as the basis for the revision.⁴⁷ The Correspondence Group reported to 53rd session of the MEPC in July 2005,⁴⁸ at which the Committee considered and approved the revised text of the PSSA Guidelines and the associated draft Resolution for submission to the IMO Assembly for adoption.⁴⁹ At its 24th session in December 2005, the IMO Assembly finally adopted the revised Guidelines (2005 Guidelines),⁵⁰ which address a number of substantive issues identified by the various submissions to MEPC 51.

It has been argued that the revisions in the 2005 Guidelines go far beyond a simple clarification of the previous Guidelines.⁵¹ Concerns have been raised that the 2005 Guidelines give a more stringent interpretation of the criteria for the designation of PSSAs and the adoption of APMs.⁵² The revisions also attracted some criticism as being inconsistent with the preventive approach of the PSSA concept.⁵³ Others argue that the revisions do not go far enough, and that the revision has not been successful in addressing the issue of large geographical areas and the method by which a PSSA

⁴⁷ See MEPC 52/24, *Report of the Marine Environment Protection Committee on its fifty-second session*, 18 October 2004, para. 8.23. The author represented New Zealand as a member of the Correspondence Group. The Correspondence Group consisted of over 20 participants who submitted comments; however, many more were monitoring the progress of the Correspondence Group through email. The Correspondence Group worked on the revised Guidelines between November 2004 and May 2005 and reviewed three iterations of the revised Guidelines in the process.

⁴⁸ See the report of the Correspondence Group, MEPC 53/8/2, (note 7 above).

⁴⁹ See MEPC 53/24, *Report of the Marine Environment Protection Committee on its fifty-third session*, 25 July 2005, para 8.33.1. The Committee, in light of the revised PSSA Guidelines, also agreed to review, at its next session, the Guidance document for submission of PSSA proposals to IMO (MEPC/Circ.398) and the format of the MEPC resolutions to designate PSSAs in the future.

⁵⁰ Adopted as Assembly Resolution A.982(24), *Revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas*. Adopted 1 December 2005.

⁵¹ Frank, p. 37 (note 16 above).

⁵² See MEPC 52/8/4, paras. 5-9 (note 23 above).

⁵³ *Ibid*, paras. 12 & 20.

should be identified and designated.⁵⁴ However, notwithstanding the various criticisms levelled at the revised Guidelines, they do address a number of substantive issues including those identified above. In particular the revision addressed the following four overarching issues:

- (1) Definition of a PSSA;
- (2) Linking the identified vulnerability with an APM;
- (3) The legal basis for APMs; and
- (4) Procedural issues including ‘designation in principle’.⁵⁵

7.3.1 PSSA Definition

The 2005 Guidelines have incorporated a slightly modified definition for a PSSA than was included in the previous sets of Guidelines.⁵⁶ A PSSA is now defined as:

⁵⁴ See the comments of the Russian Federation, supported by a number of delegations, who disagreed with the outcome of the revision of the PSSA Guidelines. Russia had argued *inter alia* that the 2005 Guidelines should only allow for the designation of wide geographic areas as PSSAs under exceptional circumstances, where it was demonstrated that designation as a PSSA was the only tool to provide adequate protection. They also argued for the deletion of the two-stage designation in principle approach, which has given rise to so many problems. See MEPC 52/8/1 (note 45 above). Since the two stage approach to PSSA designation remained in the 2005 Guidelines, along with a clause (paragraph 7.3) that allowed future APMs to be added at a later date, the Russian Federation would not agree to the revised PSSA Guidelines. See MEPC 53/24, para. 8.30 (note 49 above). The Russian Federation further objected to the revised Guidelines in a submission to the 24th session of the IMO Assembly, which reiterated their previous concerns and called upon the Assembly not to adopt the revised Guidelines. See IMO Assembly document A 24/11/1, *Draft resolution on the revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas*, submitted by the Russian Federation, 14 November 2005, paras. 11-12.

⁵⁵ While Resolution A.927(22) refers to ‘approval in principle’ this term has somehow been amended to ‘designate in principle’ in the Resolution (A.982(24)).

⁵⁶ Both the 1991 and 2001 Guidelines defined a PSSA as:

an area that needs special protection through action by IMO because of its significance for recognised ecological, socio-economic or scientific reasons and which may be vulnerable to damage by international shipping.

an area that needs special protection through action by the IMO because of its significance for recognised ecological, socio-economic, or scientific attributes where such attributes may be vulnerable to damage by international shipping activities.⁵⁷

The shift in focus from the area to the specific attributes of the area that need protecting, reflects a debate over whether the concern is protection of the identified attributes, which satisfy the criteria listed in section 4 of the PSSA Guidelines, or the area as a whole. Accordingly the change is reflected in a number of places throughout the 2005 Guidelines;⁵⁸ the reason for the amended text being that the spatial area itself is of no consequence without specific attributes that are vulnerable to the impact of shipping. Hence, it is argued that the focus should be on the vulnerability of the features and attributes, not the area in general, because it is the protection of these attributes that are the reason that the area is being proposed for designation.⁵⁹ It is not entirely clear what, if any, practical effect this change will have. The intention of the revised Guidelines remains the same as previously – that is to demonstrate that an area to be designated as a PSSA exhibits certain characteristics that define it as ‘particularly sensitive’ in accordance with the criteria set forth in section 4 of the 2005 Guidelines.

7.3.2 Linking the Identified Vulnerability with an APM

The 2005 Guidelines have been amended in a number of places in order to strengthen the requirement for member States to clearly demonstrate how the proposed APM(s)

⁵⁷ Resolution A.982(24), para. 1.2 (note 50 above)

⁵⁸ The issue of ‘attributes’ is addressed in paras 1.4(b), 1.5, 5.1, 5.2 and 8.1 of Resolution A.982(24).

⁵⁹ See the explanatory comments of the co-ordinator of the Correspondence Group, MEPC 53/8/2, para. 5.1 (note 7 above).

address the specific attributes that are vulnerable. The 2005 Guidelines therefore address the following:

7.3.2.1 Identifying the Attributes Reflected in the Criteria

After some debate within the Correspondence Group, the committee has clarified that at least one of the section 4 criteria must exist throughout the entire area of the proposed PSSA and that specific attributes must be present throughout the area that meet these criteria. The 2005 Guidelines now require proposing States to provide:

information and supporting documentation 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.⁶⁰

Thus, in contrast to the 1991 and 2001 Guidelines, the onus is clearly placed on the proposing State to provide sufficient documentary evidence to support their claims for PSSA designation.

7.3.2.2 Demonstrating the Identified Vulnerability to Damage

The 2005 Guidelines introduce new language in a number of places that reinforces the need to clearly demonstrate how the identified attributes are vulnerable to damage from international shipping activities. This linkage is crucial if the PSSA concept is going to retain credibility as a tool. However, concerns have been raised that by strengthening this requirement, the precautionary benefits of PSSA designation may somehow be diminished.⁶¹ It has been argued that, in some cases, it is hard to define a threat until

⁶⁰ Resolution A.982(24), para.4.4 (note 50 above).

⁶¹ See MEPC 52/8/4, paras. 10-12 (note 23 above).

after the damage has occurred. However, a number of factors can provide an indication of a threat without actually demonstrating that damage has occurred. A good example is provided by the submission by Australia and Papua New Guinea in support of the case for an extension of the Great Barrier Reef PSSA to include the waters of Torres Strait. They argued that the increasing number of ships, and the increasing carriage of harmful substances, coupled with the decline in the uptake of pilotage services, posed a significant threat to the waters of Torres Strait. These arguments were widely accepted by the MEPC although no specific incidents were cited.

7.3.2.3 Demonstrating the Measures Address the Identified Vulnerability

The most important area of change is in clarifying the linkage between the APMs and the identified vulnerability. The 2005 Guidelines make it explicit that the purpose of the APMs is to “prevent, reduce, or eliminate the identified vulnerability”.⁶² As with the section 4 criteria, the amendments place evidentiary requirements on proposing States to demonstrate that the proposed APM will actually address the threat of damage from international shipping. The most important element in demonstrating this is the requirement that, in submitting proposals for PSSA designation, proposing States must now append an application for each APM that it is seeking to have adopted, thereby allowing the MEPC to judge whether the APM provides the best solution for the protection of the area, while not placing unreasonable restrictions on shipping. Therefore, there is a clear need for the application to establish that the identified vulnerability will be addressed by the proposed APM. The 2005 Guidelines still provide

⁶² Resolution A.982(24), paras. 1.2, 3.2, 7.5.2.4 (note 50 above). Concerns were raised about the amended wording, on the basis that it was considered inappropriate to seek the ‘elimination’ of a threat, given that unforeseen events and malicious acts occur from time to time. See MEPC 52/8/4, para. 10 (note 23 above). However, the Committee did not accept this concern and agreed with the proposed amendment.

for the application of existing APMs where it can be demonstrated that an area is adequately protected by these measures.⁶³

The 2005 Guidelines also place an increased onus on the IMO itself to more rigorously assess each application and to ensure that the requirements of the Guidelines have been addressed in the application. As such the Guidelines now require that, in considering an application from a member Government, the IMO must 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 APMs exist or are proposed to prevent, reduce, or eliminate the identified vulnerability.⁶⁴

Furthermore, the 2005 Guidelines now require that in assessing each proposal, the IMO should in particular consider the following:⁶⁵

- (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

⁶³ This is also contrary to what the Russian Federation has sought, since they argued that an area should only be designated as a PSSA where it could be shown that the existing measures were not sufficient to protect the area. It therefore follows that the Russian Federation argument required a new APM to be adopted in every case, regardless of whether existing measures were in place to protect the area.

⁶⁴ Resolution A.982(24), para. 8.1 (note 50 above).

⁶⁵ *Ibid*, para. 8.2.

- (3) The linkage between the recognised 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.

7.3.3 The Legal Basis for Associated Protective Measures

During the review process it was clear that the participants of the Correspondence Group agreed that there must be a legal basis for APMs.⁶⁶ However, there was a difference in opinion as to how and where that basis could be provided. There was a general concern, however, that a protracted debate over individual APMs be avoided and that there be no freezing of APMs to those measures that now exist in IMO instruments.⁶⁷ In the discussions of the Correspondence Group, the opinions ranged from those advocating (1) that the general provisions of the LOSC and other rules of international law provide sufficient authority for IMO to adopt APMs, to those stating (2) that there must be specific language in the LOSC providing authority to adopt measures and that the general provisions of the LOSC cannot provide such authority, to those arguing (3) that an IMO instrument must exist to provide the legal authority.⁶⁸

The MEPC agreed that, of the options discussed, the language closely mirroring Resolution A.927(22) should be retained, which allows for APMs to be adopted under an existing IMO instrument – including resolutions adopted under the IMO Convention by the Assembly, the MEPC, or the MSC; APMs to be adopted after the amendment or

⁶⁶ Observation of the author as a member of the Correspondence Group. See MEPC 53/8/2, para. 14 (note 7 above).

⁶⁷ *Ibid.*

⁶⁸ MEPC 53/8/2, para. 10 (note 7 above).

development of a new IMO instrument, or APMs to be adopted based on specific language of the LOSC delegating such authority to IMO such as Articles 21 and 211. Accordingly, paragraph 7.5.2.3 of the 2005 Guidelines now reads:

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.

This position has consistently been challenged by environmental NGOs and some member States, who believe that such a restrictive view presupposes that the IMO has no legal competence to adopt measures based on the general provisions of the LOSC and the authority conveyed on the IMO by the general provisions of the LOSC (e.g., Articles 192, 194(3)(b), 194(5)), other rules of international law (e.g., the CBD), and customary international law.⁶⁹ In the view of these NGOs, such a presumption may intrude on the prerogative of the IMO to respond to environmental concerns and to take

⁶⁹ This position was held by environmental NGOs and supported by a number of States such as Australia, Brazil and Spain, during the deliberations of the Correspondence Group. Brazil, in particular, argued that the CBD provided a legal basis for the adoption of APMs. This is an interesting argument and appears completely unfounded, since no provisions within the CBD can provide a coastal State with authority to regulate shipping.

specific action to protect the marine environment from threats of damage by international shipping.⁷⁰ However, in making this decision the Committee appears to have rejected this argument in favour of a more restrictive interpretation, thereby establishing an unambiguous criteria for the legal basis of APMs and thereby seeking to prevent further protracted arguments over whether individual APMs have a legal basis or not. The amendment makes it clear that, for an APM to be approved, there must be an existing IMO instrument to give legal effect to the APM. In the future it will be incumbent upon the applicant to clearly demonstrate that a legal basis exists or, in the event that a legal basis does not exist, what steps they intend to take to establish one for a specific APM. As such, in future it should not be left to the various Committees to debate whether or not a legal basis exists.

It does not however, prevent the IMO from developing further instruments in the future on the basis of consensus agreement by its members.⁷¹ However, whether the amendment will prevent future debates over the legality of specific APMs (such as compulsory pilotage in straits used for international shipping) remains to be seen, since the IMO does not generally interpret the LOSC, as this is a matter for individual States.

⁷⁰ Comments by WWF to the Correspondence Group. Kristina Gjerde, personal communication.

⁷¹ See for example the arguments put forward by the USA to have no anchoring areas included as a recognised ships' routing measure pursuant to SOLAS and the GPSR, NAV 46/3/2, *Proposed amendments to the General Provisions on Ships' Routing to provide for a no anchoring area routing measure*, submitted by the United States, 5 April 2000. This then allowed the USA to establish such areas for the protection of the Flower Gardens Banks (See NAV 46/3/3, *No anchoring areas for Flower Garden Banks in the Northwestern Gulf of Mexico*, submitted by the United States, 5 April 2000) and subsequently for the Florida Keys PSSA. The critical thing was that the USA established a legal basis for the measure before it proposed its application.

7.3.4 Procedural Issues

The original USA proposal to amend the PSSA Guidelines proposed deleting the concept of ‘designation in principle’ in its entirety. As such, the USA proposed that all applications should include a draft of the proposal which is intended to be submitted to the appropriate sub-committee or committee for approval.⁷² During the deliberations of the Correspondence Group, the issue of designation in principle was vigorously debated since there were two divergent views among members of the group.⁷³ Having considered the matter, the MEPC agreed that all PSSA applications should identify proposals for at least one APM and that an actual proposal for an APM must be appended to a PSSA proposal. As such the term ‘designation in principle’ is now only to be used by the Committee after it reviews a proposal and is awaiting approval or adoption of the APM by the appropriate body.⁷⁴

7.3.5 Effect of the Revisions

Given the issues identified earlier in this chapter, the revisions to the PSSA Guidelines discussed above, go some way to addressing a number of problems that have been apparent with the PSSA concept. Clearly the revised Guidelines place a greater onus on

⁷² MEPC 52/8, para. 7.4.2.2 (note 27 above).

⁷³ Those who supported the deletion of the concept from the PSSA Guidelines argued that, given the importance of linking the identified vulnerability to the most appropriate measure to address that vulnerability, it is critical that PSSA applications include proposed or existing APMs. If no measures are proposed, then it is impossible to determine whether the vulnerability is addressed. Moreover, it leaves an identified environmental problem unaddressed for a further two years. Furthermore, it is not possible for the Committee to consider important provisions in the Guidelines without the submission of an APM. Those who supported the retention of the concept argued *inter alia* that the process of submitting a PSSA proposal is an important awareness-raising tool at the MEPC and this in and of itself has intrinsic value. Furthermore, it was recognised that some Governments may need assistance in determining the appropriate APM: the very process of developing and presenting a PSSA proposal helps to clarify the efficacy and acceptability of any APM and may therefore provide such assistance. Lindy Johnson (NOAA) personal communication.

⁷⁴ See MEPC 53/24, para. 8.25.1.

member States to demonstrate how a proposed area satisfies the criteria for PSSA designation. Furthermore, clarification of the ‘designation in principle’ process and the legal basis for APMs should result in greater certainty to both proposing States and the reviewing Technical Group with respect to what is acceptable. Ultimately the effectiveness of the 2005 Guidelines will only be fully apparent if the IMO applies a more rigorous and consistent approach in assessing future applications than it has in the past. The 2005 Guidelines do place a greater onus on the MEPC to do this. However, while strictly adhering to the intent of the Guidelines will certainly address many of the concerns raised previously, a number of outstanding issues have yet to be resolved.

7.4 UNRESOLVED ISSUES

While the 2005 Guidelines do address several substantive issues that have been raised with respect to the PSSA concept, there remain a number of outstanding issues that require further action to ensure the integrity of the PSSA concept is maintained. In particular, the issue of wide geographic areas and the PSSA approval process are issues that still require attention.

7.4.1 Application of the PSSA Concept to Wide Geographic Areas

It will be recalled that, as a result of the WE PSSA proposal, one of the important issues that was raised by some member States related to restrictions on the application of the PSSA Guidelines to wide geographic areas. The issue of size was discussed in Section 7.2.1 above and it was concluded that the actual size of the area was not an issue *per se*, provided it could be demonstrated that the size was warranted on the basis of environmental vulnerability. While the 2005 Guidelines do strengthen the requirement for sufficient information to justify the designation of a specific area as a PSSA, they do

not specifically address the issue of wide geographic areas, as requested by some member States.

One way to address the issue of large geographic areas and defining the limits of the environmental vulnerability, may be to apply the concept of the buffer zone in a comprehensive manner. The PSSA Guidelines provide for the identification of a buffer zone around a core zone, but within the boundaries of the PSSA.⁷⁵ However, in its present form, the concept of the buffer zone in the context of a PSSA is problematic. The shipping industry has long held this view. In a submission to MEPC 52, ICS noted that a clear and concise illustration of the proposed area identified as being particularly sensitive has been lacking in many applications for PSSA designation. As such, ICS proposed that the buffer zone should therefore be fully utilised as an integral part of the PSSA proposal and its APMs and that the two constituent parts of the PSSA should be a mandatory requirement. The buffer zone issue was widely discussed by the Correspondence Group tasked with the review of the PSSA Guidelines. However, despite having the opportunity to address this issue, neither the Correspondence Group nor the MEPC made any changes to the buffer zone concept.

7.4.1.1 Application of the Buffer Zone Concept

As noted in Section 2.4.3.2, the buffer zone concept became widely used with the Man and the Biosphere programme in the 1970s. The early Biosphere Reserves were selected mainly for their role in conservation. During the earlier years, Biosphere Reserves had similar objectives to those of national parks and other protected areas

⁷⁵ 2005 Guidelines, Resolution A.982(24) para. 6.3 (note 50 above).

designated mainly for the purpose of protecting biodiversity. Many of these reserves were created in areas where national parks already existed, or the national park was used as the core area of the Biosphere Reserve.⁷⁶ A Biosphere Reserve must constitute a core area, a buffer zone and a transition area.⁷⁷ The PSSA concept provides that, in some circumstances a proposed PSSA may include a buffer zone within its boundaries.⁷⁸ This buffer zone would be an area contiguous to the site-specific feature (core area) for which specific protection from shipping is sought. In the context of a Biosphere Reserve, only the core area requires legal protection.⁷⁹ The core area needs to be legally established and give long term protection to the specific values or features it contains. As nature is rarely uniform, there may be several core areas within a single Biosphere Reserve to ensure a representative coverage of the ecological systems.⁸⁰ A buffer zone, which is clearly delineated, surrounds or is continuous to the core area. Activities are organised in the buffer zone so that they do not hinder the conservation objectives of the core area but rather help to protect it, hence the idea of buffering.⁸¹ Some observers argue that the real objective of buffer zones is to protect the core area from outside disturbance.⁸²

⁷⁶ D. Martino, "Buffer zones around protected areas: A brief literature review," *Electronic Green Journal* 15 (2001), p. 2.

⁷⁷ P. Bridgewater, "Biosphere Reserve - a network for conservation and sustainability," *Parks* 12 (2003), p. 16

⁷⁸ Resolution A.982(24) para. 6.3 (note 50 above).

⁷⁹ *Ibid.*

⁸⁰ UNESCO, *Biospheres in a Nutshell*, p. 6. Available at <http://www.unesco.org/mab/nutshell.htm#BR?>

⁸¹ *Ibid.*, p. 7.

⁸² C. Schafer, "US national park buffer zones: Historical, scientific, social and legal aspects," *Environmental Management* 23 (1999), p. 49.

In the context of the PSSA concept however, the buffer zone seems misplaced. As noted above, the 2005 Guidelines require that at least one of the criteria must be present throughout the entire area for an area to be identified as a PSSA. If it is assumed that the current intent of the Guidelines is correct and that the buffer zone must be within the boundaries of the PSSA, then it follows that the buffer zone must also include at least one of the PSSA criteria throughout its extent. As such the difference between the core zone and the buffer zone is questionable. The inclusion of the buffer zone around the core zone suggests that the buffer zone values are less vulnerable than the core zone values. If this is the case, and given the discussion presented in Section 7.3.2.1 above, it is questionable whether they have a place in the PSSA. If this is not the case, then the values should be included in the core zone itself.

