Regulating the Environmental and Socioeconomic Impacts of Shipping and Other Vessel Based Activities in the Great Barrier Reef Marine Park and World Heritage Area

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REGULATING THE ENVIRONMENTAL AND SOCIOECONOMIC IMPACTS
OF SHIPPING AND OTHER VESSEL BASED ACTIVITIES IN THE GREAT
BARRIER REEF MARINE PARK AND WORLD HERITAGE AREA

A thesis submitted in fulfilment of the requirements for the award of the degree

DOCTOR OF PHILOSOPHY

from

UNIVERSITY OF WOLLONGONG

by

James Peter Aston, MSc

Australian Centre for Ocean Resources and Security

Faculty of Law

University of Wollongong

2008
CERTIFICATION

I, James Peter Aston, declare that this thesis, submitted in fulfilment of the requirements for the award of Doctor of Philosophy, in the Faculty of Law, 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.

James P. Aston
8 February 2008
ABSTRACT

The Great Barrier Reef sustains a variety of commercial and recreational activities and livelihoods including fishing, tourism, recreation and shipping. Those activities pose a source of harm to the biodiversity, use and amenity values of the Great Barrier Reef Marine Park and World Heritage Area. The threat of day-to-day shipping operations on the Reef’s ecosystem is largely unquantified but could represent a not inconsequential contribution to the overall levels of contaminants entering the Marine Park, potentially diminishing the amenity or water quality at sites which are already affected by other activities or susceptible to influxes of land sourced pollutants. There is also the potential for more serious impacts to the outstanding natural, social and economic values of the region following a major shipping accident.

While the Great Barrier Reef Marine Park Authority is the principal custodian of the Great Barrier Reef Marine Park, the administration of a suite of measures to regulate all ships and vessel activities in the region is shared with two other Commonwealth government authorities and one state government authority. The complexity of international and domestic shipping and environmental protection laws presents many challenges for the region’s responsible management. This thesis examines the environmental and socioeconomic impacts to the Reef from the operations of ships and other vessel based activities and the practical application and effect of regulatory measures that have been developed and implemented to remedy those impacts. It describes the origins, development and implementation of the key ship routeing initiatives in the form of compulsory pilotage, a vessel traffic service and provisions under the Great Barrier Reef Marine Park Zoning Plan 2003 to control use and access to high conservation zones. It also analyses recent developments at international and national law prescribing actions that can be taken to deal with operational vessel sourced waste discharges, the administrative arrangements for dealing with a maritime casualty as well the preparedness and response to oil and chemical spills.

A significant part of the intellectual value of the thesis is derived from analysing the operation and interaction of international, Commonwealth and Queensland State marine pollution legislation and identifying issues which could affect the efficacy of those laws and related measures in protecting the Great Barrier Reef Marine Park and World Heritage Area. The findings of the research support the premise that shipping and other vessel based activities within the Great Barrier Reef are generally conducted to a high standard. Nonetheless, as shipping and other vessel based activities continue to expand within the region, so does the risk of an accident or marine pollution event. It is suggested that the ship regulatory authorities should judiciously apply the precautionary principle and keep under review the widest possible range of ship safety, marine pollution prevention and environmental standards and measures available under international law to ensure the Great Barrier Reef remains a national and international icon.
ACKNOWLEDGEMENTS

The completion of the thesis would also not have been possible without the assistance and forbearance of my colleagues, peers, friends and family. I sincerely thank them for their generosity, support and encouragement:

The benevolence, expert guidance, timely encouragement and materials provided by my supervisor, Professor Martin Tsamenyi kept me focused and engaged in the project. My co-supervisor, Professor Stuart Kaye, provided technical advice on maritime boundary terminology;

Geoff Toomer generously tendered his extensive maritime administration knowledge and experience to challenge my biases and assertions on earlier draft chapters of the thesis;

Dr David Haynes scrutinized the water quality science and offered suggestions for the structure of the thesis;

John Kavanagh, Stuart Watson, Althea Harding and Jason Veins reviewed some of the commentary on the domestic law and policy issues pertaining to the management of the Reef;

Annaliese Caston, Paul Nelson and Jamie Storrie offered ad hoc specialist technical advice on the administration and enforcement of ship safety and marine pollution response within Australia;

Kathy White and Sue Mulvaney provided editorial advice on some of the earlier draft chapters;

Rhonda Banks munificently prepared all of the maps; Jeff Shearin compiled the statistics to define the extent of the jurisdictional boundaries in the region; and Paul Tudman gave me permission to use a range of datasets and maps held by the Great Barrier Reef Marine Park Authority’s Spatial Data Centre;

The Great Barrier Reef Marine Park Authority’s librarians’ Jenny Zadkovitch and Suzie Davies purchased or sourced many of the reference materials for the research;

Mary Ann Palma steered me through the Wollongong University’s thesis preparation and submission requirements.