This would suggest that the buffer zone should not be inside the boundaries of the PSSA but instead should be contiguous to it. Alternatively, there is a need to relax the requirement to have a section 4 criterion present throughout the entire area of the PSSA, to allow for the buffer zone to be included within the PSSA boundaries. In fact, it would be possible to have several core areas within a single buffer zone, as is the case with Biosphere Reserves. Given the suggestion raised by several States for the identification of several smaller PSSAs within both the WE PSSA and Baltic Sea, this in fact would more accurately reflect the situation that existed in both of these areas. This is precisely the scenario envisaged for MPAs by Kelleher, who argues that:

The ideal arrangement is for a highly protected core area surrounded by a buffer zone. This can be achieved either as a large zoned MPA, or as a set of small MPAs with

complementary regulations controlling use of the surrounding areas.⁸³

It is therefore argued that additional work is required to be undertaken by the MEPC to develop the buffer zone further, in the context of the PSSA concept.

7.4.2 IMO Process

As noted elsewhere in this thesis, one of the main concerns that persists with regard to the designation of PSSAs is the manner in which the IMO assesses and designates PSSAs. The process to date has been somewhat *ad hoc*, subject to political interference from proposing States and lacking a robust technical evaluation due to the highly variable nature of the Technical Group tasked with the assessing each proposal. Several proposals have been considered for an amendment to the internal review process. However, while the revision of the PSSA Guidelines sought to place a greater onus on the MEPC to discharge its functions while reviewing PSSA proposals, to date no specific changes have been made that will actually ensure the review process is more robust and defensible. It is considered that the revisions contained in the 2005 Guidelines are insufficient to address this concern and therefore more fundamental institutional changes are required if the PSSA concept is going to be perceived as having value in the future. In considering what form these changes might take, it is useful to consider the nomination and approval processes adopted for other international biodiversity conservation instruments, notably the designation of World Heritage Sites and Biosphere Reserves.

⁸³ G. Kelleher, (ed). *Guidelines for Marine Protected Areas*, World Commission on Protected Areas Best Practice Protected Area Guidelines Series, No. 3 (Gland, Switzerland / Cambridge, UK: IUCN, 1999), p. 38.

7.4.2.1 World Heritage Sites

7.4.2.1.1 Nomination and Inscription process

Part of the World Heritage apparatus is the nomination and inscription process.⁸⁴ The process of inscription of properties on the World Heritage List is a comprehensive and lengthy one.⁸⁵ The purpose of the process is to ensure that only those sites that clearly meet the criteria for World Heritage Site designation are considered for inclusion on the list. As such, the process involves a number of procedural stages and the involvement of a number of different international organisations.

The standard procedure is that the State Parties to the Convention select properties within their territories and make tentative lists of sites intended for nomination.⁸⁶ The tentative list represents an ‘inventory’ of a State’s important natural and cultural heritage sites and provides a forecast of the properties that a State Party may decide to submit for inscription in the next five to ten years and which may be updated at any time.⁸⁷ By preparing a Tentative List and selecting sites from it, a State Party can plan when to present a nomination file. Each nomination should contain documentation on the legal protection and management plans, and be supported by other material such as photographs, slides, maps and literature to justify the values and to facilitate the

⁸⁴ J. Turtinen, *Globalising Heritage – On UNESCO and the Transnational Construction of a World Heritage*, SCORE Reportserie 2000:12 (Stockholm: Stockholm Centre for Organizational Research, 2000), p. 12.

⁸⁵ For a full overview of the process of inscription refer to the UNESCO Operational Guidelines: UNESCO World Heritage Centre, *Operational Guidelines for the Implementation of the World Heritage Convention*, 05/02 (Paris, World Heritage Centre, 2005), paras. 120-168.

⁸⁶ Turtinen, p. 12 (note 84 above).

⁸⁷ It should be noted that the World Heritage Committee cannot consider a nomination for inscription on the World Heritage List unless the property has already been included on the State Party’s Tentative List.

assessment.⁸⁸ The nomination is submitted to the World Heritage Centre for review and to check it is complete. Once a nomination file is complete, the World Heritage Centre sends it to the appropriate Advisory Bodies for evaluation.⁸⁹ According to Phillips, the Operational Guidelines call on the Advisory Bodies to be “as strict as possible in their evaluations”.⁹⁰ IUCN is also specifically required to compare natural sites “with other sites of the same type, both inside and outside the State Party’s borders, within a biogeographic province or migratory pattern”.⁹¹ The approach to such evaluations is therefore rigorous, with the aim of selecting only those sites which have undisputed World Heritage values. In its evaluation, IUCN addresses questions both of criteria and of integrity. In making its recommendations, IUCN is informed by previous advice and past decisions of the World Heritage Committee to ensure consistency as far as possible. Very often IUCN makes recommendations for rejection.⁹² Many more are recommended to be referred back to the State Party for more information, for boundary

⁸⁸ Turtinen, p. 12 (note 84 above).

⁸⁹ See <http://whc.unesco.org/en/nominationprocess/> (5 October 2005). A nominated property is independently evaluated by two Advisory Bodies mandated by the World Heritage Convention: the International Council on Monuments and Sites and the IUCN, which respectively provide the World Heritage Committee with evaluations of the cultural and natural sites nominated. The third Advisory Body is the International Centre for the Study of the Preservation and Restoration of Cultural Property, an intergovernmental organisation which provides the Committee with expert advice on conservation of cultural sites, as well as on training activities.

⁹⁰ A. Phillips, “The world heritage convention and its application to marine and coastal sites.” Introductory paper to the *Workshop on World Heritage Biodiversity: Filling Critical Gaps and Promoting Multi-Site Approaches to New Nominations of Tropical Coastal, Marine and Small Island Ecosystems* (Manila, Philippines, 17-21 September 2001), p. 5. Available at http://international.nos.noaa.gov/heritage/docs/wrkspdoc/Attach4_Background.doc.

⁹¹ UNESCO, para. 60 (note 85 above).

⁹² Phillips, p. 5 (note 90 above).

adjustment or for action to assure the integrity of the site (for example, the preparation of a management plan).⁹³

Once a site has been nominated and evaluated, it is up to the intergovernmental World Heritage Committee to make the final decision on its inscription. Once a year, the Committee meets to decide which sites will be inscribed on the World Heritage List. It can also defer its decision and request further information on sites from the State Parties. As Turtinen argues:

The clearly organised procedures and defined actors and roles are aimed not only at facilitating, but also legitimising the process of identification.⁹⁴

7.4.2.1.2 Periodic Reporting on the Implementation of the World Heritage Convention

An additional feature of the World Heritage List is that State Parties who have sites inscribed on the list are also required to prepare an appropriate management plan which should specify how the specific values of the site are to be preserved.⁹⁵ Thus the purpose of the management plan is to ensure the effective and ongoing protection of the site. The type of management plan will depend on the type and needs of the site.⁹⁶ Moreover, State Parties are also requested to submit periodic reports to the UNESCO General Conference through the World Heritage Committee, reviewing the actions they

⁹³ *Ibid.*

⁹⁴ Turtinen, p. 13 (note 84 above).

⁹⁵ UNESCO, para. 108 (note 85 above).

⁹⁶ UNESCO, para. 110 (note 85 above).

have taken for the application of the convention and providing assessment of the state of conservation of sites located in their territories.⁹⁷

7.4.2.2 Biosphere Reserves

7.4.2.2.1 Designation Procedure

According to the Statutory Framework of the World Network of Biosphere Reserves,⁹⁸ Biosphere Reserves are designated for inclusion in the Network by the International Coordinating Council (ICC) of the MAB programme in accordance with the following procedure:

- (a) States, through National MAB Committees where appropriate, forward nominations with supporting documentation to the Secretariat after having reviewed potential sites, taking into account the criteria as defined in Article 4 of the Strategy;
- (b) the Secretariat verifies the content and supporting documentation: in the case of incomplete nomination, the Secretariat requests the missing information from the nominating State;

⁹⁷ UNESCO, para. 199 (note 85 above). According to the *Operational Guidelines*, periodic reporting serves four main purposes: (i) to provide an assessment of the application of the World Heritage Convention by State Parties; (ii) to provide an assessment as to whether the outstanding universal value of the properties inscribed on the World Heritage List is being maintained over time; (iii) to provide up-to-date information about the World Heritage properties to record the changing circumstances and state of conservation of the properties; and (iv) to provide a mechanism for regional cooperation and exchange of information and experiences between State Parties concerning the implementation of the Convention and World Heritage conservation. As such, according the guidelines, periodic reporting is important for more effective long term conservation of the properties inscribed, as well as to strengthen the credibility of the implementation of the Convention.

⁹⁸ Statutory Framework of the World Network of Biosphere Reserves. Available at <http://www.unesco.org/mab/docs/statframe.htm>. While not a Statutory Instrument *per se*, the Statutory Framework includes 10 Articles, which address designation, support and promotion of biosphere reserves.

- (c) nominations will be considered by the Advisory Committee for Biosphere Reserves for recommendation to ICC;
- (d) ICC of the MAB programme takes a decision on nominations for designation. The Director-General of UNESCO notifies the State concerned of the decision of ICC.

7.4.2.2.2 Reporting and Review Requirements

Biosphere Reserves are also subject to periodic reviews, which take place every ten years after establishment.⁹⁹ The periodic review is designed to help countries that nominated the Biosphere Reserve to ensure they are still in conformity with the aims and objectives of the programme.¹⁰⁰ As a result of this periodic review, there is a growing number of examples of countries seeking to delist reserves that do not conform to the objectives, or to change their boundaries in order to improve their conformity.¹⁰¹

7.4.2.3 Application to the PSSA Concept

Given the concerns raised with regard to the nomination and approval process for PSSAs, it can be argued that the PSSA concept lacks the legitimacy that both the World Heritage Sites and Biosphere Reserve clearly have, largely as a result of the strict procedure for their designation. Arguably it is this lack of legitimacy that has given rise to many of the concerns discussed above. Notwithstanding the differences in approach and purpose between World Heritage Sites, Biosphere Reserves and the PSSA concept, the examination of procedural approaches above demonstrates similarities in approach

⁹⁹ See Article 9 of the Statutory Framework. *Statutory Framework of the World Network of Biosphere Reserves* (UNESCO 1995) (available at <http://www.unesco.org/mab/docs/statframe.htm>). 20 January 2006.

¹⁰⁰ Bridgewater, p.17 (note 77 above).

¹⁰¹ *Ibid*, p. 20.

that could be applied to the PSSA concept. In particular, it is clear that both the World Heritage and Biosphere Reserve programmes have institutionalised procedures for the identification and designation of sites, which follow strict guidelines and require adequate supporting information to be provided to enable an independent review by experts, to evaluate and determine each proposal. In both cases, the procedures integrate the Secretariat for each programme into the review process.

This contrasts significantly with the IMO process which relies on voluntary participation in an *ad hoc* Technical Group, which in many cases is not provided sufficient information upon which to base a detailed assessment. A fundamental difference is the manner in which the proposal is assessed. For both World Heritage Sites and Biosphere Reserves, the assessment is undertaken independently, without the participation of the proposing State. In the event that additional information is required to assist the deliberating body, this information can be requested. As has been noted elsewhere in this thesis, experience with the PSSA process has, in some cases, shown that the participation of the proposing State in the Technical Group tasked with reviewing the proposal may exert political influence to ensure the desirable outcome is achieved.

Furthermore, the credibility of World Heritage status also stems from countries' regular reporting on the condition of the sites, on measures taken to preserve them, and on their efforts to raise public awareness.¹⁰² Presently there are no requirements for any form of management plan, or periodic reporting on the status and effectiveness of PSSAs. A key

¹⁰² E. Green, *A Global Overview of Tropical Marine, Coastal and Small Island Ecosystems and the World Heritage List*, (Cambridge, UK: UNEP-WCMC, 2001), p. 2.

element in the implementation of any new routeing system is the manner in which the shipping industry is informed and educated about that system. This was clearly highlighted in the report of the Donaldson Inquiry¹⁰³ and was a key outcome of the New Zealand experience in implementing the mandatory area to be avoided (discussed in Section 5.3.4 above). Given the doubts that have been raised over the intrinsic benefits of simply marking a PSSA or a specific routeing measure on a chart, it is considered that a critical element of any PSSA proposal must be information on how the proposing State(s) intend to implement the PSSA and its measures, inform and educate maritime users in the area, and monitor the effectiveness of these measures in addressing the identified vulnerability of the area. As the application of tracking technologies such as AIS,¹⁰⁴ and Long Range Identification and Tracking (LRIT)¹⁰⁵ become more widely used in the management of shipping, the ability of a coastal State to monitor the effectiveness of specific measures will undoubtedly increase. AIS, in particular, has great potential in the field of marine environmental protection, since it allows for real time tracking and monitoring of vessel movements. As such, there may be a case for making such identification and tracking systems a mandatory requirement for any coastal State wishing to establish a PSSA, in the same way as the provision of reception

¹⁰³ Note 4 above.

¹⁰⁴ Refer to Section 5.3.5 above.

¹⁰⁵ The MSC is currently developing draft amendments to SOLAS to include a new regulation on long-range identification and tracking of ships (LRIT). The purpose of the proposed draft regulation is to establish a mechanism for the collection from ships of LRIT information for security, search and rescue and any other purpose as determined by the Organization and also a scheme for the provision of LRIT information to Contracting Governments. The ships which are required to comply with SOLAS chapter XI-2 and the ISPS Code would be required to transmit LRIT information. Although the focus is currently on safety and security, it has also been suggested that LRIT should be extended to environmental protection applications. See for example MEPC 53/11/4, *Outcome of MSC 79*, submitted by Norway, 27 May 2005.

facilities is a mandatory requirement for the entry into force of Special Areas under MARPOL 73/78.

Five key elements for improvement can therefore be identified as applicable to the PSSA concept.

- (1) Greater emphasis on the quality of nominations for PSSA designation, focussing on the provision of sufficient information to demonstrate the three key tests for PSSA designation;
- (2) Screening process by the IMO Secretariat to ensure that all of the requirements of the PSSA Guidelines have been met before consideration by the MEPC;
- (3) Establishment of a more permanent and representative technical review group of the MEPC or a “PSSA Advisory Group”;
- (4) An independent review of each application without political interference by the proposing State(s). Proposing States should be required to present their nomination and should be prepared to provide additional information as required, but should not participate in the decision making process unless there is a specific need; and
- (5) Some form of ongoing management plan and timely reporting system back to MEPC in order to assess the effectiveness of each PSSA.

7.4.3 Strategic Approach

Given the lack of strategic direction for future PSSA developments, identified in Section 7.2.5 above, it has been suggested that the use of a strategic approach could

complement existing efforts to identify PSSAs, by assisting with the identification of such sensitive and vulnerable areas.¹⁰⁶ Therefore, an important future development that should be undertaken is to establish a ‘Strategic Framework’ within which future PSSAs can be developed. In considering how the IMO may apply a more strategic approach to the future development of the PSSA concept, Chapter 8 gives specific consideration to this issue.

7.5 CONCLUSIONS

While the requirements for PSSA proposals appear to be clearly set forth in the PSSA Guidelines, the interpretation and application of these requirements, as demonstrated by both State and IMO practice has, in some cases, been inconsistent. The apparent lack of rigour demonstrated in the preparation and consideration of recent proposals has resulted in unforeseen political manoeuvring by some States and industry bodies, to constrain and redirect the PSSA concept. As a result, questions have been raised over the value of the PSSA concept and its future value as a tool to protect marine biodiversity from the impacts of shipping. In this regard, a number of issues with the PSSA concept are clearly identifiable.

Recognising the concerns raised by many member States and observers, the IMO initiated a review of the PSSA Guidelines in an attempt to address many of the concerns raised. The revised Guidelines, approved by the IMO Assembly in 2005, do address several substantive issues that have been raised with respect to the PSSA concept, notably a strengthening of the requirement to demonstrate that the threat of

¹⁰⁶ MEPC 53/INF.10, *Strategic Environmental Assessment: A tool to guide identification of PSSAs?*, submitted by WWF, 13 May 2005.

environmental damage arising from international shipping is addressed by the adoption of specific APMS related to each PSSA. However, while a number of issues have been addressed, there remain a number of outstanding issues that require further action to ensure the integrity of the PSSA concept is maintained. Comparison with other international biodiversity protection instruments suggests that the PSSA concept lacks a degree of legitimacy due mainly to the lack of a rigorous and structured process for the evaluation and designation of PSSAs. The current process by which IMO reviews such proposals is *ad hoc* and has been applied in an inconsistent manner.

In order to ensure the future integrity of the PSSA concept, it is recommended that the IMO revises the process by which it considers and designates PSSAs submitted to it. Additionally, it is recommended that future PSSA proposals include implementation and management plans to allow for the ongoing monitoring and reporting for each PSSA. Finally, it is recommended that the IMO adopt a more strategic framework for the future development of the PSSA concept, within which framework candidate sites for PSSA designation can clearly be identified and agreed upon by all parties concerned.

CHAPTER 8

DEVELOPMENT OF A STRATEGIC FRAMEWORK FOR THE PSSA CONCEPT

8.1 INTRODUCTION

As the use of MPAs has become more sophisticated, managers have begun to realise that systematic approaches to MPA site selection are crucial to deriving maximum benefits. When MPAs are designed systematically, they confer all the benefits of MPA designation, as well as serving to demonstrate the benefits of integrating management priorities with multiple stakeholders' needs. Systematic approaches to designing and implementing MPAs on national or even regional scales also foster the formation of networks that allow large-scale tracking of environmental conditions and conservation of whole ecosystems or even regions.¹ Selection of sites according to some well laid plan that includes clearly understood goals and objectives, and a list of focused, practical criteria to guide site selection is preferable to selection by *ad hoc* means, such as by opportunity or crisis.²

The rationale for choosing an area is often more political than scientific, and a lack of time, funds and data are typical of the process. A repeatable rigorous approach that can be applied systematically to any number of MPAs in a network is needed to define optimal sites and optimal zoning within those sites.³

¹ F. Villa, L. Tunesi and T. Agardy, "Zoning marine protected areas through spatial multiple-criteria analysis: The case of the Asinara Islands National Marine Reserve of Italy," *Conservation Biology* 16 (2002), p. 516.

² R.V. Salm, J. Clark and E. Siirila, *Marine and Coastal Protected Areas: A Guide for Planners and Managers* (Washington DC: IUCN, 2000), p. 82.

³ Villa *et al*, p. 516 (note 1 above).

Given the lack of strategic direction for future PSSA developments, identified in Chapter 7, an important future development that should be undertaken is the establishment of a ‘Strategic Framework’ within which future PSSAs can be developed. This chapter therefore proposes a model strategic approach for the future development of the PSSA concept. In doing so, it reviews the approach taken for the development of the World Heritage List and, in particular, the development and implementation of a global strategy and its relevance in the context of marine biodiversity.

8.2 A STRATEGIC APPROACH FOR THE IDENTIFICATION OF SITES FOR PSSA DESIGNATION

It has been suggested that the use of a strategic approach could complement existing efforts to identify PSSAs, by assisting with the identification of such sensitive and vulnerable areas.⁴ The benefits of a strategic framework have been clearly seen in the case of World Heritage Sites, whereby States develop a tentative list of potential candidate sites, which are assessed for conformity with the relevant criteria. Inclusion in the tentative list places no obligation on the State to submit a formal designation, but it does make it clear to other States, what heritage properties each member State values. The World Heritage Committee launched the ‘Global Strategy for a Balanced, Representative and Credible World Heritage List’ (Global Strategy) in 1994. Its aim is to ensure that the List reflects the world’s cultural and natural diversity of outstanding universal value. New categories for World Heritage sites have also been promoted, such

⁴ MEPC 53/INF.10, *Strategic Environmental Assessment: A tool to guide identification of PSSAs?*, submitted by WWF, 13 May 2005.

as the categories of cultural landscapes, itineraries, industrial heritage, deserts, coastal-marine and small island sites.⁵

Of particular significance, in the context of marine biodiversity conservation, are the thematic studies that have been undertaken in various regions around the world aimed at implementing the Global Strategy. These well focused studies have become important guides for the implementation of the World Heritage Convention in these regions and in particular for increasing the number of marine sites represented on the World Heritage List. The significance of these thematic studies is that they have taken a strategic approach to identifying candidate sites around the world that may benefit from inclusion on the World Heritage List.

In considering how the IMO may apply a more strategic approach, two separate but related concepts are worthy of further consideration: Strategic Environmental Assessment (SEA); and marine spatial planning (MSP).

8.2.1 Strategic Environmental Assessment (SEA)

WWF has suggested that SEA could be used as a tool to identify ‘gaps’ in the existing, but incomplete, network of PSSAs.⁶ SEA is recognised as an important tool for integrating the environment into decision-making,⁷ and is among the tools available to

⁵ See <http://whc.unesco.org/en/globalstrategy/>, October 2005.

⁶ MEPC 53/INF.10, para. 18 (note 4 above).

⁷ W.R. Sheate, S. Dagg, J. Richardson, R. Aschemann, J. Palerm and U. Steen, “Integrating the environment into strategic decision-making: Conceptualizing policy SEA,” *European Environment* 13 (2003), p. 3.

achieve ecosystem management.⁸ As such, it is suggested that SEA offers a promising approach to help achieve the goal of sustainable development.⁹ The term SEA represents a conventional way of identifying the formalised process of assessing, at the earliest possible stage, the environmental impacts of decisions made at policy, planning, and programme levels. While there appear to be a number of definitions of SEA in the literature, the most widely accepted is:

A systematic process for evaluating the environmental consequences of proposed policy, programme or plan initiatives and their alternatives in order to ensure they are fully included and appropriately addressed at the earliest suitable stage of the decision-making process.¹⁰

SEA involves a holistic approach that considers the projected environmental impacts over time of multiple actions within a region or ecosystem.¹¹ Thus, it is argued, SEA can help in increasing integration of environmental issues in the development of policies, planning, and program decisions.¹² SEA can be used on a regional basis, especially prior to opening of new areas to activities,¹³ but also for areas where activities

⁸ See for example H. von Seht, "Requirements of a comprehensive strategic environmental assessment system," *Landscape and Urban Planning* 45 (1999), pp. 1-14.

⁹ M.R. Partidário, "Strategic environmental assessment: Key issues emerging from recent practice," *Environmental Impact Assessment Review* 16 (1996), p. 32.

¹⁰ See von Seht, p. 1 (note 8 above).

¹¹ For example, SEA has been proposed as one of the potential tools for assessing the impacts of Antarctic tourism and cumulative impacts and of sub-glacial lake research. Common elements are identifiable between an SEA process and the process in place for the establishment of Antarctic Specially Managed Areas established pursuant to Article 4 of Annex V to the 1959 Antarctic Treaty SMA at Deception Island. This is an objective-led process applied to a particular area, in which the objective is to avoid conflict of interests between the natural environment and human activities, and between different types of human activities, beyond the present level of activity on the island. See ASOC Information Paper ATCM XXIV *Antarctic Strategic Environmental Assessment: Application to the Growing Antarctic Tourism Industry*, submitted by The Antarctic and Southern Ocean Coalition (ASOC), September 2000.

¹² See Sheate *et al.*, p. 2 (note 7 above).

¹³ In NE Atlantic waters, the United Kingdom Government has made use of SEA on a sectoral basis, to assist decision-making on areas to be licensed for oil and gas development and for wind farms. For an

Footnote continued on next page.

are ongoing.¹⁴ It should incorporate both socio-economic and ecological/environmental assessments and can involve habitat mapping, risk analysis, and sensitivity mapping and thus be used to facilitate decision-making for spatial planning. As such, SEA provides decision-makers with information, strategies and actual and projected information on environmental effects on a large scale, thereby allowing for improved decision-making and the delivery of an ecosystem-based approach through spatial planning of activities.¹⁵

Several approaches to SEA have been developed from the basic concept.¹⁶ Approaches to SEA differ in terms of openness, scope, intensity and the duration over which they are used.¹⁷ As a result, the literature indicates a degree of confusion over the specific methodology for the application of SEA. Brown and Thrivel argue that SEA should be seen as an overarching concept rather than a unitary technique in its own right, housing within it a family of tools.¹⁸ Different SEA methodologies will be required for the environmental assessment of different strategic tasks and for different contexts within which the SEA is prepared.¹⁹ Thus, SEA should be considered as an array of tools from

overview of the application of SEA in offshore oil and gas developments refer to the official website of the UK Department of Trade and Industry. See <http://www.offshore-sea.org.uk/site/index.php>.

¹⁴ MEPC 53/INF.10, para. 10 (note 4 above). It is currently being utilised in the Norwegian sector of the Barents Sea to facilitate the development of a management plan for all activities envisaged in the region. In addition, since July 2004, the EU requires all Member States to undertake SEA for programmes, plans and projects. *Council Directive of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment* (2001/42/EC) (OJ L 197, 21.7.2001).

¹⁵ MEPC 53/INF.10, para. 7 (note 4 above).

¹⁶ R.A.A. Verheem and J.A.M. Tonk, "Strategic environmental assessment: one concept, multiple forms," *Impact Assessment and Project Appraisal* 18 (2000), p. 177.

¹⁷ Scheate *et al*, p. 4 (note 7 above).

¹⁸ A.L. Brown and R. Thrivel, "Principles to guide the development of strategic environmental assessment methodology," *Impact Assessment and Project Appraisal* 18 (2000), p. 184.

¹⁹ *Ibid*, p. 188.

which the appropriate ones can be selected to meet the needs of a particular circumstance.²⁰

One of the tools that appears highly appropriate in the context of this discussion is spatial planning. Spatial planning, as a concept in its own right, may or may not be associated with SEA. Spatial planning and SEA are complementary tools in assessing and addressing environmental effects and the preference for either one or the other depends on the scale and what is being assessed. In fact, spatial planning and SEA have different rationales: spatial planning has to adopt the role of anticipating activities, proposing alternatives and measures and coordinating sector activities; SEA, on the other hand, can play a significant role in enhancing the integration of sustainability concerns in policy and planning processes, thereby helping to implement sustainable development.²¹ A recent workshop convened in the UK by English Nature concluded that:

In terms of environmental objectives, it was considered that marine spatial planning would be a more strategic and efficient way of expressing environmental values than is currently available to inform assessment at SEA.²²

Accordingly, in the context of this discussion, it may be argued that marine spatial planning would be the more appropriate strategic technique to be applied for PSSA development.

²⁰ *Ibid*, p. 186.

²¹ M. Eggenberger and M. R. Partidário, “Development of a framework to assist the integration of environmental, social and economic issues in spatial planning,” *Impact Assessment and Project Appraisal* 18 (2000), p. 203.

²² P.M. Gilliland, S. Rogers, J.P. Hamer and Z. Crutchfield, *The Practical Implementation of Marine Spatial Planning: Understanding and Addressing Cumulative Effects*. English Nature Research Reports, No. 599 (Peterborough, UK: English Nature, 2004), p. 25.

8.2.2 Marine Spatial Planning (MSP)

MSP is a recent idea and is seen as a way of improving decision-making and delivering an ecosystem-based approach to the management of marine activities. In essence, it is a plan led framework that enables integrated, forward looking, consistent decision-making on the use of the sea.²³ Interest in MSP is growing throughout the world, driving the development of ideas about what it might involve, and how it might be achieved.²⁴

MSP can be defined as:

a strategic plan (including forward looking and proactive) for regulating, managing and protecting the marine environment, including through allocation of space, that addresses the multiple, cumulative and potentially conflicting uses of the sea.²⁵

²³ S. Gubbay, *Marine Protected Areas in the Context of Marine Spatial Planning: Discussing the Links*. Report Prepared for WWF-UK (Godalming, UK: WWF, 2004), p. 3.

²⁴ WWF/The Wildlife Trust, "Marine spatial planning: A down to earth view of managing activities in the marine environment for the benefit of humans and wildlife," *The Marine Update* 55 (June 2004), p. 4. The European Commission is promoting the idea of marine spatial planning. In its strategy for the marine environment, published in 2002, it indicated that it will:

address the integration of nature protection measures and the various sectoral activities impacting on the marine environment, including spatial planning.

See COM(2002) 539 Final, *Towards a strategy to protect and conserve the marine environment - Communication from the Commission to the Council and the European Parliament*, 2 October 2002, para. 81.

The Fifth North Sea Ministerial Conference agreed that, in order to prevent and resolve the potential problems created by conflicts between the requirements for conservation and restoration of the marine environment and the different human activities in the North Sea, the strengthening of cooperation in the spatial planning processes of the North Sea States related to the marine environment will be required. See the *Ministerial Declaration of the Fifth International Conference on the Protection of the North Sea Bergen*, Norway 20–21 March 2002 (Bergen Declaration), para. 76.

The Ministers therefore invited the OSPAR Commission for the Protection of the Marine Environment of the North-East Atlantic, within the framework of its biodiversity strategy, to *inter alia*:

investigate the possibilities for further international cooperation in planning and managing marine activities through spatial planning of the North Sea States taking into account cumulative and transboundary effects. Bergen Declaration, para. 77.

²⁵ Gilliland *et al*, p.12 (note 22 above). See also D. Tyldesley, *Making the Case for Marine Spatial Planning in Scotland*. Report commissioned by Royal Society for the Protection of Birds, Scotland and

Footnote continued on next page.

English Nature identifies the following key benefits of MSP:²⁶

- Providing greater confidence for industry when planning new developments and reducing conflict between competing users;
- Providing a framework within which to understand and maximise the value of a network of multiple-use sites and highly protected marine areas;
- Establishing areas of importance or sensitivity, thereby reducing the risk of conflict with development;
- Ensuring there is 'room' for biodiversity and nature conservation measures;
- Enabling biodiversity commitments to be at the heart of planning and management;
- Providing a proactive and focused way to achieve nature conservation objectives;
- Offering a key tool to pre-empt or address cumulative impacts on the natural environment;
- Promoting efficient use of space and resources, so reducing impacts on the environment; and
- Improving awareness and ownership of marine conservation features and issues, particularly amongst users, regulators and decision-makers.

the Royal Town Planning Institute, Scotland, (2004), p. 14. Available at: www.rspb.org.uk/Images/marineplanning_tcm5-57624.pdf.

²⁶ English Nature, *Our Coasts and Seas: Making Space for People, Industry and Wildlife* (Peterborough, UK: English Nature, 2005), p. 22.

In any application of MSP, the essential consideration is that they need to work across sectors and give a geographic context in which to make decisions about the use of resources, development, and the management of activities in the marine environment.²⁷

The fundamentals of any spatial planning process are:²⁸

- (1) Spatial data representing the extent, both temporal and spatial, and intensity of human activities;
- (2) Spatial data representing the key environmental components such as habitats of conservation interest or biological components that act as indicators of human impacts;
- (3) Clear analysis of how (b) is affected by (a), whether the analysis is based upon expert judgement, meta-analysis, or empirical models; and
- (4) Geographic Information Systems (GIS) technologies and procedures to:
 - (a) store (1) and (2);
 - (b) model how (1) affects (2) through information in (3); and
 - (c) present the final outputs of the analysis.

²⁷ Gubbay, p. 3 (note 23 above).

²⁸ Gilliland *et al*, p.14 (note 22 above). English Nature proposed this framework in the context of Cumulative Effects Analysis for multiple sectors. However, in the context of a single sector such as shipping, this approach can be applied to a spatial planning exercise to identify possible conflicts between shipping and biodiversity.

The final stage in the process involves the use of GIS.²⁹ A GIS is required to store the data describing human activities and associated impacts in their true spatial (and, if required, temporal) context, and for spatial data describing the various environmental components of conservation interest. GIS could also include predefined models that combine the descriptions of impacts on environmental components.

At the broader scale likely to be covered by SEA, it is possible that, with a good understanding of the hazards, a spatial scope for planning could be defined for a single sector with reasonable confidence.³⁰ Thus, in the context of PSSAs, the approach could be applied to shipping activity as a single sector and at a broad spatial scale. Ideally, a spatial plan would be produced that was informed by assessment of potential impacts or vulnerability and which would then provide a context for further assessment, such as that required for an individual PSSA proposal. Whilst MSP will not eliminate or even reduce the uncertainty in assessing effects, it should improve our ability to make more informed decisions in relation to avoiding or managing such effects.

²⁹ GIS may be defined as:

A system of computer hardware, software and data for collecting, storing, analysing and disseminating information about areas of the earth.

ESRI, *Understanding GIS: The Arc/Info Method*. (Redlands, CA: Environmental Systems Research Institute (ESRI), 1992). For an overview of GIS systems see for example: M.N. DeMers, *Fundamentals of Geographic Information Systems*, 3rd Edition (Hoboken, NY: John Wiley & Sons, 2005); I. Heywood, S. Cornelius and S. Carver, *An Introduction to Geographical Information Systems*, 2nd Edition (Boston: Prentice Hall, 2002); C. Jones, *Geographic Information Systems and Computer Cartography* (Boston: Prentice Hall, 1997).

³⁰ The SEA for oil and gas licensing has undertaken such an assessment. See <http://www.offshore-sea.org.uk>.

8.2.2.1 Application of GIS to Marine Spatial Planning

GIS can serve as a valuable tool for SEA and MSP and has a role to play in improving the effectiveness of such assessments.³¹ GIS is traditionally viewed both as a tool for spatial data management, and as a system of spatial information storage and retrieval. As a tool, GIS has the capability of storing, retrieving, managing, analysing and visualising spatial information and its associated non-spatial attributes. As a system, on the other hand, GIS is a process of communicating spatial information (e.g., resource characteristics) among scientists, resource managers and planners.³²

The management of natural resources requires the integration of often very large volumes of disparate information from numerous sources.³³ A GIS typically links data from different sets, using geo-referencing, i.e., spatial coordinates, as a common key between different data bases. Thus, the power of a GIS stems from its ability to combine many data sets and display them in a common framework as thematic maps. As a result, GIS is a valuable tool for effective decision support in natural resources management, through the improvement of planning and decision-making processes by providing useful and scientifically sound information to the actors involved in these processes.³⁴

³¹ E. Joao and A. Fonseca, "The role of GIS in improving environmental assessment effectiveness: Theory versus practice," *Impact Assessment* 14 (1996), pp. 371-385.

³² I. Gunawan, "Typical geographic information system (GIS) applications for coastal resources management in Indonesia," *Indonesian Journal of Coastal and Marine Resource Management* 1 (1998), p. 8.

³³ K. Fedra and E. Feoli "GIS technology and spatial analysis in coastal zone management," *EEZ Technology* 3 (1998), p. 175.

³⁴ *Ibid.*

The application of GIS in marine planning and decision-making is well documented.³⁵ Currently, however, GIS is used mainly in this context as a tool to manage baseline information and is frequently restricted to map production and report preparation and, as yet, the full power of GIS has not been fully explored.³⁶ With advances in GIS technology it is possible to accurately delineate areas of under represented, irreplaceable, threatened or rare ecosystems.³⁷ Thus, with improved data sets and adapting the approach to a range of spatial scales, GIS modeling has great potential as a planning tool in biodiversity conservation and the selection of marine protected areas in general including PSSAs.³⁸

The advantages of the use of GIS in MSP include:³⁹

- Management of large data sets;

³⁵ See for example: V. Anderson and E.V. Skrizhevskaya, "Integrated Coastal Zone Management with GIS: the case of Ukrainian Black Sea Region," in *Geographical Information '97. Proceedings of the Third Joint European Conference and Exhibition on Geographical Information*, (Vienna, Austria: April 16-18, 1997), pp. 402-411; G. Garofalo, L. Fortunati, L. Cannizzaro and M. Scalisi, "Mapping of marine resources by means of geostatistical analysis and GIS technology," in E. Özhan (ed) *Proceedings of the Third International Conference on the Mediterranean Coastal Environment MEDCOAST 97*, (Qawra, Malta: November 11-14, 1997), pp. 832-837; G. Meaden and T. Do Chi, *Geographical Information Systems: Applications to Marine Fisheries*, FAO Fisheries Technical Paper No. 356 (Rome: FAO, 1996); K. Finney and A. Mosbauer, "Use of GIS in integrated, ecosystem-based oceans management," in C.D. Woodroffe and R.A. Furness (eds) *Coastal GIS 2003: An Integrated Approach to Australian Coastal Issues*, Wollongong Papers on Maritime Policy, No. 14 (Wollongong, NSW: Centre for Maritime Policy, 2003), pp. 1-18; S. Fletcher and I.C. Russell, "Data collection and information management for effective and sustainable ocean area management," in *Proceedings of Hydro '99*, (Plymouth, U.K: 1999); J. Murday, "Ocean GIS," *EEZ Technology* 2 (1998), pp. 103-4; D. Wright and D. Bartlett, *Marine and Coastal Geographical Information Systems* (London: Taylor & Francis, 1999), xix +318 p.

³⁶ Joao and Fonseca, p. 382 (note 31 above).

³⁷ D.B. Gerner and B.A. Bryan, "Representative marine protected area selection: Setting priorities using spatial information technology," in C.D. Woodroffe and R.A. Furness (eds) *Coastal GIS 2003: An Integrated Approach to Australian Coastal Issues*, Wollongong Papers on Maritime Policy, No. 14 (Wollongong, NSW: Centre for Maritime Policy, 2003), p. 417.

³⁸ *Ibid*, p. 425.

³⁹ W. Eedy, "The use of GIS in environmental assessment," *Impact Assessment* 13 (1995), p. 199.

- Data overlay and analysis of development and natural resources patterns;
- Trend analysis;
- Data sources for mathematical impact models;
- Habitat and aesthetic analysis and public involvement.

GIS can have a wide application in all stages of MSP, acting as an integrative framework for the whole process, from the generation, storage and display of the thematic information relative to the vulnerability/sensitivity of the affected resources to impact prediction and finally for information evaluation for decision support.⁴⁰

8.3 APPLICATION OF MARINE SPATIAL PLANNING TECHNIQUES TO PSSA IDENTIFICATION

In developing a systematic logical approach for selection of MPAs, four steps can be identified as essential to site selection. These are the collection, analysis and synthesis of data leading to the identification of candidate sites, followed by the application of criteria to select specific sites for protection.⁴¹ Using the framework proposed by Gilliland *et al*,⁴² MSP could assist in the identification of suitable locations for PSSA designation, or of areas in which there should be a presumption against specific activities (such as anchoring) on the grounds of, for example, ecological sensitivity. By undertaking a global mapping exercise of shipping activity, it is possible to develop a

⁴⁰ P. Antunes, R. Santos, L. Joao, P. Goncalves and N. Videira “A GIS-based decision making system for environmental impact assessment,” in *Proceedings of the International IAIA Conference* (Estoril, Portugal: 17-23 June, 1996), p. 452.

⁴¹ Salm *et al*, p. 84 (note 2 above).

⁴² Gilliland *et al*, p.14 (note 22 above).

picture of shipping activity and broadly prioritise areas where shipping concentrates and where ecological sensitivity is believed to be particularly high. It should, however, be recognised that this would not be sufficient to identify all areas in need of protection from shipping activity,⁴³ but could lead to a region-by-region approach, where a more detailed assessment, including a wide range of environmental and economic parameters, would be possible to ensure that all sensitive and vulnerable sites were adequately mapped. Once this was done candidate PSSAs could be identified. The number and size of candidate PSSAs would be likely to vary according to the assessment, and groupings of sensitive and vulnerable sites might be considered appropriate if clusters of sensitive and vulnerable sites were identified.⁴⁴

In order to undertake such a strategic analysis for the identification of suitable locations for PSSA designation, two levels of analysis are therefore required:

- (1) A global level analysis to identify priorities for further investigation; and
- (2) Regional or local level analysis to identify sites that may meet the criteria for PSSA designation.

8.3.1 Global Level Analysis

While analytical methodologies have been developed at the national level to identify sensitive marine areas for the purpose of establishing MPAs or otherwise protecting the

⁴³ MEPC 53/INF.10, para. 13 (note 4 above).

⁴⁴ *Ibid*, para. 14.

resources,⁴⁵ there are few examples of comprehensive strategic analyses at the global or regional level. The success of such approaches is heavily dependent upon the availability of environmental information which is easily accessible and of a nature and scale that is appropriate to the area being studied.⁴⁶ It is also dependent on the ability to predict impacts and then monitor environmental performance against defined standards. While there is still a relative scarcity of data on environmental sensitivity and in many regions of the world the designation of networks of MPAs remains incomplete,⁴⁷ there are a number of global habitat datasets which provide sufficient data to represent a good starting point and help develop an overall picture at a global level.⁴⁸

⁴⁵ For example, the UK Department of Environment, Transport and the Regions (DETR) used a risk based approach to identify Marine Environment High Risk Areas (MEHRAs) around the coastline. The approach used an elaborate risk based model incorporating environmental and shipping data into a comprehensive GIS database. While no MEHRAs has as yet been formally identified (Simon Walmsley, WWF-UK, personal communication), the analysis did highlight several priority areas for action for the UK Government. See Safetec UK, *Identification of the Environmental High Risk Areas (MEHRAs) in the UK*, (London: DETR, 1999). Similarly, the New Zealand Maritime Safety Authority undertook a comprehensive coastal sensitivity analysis to identify sites that may warrant additional protection from the risk of impacts from shipping: MSA NZ, *Review of the Voluntary Vessel Routeing Code for Shipping in New Zealand Coastal Waters*. A consultation document prepared by the Maritime Safety Authority of New Zealand (Wellington, NZ: MSA, June 2001). This analysis formed the basis of the decision to establish the area to be avoided around the Poor Knights Islands marine reserve, discussed in Chapter 5.

Queensland Transport and the Great Barrier Reef Marine Park Authority undertook a detailed analysis to identify environmentally vulnerable areas within the Great Barrier Reef PSSA that may warrant further action to protect them. *Oil Spill Risk Assessment for the Coastal Waters of Queensland and The Great Barrier Reef Marine Park*. Report prepared by Queensland Transport and the Great Barrier Reef Marine Park Authority, August 2000, pp. 39-41.

⁴⁶ S. Thompson, J. R. Treweek and D. J. Thurling, "The potential application of strategic environmental assessment (SEA) to the farming of atlantic salmon (*Salmo salar* L.) in mainland Scotland," *Journal of Environmental Management* 45 (1995), p. 228.

⁴⁷ MEPC 53/INF.10, para. 15 (note 4 above).

⁴⁸ The UN Environment Programme - World Conservation Monitoring Centre (UNEP-WCMC) based in Cambridge, UK, collates environmental data from around the globe. UNEP-WCMC maintains a large amount of information relating to marine and coastal environments and their conservation. In particular, the centre holds comprehensive data sets of coral, seagrass and mangrove distributions. Increasingly, this information is managed using GIS. An important data set that the centre maintains is the World Database on Protected Areas, which provides the most comprehensive dataset on protected areas worldwide and is managed by UNEP-WCMC in partnership with the IUCN World Commission on Protected Areas (WCPA) and the World Database on Protected Areas Consortium. See <http://www.unep-wcmc.org/>.