The research was undertaken on a part time basis over four years whilst I was employed by the Great Barrier Reef Marine Park Authority (Shipping Programme) and the Department of Agriculture, Fisheries and Forestry (Invasive Marine Species Taskforce). My former supervisor at the Great Barrier Reef Marine Park Authority, Gregor Manson, and my current supervisor at the Department of Agriculture, Fisheries and Forestry, Andrew Johnson, are thanked for granting me study leave to undertake the project.
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<th>Description</th>
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</thead>
<tbody>
<tr>
<td>AIS</td>
<td>Automatic Identification System</td>
</tr>
<tr>
<td>AMSA</td>
<td>Australian Maritime Safety Authority</td>
</tr>
<tr>
<td>ATBA</td>
<td>Area to be Avoided</td>
</tr>
<tr>
<td>Bunkers Convention</td>
<td>International Convention on Civil Liability for Bunker Oil Pollution Damage 2001</td>
</tr>
<tr>
<td>CBD</td>
<td>Convention on Biological Diversity 1992</td>
</tr>
<tr>
<td>CLC 92</td>
<td>International Convention on Civil Liability for Oil Pollution Damage and the 1992 Protocol</td>
</tr>
<tr>
<td>COLREGS</td>
<td>International Regulations for Preventing Collisions at Sea 1972</td>
</tr>
<tr>
<td>Infrastructure Department</td>
<td>Department of Infrastructure, Transport, Regional Development and Local Government</td>
</tr>
<tr>
<td>Environment Department</td>
<td>Department of the Environment, Water, Heritage and the Arts</td>
</tr>
<tr>
<td>EEZ</td>
<td>Exclusive economic zone</td>
</tr>
<tr>
<td>EPA</td>
<td>Queensland Environment Protection Agency</td>
</tr>
<tr>
<td>EPBC Act</td>
<td><em>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</em></td>
</tr>
<tr>
<td>GESAMP</td>
<td>Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection</td>
</tr>
<tr>
<td>GBRMP Act</td>
<td><em>Great Barrier Reef Marine Park Act 1975 (Cth)</em></td>
</tr>
<tr>
<td>GBRMPA</td>
<td>Great Barrier Reef Marine Park Authority</td>
</tr>
<tr>
<td>GBRWHA</td>
<td>Great Barrier Reef World Heritage Area</td>
</tr>
<tr>
<td>IMO</td>
<td>International Maritime Organisation</td>
</tr>
<tr>
<td>Intervention</td>
<td>International Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, 1969</td>
</tr>
<tr>
<td>LLMC</td>
<td>International Convention on the Limitation of Liability for Maritime Claims 1976</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Marine Park</td>
<td>Great Barrier Reef Marine Park</td>
</tr>
<tr>
<td>MARPOL</td>
<td>International Convention for the Prevention of Pollution from Ships 1973, as modified by the Protocol of 1978</td>
</tr>
<tr>
<td>MEPC</td>
<td>Marine Environment Protection Committee</td>
</tr>
<tr>
<td>MPA</td>
<td>Marine Protected Area</td>
</tr>
<tr>
<td>MSC</td>
<td>Marine Safety Committee</td>
</tr>
<tr>
<td>MSQ</td>
<td>Maritime Safety Queensland</td>
</tr>
<tr>
<td>National Plan</td>
<td>National Plan to Combat Pollution of the Sea by Oil and Other Noxious and Hazardous Substances</td>
</tr>
<tr>
<td>OPRC</td>
<td>International Convention on Oil Pollution, Response and Cooperation 1990</td>
</tr>
<tr>
<td>OSRICS</td>
<td>Oil Spill Response Incident Control System</td>
</tr>
<tr>
<td>P&amp;I Club</td>
<td>Protection and Indemnity Club</td>
</tr>
<tr>
<td>POI Act</td>
<td>Protection of the Sea (Powers of Intervention) Act 1981 (Cth)</td>
</tr>
<tr>
<td>POTS Act</td>
<td>Protection of the Sea (Prevention of Pollution from Ships) Act 1983 (Cth)</td>
</tr>
<tr>
<td>PSC</td>
<td>Port State Control</td>
</tr>
<tr>
<td>PSSA</td>
<td>Particularly Sensitive Sea Area</td>
</tr>
<tr>
<td>Reef</td>
<td>Great Barrier Reef</td>
</tr>
<tr>
<td>REEFCENTRE</td>
<td>Operational centre located at Hay Point in Queensland which administers REEFREP and REEFVTS</td>
</tr>
<tr>
<td>ReefPlan</td>
<td>Oil spill contingency policy document for the Great Barrier Reef World Heritage Area</td>
</tr>
<tr>
<td>REEFREP</td>
<td>Great Barrier Reef and Torres Strait Ship Reporting System</td>
</tr>
<tr>
<td>REEFVTS</td>
<td>Great Barrier Reef and Torres Strait Vessel Traffic System</td>
</tr>
<tr>
<td>Region</td>
<td>Great Barrier Reef Region</td>
</tr>
<tr>
<td>SDR</td>
<td>Special drawing rights</td>
</tr>
<tr>
<td>SOLAS</td>
<td>International Convention for the Safety of Life at Sea 1974, as amended</td>
</tr>
<tr>
<td>TOMPA</td>
<td>Transport Operations (Marine Pollution) Act 1995 (Qld)</td>
</tr>
<tr>
<td>TOMSA</td>
<td>Transport Operations (Marine Safety) Act 1994 (Qld)</td>
</tr>
<tr>
<td>WHC</td>
<td>World Heritage Convention</td>
</tr>
</tbody>
</table>
1. INTRODUCTION

1.1. Background

The Great Barrier Reef (the Reef) has long been regarded as a priceless asset both nationally and internationally.\(^1\) Comprising a complex of some 900 islands and 2900 reefs, the Great Barrier Reef Region (the Region) extends 2300 kilometres along the east coast of Queensland and covers an area of 346 000 square kilometres.\(^2\) The Region sustains a variety of commercial and recreational activities and livelihoods including fishing, tourism, recreation and shipping, worth in excess of $5 billion per annum to the Australian economy.\(^3\) The outstanding cultural and natural heritage of the Region is protected by the Great Barrier Reef Marine Park (the Marine Park), a multiple use marine protected area (MPA).\(^4\) In 1981, the Region was listed as a World Heritage Area (the GBRWHA) and declared a Particularly Sensitive Sea Area (PSSA) in 1990 by the International Maritime Organisation (IMO).

Despite the protection afforded to the Region by these measures, there is evidence that climate change, overfishing and degradation of water quality is threatening the functional integrity of the ecosystem and undermining the sustainable use of the Reef.\(^5\) The threat of day-to-day shipping operations on the Reef ecosystem is largely unquantified, but could represent a not inconsequential contribution to the overall levels of contaminants entering the Marine Park, potentially affecting the amenity or water quality at sites which are already affected by other activities or susceptible to influxes of land sourced pollutants. Nonetheless, the potential for more serious impacts on the

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\(^2\) Although the Reef complex extends to the Torres Strait, it is outside the Marine Park.