A simple approach would be to map the distribution and location of designated MPAs as an indicator of areas that have some environmental, social, cultural or economic value to the local community (Figure 8.1). However, this assumes that areas of high biodiversity value have been identified as MPAs, which is not always the case, since other factors such as community pressure and political motivations often factor in the decision-making for MPA designation. Similarly, there are clearly areas that are underrepresented in terms of MPA designation at a global level. A more consistent approach at a global level can be seen in the identification of ‘ecoregions’. WWF has derived a system called the ‘Global 200 Ecoregions’, the aim of which is to select priority ecoregions for conservation within each of 14 terrestrial, 3 freshwater, and 4 marine habitat types.⁴⁹ They are chosen for their species richness, endemism, taxonomic uniqueness, unusual ecological or evolutionary phenomena, and global rarity. These ecoregions specifically include marine regions (Figure 8.1). Similar classification approaches have also been undertaken by other international conservation organisations, although their specific application in the marine environment is limited.⁵⁰

⁴⁹ For a full discussion of the WWF Global 200 Ecoregions, see C. Magin and S. Chape, *Review of the World Heritage Network: Biogeography, Habitats and Biodiversity*, (Cambridge, UK: UNEP-WCMC, 2004), pp. 27-44.

⁵⁰ For example, Conservation International (CI) has created the concept of ‘biodiversity hotspots’. Twenty-five priority hotspots have been identified, representing a variety of global ecosystems. Selection of these hotspots was based on three criteria: (i) the number of species present; (ii) the number of endemic species in an ecosystem; and (iii) the degree of threat faced. Hotspot areas cover less than 2% of global terrestrial ecosystems, yet account for 44% of all vascular plant species and 38% of birds, mammals, reptiles and amphibian vertebrate groups: <http://www.biodiversityhotspots.org/xp/Hotspots>. Similarly, The Nature Conservancy has established a site prioritisation programme based on global major habitat type assessments and ecoregional planning. Scientific assessments of major habitat types establish priorities for conservation at a global scale. Assessments examine biodiversity richness and threats to biodiversity and ecosystems. The Nature Conservancy also designs portfolios of conservation areas within and across ecoregions. Ecoregional portfolios represent the full distribution and diversity of native species, natural communities and ecosystems: <http://nature.org/aboutus/howwework/cbd/>.

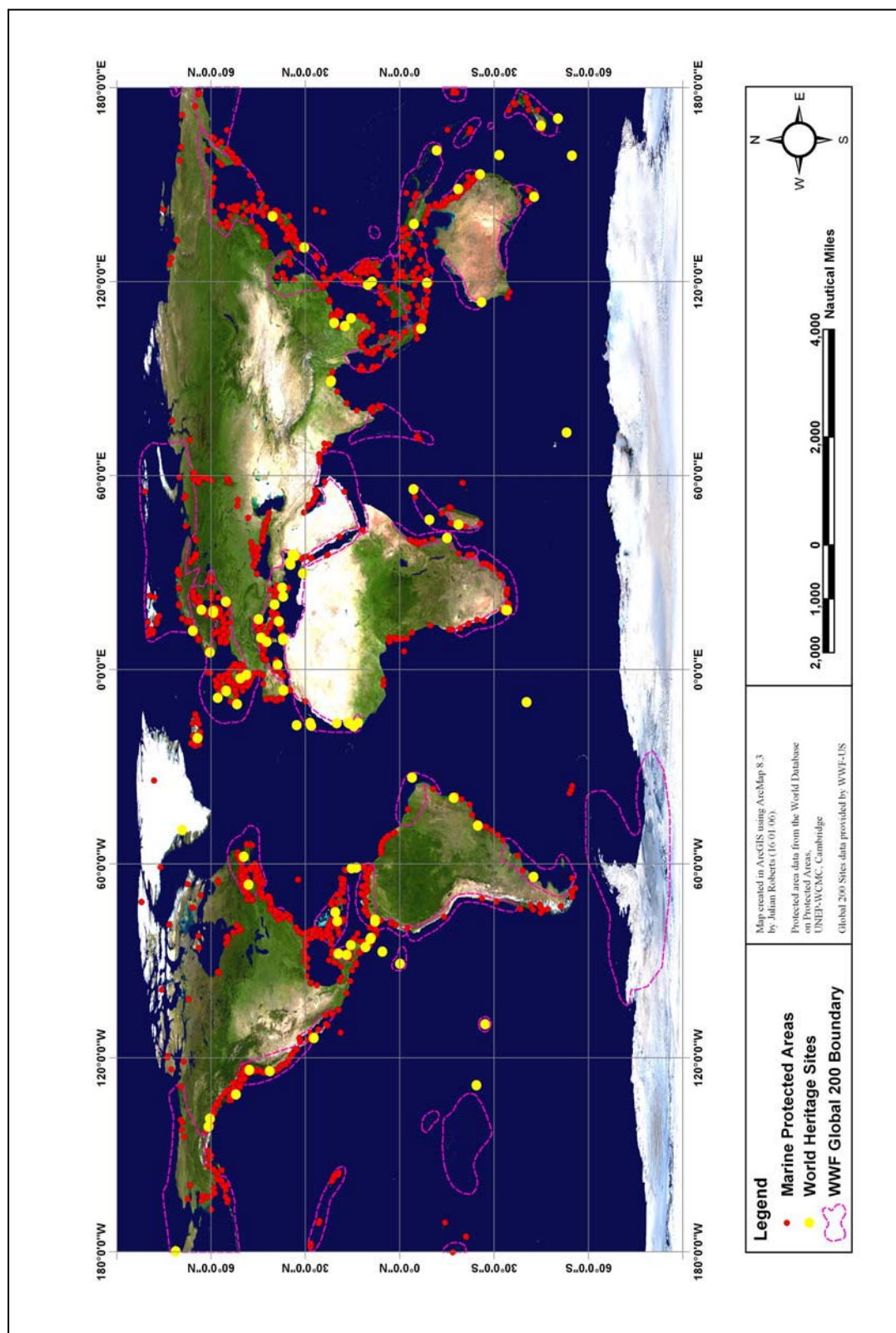


Figure 8.1. Global Distribution of Marine Protected Areas and Global 200 Ecoregions

However, a more targeted and strategic approach is illustrated by the approach adopted by UNESCO and NOAA in identifying regional priorities for candidate World Heritage sites in tropical coastal areas. Given the relevance of this work to the current discussion, it is worth considering this analysis and its potential application in the context of PSSA identification.

8.3.1.1 Case Study – Identification of Candidate Marine World Heritage Sites

It is widely recognised that coastal, marine and small island biodiversity sites are under represented on the World Heritage List.⁵¹ While there are approximately 35 World Heritage Sites with marine components, the majority of these are managed for their terrestrial biodiversity and less than 10 are recognised entirely for their marine values.⁵² To address this gap, the UNESCO World Heritage Centre, in collaboration with the IUCN and NOAA, convened a workshop⁵³ for internationally and regionally recognised experts to identify potential coastal, marine and small island biodiversity sites for consideration as World Heritage Sites.⁵⁴

During the workshop, internationally and regionally recognised experts worked together to develop a scientifically-based consensus global list of areas of outstanding universal value for marine biodiversity for further consideration by State Parties to the World

⁵¹ A. Hillary, M. Kokkonen and L. Max (eds), *Proceedings of the World Heritage Marine Biodiversity Workshop: Hanoi, Vietnam, February 25 - March 1, 2002* (Paris: UNESCO World Heritage Centre, 2003), p. 26.

⁵² For an overview of the relevant sites and their marine values see Green, E. *A global overview of tropical marine, coastal and small island ecosystems and the World Heritage List*. UNEP-WCMC Discussion Paper (Cambridge, UK: UNEP-WCMC, 2001).

⁵³ The workshop was held in Hanoi, Vietnam in 2002. It was originally scheduled to be held in the Philippines in September 2001, but was postponed due to the events of the September 11 terrorist attack. Marjaana Kokkonen (UNESCO) personal communication.

⁵⁴ Hillary *et al*, p. 27 (note 51 above).

Heritage Convention and other interested entities for nominations on the World Heritage List.⁵⁵ The workshop applied a biogeographic approach⁵⁶ to site selection, utilising the World Heritage criteria and based in part on the frameworks developed by organisations such as Conservation International,⁵⁷ The Nature Conservancy⁵⁸ and WWF⁵⁹ for identifying conservation priorities, which use expert knowledge as the primary tool. To facilitate site selection, a set of selection criteria was developed that reflected criteria currently used by conservation NGOs and conservation institutions in the selection of sites for marine biodiversity conservation (Table 8.1). On this basis, site selection was undertaken by expert groups using the following regional units, whose boundaries were based on patterns of global biodiversity: Southeast Asia;⁶⁰ Pacific;⁶¹ Latin America and the Caribbean;⁶² West Africa;⁶³ East Africa;⁶⁴ The Middle East.⁶⁵

⁵⁵ *The Hanoi Statement*, in Hillary *et al*, p. 16 (note 51 above).

⁵⁶ For a detailed discussion of the application of biogeographic approaches in the selection of World Heritage Sites see generally, Magin and Chape, (note 49 above).

⁵⁷ See note 50 above.

⁵⁸ See note 50 above.

⁵⁹ See note 49 above.

⁶⁰ L.M. Chou, “Potential tropical coastal, marine and small island World Heritage sites in South-East Asia.” Paper to the *Workshop on World Heritage Biodiversity: Filling Critical Gaps and Promoting Multi-Site Approaches to New Nominations of Tropical Coastal, Marine and Small Island Ecosystems* (Hanoi, Vietnam, February 25 - March 1, 2002).

⁶¹ Anon, “An assessment of potential World Heritage sites in the pacific region.” Paper to the *Workshop on World Heritage Biodiversity: Filling Critical Gaps and Promoting Multi-Site Approaches to New Nominations of Tropical Coastal, Marine and Small Island Ecosystems* (Hanoi, Vietnam, February 25 - March 1, 2002).

⁶² G. Bustamante, “World Heritage biodiversity: filling critical gaps and promoting multi-site science-based approaches to new nominations of tropical coastal, marine and small island ecosystems in Latin America and the Caribbean.” Paper to the *Workshop on World Heritage Biodiversity: Filling Critical Gaps and Promoting Multi-Site Approaches to New Nominations of Tropical Coastal, Marine and Small Island Ecosystems* (Hanoi, Vietnam, February 25 - March 1, 2002).

⁶³ Anon, “West Africa.” Paper to the *Workshop on World Heritage Biodiversity: Filling Critical Gaps and Promoting Multi-Site Approaches to New Nominations of Tropical Coastal, Marine and Small Island Ecosystems* (Hanoi, Vietnam, February 25 - March 1, 2002).

Table 8.1. UNESCO Site Selection Criteria (Hillary *et al*,⁶⁶)

To support informed and systematic site selection by the expert group, a comprehensive group of datasets describing the distributions of species and habitats, as well as the distributions of physical oceanographic processes was used.⁶⁷ The datasets were analysed using GIS, allowing sites of biodiversity importance to be coarsely identified.⁶⁸

⁶⁴ Anon, "Potential tropical coastal, marine and small island world heritage sites in the eastern Africa region." Paper to the *Workshop on World Heritage Biodiversity: Filling Critical Gaps and Promoting Multi-Site Approaches to New Nominations of Tropical Coastal, Marine and Small Island Ecosystems* (Hanoi, Vietnam, February 25 - March 1, 2002).

⁶⁵ N. J. Pilcher, "Potential tropical coastal, marine and small island world heritage sites in the middle east region." Paper to the *Workshop on World Heritage Biodiversity: Filling Critical Gaps and Promoting Multi-Site Approaches to New Nominations of Tropical Coastal, Marine and Small Island Ecosystems* (Hanoi, Vietnam, February 25 - March 1, 2002).

⁶⁶ Hillary *et al*, p. 72 (note 51 above). Note the similarity between the selection criteria in Table 8.1 and the ecological criteria contained within the PSSA Guidelines.

⁶⁷ Anon, "A biogeographic approach to determining potential World Heritage Sites in tropical coastal, marine and small island ecosystems." Background paper for the *Workshop on World Heritage and*

Footnote continued on next page.

A comprehensive list of nearly 120 areas of importance as tropical coastal, marine and small island ecosystems, that may merit consideration for World Heritage listing, evolved from the regional discussions on priority areas and the workshop itself.⁶⁹ Within each region, those areas that contained interconnected or complementary marine biodiversity values were highlighted and recommendations made for future work. Some recommendations focused on many large scale oceanographic or geomorphologic features that can create specialised niches for marine flora and fauna. The sites were classified according to the following format:⁷⁰

A List: Areas that the group of experts unanimously recognised to be of OUV in terms of their tropical coastal, marine and small island biodiversity attributes. As a matter of priority, it is recognised that State Parties consider nominating sites from these areas;

B List: Areas that the group of experts recognised to have significant components of OUV. It is recommended that State Parties undertake further studies to ascertain which OUV components would be of World Heritage value and prepare nominations as appropriate;

C List: Areas the group of experts considered may be of OUV but the information available was not sufficient to assess them fully. It is recommended that State Parties undertake further analysis to determine the OUV value of these sites.

Biodiversity Conservation in Tropical Coastal, Marine and Small Island Ecosystems, (Hanoi, Vietnam, February 25 - March 1, 2002), p. 6. Available at <http://international.nos.noaa.gov/heritage/> (16/01/2006).

⁶⁸ *Ibid.*

⁶⁹ Hillary *et al*, pp. 21-25 (note 51 above).

⁷⁰ *Ibid*, p. 21.

Figure 8.2 (at p. 342) illustrates the mapped outputs from the workshop.

8.3.1.2 Case Study – Development of an Environmental Sensitivity Index

While the UNESCO approach is purely qualitative in its approach, depending on expert evaluation and the availability of information of biodiversity and habitats, Alder *et al* describe the development of a semi-quantitative global Environmental Vulnerability Index (EVI) which can be used to quantify the vulnerability of the natural environment to damage from natural and anthropogenic hazards at national scales.⁷¹

The EVI concentrates on measuring ecological vulnerability and seeks to support other vulnerability indices initiatives, including the economic vulnerability index and a soon to be developed social vulnerability index, as part of the global move towards determining how development could be achieved sustainably. It is the first global attempt to develop such an ecological index. The EVI will support decision-makers by providing a pragmatic approach that will enable them to ‘see’ the problem, as well as identify actions that could be taken to manage vulnerability and protect or build the environmental resilience of a country.⁷²

⁷¹ J. Alder, A. Dahl, U. Kaly, J. Mitchell, N. Norton, C. Pratt and M. Witter, *Report on the Environmental Vulnerability Index (EVI) Think Tank II, 4 – 6 October 2004, Suva, Fiji*. SOPAC Technical Report 377 (South Pacific Applied Geoscience Commission (SOPAC) 2004), p. 1.

⁷² *Ibid.*

In the context of the EVI, vulnerability can be defined as:

the potential for attributes of any system, human or natural, to respond adversely to events. Hazardous events are those that can lead to loss of diversity, extent, quality and function of ecosystems.⁷³

These changes are often described as damage to the biological integrity or health of ecosystems, and therefore their ability to keep supporting humans. These may include natural hazards as well as human pressures. The EVI simultaneously examines levels of risk and conditions now, predicting how the environment is likely to cope with future events and is based on 50 indicators for estimating the vulnerability of the environment of a country to future shocks, including spills.⁷⁴ The EVI is essentially a synthesis framework for understanding the environmental vulnerability of countries. It is designed for use at the national scale, but could be evaluated at a range of geographic scales, including regions and provinces. The index and associated outputs can provide feedback to environmental managers on changes in environmental quality and vulnerability resulting from changes in policy and action.⁷⁵

⁷³ SOPAC, *Building Resilience in SIDS: The Environmental Vulnerability Index* (South Pacific Applied Geoscience Commission (SOPAC) 2004), p. 4.

⁷⁴ *Ibid*, p. 5.

⁷⁵ *Ibid*, p. 9.

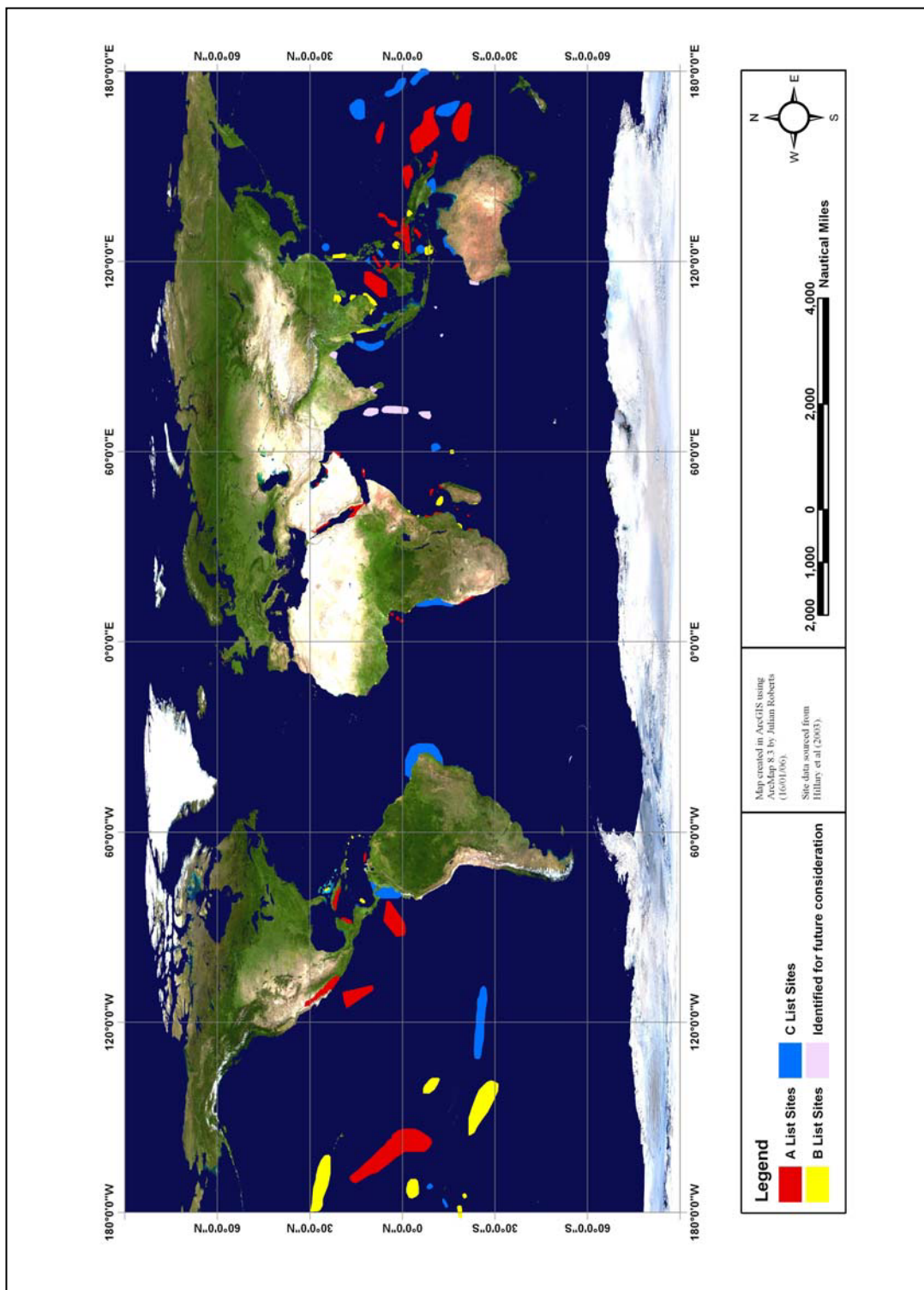


Figure 8.2. Potential Tropical Coastal, Marine and Small Island World Heritage Sites (Source Hillary *et al*⁷⁶)

⁷⁶ Hillary *et al* pp. 33-53 (note 51 above).

8.3.2 Identification of Sites Vulnerable to the Impacts of Shipping

The next stage in the analysis is to determine those areas that are vulnerable to the threat of shipping. Shipping activities may give rise to a number of impacts, from marine pollution to physical damage and, while it is an oversimplification, it may be argued that those areas that experience the greatest volume of traffic, and are subject to geographic limitations, are the most vulnerable to the risk of shipping accidents. That this is the case, can be highlighted by an analysis of oil spills that have occurred over the past 40 years (Figure 8.3). Analysis of global shipping movements using GIS analysis tools allows the identification of areas of greatest shipping density at both a global and regional level. Figure 8.4 presents the results of a spatial analysis of global shipping movements mapped from reported positions from ships participating in the World Meteorological Organisation's Voluntary Observing Ship (VOS) programme, recorded between July - December 2004.⁷⁷

⁷⁷ See The WMO Voluntary Observing Ship Programme: An enduring partnership (Geneva, Switzerland: Ocean Affairs Division, World Meteorological Organization). Available at <http://www.bom.gov.au/jcomm/vos/vos.html#introduction>. The VOS programme is an international scheme by which ships plying the various oceans and seas of the world are recruited by National Meteorological Services for taking and transmitting meteorological observations. During the past few decades, the increasing recognition of the role of the oceans in the global climate system has placed even greater emphasis on the importance of marine meteorological and oceanographic observing systems. Thus the contribution which VOS meteorological reports make to operational meteorology, to marine meteorological services and to global climate studies is unique and irreplaceable. According to the International Chamber of Shipping, as at January 1st 2005, the world trading fleet was made up of 46,222 ships. (See <http://www.marisec.org/shippingfacts/keyfactsnoofships.htm>). The current VOS fleet consists of some 6,700 vessels globally, thereby representing approximately 15% of the world fleet

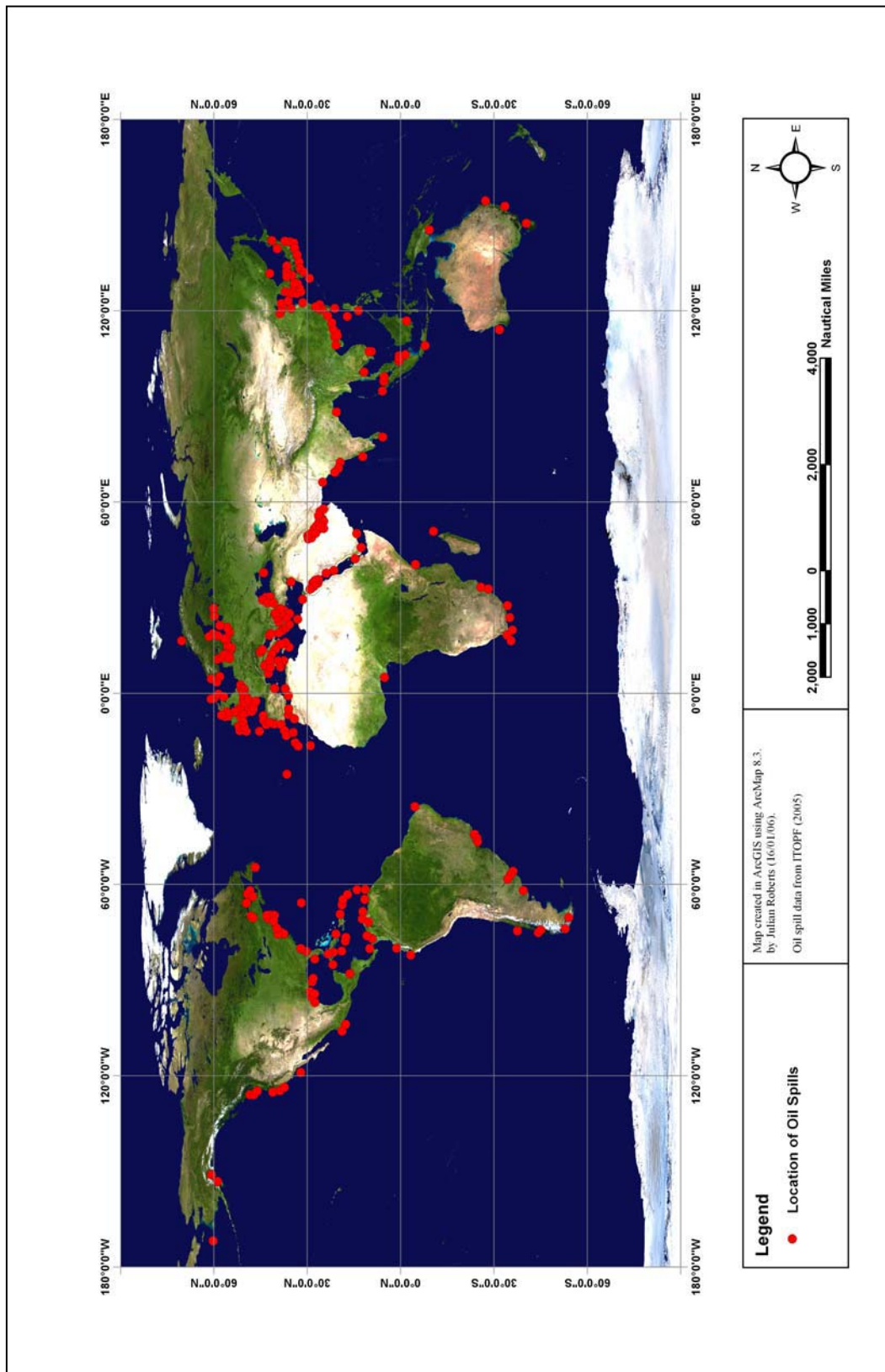


Figure 8.3. Global Distribution of Oil Spills (Greater than 7 Tonnes) Between 1970 and 2004 (Source ITOPF, 2005)

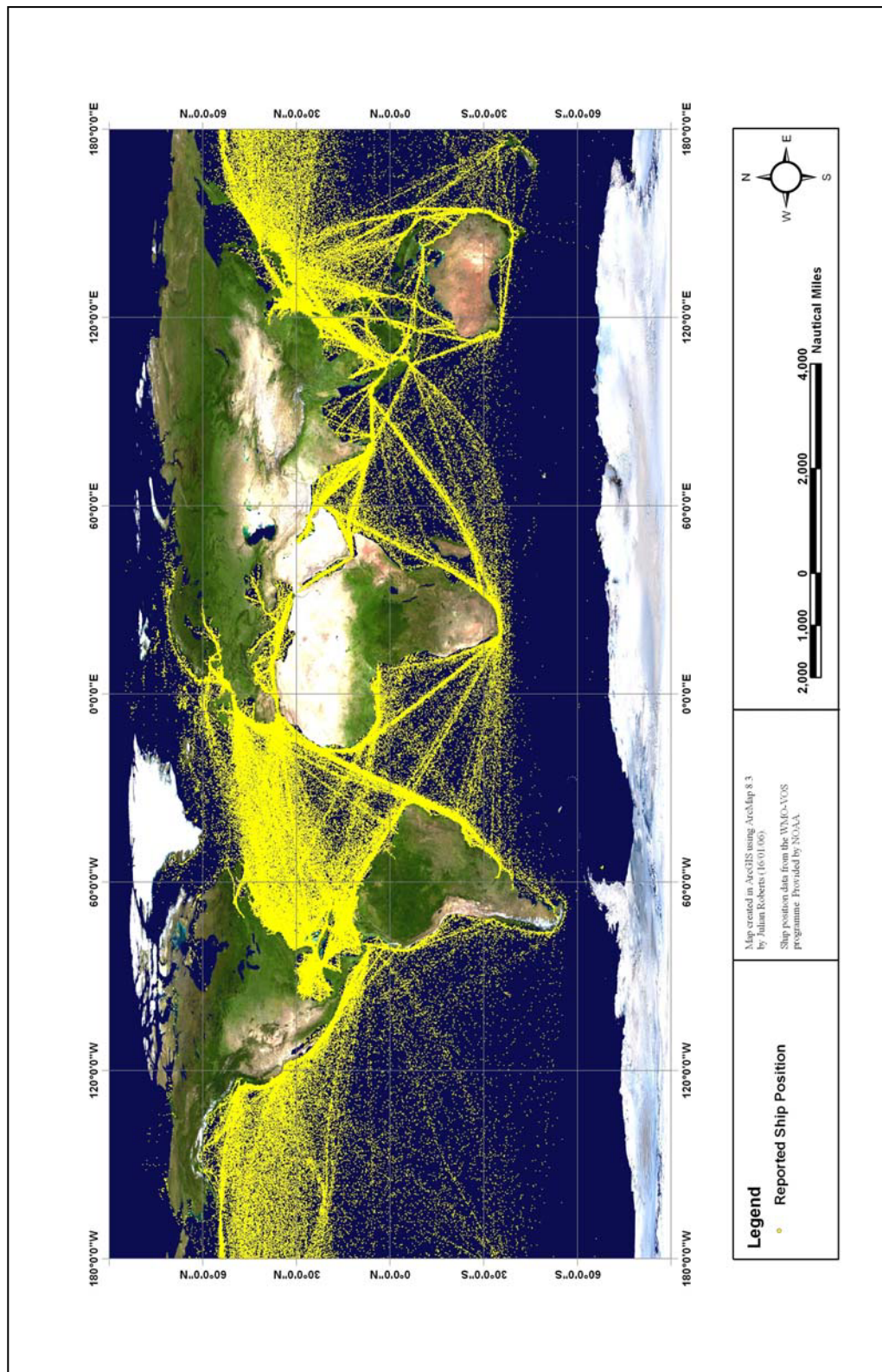


Figure 8.4. Global Shipping Movements Mapped from Reported Positions of Ships Participating in the WMO VOS Programme (Source NOAA VOS programme, 2005)

As might be expected, Figure 8.4 shows that real-time reports from the VOS are heavily concentrated along the major shipping routes, primarily in the North Atlantic and North Pacific Oceans, which reflects the relatively high number of ships sailing in these waters.⁷⁸ A similar analysis, undertaken for the Pacific region, confirms the validity of this approach, and that the correspondence between the actual and inferred tracks is generally quite high.⁷⁹ Notably, the Pacific study found that some of the actual recorded tracks did not correspond to any previously identified ‘normal routes’. The VOS ships varied their courses substantially from voyage to voyage, producing a diffuse pattern of positions in some areas, for example on passages between New Zealand and South America/Cape Horn.⁸⁰ This suggests that the VOS data represents a better data set than the static mapped ships routes that are regularly published for global shipping movements.⁸¹

While it is visually possible to identify areas of higher density of shipping traffic from Figure 8.4, the value of GIS is that it allows quantitative analysis of this data in order to clearly highlight the areas of actual greatest shipping density (see Figure 8.5).

⁷⁸ For more information on the VOS scheme refer to the NOAA VOS Website: http://www.vos.noaa.gov/vos_scheme.shtml; or the IOSC/WMO VOS website: <http://www.bom.gov.au/jcomm/vos/>.

⁷⁹ Edward Anderson Marine Sciences, *Marine Pollution Risk Assessment for the Pacific Islands Region - Volume 1*. Prepared for the South Pacific Regional Environment Programme (SPREP), July 2003, section 4.5. See also, S. Nawadra and T. Gilbert, “Risk of marine spills in the Pacific Islands region and its evolving response arrangements,” in *Proceedings of the International Oil Spill Conference (SPILLCON)*, (Manley Australia: September 2002).

⁸⁰ Edward Anderson, section 4.5 (note 79 above).

⁸¹ See for example *Ocean Passages for the World*, Admiralty Charts and Publications No. NP 136 (Taunton, UK: UKHO, 2005).

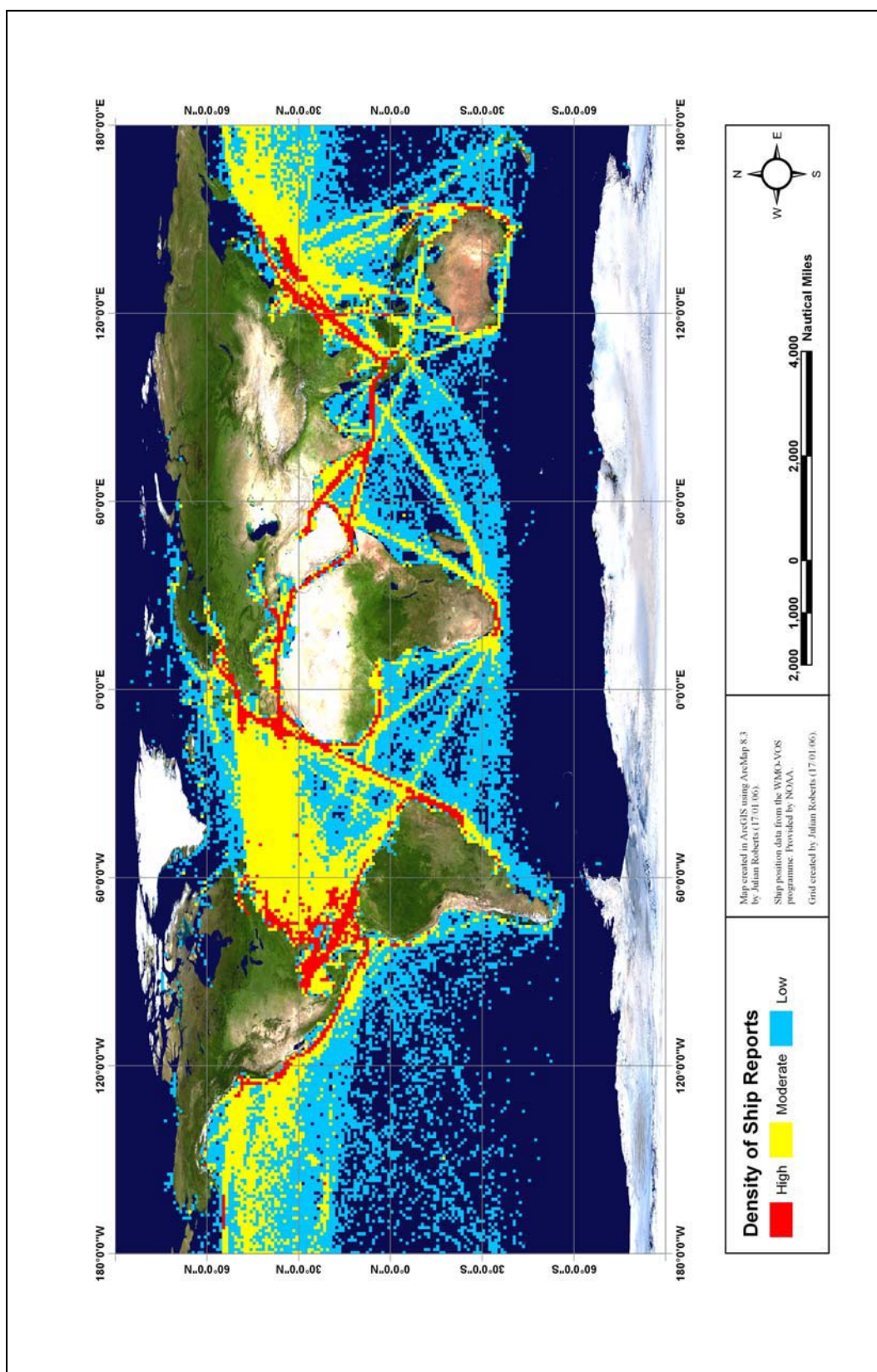


Figure 8.5. Relative Shipping Densities Mapped to a 60 Nautical Mile Global Grid (Source NOAA VOS programme, 2005)

Thus it can be clearly seen that the areas of greatest shipping density are around the archipelagos of South East Asia, North East Asia, the North East Pacific, the North West Atlantic including the Caribbean, the North East Atlantic around Europe, the Mediterranean, the Red Sea and Gulfs Region, and the East Coast of Australia. In addition, ship routes across the major oceanic regions are clearly identifiable, illustrating that most of the world's shipping travels a relatively small number of major ocean routes.

8.3.3 Outcome of the Analysis

On the basis of data that is currently available at a global scale, it has been demonstrated that it is clearly possible to identify those areas, at a global and at regional levels, that have an identified environmental value and that may be vulnerable to damage from international shipping, on the basis of high shipping activity and previous damage in these areas (Figures 8.6(a-f)). Comparison of these areas, with those areas currently designated as PSSAs, does highlight a correlation, but also highlights some obvious gaps in the PSSA network that would be worthy of further investigation. In particular, the analysis highlights the following areas for further investigation: The Mediterranean, Eastern Seaboard of North America and the wider Caribbean region (Figure 8.6(a)); Eastern coast of Brazil (Figure 8.6(b)); The Red Sea, Gulf of Aden, Gulf region, South Eastern and Eastern Africa, including Madagascar, Sri Lanka and the Archipelagos around Indonesia and Malaysia (Figure 8.6(c)); East Asia and Micronesia (Figure 8.6(d)); North-East Asia in the regions of the Philippines and Japan (Figure 8.6(e)); British Columbia Coast and the Hawaiian Islands (Figure 8.6(f)).