\(^4\) The terms, ‘Region’, ‘Marine Park’ and ‘Reef’ are described more fully in Chapter 2. For simplicity, however, the terms are used interchangeably throughout the thesis except where those terms have specific jurisdictional implications.

natural, social and economic values of the Region following a major shipping accident is ever present.

1.2. Problem definition

The pressures arising from the use of the Reef by ships and other vessels based activities presents many challenges for its responsible management. While the Great Barrier Reef Marine Park Authority (the GBRMPA) is the principal custodian of the Marine Park, the administration of a suite of measures to regulate all ships and vessel activities in the Region is shared with three other government authorities. Those authorities from the Commonwealth comprise the Australian Maritime Safety Authority (AMSA) and the Department of Infrastructure, Transport, Regional Development and Local Government (Infrastructure Department). The maritime authority within the Queensland Government is Maritime Safety Queensland (MSQ), a division of Queensland Transport. All of these authorities are collectively hereafter referred to as the ‘ship regulatory authorities’ for the purposes of this study.

Representatives of the shipping industry, concerned about the amount, duplication and complexity of regulations constraining their activities, have called upon the Australian Government to clarify and harmonise the jurisdictional and legislative arrangements for the regulation of shipping in the Region. However, with the increasing use of the Marine Park, it has been necessary to amend or develop new or existing policies, procedures and laws to tackle ship and vessel source pollution threats to the Reef. These developments warrant closer scrutiny as they have the potential to introduce an even more complex web of laws that may not necessarily improve ship safety and environmental protection of the Reef.

1.3. Research questions

This thesis examines the development and application of the regulatory framework for managing ship and vessel-source impacts on the values of the Marine Park and

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GBRWHA. It advocates that the adverse consequences of shipping and other vessel operations and accidents can be moderated in a MPA through the judicious application of the full suite of special maritime and environmental ship safety and marine pollution prevention measures available under international law. The focus of this contribution is therefore upon three questions:

1) What are the environmental risks or impacts to the Reef from the operations of ships and other vessel based activities?
2) What regulatory measures have been developed and implemented to remedy the risks or impacts from the operations of ships and other vessel based activities in the Marine Park and GBRWHA?
3) Drawing upon the experiences of implementing measures to regulate ship and vessel based operations in the Reef, are there any issues that could detract from GBRMPA’s fundamental obligation ‘to protect the Great Barrier Reef Marine Park and the World Heritage Area,’?

1.4. Research contribution

The thesis fulfils four important needs. First, it is a scholarship that analyses the implementation of international ship safety and marine pollution measures applicable to a MPA, from both an environmental and maritime law perspective. It is also one of the few opportunities in the world to review State practice in a PSSA that has been in operation for 25 years, far longer than other PSSAs, most of which have been designated or approved within the last 5 years. Second, the contributions and experiences of an environmental management authority (the GBRMPA) in interacting with maritime authorities of the Australian and Queensland governments is likely to be instructive to environmental management administrations in other countries that wish to establish special protective measures to protect their MPAs or other high conservation value marine areas from potentially harmful shipping and vessel activities. Third, it is one of the few digests of the environmental and socioeconomic impacts of shipping and

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vessel based activities in an MPA. Finally, it identifies emerging ship and vessel-source marine pollution management issues of interest to ship regulatory authorities, legal practitioners, scientists and scholars.

1.5. **Source materials and methods**

This analysis draws upon the author’s knowledge and experience of managing the Shipping Programme at the GBRMPA for the period 2001 to 2006 and working as a Project Manager on planning and research activities from 1991 to 1996. Some of the material in the thesis is drawn from the ‘Shipping and oil spills’ chapter of the *State of the Great Barrier Reef* report series, a peer reviewed report prepared by the author to fulfil the GBRMPA’s reporting obligations under the World Heritage Convention (WHC). It also benefits from the experience of the author in working under the senior executives of the ship regulatory authorities to implement the 41 recommendations of the ‘2001 Review of Ship Safety and Pollution Prevention Measures in the Great Barrier Reef’ (the 2001 Review).

The references cited in the thesis are sourced from the libraries of the GBRMPA, the University of Wollongong’s Australian National Centre for Ocean Resources and Security and the ship regulatory authorities. Text that has not been cited is based on the author’s direct experience, observations and knowledge, most of which has been acquired whilst working at the GBRMPA. All citations have been cited in accordance with the documentary-note system of the official Style Manual of the Commonwealth of Australia. All abbreviations and acronyms are those in common use within Australian maritime and environmental management agencies. Maps and statistics presented in the thesis have been prepared by, or with the assistance of, the GBRMPA’s Spatial Data

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11 Hereafter cited as ‘Personal knowledge’.

1.6. Structure

The thesis is comprised of nine chapters. The first four chapters are necessarily predominantly descriptive and are aimed at disentangling the key ship safety and marine pollution issues facing the Marine Park and legislative responses to those issues. Chapter 1 outlines the aims, purpose, scope and structure of the research. Chapter 2 sets the scene for the thesis by introducing the Marine Park and its significance as a World Heritage Area. It then describes the activities undertaken in the Region that are threatening some of the values of the area and the interplay of Commonwealth and State jurisdiction over the management of the Marine Park and GBRWHA. Chapter 3 introduces the reader to the environmental risks and impacts of the various forms of ship and vessel operations arising from accidents of navigation, the disturbance of high value marine conservation areas due to the transit or propulsion of a ship, waste discharge and oil and chemical spills. It identifies the shipping trade and other vessels that use the Reef as a potential source of environmental harm and describes the key actions taken in recent years by the Australian and Queensland governments to minimise the risk of a shipping incident and improve ship safety in the Region. Chapter 4 provides the context for the analysis of the development, implementation and application of ship safety and marine pollution prevention measures in the Reef. In doing so, it summarises the jurisdictional issues associated with the operation and interaction of international, Commonwealth and state marine pollution legislation. The intellectual value of this chapter is derived from identifying and analysing those parts of treaties that have become part of Australian law which significantly affect the operations of shipping and the protection of the Reef. The chapter concludes with a synopsis of the arrangements and supporting initiatives for compliance and enforcement of the legislation pertaining to the management of shipping in the Marine Park.

13 The adjective ‘Commonwealth’ is a broad descriptive term for the Commonwealth of Australia. The Commonwealth is also known as the ‘Australian Government’.

14 The adjective ‘state’ is used here as a broad term for the Queensland State Government. Conversely, the use of ‘State’ in this work is a reference to a coastal, flag or port State under international law.
Chapters 5, 6, 7 and 8 describe the evolution and implementation\(^{15}\) of key ship safety and marine pollution prevention measures that have been applied in the Marine Park to address each of the different forms of shipping impacts on the Reef. With the exception of some of the safety of navigation technologies such as ship routeing and vessel traffic systems, most of these measures take the form of legislation or administrative arrangements. Chapter 5 examines the implementation of ‘special’ navigation technologies and routeing initiatives for ships using the Marine Park. The chapter also describes, as a case study, the process by which compulsory pilotage and a vessel traffic system were implemented in the Marine Park as special associated protective measures afforded by its PSSA status and other international laws. Chapter 6 is concerned with the use and entry provisions for ships accessing the Marine Park under ordinary circumstances. Special emphasis is given to the implications of the legislative changes recently introduced through the rezoning of the Marine Park under the *Great Barrier Reef Marine Park Zoning Plan 2003* (the Zoning Plan 2003) on the navigational rights of ships (particularly merchant ships and cruise ships) using the Region and their efficacy in safeguarding the environmental, cultural and socioeconomic values of the Marine Park. Chapter 7 analyses the regulatory framework for dealing with the release of wastes into the marine environment, but focusing on the day-to-day operations of ship and vessel activities. The development of new vessel sewage regulations is recounted to illustrate how international, Commonwealth and state laws are implemented and administered within the Marine Park. Chapter 8 deals with emergencies in the Marine Park, concentrating upon recent developments at international and national law prescribing actions that can be taken to deal with a maritime casualty or a ship in need of assistance and the administrative arrangements governing the preparedness and response to oil or chemical (hazardous and noxious substances) spills, including the legal regime for dealing with compensation and liability of affected parties.

Chapters 5, 6, 7 and 8 are generally divided into three main topics. The first section describes the origin of the measure and how it evolved to address the particular issue in

\(^{15}\) Implementation in this context refers to activities such as the development of legislation, interpretation of statutory language, organisation of bureaucratic offices, provision of resources and enforcement of regulations; see also ME Kraft, *Environmental policy and politics*, 3\(^{rd}\) edn, Pearson Educational Inc, United States, 2004.
the Marine Park. The second part of each chapter analyses how the measure was implemented into Australian law applicable to the Marine Park. The third and final part of the chapter draws on the experience of the management of different forms of shipping incidents in the Reef to identify any issues with the measure that could affect its efficacy in protecting the values of the Marine Park. Chapter 9 concludes the thesis by linking the key findings discussed in each chapter to the implications for the Marine Park, international law and MPAs in other countries. In doing so, some emerging issues and future policy directions for managing shipping in a MPA are revealed.

1.7. Scope

For the most part the thesis charts the involvement of the GBRMPA in addressing the threats from ships and other vessel based activities in the Marine Park. In this context, ‘ships’ are vessels 50 metres or more in length including specialised product carriers while the term ‘vessel’ is used to describe yachts, superyachts, fishing, tourism and recreational craft.

Internal matters of a ship relating to design, equipment and manning standards, maritime security or dispute resolution are beyond the scope of the thesis as these issues are outside of the GBRMPA’s mandate. Similarly, matters relating to ship sourced air pollution and emerging environmental threats such as introduced marine pests associated with hull fouling and ballast water exchange are also excluded because the measures to address these threats have not been fully implemented within Australia.

The range of stressors on the Reef, and the inherent spatial and temporal variability in the individual ecosystems that make up the Reef complex, as well as the absence of research programmes dedicated to monitoring shipping impacts preclude a definitive assessment of the effectiveness of specific regulatory measures. On this basis, it is not the intention of the thesis to propose alternative regulatory measures in any detail; however, the analysis will highlight particular issues requiring closer examination or monitoring by the ship regulatory authorities.
2. SIGNIFICANCE, USE AND MANAGEMENT OF THE REEF

2.1. Introduction
This chapter sets the scene for the thesis by providing an overview of the significance, use and management of the Great Barrier Reef as a Marine Park and World Heritage Area. It then describes the origins and functions of the *Great Barrier Reef Marine Park Act 1975* (Cth) in establishing and developing a marine park in the Great Barrier Reef Region, the jurisdiction of Queensland over coastal state waters and the role of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) as the overarching instrument for environmental impact and assessment of activities affecting the Marine Park, consistently with the obligations under the World Heritage Convention. In doing so, it is recognised that the complex jurisdictional arrangements in the Region require the Queensland Government and other Commonwealth Government authorities to work collaboratively with the Great Barrier Reef Marine Park Authority (GBRMPA) on the strategic and day-to-day management of the Marine Park. As will be discussed in Chapter 4, those arrangements have significant implications for the management of shipping and other vessels using the Region.

2.2. Significance of the Reef
The Reef is regarded by the Australian public as one of the most precious constituents of Australia’s natural heritage.\(^1\) Comprising more than 2900 individual reefs that vary in shape from flat, platform reefs to elongated ribbon reefs, the reefs that make up the Great Barrier Reef range in size from less than one hectare to more than 100 square kilometres,\(^2\) many of which fringe continental islands, sand cays and the mainland. Interspersed among the reefs and islands are mangrove estuaries, seagrass beds, algal and sponge ‘gardens’, sandy and muddy bottom communities, continental slopes and

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deep ocean troughs. These habitats contain great biodiversity including 30 per cent of the world’s soft corals, 30 per cent of Australia’s sponges, six of the world’s seven species of marine turtle and breeding areas for humpback whales and dugong.