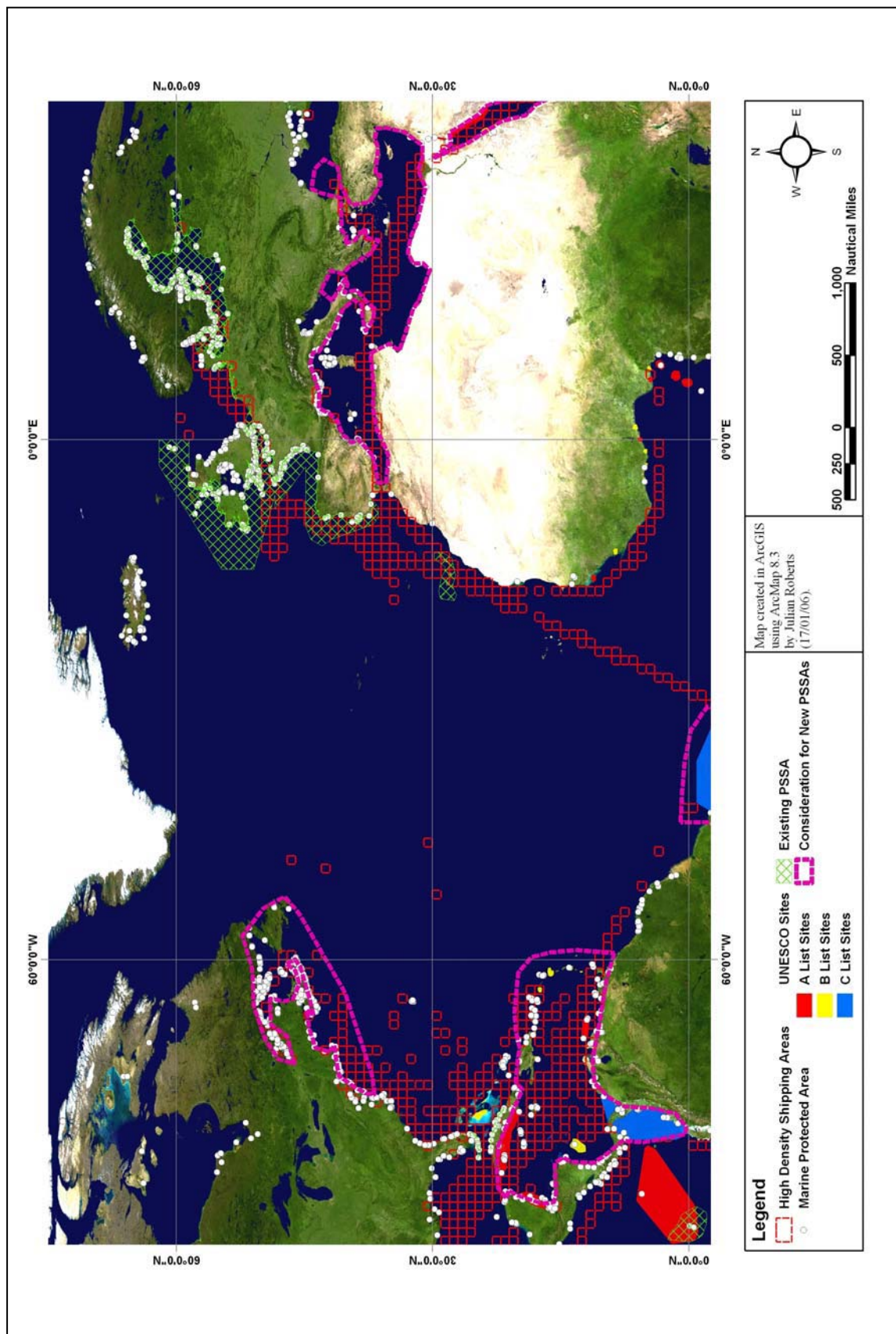


Figure 8.6(a). Areas for Consideration for Potential PSSA Sites - North Atlantic

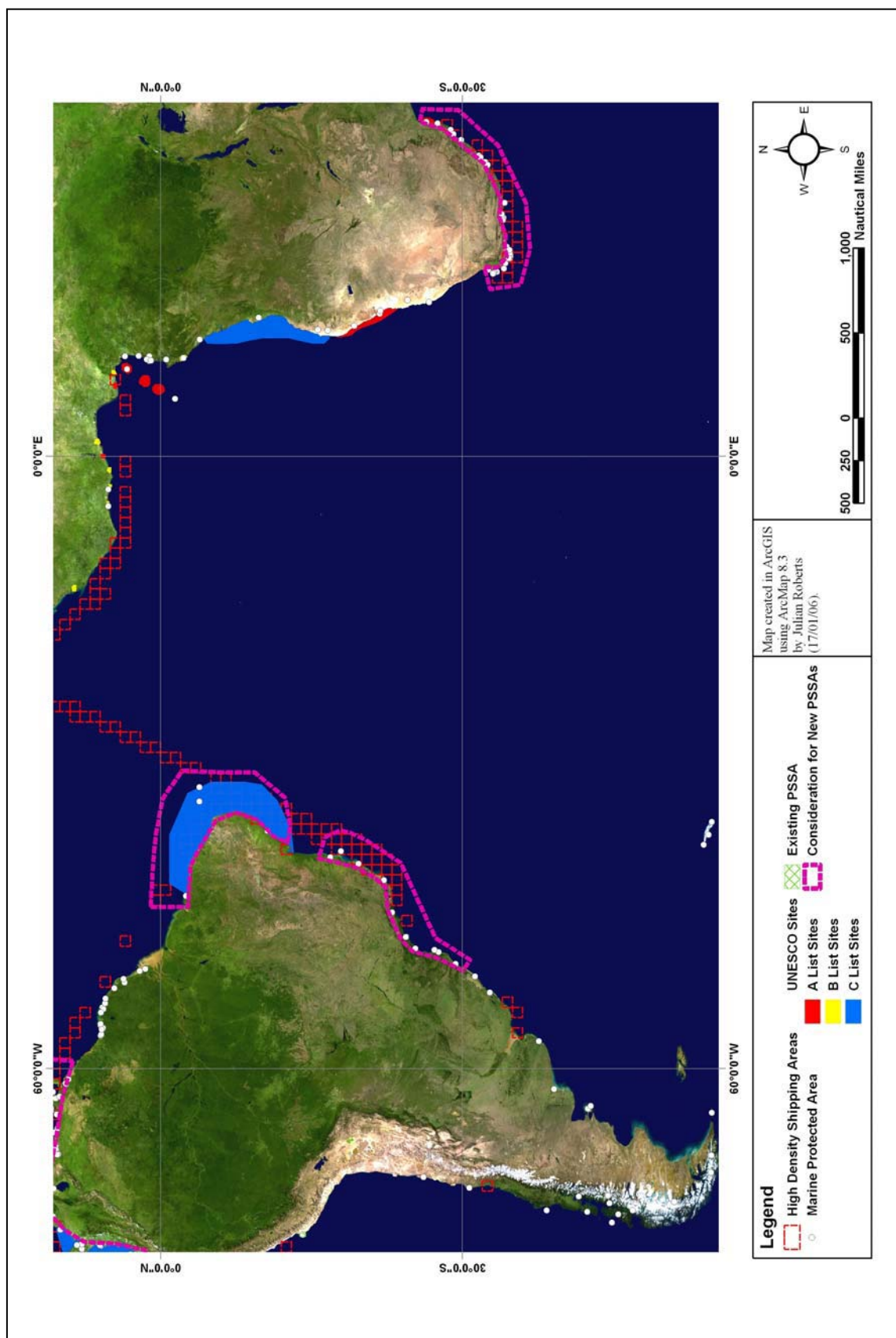


Figure 8.6(b). Areas for Consideration for Potential PSSA Sites - South Atlantic

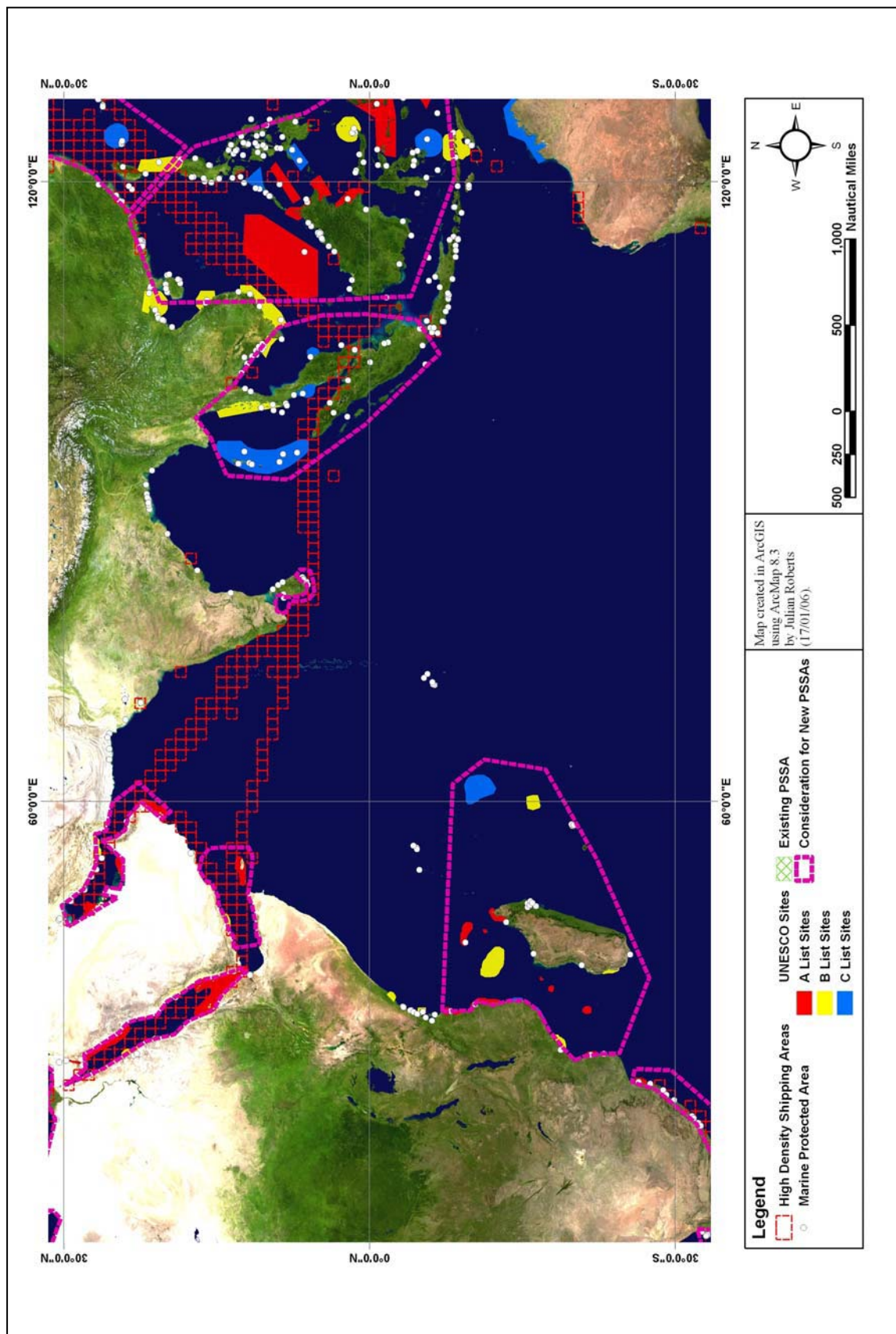


Figure 8.6(c). Areas for Consideration for Potential PSSA Sites - Indian Ocean

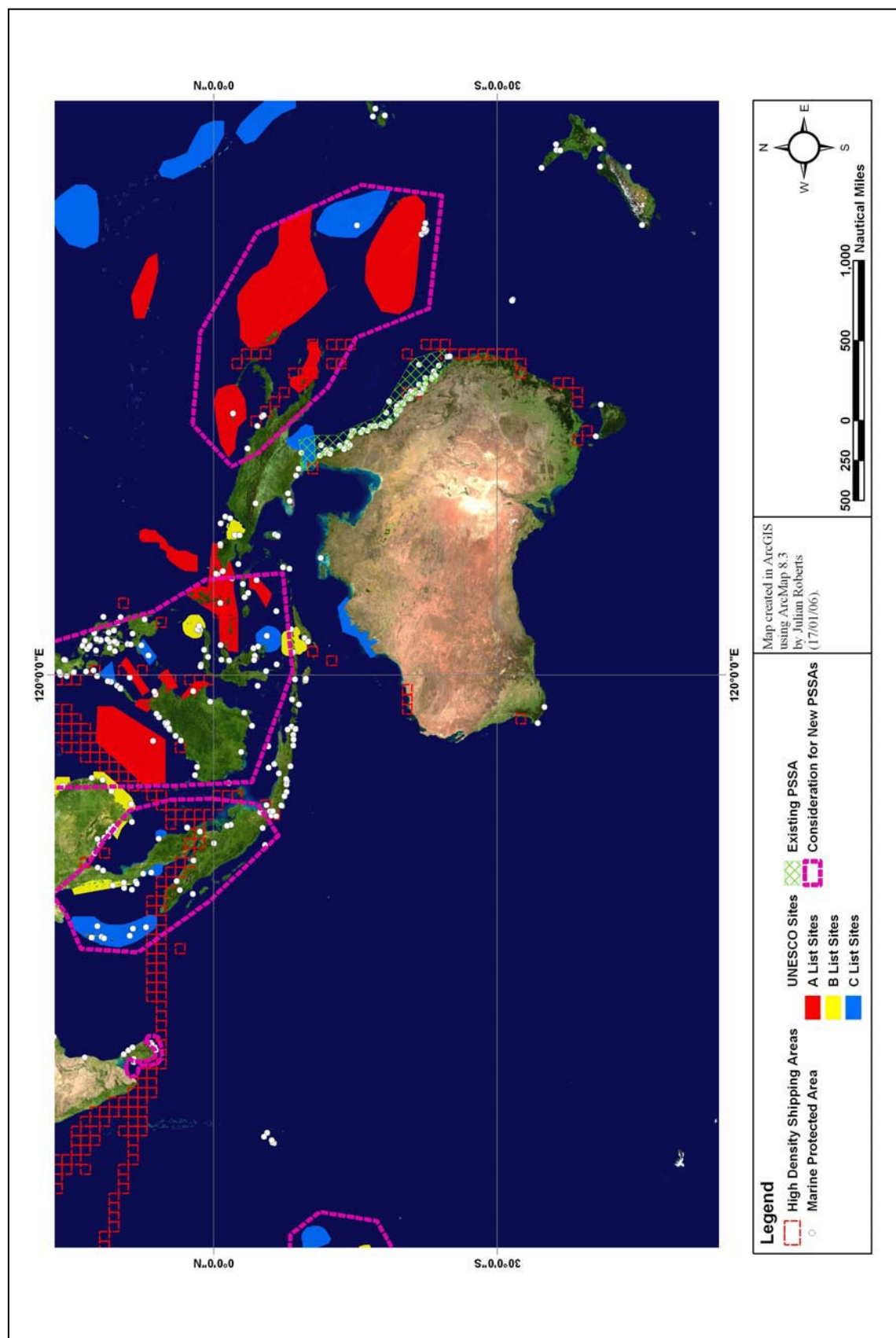


Figure 8.6(d). Areas for Consideration for Potential PSSA Sites - SW Pacific

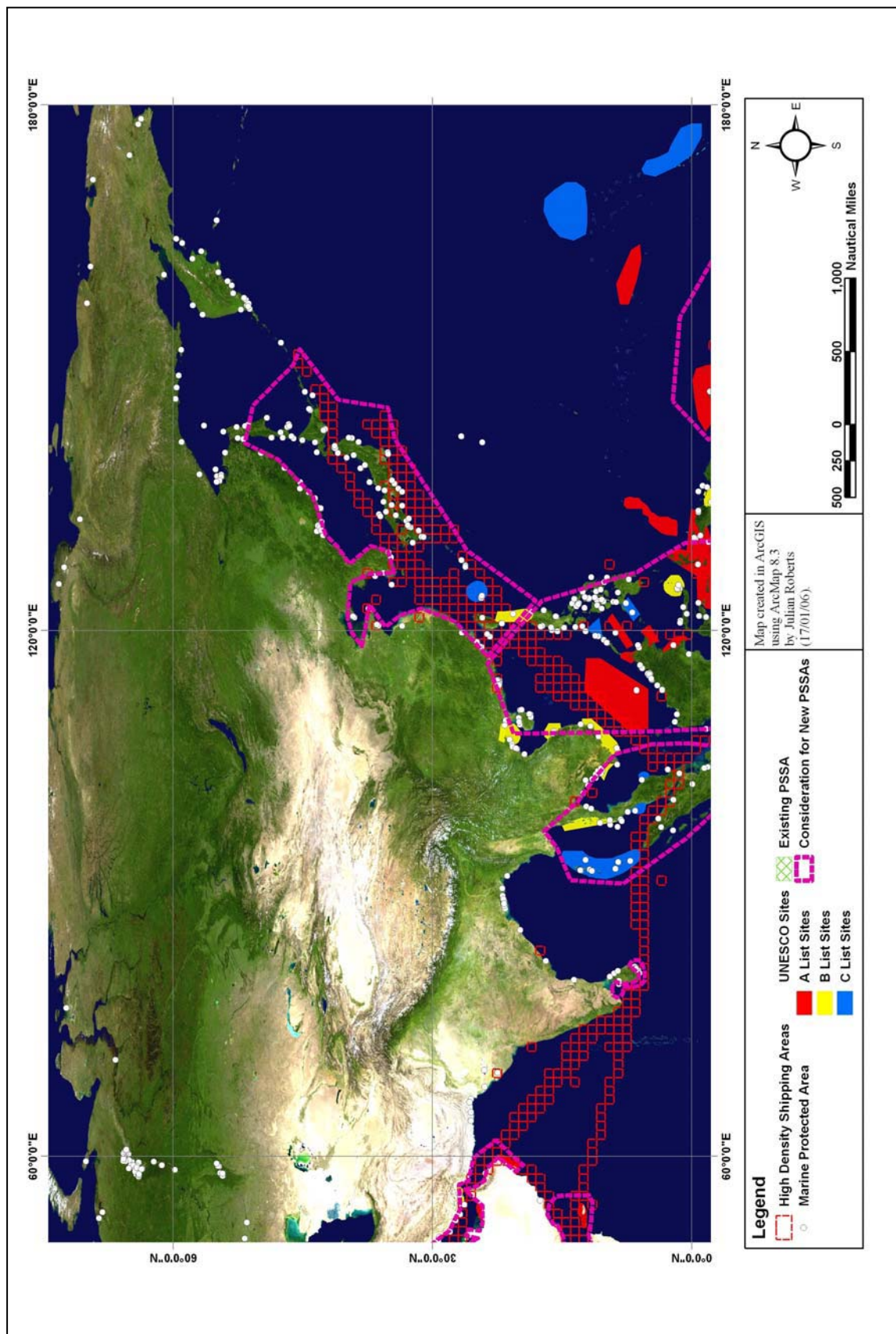


Figure 8.6(e). Areas for Consideration for Potential PSSA Sites - NW Pacific

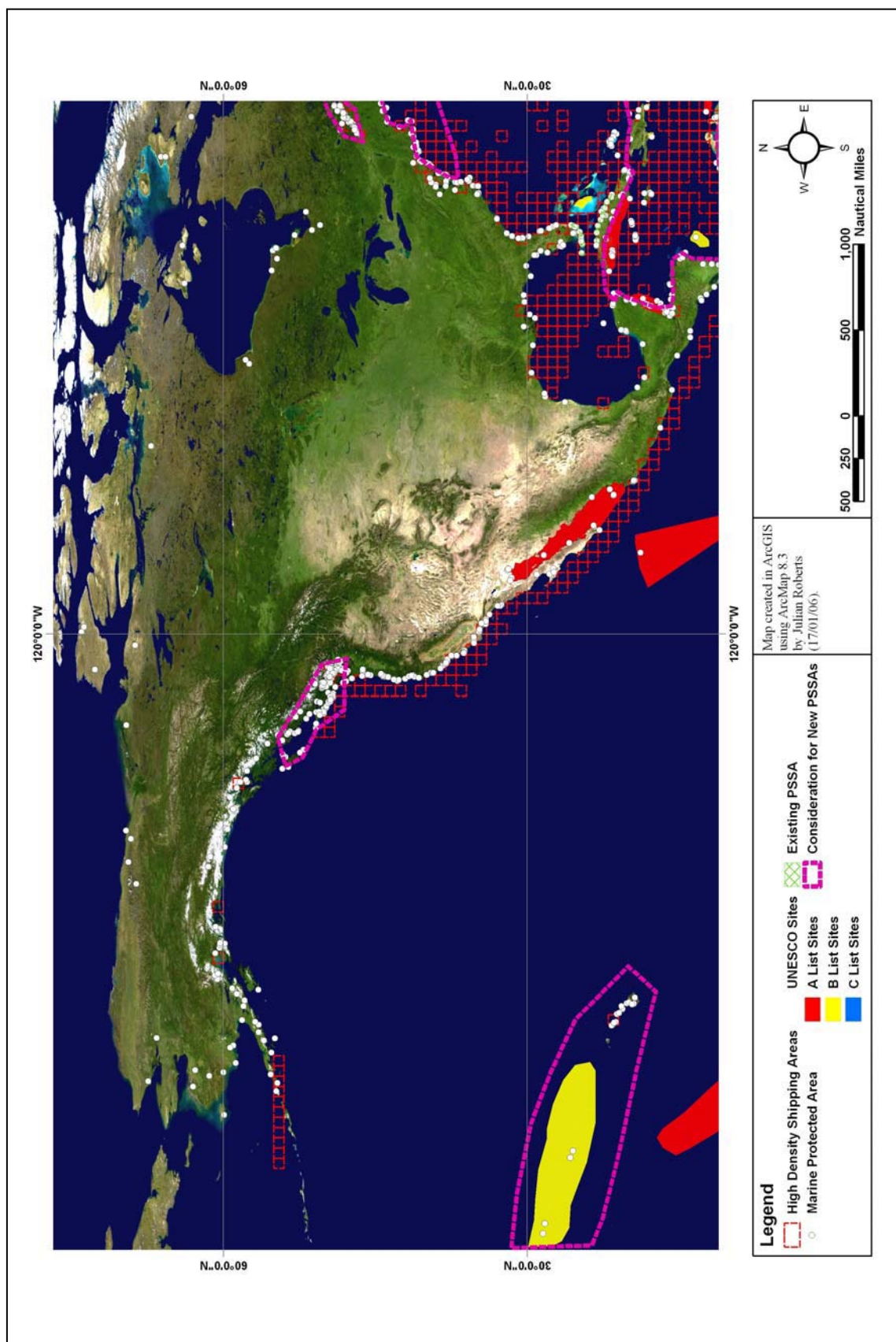


Figure 8.6(f). Areas for Consideration for Potential PSSA Sites - NE Pacific

Furthermore, the analysis does not address the final requirement of PSSA designation, i.e. that measures are identified that address the identified vulnerability. This would need to be done on a case-by-case basis, once a more detailed understanding of the actual threat posed by shipping to each site has been established. Nonetheless the analysis does show that it is possible to undertake a strategic level assessment which is based on scientific consensus of the priority areas and evaluation of actual shipping data. Such an approach could therefore be developed by the IMO in developing a strategic plan for the future development of the PSSA concept, and allow them to undertake regionally focussed training and capacity building work in those areas identified by the analysis, to facilitate submission of PSSA proposals, where the data indicates that such proposals would be of benefit to the local environment. The work undertaken by UNESCO to date, represents an obvious starting point upon which the IMO could build, and could form the basis of a series of regional workshops, focussing on the regional concerns identified by UNESCO. However, it should be noted that the UNESCO work relates to tropical sites. As such, a similar process should be undertaken to identify comparable temperate marine sites.

To date, only one regional workshop has been organised by the IMO on PSSAs, in the Philippines in 2003.⁸² A series of workshops involving marine scientists, maritime specialists, spatial planning and legal experts should therefore be a prerequisite for the development of a global strategy for the development of PSSAs. This would serve two main functions:

⁸² Kristina Gjerde personal communication.

- (1) To raise awareness of the application, scope and limitations of the PSSA concept and to educate States in the appropriate application of the concept; and
- (2) To facilitate regional consideration of marine biodiversity priorities for consideration for protection from shipping.

8.4 REGIONAL AND LOCAL APPROACHES FOR IDENTIFYING CANDIDATE PSSA SITES

As noted above, such a high level global assessment is not, in itself, sufficient to identify specific areas in need of protection from shipping activity, but instead provides a basis for the development of a more targeted regional or local approach, where a more detailed assessment would be undertaken to identify sites that may meet the criteria for PSSA designation. Once this was completed, candidate PSSAs could be identified. Therefore, in order to identify candidate sites for PSSA designation, it is necessary to identify areas that may meet at least one of the criteria for PSSA designation and that may be vulnerable to the impacts of international shipping.

There are a number of approaches that could be applied to each of these. For example, Zacharias and Gregr⁸³ propose a quantitative methodology for identifying vulnerable marine areas based on ecological values. The vulnerability of the valued ecological features is a function of their sensitivity⁸⁴ to a particular stress and their vulnerability⁸⁵ to those stresses. New Zealand and the United Kingdom have applied semi-quantitative

⁸³ M.A. Zacharias and E.J. Gregr, "Sensitivity and vulnerability in marine environments: An approach to identifying vulnerable marine areas," *Conservation Biology* 19 (2005), pp. 86-97.

⁸⁴ Where "sensitivity" is defined as the degree to which marine features respond to stresses, which are deviations of environmental conditions beyond the expected range.

⁸⁵ Where 'vulnerability' is defined as the probability that a feature will be exposed to a stress for which it is sensitive.

analytical models at a national level to identify Marine Environmental High Risk Areas (MEHRAs) that are vulnerable to the impacts of shipping.⁸⁶ Similarly Australia has applied this approach to identify MEHRAs within the boundaries of the Great Barrier Reef Marine Park.⁸⁷ Each of these approaches uses a risk-based approach to complete a comparative analysis of risk for areas within a defined spatial extent. In each case, both the environmental sensitivity and navigational risk were analysed, and combined to identify areas of both high sensitivity and vulnerability to oil spills. On a comparative basis, the most high-risk areas were identified as MEHRAs in each region studied.

Such analysis requires spatial analysis of environmental and threat information and this is best undertaken using a GIS model as described above. Other approaches include mapping specific habitat types, on the basis that certain habitat types are more vulnerable to damage than others. The earliest examples of such approaches are found in the environmental sensitivity index (ESI) concept and procedures developed for oil spill response and countermeasures planning.⁸⁸ While these approaches were designed to prioritise response activities and specify appropriate cleanup techniques, the ESI is based on physical and habitat classifications from which models of sensitivity and

⁸⁶ See note 45 above.

⁸⁷ See note 45 above.