The natural, cultural and scientific values of the Reef ecosystem sustain nationally significant industries as well as providing a spectrum of experiences, uses and opportunities for the local inhabitants, Indigenous Australians and visitors to the Region. The pursuit of these endeavours has led to the development of the Region as one of Australia's premier destinations where marine tourism, recreational and commercial fishing activities annually contribute A$5.1 billion, A$610 million and A$149 million respectively to the Australian economy. This economic activity generates about 63 000 jobs, mostly in the tourism industry, which brings over 1.9 million visitors to the Reef each year.

The operation of the 11 trading ports and shipping services also facilitate economic growth, income, export earnings and employment generation within the Region. The nominal value of commodities exported from ports adjacent to the Reef from 2003 to 2004 was nearly $12 billion. The four major ports of Cairns, Townsville, Mackay and Gladstone alone are estimated to contribute some $3 billion and 23 000 jobs directly into the Queensland and regional economies. Ports are currently expanding to accommodate the forecast growth in trade, particularly for coal exports, and to provide a buffer for peaks in demand for other commodities.

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6 ibid.

7 These ports are Cape Flattery, Cairns, Mourilyan, Lucinda, Townsville, Abbot Point, Mackay, Hay Point, Port Alma, Gladstone and Bundaberg.

8 Office of Economic and Statistical Research, Queensland Regional Profiles 2004, Brisbane, 2005, p. 140.

2.3. **Uses and pressures on the Reef**

The work of pioneering reef scientists, originating in the early 1900s, highlighted the need to protect the Reef from environmental harm. Today, long-term research has shown that one of the key threats to the Reef is the decline in water quality; arising from inappropriate agricultural practices, climate change, coastal development and ship-sourced pollution. More minor environmental impacts have also been attributed to vessel based tourism, recreation and Defence activities.

At least three attitudinal studies and surveys commissioned by the GBRMPA from 2000 to 2006 reveal that more than 50 per cent of respondents agreed that the Reef was under threat from shipping and oil spills. The perceptions of the threats posed by shipping have lead to some environmental groups and members of the public to call for a ban on shipping in the Reef. Given the economic benefits of shipping to Australia and Queensland, it would be difficult to imagine circumstances where the Australian Government would be prepared to prevent ships from using the Marine Park. It would also not be in keeping with the international law obligations regarding freedoms of navigation, nor with the multiple use and conservation objectives of the Marine Park.

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10 Cf the work of W Saville-Kent, EJ Banfield & C Hedley as well as environmentalist R Carson, the author of *Silent Spring*, published by Houghton Mifflin, Boston in 1962.


15 Submissions to this effect were received during the review of zoning of the Marine Park in 2002 and during the 2001 Review of Ship Safety and Marine Pollution Prevention.
2.4. Jurisdiction over the management of the Region

To ascertain the basis of overall power and responsibility for the management of the Reef, it is necessary to refer to the Australian Constitution and the impact of federalism; the two tiered system of government in Australia in which power is divided closely between the Commonwealth and state governments. The Constitution empowers the Commonwealth to legislate for a range of matters including external affairs\(^{16}\) to ‘all places acquired by the Commonwealth for public purposes.’\(^{17}\) These constitutional powers allow the Australian Government to sign, ratify and implement bona fide international conventions\(^{18}\) and to regulate trade and commerce within the states of Australia and other countries.\(^{19}\) However, the Constitution does not make clear the division of responsibilities for offshore areas, an issue that needed to be resolved in the early 1970s to determine the controls within Australia over offshore petroleum resources.\(^{20}\)

Prior to 1901, the boundary limits of Queensland were defined in the documents establishing them such as letters Patent issued by the various sovereigns from 1787 to 1878.\(^{21}\) These constituting documents generally provide that the colonies of the time extended seawards to include various lands and islands.\(^{22}\) This changed in 1973 with the enactment of the *Seas and Submerged Lands Act 1973* (Cth), whereby the Commonwealth declared sovereignty in respect of the territorial sea,\(^{23}\) the internal

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\(^{16}\) *Commonwealth of Australia Constitution Act 1900* s 51(xxix).

\(^{17}\) *Commonwealth of Australia Constitution Act 1900* s 52(i).

\(^{18}\) *Commonwealth of Australia Constitution Act 1900* s 51(xxix).

\(^{19}\) *Commonwealth of Australia Constitution Act 1900* s 52(i).

\(^{20}\) A 1971 report of the Senate Select Committee on Offshore Petroleum Resources determined that it was in Australia’s interest to resolve the relative extent of State and Commonwealth Authority in the seabed of the territorial sea and on the continental shelf; see G French, ‘Protecting the marine environment of the Great Barrier Reef: What is the role of international law?’, in *Hulls, hazards and hard questions: shipping in the Great Barrier Reef*, Proceedings of a meeting of experts held in Canberra, 14-15 April 1993, Great Barrier Reef Marine Park Authority, Townsville, 1994, p. 146.


\(^{23}\) *Seas and Submerged Lands Act 1973*, s. 6.
waters of Australia\textsuperscript{24} beyond the low water mark of the coast, as well as certain rights out to the exclusive economic zone (EEZ).\textsuperscript{25} Despite a challenge by six of the states, the validity of the Commonwealth claims was upheld by the High Court of Australia on the basis that the external affairs power gave effect to the Geneva Convention on the Territorial Sea and Contiguous Zone and the Convention on the Continental Shelf.\textsuperscript{26} The High Court found that the boundaries of the states terminated at low water and the Commonwealth had plenary powers to legislate over the territorial sea.\textsuperscript{27}

Owing to the administrative difficulties created by the \textit{Seas and Submerged Lands Act 1973}, the principal arrangements between Queensland and the Commonwealth for the day-to-day management of the Reef were negotiated under the ‘Emerald Agreement’ between the Prime Minister of Australia and the Premier of Queensland on 14 June 1979.\textsuperscript{28} The ‘Emerald Agreement’ effectively allows activities within the Marine Park to be managed jointly and cooperatively by agencies of the Queensland and Commonwealth governments. Under the agreement, the GBRMPA is responsible for the management of the ‘well being of the whole Reef’ while the Queensland Parks and Wildlife Service\textsuperscript{29} is responsible for managing the reef and island national parks on the Reef.\textsuperscript{30} The Queensland Parks and Wildlife Service also assumed the day-to-day management functions of the Marine Park, including surveillance, enforcement and monitoring under joint funding arrangements.

Shortly after, the Commonwealth sought the cooperation of the Queensland

\textsuperscript{24} \textit{Seas and Submerged Lands Act 1973} s 10.


\textsuperscript{26} See \textit{New South Wales v Commonwealth} (1975) 135 CLR 337.

\textsuperscript{27} ibid.


\textsuperscript{29} The Queensland Parks and Wildlife Service is a division of the Queensland Environmental Protection Authority.

Government toward reconciling the division of legislative responsibilities under the ‘Offshore Constitutional Settlement’; an agreement negotiated between the Commonwealth and state governments in 1980, and given effect in the Coastal Waters (State Title) Act 1980 (Cth) and the Coastal Waters (State Powers) Act 1980 (Cth). This legislation conferred on Queensland title in, and powers over, the ‘coastal waters’ three nautical miles seaward from the territorial sea baselines drawn in accordance with the United Nations Law of the Sea Convention, 1982 (LOSC).\(^{31}\) Queensland also retained jurisdiction over any waters within any bay, gulf, estuary, river, creek, inlet, port, harbour that were, on 1 January 1901, within the limits of the state, and remained within the limits of the state.\(^{32}\) Outside of coastal waters, Queensland does not necessarily possess the jurisdiction to regulate for the management of vessels, unless there is a clear territorial nexus between the State of Queensland and the Commonwealth.\(^{33}\) To that extent, the Australia Act 1986 (UK) and the Australia Act 1986 (Cth) provide that the states’ legislative powers include the powers to make extraterritorial laws.\(^{34}\) Thus, Queensland can only rely on their general extra-territorial powers to legislate for the area between three and 12 nautical miles from the territorial sea baseline but would also have to show a connection between the jurisdiction and the extra-territorial persons or circumstances on which the law operates.\(^{35}\)

Subject to the express continued operation of the GBRMP Act,\(^{36}\) the Queensland Government has the power to legislate on any topic providing the legislation is for the ‘peace, order and good government’ of Queensland and providing the legislation is not inconsistent with any valid Commonwealth Act within the terms of the Constitution.\(^{37}\) Under section 109 of the Constitution, where conflicts arise from a direct inconsistency between a state and Commonwealth law or where a Commonwealth law ‘covers the field’ on a specific topic leaving no room for state laws on that topic, the

\(^{31}\) Coastal Waters (State Title) Act 1980 s 4(3).

\(^{32}\) Seas and Submerged Lands Act 1973 s 9.

\(^{33}\) See Port MacDonnell Professional Fishermen’s Association Inc v South Australia (1989) 168 CLR 501 at 372-3.

\(^{34}\) See Lipohar v R (1999) 168 ALR 8, 33-34.

\(^{35}\) See Port MacDonnell Professional Fishermen’s Association Inc v South Australia (1989) 168 CLR 340 at 372.

\(^{36}\) Coastal Waters (State Title) Act 1980 s 4(3).

Commonwealth law shall prevail. This arrangement enables Australia to become a party to several of the international maritime conventions without the need for legislation in every state jurisdiction to be in force at the time of ratification.

The majority of the waters within the Reef are part of Australia’s territorial sea and the EEZ, and come under Commonwealth jurisdiction (see Table 2.1). A smaller proportion of the waters in the Marine Park, but significantly the waters most used by ships, are the coastal waters of Queensland that come within the jurisdiction of Queensland. However, the limits of jurisdiction, particularly around islands and reefs, are not always clear due to the different mapping standards and methods of establishing the baseline used by the Commonwealth and Queensland. The problems are compounded by a lack of shoreline profile data, changes in geomorphology of areas (eg due to erosion and accretion) and complexity of reef structure and form.

Table 2.1: Areas and percentage of maritime zones within the Marine Park

<table>
<thead>
<tr>
<th>Maritime Zones within the Marine Park</th>
<th>Area (km²)</th>
<th>Percentage of Marine Park</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal waters</td>
<td>48 000</td>
<td>14</td>
</tr>
<tr>
<td>Territorial waters</td>
<td>149 000</td>
<td>43</td>
</tr>
<tr>
<td>Exclusive economic zone</td>
<td>148 000</td>
<td>43</td>
</tr>
<tr>
<td>Total</td>
<td>345 000</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Derived from data held by the Spatial Data Centre, Great Barrier Reef Marine Park Authority, June 2006.

Amendments to the *Seas and Submerged Lands Act 1973* in the 1990s to extend the outer limits of the territorial sea from 3 to 12 nautical miles from 20 November 1990.

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41 *Seas and Submerged Lands Act 1973* s 7.
and adoption of the LOSC principles relating to territorial sea baselines and other maritime zones and boundaries, had the potential to again complicate the division of power between the Commonwealth and Queensland governments. This confusion was partially rectified with the negotiation of a series of intergovernmental agreements\(^\text{42}\) that underpin and facilitate cooperation between the Australian and Queensland governments.\(^\text{43}\)

The ‘Intergovernmental Agreement on the Environment’ that was signed on 1 May 1992\(^\text{44}\) recognised the Commonwealth’s responsibility for ‘ensuring that the policies or practices of a state do not result in significant external effects in relation to the environment of … the maritime areas within Australia’s jurisdiction.’\(^\text{45}\) It also provided that states should not implement policy in relation to environmental matters that are the responsibility of the Commonwealth or another state and that ‘relevant levels of government should review the need and justification for retaining any comparable processes of institutions.’\(^\text{46}\) Where duplication or overlap of interests between the levels of government is unavoidable, ‘the relevant levels of government will seek clear and distinct liaison and consultative procedures, under mechanisms to be agreed at Minister level through ministerial committees, to coordinate and harmonise actions to avoid disputes’.\(^\text{47}\) The Agreement led to the formation of several Commonwealth/Queensland Great Barrier Reef Ministerial Councils\(^\text{48}\) and a Consultative committee, thus providing

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\(^{44}\) Later amended in November 1997 to become known as the ‘Heads of Agreement on Commonwealth/State Roles and Responsibilities for the Environment’.