⁸⁸ See for example: E.R. Gundlach and M.O. Hayes, "Vulnerability of coastal environment to oil spill impacts," *Journal of the Marine Technology Society* 12 (1978), pp. 231-251; J.M. Baker, M. Spalding and J. Moore, "Sensitivity mapping worldwide: harmonization and the needs of different user groups," in *Proceedings of the 1995 International Oil Spill Conference*, (Washington DC: API, 1995), pp. 77-81; Van Bernem *et al* describe a semi-quantitative approach taken to map the sensitivity of habitats around the Wadden Sea for the purpose of managing the risk from shipping. K.H. Van Bernem, B. Bluhm and H. Krasemann, "Sensitivity mapping of particular sensitive areas," in G. R. Rodriguez and C. A. Brebbia, (eds) *Water studies Volume 8: Oil and Hydrocarbon Spills, Modelling, analysis and Control II*. (Southampton, U.K: WIT Press, 2000), pp. 229-238.

vulnerability to oiling and cleanup are generated.⁸⁹ Current shoreline classifications developed to support ESIs are hierarchical, encompassing many types of resources (e.g. human use, wildlife, habitat type) and have successfully mapped large areas at very high resolution.⁹⁰ A more comprehensive approach for assessing the impacts of shipping impacts across broad spatial areas has been developed in New Zealand to support the assessment of risk from shipping impacts. This assessment includes an assessment of the risk to environmental, socio-economic, cultural and amenity values and allows a comparative analysis of environmental sensitivity to be applied to any geographic area.⁹¹

8.4.1 Application to PSSA Identification

It has been previously argued that the selection of PSSAs and the selection of appropriate measures for their protection would benefit from a comprehensive analysis of risks and assessment of appropriate APM targeting those risks.⁹² Even the potential protection to be afforded by APMs within established PSSAs can be informed by more

⁸⁹ Zacharias and Gregr, p. 3 (note 83 above). However these approaches rarely take into account the specific biodiversity values of an area, relying instead on defining habitat type as a surrogate for environmental sensitivity. For example, high energy cliff environments are often considered to be low risk in terms of the impact of pollution. However, this does not take into account the high numbers of seabirds that are often associated with such habitats.

⁹⁰ See for example: International Petroleum Industry Environmental Conservation Association (IPIECA), *Sensitivity Mapping for Oil Spill Response*, IMO/IPIECA Report Series, Vol. 1 (London: IPIECA, 1996); NOAA, *Environmental Sensitivity Index Guidelines*, Version 3.0, NOAA Technical Memorandum NOS OR&R 11 (Seaatle, USA: NOAA, March 2002).

⁹¹ L. Stevens, J. Roberts and D. Hume, "Incorporating consequence analysis into oil spill risk assessment in New Zealand," in *Proceedings of the 2005 International Oil Spill Conference*, (Miami, Florida: 15-19 May 2005).

⁹² See for example, D. E. Johnson, N. M. Butt and S. Walmsley, "Protecting MPAs from threats posed by international shipping," in *Proceedings of the First International Marine Protected Areas Congress* (Geelong, Australia: 23-28 October 2005). Following consideration of the Western European PSSA proposal it has been argued that comprehensive analysis of risks and assessment of appropriate APM targeting those risks should be undertaken in support of PSSA identification.

targeted risk assessment. In future, it will be important to adopt a proactive precautionary approach that targets geographical areas and high risk ship types, owners and charterers. The experience gained in Australia, New Zealand and the UK suggest that such an approach could be readily adapted for PSSAs and would ensure that the process of identification and planning of PSSAs is far more defensible and rigorous than is currently the case.

As a specific example of how individual sites or areas, identified for their environmental significance, may be subject to a more rigorous and comprehensive assessment to determine whether they warrant consideration as candidate PSSAs, UNESCO is currently undertaking a study of World Heritage Sites with a coastal or marine component, that may warrant further investigation for PSSA designation. The analysis combines data on the existing World Heritage List, and an analysis of global shipping movements, as discussed above.

8.4.1.1 Case Study - Analysis of World Heritage Sites for Possible PSSA Designation

The World Heritage Centre has expressed an interest in the application of the PSSA concept to World Heritage Sites that may be of exceptional value, or at high risk from pollution.⁹³ It is considered that the World Heritage properties most at risk from international shipping would be those located in areas of particularly intense shipping activity, regardless of the types of cargo the vessels are carrying.⁹⁴

⁹³ Andrew Thow, (UNESCO World Heritage Centre) personal communication.

⁹⁴ A. Thow, *World Heritage and International Shipping*. Unpublished UNESCO Project Briefing Paper, (August 2005), p. 14.

The risk is increased in areas where there is limited control over ship sourced pollution and limited enforcement of existing measures. In particular, UNESCO has concerns over the lack of control on shipping in developing parts of the world.⁹⁵ As such, UNESCO has identified the following regions for consideration: Southeast Asia; Latin America and the Caribbean Sea; the Indian Ocean and Red Sea; and some additional outlying areas of importance.⁹⁶

A preliminary, broad scale assessment of international shipping threats to World Heritage sites has already been undertaken, based on general information on shipping and input from site managers.⁹⁷ In the long term, it has been agreed that it would be beneficial to adopt a science-based approach to the identification of sites for PSSA status, similar to that discussed above for the identification of coastal, marine and small island sites. This would help maximise the benefit of a small number of PSSA designations and give the World Heritage Centre more leverage when attempting to persuade States to apply for PSSA designation for their World Heritage property. Such an approach would make use of GIS and local information to identify sites. It should also be recognised that, while an area may not be considered to be affected by high traffic density in international terms, many sites are at risk from local traffic density or

⁹⁵ UNESCO considers that the benefit of adding another layer of protection to such sites by PSSA designation is questionable, when taking into account the considerable effort required in assembling and then implementing a nomination. Furthermore, sites in the developed world have the financial and intellectual resources to nominate their own sites without considerable help from the World Heritage Convention. However, it is recognised that these sites may benefit from increased awareness of PSSA designation as a conservation tool. This could be achieved by issuing the management of all marine and coastal properties with documentation explaining the benefits of PSSA status and explaining the nomination process.

⁹⁶ Thow, p. 15 (note 94 above).

⁹⁷ The author has provided technical advice to UNESCO on PSSA designation, and undertaken GIS analysis for this project.

other factors such as regional variations in the quality of vessels plying coastal waters.⁹⁸ It will therefore be necessary to consider sites on a case-by-case basis when finalising priority sites for PSSA protection.

From the research already carried out it is possible to identify a number of World Heritage sites which, on first assessment, might benefit from PSSA status, or other IMO measures. The sites are (in no particular order): Ujung Kulon National Park, Indonesia; Tubbataha Reef Marine Park, Philippines; Ha Long Bay, Vietnam; Aldabra Atoll, Seychelles; Península Valdés, Argentina; and the Belize Barrier Reef Reserve Area, Belize.⁹⁹ Further work will be undertaken by the World Heritage Centre during 2006 to consider options for the protection of these and other sites, from the impacts of international shipping.¹⁰⁰

8.5 CONCLUSIONS

The benefits of a strategic framework for the identification and designation of sites have been clearly seen in the case of World Heritage Sites and Biosphere Reserves. Based on this experience, it is argued that the future development of the PSSA concept would benefit from a similar strategic approach. The success of such a strategic approach is heavily dependent upon the availability of environmental information which is easily accessible and on scale that is appropriate to the area being studied. A number of

⁹⁸ As an example, single hull tankers have been banned from US waters since the introduction of OPA '90 and restrictions on single hull tankers have recently been introduced by many European States. However, until the relevant global standards come into force, single hull tankers are still generally permitted in many regions of the globe. Similarly, regional variations in the standard of Port State Control Inspection may result in substandard vessels trading to those countries who lack the appropriate resources to fully implement and enforce a Port State Inspection regime.

⁹⁹ Thow, p. 37 (note 94 above).

¹⁰⁰ Marjaana Kokkonen (UNESCO, World Heritage Centre) personal communication.

relevant environmental datasets have been identified that could assist in such a strategic approach and a number of possible methodological approaches have been highlighted that may be applicable to the identification of PSSA at both a global and regional level. Of particular relevance in this context is the work undertaken by UNESCO to identify candidate sites for designation as World Heritage Sites with coastal, marine and tropical island values.

Pre-identification of potential candidate sites for PSSA designation provides a benchmark for the IMO on which basis it can discuss and agree upon future cooperation and technical support for specified areas warranting special protection. Furthermore, given the concerns raised by some States about the proliferation of PSSAs at a global level, it provides a ‘no surprises’ approach for other IMO States. That said, such an approach should not be seen as a rigid framework for future PSSA identification and designation. Such an approach would not limit other areas and does not obligate those States identified to take any action. Similarly, simply because an area is identified as a potential candidate area that would be worthy of future work, does not mean it meets the PSSA criteria. This would need to be done on a case-by-case basis.

CHAPTER 9

CONCLUSIONS AND RECOMMENDATIONS

9.1 INTRODUCTION

The objective of this research has been to examine the development and application of the IMO's PSSA concept and, in particular, to analyse a number of critical issues that have been identified through State practice with the concept. Specifically, the thesis examines the recent trend, among some coastal States, of applying the PSSA concept as a mechanism to support increasingly stringent protective measures, some of which appear contrary to international law. As such, there is evidence from State practice that the PSSA concept may upset the existing delicate jurisdictional balance between coastal States striving for environmental protection and flag States trying to maximise freedoms of navigation. Furthermore, a growing lack of confidence in the concept by flag States raises concerns over the future efficacy of the concept.

This final chapter formulates conclusions on the main aspects of the research and presents a number of recommendations aimed at improving the future application of the PSSA concept. Conclusions already drawn in preceding chapters are not repeated here unless necessary to support more general conclusions.

9.2 ROLE OF THE IMO

The IMO is firmly established as the pre-eminent Organisation for the regulation of all aspects of maritime activities. While the IMO's regulatory efforts initially focused largely on improving the safety of shipping, the development of a comprehensive regulatory regime for the prevention and control of marine pollution has established the IMO at the forefront of global efforts to protect the marine environment. Furthermore, despite the focus on marine pollution, since the conclusion of UNCED in 1992, the

IMO has taken a broader view of marine environment protection and many of its instruments now address wider issues of marine biodiversity conservation and habitat protection. Notable examples include amendments to SOLAS and the GPSR to explicitly provide for the adoption of navigation control measures for the purpose of environmental protection, developments in the control and management of invasive species and the development of the PSSA concept.

Furthermore, while it is generally acknowledged that IMO instruments give effect to obligations under the LOSC, it is also widely accepted that many of the IMO's environmental instruments may give effect to obligations under other international biodiversity conservation instruments such as the CBD. The increasing application of navigation measures for environmental purposes, discussed in Chapter 5, also provides evidence that coastal States are increasingly seeking to apply such measures for their own benefit. However, these trends, along with the increasing global focus on marine biodiversity conservation and in particular, the establishment of a representative network of marine protected areas, add increasing tension to the existing delicate jurisdictional balance between the rights of coastal States relating to environmental protection and those of flag States relating to freedom of navigation. The IMO and its members are therefore increasingly being called upon to make difficult decisions relating to the regulation of maritime activities for the purpose of marine environment protection. In this regard, the PSSA concept is viewed by many observers as a tool with considerable utility to enable States to give effect to obligations under the LOSC and CBD (as well as many of the outcomes from UNCED and WSSD), while ensuring the delicate jurisdictional balance of the LOSC remains intact.

9.3 THE PSSA CONCEPT IN INTERNATIONAL LAW

The complex international legal framework for the protection of the marine environment aims to ensure that the delicate balance between navigation freedoms and coastal States' rights to protect their sovereign territory and resources from environmental damage is maintained. As such, the LOSC recognises that coastal States have a legitimate right to control certain aspects of navigation that directly relate to the protection and preservation of both the marine and adjacent coastal environments. It is clear that coastal States are increasingly seeing the potential benefits of PSSA designation. However, during the last three years, the PSSA concept has been seen by some States as an opportunity to support the introduction of measures which appear contrary to international law.

It is clear from this, and other analyses that, since the PSSA concept has no legal significance in and of itself, designation of an area as a PSSA does not increase the unilateral capacity of a coastal State to control and regulate the passage of ships through the area. Only the adoption of specific associated protective measures, with an identified legal basis, may provide a coastal State with this ability. Thus, the primary focus for the application of the PSSA concept, in terms of international legal rights and obligations, relates to the interplay between IMO instruments and the LOSC.

The legal basis of the PSSA concept has been a cause of considerable confusion among many IMO member States and observers and there is clearly a need for further clarification of this issue to improve the overall understanding of the scope and limitations of the PSSA concept. It has been previously argued that the PSSA concept would benefit from having a legal basis in its own right, either through an existing legal instrument such as MARPOL 73/78, or through the development of a new instrument.

However, while many types of protected area are established through a specific legal instrument (e.g., World Heritage and RAMSAR Sites), the example of Biosphere Reserves illustrates that having a formal legal status need not be a precondition for the successful establishment and operation of a network of protected areas, provided there are sufficient legal tools available to provide protection to those areas, as well as a comprehensive management framework available to implement the protected area regime. As such, a more important area for development would be to review and augment the existing range of protective measures available for PSSA designation. Furthermore, there would be considerable merit in establishing some minimum environmental protection standards for PSSA designation, in the same way as Special Areas adopted pursuant to MARPOL 73/78 are required to provide for reception facilities to avoid discharges within the area.

9.4 BENEFITS OF PSSA DESIGNATION

Despite the many benefits that are argued for PSSA designation, an examination of State practice raises questions about the real benefits of PSSA designation. In particular, it has been argued that one of the benefits of PSSA designation is that it may allow for the adoption of exceptional measures that, while warranted, may not be able to find a specific legal basis in an existing instrument. However, as noted above, PSSA status does not enhance a coastal State's jurisdiction in the designated area, at the expense of the traditional rights of passage. The IMO has accepted this premise and, as the case studies presented in Chapter 6 illustrate, has demonstrated that there are clearly limits as to how far the Organisation is currently prepared to go in adopting measures, for the purpose of environmental protection, where (i) there exists no generally accepted international rules and standards in international law for the adoption of such measures,

and (ii) where such measures may violate the principle of freedom of navigation. As such, the IMO has sent a clear signal that the PSSA concept may not be used as a vehicle for circumventing the existing jurisdictional balance provided for in the LOSC. Furthermore, even where the measure is clearly provided for in an existing instrument, the IMO has shown reluctance to establish such a measure where it has not been adequately demonstrated that such a restrictive measure is warranted. While a number of observers have proposed new measures that could be applied within the framework of a PSSA, to date, the IMO has only applied those measures that are generally available through existing instruments and have a clear legal basis in international law.

Since PSSA designation affords no additional legal benefit to the application of existing IMO instruments, which may be implemented with or without the designation of a PSSA, the only additional benefits that can be realised are those non-legal, intrinsic benefits, that result in the global recognition of an area as a PSSA. While this thesis has presented some evidence that designation of a PSSA may affect the operational decision-making of ships' masters, to avoid environmental damage to the area (see Section 6.6.4.2), it is apparent that there is a low level of awareness, among mariners, of the PSSA concept. Thus, where such intrinsic benefits appear to have been most apparent is where the designation has been accompanied by targeted campaigns to educate mariners of the special significance of the area, supported by comprehensive monitoring and enforcement.

Although it is apparent that some intrinsic benefits may be realised by designation of a PSSA, arguably the most significant benefits that can be realised by the process of identifying and designating a PSSA, are those related to the process of evaluating the threat to a specific area and adopting the appropriate measures to address that threat.

The benefits of this approach were clearly realised in the case of the Florida Keys (Section 6.6.1.1), and in other previous examples such as the Great Barrier Reef. However, in order to fully realise the benefits of this approach there is a need for PSSA proposals to be comprehensive in their analysis and for the process by which such proposals are evaluated to be undertaken in a rigorous and consistent manner.

Notwithstanding this, while the PSSA concept does provide a useful framework for such an analysis, as has been demonstrated in Chapter 8, the experience of the United Kingdom, New Zealand and Australia demonstrates that it is not necessary to propose an area as a PSSA, in order to evaluate the vulnerability of that area to the impact of shipping. Therefore, the benefits of PSSA designation appear to be more a perception than a reality. However, despite doubts over the real benefits of PSSA designation, some coastal States clearly see benefits in the application of the concept.

9.5 CURRENT STATUS OF THE PSSA CONCEPT

The PSSA concept has clearly been influenced by the development of marine protected areas and many observers consider a PSSA to be a specialised type of MPA. However, it is clear from the evidence presented in this thesis, that States are interpreting and applying the PSSA concept in different ways. In some cases (e.g., the Western European PSSA – Section 6.2 - and the Baltic PSSA – Section 6.4) States appear to be applying the PSSA concept more for its iconic status rather any demonstrated protection that may derive from such designation. Moreover, as noted above, recently there have been a number of cases whereby States have attempted to use PSSA designation to support the adoption, by the IMO, of measures that may interfere with navigational freedoms. Other States however (e.g., the USA – Section 6.5), have clearly utilised the PSSA concept as a ‘process’ to evaluate the specific threat posed by international

shipping, thereby allowing them to tailor the most effective measures to address that threat. The issue of whether the PSSA concept is a specific type of MPA with iconic status similar to World Heritage designation, or whether it is a risk assessment tool to enable States to identify the most appropriate protective measure for a specific area needs to be resolved at an early stage in the future.

Similarly, there remains an ongoing debate over whether PSSA designation should be reserved only for the most outstanding areas, or whether it should be more broadly applied to any environmentally sensitive area. In particular, the application of the concept to wide geographic area where the conservation priorities are not clearly defined has raised questions over the most effective application of the PSSA concept in the future. A more rigorous risk-based assessment process, which uses a system of zoning, would therefore appear to be warranted for anything other than well defined, discrete marine areas. This approach has been widely used in the management of MPAs and seems a good model for some PSSAs. However, it is recognised that the unique circumstances of PSSAs, and the need to present relevant information on hydrographic charts does present some problems in the presentation of multiple zones, which will need to be addressed.

If the PSSA concept is to maintain credibility with the shipping community as an effective environmental protection tool, there is an urgent need for the IMO to address a number of significant issues that are apparent with the concept as it currently stands. These issues, if not addressed, have the potential to undermine the credibility of the concept, thereby reducing its effectiveness. Moreover, if the concept is to attach a certain iconic status to a given area, there is a need to ensure that designating an area as a PSSA warrants the special status associated with such a designation. Failure to do so

will devalue the status of PSSA designation thereby reducing the potential effectiveness of the concept.

The recently completed revision of the PSSA Guidelines goes some way to addressing a number of apparent issues in relation to the PSSA concept. Ultimately the effectiveness of the revised Guidelines will only be fully realised if the IMO applies a more rigorous and consistent approach in assessing future applications than it has in the past. The new guidelines do place a greater onus on the MEPC to adopt this more rigorous approach. However, while strictly adhering to the intent of the PSSA Guidelines will certainly address many of the concerns raised previously, the revisions do not go far enough and there remain a number of significant outstanding issues that are yet to be resolved.

9.6 FUTURE DEVELOPMENT OF THE PSSA CONCEPT

Given the concerns raised in Section 6.6. of this thesis, over the real benefits of PSSA designation, if the PSSA concept is to continue as an environmental protection tool with any credibility, its future development must be handled with caution. It is already clear from the case studies presented in Chapter 6, that confidence in the PSSA concept has been eroded and it remains to be seen whether this lack of confidence can be overcome. There appears to be a presumption among some member States and observers, that any PSSA will be designated, provided it can be demonstrated that certain characteristics are represented in the area. This presumption suggests that any area may be designated as a PSSA, an issue that is clearly exacerbated by the liberal interpretation and application of the existing PSSA criteria. Comparison with other international biodiversity protection instruments suggests that the PSSA concept lacks a degree of legitimacy due mainly to the lack of a rigorous and structured process for the evaluation and designation of

PSSAs. The current process by which IMO reviews such proposals is *ad hoc*, with the PSSA Guidelines having been applied in an inconsistent manner.

If the PSSA concept is to be used to highlight the iconic status of specific marine areas, arguably a more stringent approach, comparable with that used by UNESCO in the identification and selection of candidate sites for World Heritage designation, must be applied by the IMO and its members. Unless such an approach is applied, it may be envisaged that the unique status afforded to PSSA designation will be devalued in the eyes of the shipping industry and, as has already been observed, such designations may well not adequately reflect the true conservation priorities within individual PSSAs.

Furthermore, based on experience gained with the identification and designation of World Heritage Sites and Biosphere Reserves, it is argued that the future development of the PSSA concept would benefit from the development of a ‘strategic framework’. A number of different methodologies, utilising existing data sets identifying global shipping movements and identified marine conservation priorities, have been identified in this thesis (Chapter 8). These methodologies should be promoted by the IMO, thereby enabling the identification of specific regions where a more detailed assessment of PSSA application could be undertaken.

9.7 RECOMMENDATIONS

On the basis of the analysis presented in this thesis, it is possible to formulate a number of specific recommendations that could be effected by the IMO, to strengthen and restore confidence in the PSSA concept. These recommendations have been discussed in the main body of the thesis, but are summarised and reinforced in this section for completeness.

Recommendation 1

The IMO should, as a matter of priority, revise the process by which it considers and designates PSSAs. The following key areas should be addressed:

- (1) There is a need for a ‘screening’ process to ensure that all PSSA proposals submitted to MEPC are complete. Where inadequate or incomplete information is provided, the proposal should be returned to the proposing State(s) for the relevant additional information to be provided.

This function could be undertaken by the IMO Secretariat and would ensure a minimum standard of quality for PSSA nominations. There should be no presumption that all submissions to the MEPC will be approved on the basis of the minimum or inadequate information;

- (2) There is a need for a more permanent and representative Technical Review Group for PSSA nominations. Such a group could benefit from the input of third party advisory groups, such as the IUCN, who have expertise in the evaluation of protected areas. However, the primary role must rest with the IMO, since that organisation alone has the competence to evaluate possible conflicts with navigation safety;
- (3) The Technical Review Group should undertake its evaluation unencumbered by political interference by the proposing States(s), to ensure a transparent and objective evaluation. Proposing States should present their proposal to the group and be prepared to provide additional information as required, but should not participate in the decision making process unless there is a specific need;

- (4) The evaluation should not be based on a simple checklist approach and should not rely on the presence or absence of individual criteria. Instead, the evaluation should consider the extent to which criteria are present throughout the area and weightings afforded to each criterion based in this analysis, in order to determine whether the area warrants designation, and which zones require the greatest level of protection;
- (5) Finally, there is a need to ensure that the Technical Review Group and the wider MEPC adhere strictly to the evaluation criteria set forth in the PSSA Guidelines.

Recommendation 2

Future PSSA proposals should include implementation and management plans to allow for the ongoing monitoring and reporting for each PSSA. A critical element of any PSSA proposal must be information on how the proposing State(s) intend to implement the PSSA and its APMs, inform and educate maritime users in the area, and monitor the effectiveness of these measures in addressing the identified vulnerability of the area.

Furthermore, there is a need for periodic review of existing PSSAs to monitor their effectiveness and to ensure that the most appropriate APMs are in place on an ongoing basis.

Recommendation 3

The IMO should develop and adopt a ‘strategic framework’ for the future development of the PSSA concept. Such a framework may include operational guidelines for PSSA identification, designation and implementation and should also allow for the

identification of candidate sites for PSSA designation which can be agreed upon by all parties concerned.

Recommendation 4

There is a need for a more ‘risk-based’ approach to the identification of areas for PSSA designation and the selection and application of relevant APMs. A number of models have been identified in this thesis (Section 8.4), which demonstrate the application of such techniques for the identification of marine environmental high risk areas in the context of maritime activities. Such risk-based approaches must necessarily focus on zoning approaches to PSSA identification and designation. In particular, the buffer concept, currently contained in the PSSA guidelines, must be revised and a more workable approach to the application of buffer zones in the context of PSSAs developed by the MEPC. The use of such zoning techniques will allow the most vulnerable marine areas to be afforded to highest degree of protection, and provide a more flexible and targeted approach to PSSA designation. Concerns over the proliferation of hydrographic chart symbols relating to PSSAs must be addressed to allow for the more flexible designation of PSSAs with different zones.

Recommendation 5

The questionnaire research reported in Chapter 7 indicates that some intrinsic benefits may be realised, by designation of an area as a PSSA. However, the survey sample size was small, and did not include an assessment of the effectiveness of existing PSSAs and APMs. Accordingly, it is recommended that further analysis be undertaken to identify under what circumstances the greatest benefits of PSSA designation may be realised.

Based on this analysis, the PSSA Guidelines and the IMO process could be further strengthened.

Recommendation 6

The questionnaire research also suggests that awareness of the PSSA concept, among professional mariners, is low. Accordingly the IMO should consider what options are available to raise the level of awareness and understanding of the PSSA concept, among the maritime community.

Recommendation 7

Given the concerns raised in this thesis over the benefits of PSSA designation, consideration should be given to the earlier recommendation of the international group of legal experts on PSSAs that proposed the development of additional protective measures to be applied for PSSAs. Subject to establishing a clear legal basis for any new measure, the IMO must be more proactive in the development of measures to protect PSSAs, thereby enhancing the value of PSSA designation. Furthermore, consideration should be given to whether mandatory APMs should be required for PSSA designation. In particular, given the recommendation for monitoring discussed above, the implementation of VTS and AIS should be considered for all PSSAs.

9.8 CONCLUDING COMMENTS

Despite the debate over the true benefits of PSSA designation, it is clear that many coastal States and NGOs see considerable utility in its application as a measure for the protection of the marine environment. It is unfortunate that the inappropriate application of the PSSA concept in recent years has resulted in a general lack of confidence in the

efficacy of the measure. The future success of the PSSA concept requires a more rigorous assessment of candidate sites and a comprehensive management framework, within which the concept can be developed. The recommendations made in Section 9.8 above, aim to address these two specific requirements and, it is hoped, to restore confidence in the PSSA concept by all parties for the long term.

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Appendix A

IMO Assembly Resolution A.720(17)

1991 PSSA Guidelines

Appendix B

IMO Assembly Resolution A.927(22)

2001 PSSA Guidelines

Appendix C

Summary of Ships' Routeing Measures Adopted for Environmental Purposes (From Peet¹)

¹ Peet, G. "Particularly sensitive sea areas - A documentary history", *International Journal of Marine and Coastal Law* 9 (1994), p. 469-506.

Appendix D

Summary of Ships' Routeing Measures Adopted for Environmental Purposes since 1994

(From Roberts²)

Mediterranean Sea and Black Sea

The Adriatic Sea - protected by a ships routeing system and a mandatory ship reporting system, with the objective of enhancing the safety of navigation and the protection of the marine environment.

The proposal submitted to IMO noted that “the protection of the Adriatic Sea is of the utmost importance for each and every country along its coast”.

The initial proposal for a SRS (NAV 47/3/4) and for routeing measures (NAV 47/3/5) were submitted in 2001. Neither proposal was accepted at that time due to concerns raised by Member States.

The SRS was finally adopted in 2002 (MSC 76/23) and the routing measures, in the form of two traffic separation schemes, a precautionary area, an area to be avoided and recommended routes, were adopted in 2004 (MSC 78/26).

The region of Cape La Nao and Cape Palos (south-east of the Iberian Peninsula, Spain) - protected by two traffic separation schemes. The proposal submitted to IMO noted that the area was ‘of considerable ecological sensitivity and tourist attraction’.

The proposal for the traffic separation schemes was submitted in 2002 (NAV 48/3/6 and NAV 48/3/7) and adopted later that year (MSC 76/23).

Indian Ocean and adjacent waters

The Gulf of Aqaba - protected by areas to be avoided north of the Straits of Tiran, north of Sharm El Sheikh and at the southern extremity of the Sinai Peninsula respectively, in order to avoid the risk of severe damage to critical ecosystems, the environment and natural resources contained within the declared boundaries of the Ras Mohammed National Park.

First proposed in 1994 (NAV 40/4/3) and adopted in 1994 (MSC/64/22).

The southern Red Sea - protected by traffic separation schemes, recommended tracks and a precautionary area to increase maritime safety and protection of the marine area.

First proposed in July 2000 (NAV 46/3/5) and adopted in 2002 (MSC 76/23).

² Roberts, J. “Protecting sensitive marine environments: the role and application of ships’ routeing measures,” *International Journal of Marine and Coastal Law* 20 (2005), pp. 135-159.

The region of Ra's al kuh in the Gulf of Oman - protected by a traffic separation scheme with a view to protecting an area of considerable ecological sensitivity. First proposed in 2003 (NAV 49/3/1) and adopted in 2004 (MSC 78/26).

Australasia

The approaches to the north east coast of the North Island of New Zealand – protected by a mandatory area to be avoided to protect a marine reserve. First proposed in 2003 (NAV 49/3) and adopted in 2004 (MSC 78/26).

North America, Pacific Coast

Off the Washington (U.S.) and British Columbia (Canada) Coast the offshore waters of the Olympic Coast National Marine Sanctuary and the Strait of Georgia - protected by an area to be avoided, new and amended traffic separation schemes and a recommended route.

While the IMO adopted a traffic separation scheme for the Strait of Juan de Fuca in 1981, the area to be avoided was first proposed in 1994 (NAV 40/4/2) in recognition of the area's nearly pristine coastal environment and the continued survival of several ecologically and commercially important species.

The routing system was further amended in 2001 with amendments to the existing, and addition of a new, traffic separation schemes (NAV 47/3/9), the expansion of the area to be avoided (NAV 47/3/11) and the addition of a new recommended route (NAV 47/3/10).

The measures were adopted in 2002 (MSC 75/24).

The area of the California coast between Pigeon Point and Point Sur - protected by the establishment of three recommended tracks for use by certain ships. This area was designated a national marine sanctuary because of its national and international significance for biodiversity. It is described as being one of the most biologically diverse marine areas in the world.

First proposed in 1999 (NAV 45/3/4) and adopted in 2000 (MSC 72/23).

Western North Atlantic, Gulf of Mexico and Caribbean Sea

The Grand Banks area off the East Coast of Canada - protected by the establishment of a precautionary area around the Terra Nova FPSO, to minimize the possibility of collisions and resultant environmental damage.

The Grand Banks support a highly productive ecosystem where fish, shellfish, whales, seals, seabirds and other marine life are found in large numbers. It also has a high socio-economic value and as one of the most prolific fishing areas in the world, has sustained fishing fleets from many countries.

First proposed as an area to be avoided in March 2001 (NAV 47/3/14), following concerns raised by several delegations over the establishment of an area to be avoided

around an FPSO, the application was modified to a precautionary area which was adopted in 2002 (MSC 75/24).

The area of the Bay of Fundy - provided additional protection by an amendment to the existing traffic separation scheme. The scheme was first adopted in 1982 for the purpose of organising traffic through an area extensively used for fishing. As such, the original application was safety related. It is included in this analysis due to the amendments being proposed on the basis of environmental protection.

The amended scheme is proposed for the purpose of reduce ship strikes of the highly endangered North Atlantic right whale by shifting the traffic lanes of the TSS from an area with the highest density of right whales to an area where there is a lower density. The area is designated as a Right Whale Conservation Area.

Proposed in 2002 (NAV 48/3/5) and adopted in later that year (MSC 76/23).

The regions of the north-east and south-east coast of the U.S. - protected by mandatory ship reporting systems, to provide beneficial information to ships to assist them navigating safely through areas recognised as being critical habitats for the North Atlantic right whale.

The system off the southeastern coast of the United States will operate from 15 November to 15 April, which includes the calving season for right whales in this area; whilst the system off the northeastern coast would operate throughout the year, as right whales have been sighted in this area throughout the year.

The Northern right whale is listed internationally as endangered, and has been shown to be highly vulnerable to ship strikes. The measures will thus directly contribute to the survival and recovery of the species.

First proposed in 1998 (NAV 44/3/1) and later that year (MSC 70/23).

The Flower Gardens Banks coral reef in the north-western Gulf of Mexico - protected by three mandatory no anchoring areas to significantly prevent and reduce the risk of damage to the coral marine environment by ships, without restricting the sea area available for navigation.

The area is a National Marine Sanctuary. These areas are unique even among the world's coral reefs. The banks contain the northernmost coral reefs on the North American continental shelf and support the most highly developed offshore hard-bank communities in the region.

First proposed in 2000 (NAV 46/3/3) and adopted later that year (MSC 73/21).

The approaches to the port of Veracruz - protected by a traffic separation scheme, an area to be avoided and precautionary areas with the aim of protecting the National Marine Park from the risk of pollution caused by the grounding of ships in the area.

The routing system was first proposed in 1993 but did not satisfy the criteria set out in the GPSR at the time. The application was subsequently resubmitted with modifications in 1995 (NAV 41/4/3; 41/4/4; 41/4/5) and finally adopted in 1996 (MSC 66/24).

Appendix E

RESEARCH QUESTIONNAIRE

PARTICULARLY SENSITIVE SEA AREAS

Action Requested of Respondent

Respondents are requested to:

1. Complete the Marine Experience Profile below; and
2. View the attached chartlet (Figure 1) and then answer questions 1- 4 listed below. Figure 1 is illustrative only and is not necessarily to scale.

Note: Upon submission of the completed questionnaire, each respondent will be sent a second chartlet and asked to respond to **one further question**.

Marine Experience Profile

Seagoing qualification?

Master Mariner

Coastal

Deepwater

Years at sea?		
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Vessel types?

**General cargo, Bulk Carriers &
Supply Boats/Anchor Handling Tugs**

Yes

No

Currently working at sea?		
----------------------------------	--	--

		Yes	No
1.	Have you seen a PSSA marked on a chart before?	<input type="checkbox"/>	<input type="checkbox"/>

		Yes	No
2a.	Have you traveled through a PSSA before?	<input type="checkbox"/>	<input type="checkbox"/>

2.b	If yes - where were these located?
<hr/>	
<hr/>	
<hr/>	

3.	What does PSSA designation on a chart mean to you?
<hr/>	
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4.	For the PSSA marked on Figure 1 what, if any, operational decisions would you make because of the PSSA, if moving from chart position A to B?
<hr/>	
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**Particularly Sensitive
Sea Areas (PSSAs)**

The symbol with the Legend PSSA depicts the outer limit of an IMO-approved Particularly Sensitive Sea Area (PSSA). The PSSA is designated for reasons of conservation of unique biodiversity of the Poor Knights Islands declared to be a Marine Reserve. Legislated restrictions apply to access, discharges of waste and other activities. For details see Notice to Mariners No. 05/24

RESEARCH QUESTIONNAIRE
PARTICULARLY SENSITIVE SEA AREAS

Action Requested of Respondent

Respondents are requested to view the attached chartlet (Figure 1) and then answer question 1 below. Figure 1 is illustrative only and is not necessarily to scale.

All responses are anonymous and no individual response will be published or reported in any way.

1a.	For the PSSA marked on Figure 1 what, if any, operational decisions would you make because of the PSSA, if moving from chart position A to B?
------------	--

1b.	If your answer to this question is different to your answer in the first questionnaire please explain the reasons for this
------------	---

Particularly Sensitive Sea Areas (PSSAs)

The symbol with the Legend PSSA depicts the outer limit of an IMO-approved Particularly Sensitive Sea Area (PSSA). The PSSA is designated for reasons of conservation of unique biodiversity of the Poor Knights Islands declared to be a Marine Reserve. Legislated restrictions apply to access, discharges of waste and other activities. For details see Notice to Mariners No. 05/24

Two Way Route

The Two-Way Route shown on this chart is a ships routeing measure. Its use is not mandatory, however it does indicate the best and safest route having regard to charted dangers and the environmental sensitivity of the area.

Appendix F

MEPC Technical group PSSA Evaluation Form

ANNEX 2

PSSA PROPOSAL REVIEW FORM³

Proposal to designate the Galapagos Archipelago as a PSSA (MEPC 51/8/2 & Corr.1)

1. General

- 1.1 Name of area proposed to be designated as a PSSA: *Galapagos Archipelago*
- 1.2 Proposing Member State(s): *Ecuador*
- 1.3 Document containing proposal: *MEPC 51/8 and MEPC 51/8/Corr.1*
- 1.4 Related documents: *Resolution A.927(22)*
- 1.5 Navigational chart number which depicts area: *IOA20*

2. Summary of the Proposal and Other Necessary Background Information

- 2.1 Does the application set forth a summary of the objectives of designation?
(paragraph 7.3)

Yes

- 2.3 Is there a detailed description of the area and is it clearly depicted on a chart or chartlet?
(paragraph 7.4.1.1)

Yes

- 2.3 Does the application provide a brief explanation of the need for protection?
(paragraph 7.3)

Yes

- 2.4 Does the application include one or more associated protective measure(s) (APMs)?
(section 5, paragraph 7.4.2)

Yes

- 2.5 Are the reasons included as to why the APM is the preferred method for providing protection? (paragraph 7.3)

Yes

3 The paragraph numbers at the end of each question refer to paragraph numbers in resolution A.927(22).

2.6 Are there other Member States affected by the proposal? (paragraph 3.1)

No

2.7 If the answer to 2.6 is yes, have they been consulted?

Yes ☐ No ☐ Need More Information ☐

2.8 Does the area include a buffer zone? (paragraph 6.3)

No

2.9 If the answer to 2.8 is yes, is it justified as to how it contributes to the protection of the area?

Yes ☐ No ☐ Need More Information ☐

3. Is the Area Sensitive for *One* of the Following Reasons?

Ecological criteria (beginning at paragraph 4.4.1)

3.1 Is the area unique or rare?

Yes

3.2 Does it provide critical habitat?

Yes

3.3 Is the area important from a dependency point of view?

Yes

3.4 Is the area representative?

Yes

3.5 Is the area important in terms of its diversity?

Yes

3.6 Does the area have a high natural productivity?

Yes

3.7 Is the area a critical spawning or breeding ground?

Yes

3.8 Does the area represent a high degree of naturalness?

Yes

3.9 Is the area a biologically functional unit?

Yes

3.10 Is the area highly vulnerable?

Yes

3.11 Is the area important from a bio-geographic point of view?

Yes

Social, cultural, and economic criteria (beginning at paragraph 4.4.12)

3.12 Is the area of particular importance to the utilization of living marine resources?

Yes ☐ No ☐

3.13 Is the area important from a recreational point of view?

Yes ☐ No ☐

3.14 Is the area important from a human dependency point of view?

Yes ☐ No ☐

Scientific and educational criteria (beginning at paragraph 4.4.15)

3.15 Is the area an important site for research?

Yes ☐ No ☐

3.16 Does the area provide suitable baseline conditions with regard to biota or environmental characteristics?

Yes ☐ No ☐

3.17 Is the area important from an educational point of view?

Yes ☐ No ☐

Conclusion: Does the proposal fulfil one of the above criteria in section 3?

Yes

4. Is the Area Vulnerable to the Risk of Damage by International Ship Traffic?

Vessel traffic characteristics

- 4.1 Does the application provide information on the types of maritime activities in the area that may increase the risk to the safety of navigation? (paragraph 5.1.1)

Yes

- 4.2 Does the application provide the types of vessels passing through or adjacent to the area? (paragraph 5.1.2)

Yes

- 4.3 Is there data provided on the vessel traffic characteristics (e.g., volume or concentration of traffic, vessel interactions, distance offshore, other dangers to navigation)? (paragraph 5.1.3)

Yes

- 4.4 Is there any information on harmful substances being carried? (paragraph 5.1.4)

Yes

Natural factors

- 4.5 Is there information provided on the hydrographical conditions? (paragraph 5.1.5)

Yes

- 4.6 Is there information provided on the meteorological conditions? (paragraph 5.1.6)

Yes

- 4.7 Is there information on the oceanographic conditions? (paragraph 5.1.7)

Yes

Other elements to consider

- 4.8 Is there information provided on the nature and extent of the risk of damage that international maritime activities pose or have caused in the area (e.g., past accidents or groundings, ongoing threats, future threats, whether the damage is of a recurring or cumulative nature)? (paragraph just before section 6)

Yes

4.9 Are there stresses being caused from other environmental sources? (paragraph just before section 6)

Yes

Conclusion: Is the area vulnerable to a risk of damage from international shipping?

Yes

If not, what type of damage or threat of damage is being caused to the area?

Does the informal experts group have any suggestions on ways to address this risk?

5. Are there Associated Protective Measures Proposed to Protect the Area from the Identified Vulnerability?

5.1 Are there any IMO measures already in place to protect the area from the identified vulnerability? (paragraph 7.2)

No

If so, does the application state how is the area already being protected by such measures? (paragraph 7.2)

5.2 Are there any new IMO measures being proposed to protect the area? (paragraph 7.4.2.1(a))

Yes Measure Needs to be Proposed within 2 Years

If yes, what are the measures?

Areas to be avoided

Is it: (a) An existing IMO measure? (paragraph 7.4.2.1(a)(i))

Yes

If so, under what IMO instrument and does the proposal comply with the requirements of that instrument? (paragraph 7.4.2.4)

SOLAS, chapter V, regulation 10

(b) A measure that does not yet exist at IMO, but should be available through IMO as a generally applicable measure to address a problem that occurs in multiple areas? (paragraph 7.4.2.1(a)(ii))

Yes ☐ No ☐

If so, has an amendment been proposed to the pertinent instrument or is there a proposal on how to proceed to obtain the measure? (paragraph 7.4.2.3)

(c) A measure that may be adopted by a State in its territorial sea or by IMO pursuant to UNCLOS Article 211(6)? (paragraph 7.4.2.1(a)(iii))

Yes ☐ No ☐

5.3 Does the application state to what ships or category of ships the APM applies? (paragraph 7.4.2.2)

Yes

5.4 Does the application indicate the possible impact of the APM on the safety and efficiency of navigation? (paragraph 7.4.2.4)

Yes

5.5 Is the proposed APM appropriate to address effectively the identified vulnerability of the area from international shipping? (paragraph 8.2.1)

Yes

5.6 Is there a possibility that the APM might result in undesirable adverse effects by international shipping on the environment outside of the proposed PSSA? (paragraph 8.2.2)

No

Conclusion: Is there an appropriate APM proposed to address the vulnerability?

Yes

6. Miscellaneous Issues

- 6.1 Is the size of the area commensurate with that necessary to address the identified need? (paragraph 8.2.3)

Yes

- 6.2 Are there any existing domestic measures in place to protect the area? (paragraph 7.6)

Yes

- 6.3 Does the application provide any information regarding the enforcement of the APM? (paragraph 7.7)

Yes

- 6.4 Has the area been declared a World Heritage Site, a Biosphere Reserve, or included on a list of areas of international, regional, or national importance or is the area the subject of international, regional, or national conservation action or agreements? (paragraph 6.2)

Yes