\(^{46}\) ibid, p. 99.

\(^{47}\) Section 2.5.4.2 of the ‘Intergovernmental Agreement on the Environment’; cited in GL Sturgess, p. 99.

\(^{48}\) An example of one of these committees is the Natural Resource Management Ministerial Council. Its role is to better integrate Australia’s conservation and sustainable production objectives and facilitate the implementation of plans and proposals which would not otherwise be possible because of the limitations imposed by the division of constitutional powers between Australian, State and Territory; see
the opportunity for the Commonwealth to assume a dominant role with respect to the management of Australia’s environment,\(^{49}\) in partnership with the Queensland Government.\(^{50}\)

### 2.5. The Great Barrier Reef Marine Park Act

During the 1960s and 1970s, enhanced awareness and concern for the natural environment,\(^{51}\) coupled with the prospect of oil drilling upon the Reef,\(^{52}\) were pivotal in initiating a campaign that culminated in the *Great Barrier Reef Marine Park Act 1975* (GBRMP Act).\(^{53}\) Today, the GBRMP Act is the legislative basis for the management of the Marine Park.\(^{54}\) It creates a framework for establishing a Marine Park\(^{55}\) and imposes civil and criminal penalties for failing to comply with the duties and provisions under the legislation.\(^{56}\) The object of the GBRMP Act is to:

> make provision for and in relation to the establishment, control, care and development of a marine park in the Great Barrier Reef Region...to the extent that those provisions are within the legislative powers of the Parliament but not to the exclusion of any other relevant power, its powers with respect to or in relation to... trade and commerce with other countries...\(^{57}\)


\(^{51}\) See generally the publication of *Silent Spring* in 1962 by Rachel Carson that sparked widespread public debate on the issue of environmental degradation.


\(^{55}\) GBRMP Act s 30 and 31.

\(^{56}\) Civil sanctions may be sought through the Federal Court where an investigation has produced sufficient evidence of a serious civil contravention. A criminal prosecution may be sought where an investigation has produced sufficient evidence to prove both the physical and fault elements of a serious offence beyond reasonable doubt.

\(^{57}\) GBRMP Act s 5(1).
Importantly, in the context of shipping, an industry largely governed by international standards and treaties, the GBRMP Act applies to ‘all persons, including foreigners, and to all vessels and aircraft, including foreign vessels and aircraft, whether or not they are within the limits of Australia and the Australian coastal sea.’ However, the GBRMP Act also has effect subject to the obligations of Australia under international law, including obligations under any agreement between Australia and another country or countries. The environmental and maritime related international instruments and Conventions implemented under Australian law are the subject of Chapter 4.

One of the functions of the GBRMP Act is to set out the boundaries of the Marine Park that make up the Region. The Act allows new parts of the Marine Park to be made, revoked or amended. The first section of the Marine Park was proclaimed in 1979 and by 2001, 33 component sections had been defined and formally declared to be part of the Marine Park. Today, the Marine Park stretches over 2300 kilometres along Australia’s eastern seaboard from Lady Elliot Island in the south, to Australia’s north eastern tip at Cape York (see Figure 2.1 of the Appendix to this thesis). The eastern boundary extends seaward from the Australian coast to 100 to 300 km offshore, beyond the edge of the continental shelf while the western boundary of the Marine Park generally runs along the Queensland coast at low water. The Marine Park is also three-dimensional as it consists of the waters of any sea within the Region and the corresponding seabed, extending below the seafloor to a distance of 1000 metres and

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58 GBRMP Act s 65(1).
59 GBRMP Act s 65(2).
60 GBRMP Act s 30.
61 GBRMP Act s 31.
63 Information sourced from the GBRMPA’s Spatial Data Centre.
65 The Federal Court in Yarmirr v Northern Territory (1998) 156 ALR 370 took the view that ‘low water’ is the ‘mean of all low waters’, which is to be taken as low water averaged over 18.6 years to take into account planetary influences.
above sea level to 915 metres. At 344 100 square kilometres, the total area of the Marine Park is 0.3 per cent smaller than that of the Region (which covers an area of 346 000 square kilometres), as it does not include state owned islands, internal waters of Queensland and ‘exclusion areas’ around major ports and urban areas that were not proclaimed as part of the Marine Park under an agreement with the Queensland Government.

The GBRMP Act designates the GBRMPA as the statutory authority that is responsible for the coordination and management of the Marine Park. The GBRMPA is a body corporate, whose four member board has wide-ranging powers and functions including making policy and recommendations to the Commonwealth Minister for the Department of the Environment in relation to the care and development of the Marine Park. The GBRMPA currently has a staff complement of around 160 and is organised into units that provide advice on critical issues and service delivery functions.

In the interests of the long-term protection and preservation of the environment, activities in the Marine Park are balanced with other resource needs. A policy objective of the Australian Government is to ensure that the GBRMP Act and related legislation ‘reflects the need for world’s best environmental practice and encourages and promotes environmentally sustainable development.’ To this end, the GBRMP Act provides for the preparation of zoning plans, plans of management and regulations for areas, species or ecosystems within the Marine Park.

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67 GBRMP Act s 31(2).
68 GBRMP Act s 6 and 7.
69 As at 3 December 2007, the Commonwealth Department of the Environment is called the ‘Department of the Environment, Water, Heritage and the Arts.’
70 GBRMP Act s 7 and 8.
71 Critical issue groups include: Conservation Heritage and Indigenous Liaison; Water Quality and Coastal Development; Fisheries, Tourism and Recreation. Service delivery units include: Planning; Environmental Impact Management; Communication and Education; Science & Technology; Legal Services; Day-to-Day management; Compliance; and Corporate services.
73 GBRMP Act ss 32-33.
74 GBRMP Act ss 32-33.
75 GBRMP Act s 66.
The Great Barrier Reef Marine Park Zoning Plan 2003 (Zoning Plan 2003) is the primary management tool for separating out conflicting uses of the Marine Park. It aims to protect and conserve the biodiversity of the Reef ecosystem within a network of protected zones, while providing opportunities for use and access to the Region. The Zoning Plan 2003 sets out the use and entry requirements for all types of ships and vessels using the Marine Park, including in an emergency. The impact of the Zoning Plan 2003 on ships and other types of vessels using the Marine Park is dealt with in more detail in Chapters 6 and 7.

Statutory plans of management have been developed for high value areas of the Marine Park. Within each plan, use settings, policies and enforcement provisions are prescribed to protect biological communities and species of high nature conservation, as well as areas of significant scientific and cultural value. Some of the plans of management place restrictions on ship and vessel activities including limits on vessel length, group sizes, vessel speed as well as anchorages that may be accessed.

The Great Barrier Reef Marine Park Regulations 1983 are the principal regulations under the GBRMP Act. Regulations may be prescribed in relation to a range of matters provided they are not inconsistent with the GBRMP Act or the Zoning Plan 2003. Relevant matters for ships and other vessels include: prohibiting acts (whether in the Marine Park or elsewhere) that may pollute water in a manner harmful to animals and plants in the Marine Park; regulating the use of vessels in, and the passage of vessels through, the Marine Park; and matters relating to the conduct and enforcement of activities in a zone or part of a zone or plan of management and the process for obtaining permissions for use of those areas.

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77 See list of domestic legislation – Marine Park Zoning and Management Plans at References.

78 GBRMP Act s 66(2)(e).

79 GBRMP Act s 66(2)(o).
2.6. Management obligations under the World Heritage Convention

The extraordinary biological diversity and interconnectedness of the habitats and species that make up the Region have lead to it be proclaimed as one of the richest and most complex natural systems on earth.\(^80\) The whole of the Region satisfied all of the natural and cultural values\(^81\) for listing as a World Heritage Area on 26 October 1981\(^82\) as set out in Article 2 of the Convention concerning the Protection of the World Cultural and Natural Heritage\(^83\) (the WHC). Covering an area of 348 000 square kilometres, the GBRWHA includes the islands and internal waters of Queensland and is about one per cent larger than the area of the Marine Park. Thus, the Region is, and remains, the largest WHA in the world.\(^84\)

Australia is required to manage the Great Barrier Reef World Heritage Area (GBRWHA) in accordance with the obligations of the WHC by ensuring that the values ascribed to the Region are not diminished by human activities. However, no single body has responsibility for the management of the GBRWHA, although the Australian Government bears the ultimate responsibility for ensuring that the obligations of the WHC are satisfied,\(^85\) primarily through the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (the EPBC Act). The EPBC Act regulates actions upon a

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\(^{81}\) Criteria for the inclusion of cultural and natural properties in the World Heritage List include, but are not limited to: areas of outstanding universal value from the historical, aesthetic, ethnological, or anthropological point of view; outstanding examples representing major stages of earth’s history, significant ongoing ecological and biological processes, superlative natural phenomena, and important and significant natural habitats for in-situ conservation of biological diversity; ‘World Heritage Criteria, Operational Guidelines,’ February 1996 cited in House of Representatives Standing Committee on Environment, Recreation and the Arts, *Managing Australia’s World Heritage*, Australian Government Publishing Service, Canberra, 1996, pp. 201-208.


\(^{83}\) Convention Concerning the Protection of the World Cultural and Natural Heritage 1972, 1037 UNTS 51.


Commonwealth marine area that have, or are likely to have, a significant impact on the environment of those areas. The Commonwealth Minister for the Environment takes the lead role in administering the EPBC Act and associated policy statements, within Commonwealth waters but outside of the waters within the limits of any (Queensland) state territory or rights vested in such areas, including within the GBRWHA.

An amendment to the GBRMP Act in 1995 considered the effect of the protection of World Heritage values of the Marine Park in management planning and the application of the precautionary principle. This amendment triggered the development of the 25 Year Strategic Plan for the Great Barrier Reef World Heritage Area, a plan that overtly recognises the World Heritage status of the region through the establishment of conservation and management strategies. Strategies include the need to coordinate management plans for shipping, conduct research into the socio-economic characteristics and effects of shipping, and quantify the nature and extent of the effects of some major natural and human-induced disturbances on the ecosystems of the Area, including from oil spills. The GBRMPA also periodically publishes, and provides to the Parliament of Australia, a State of the Great Barrier Reef World Heritage Area report that summarises information about the state of the GBRWHA.

Despite the potential use of the corporation powers of section 51(xx) of the Commonwealth of Australia Constitution Act (the Constitution), the scope for the

86 EPBC Act s 24A.
88 EPBC Act s 24.
90 See 25 Year Strategic Plan for the Great Barrier Reef World Heritage Area pt 2.3.4.
91 See 25 Year Strategic Plan for the Great Barrier Reef World Heritage Area pt 4.9.1.
92 See 25 Year Strategic Plan for the Great Barrier Reef World Heritage Area pt 4.1.2.
94 See New South Wales v Commonwealth of Australia; Western Australia v Commonwealth of Australia
Australian Government to intervene or legislate for the day-to-day management of a World Heritage property under the Constitution is limited. A Committee of Inquiry into the management arrangements for World Heritage properties categorically held that it would be 'impractical, inappropriate and unnecessary to ban all activities in the GBRWHA' on the basis of the actual or perceived damage that could be caused by those activities.97

The Australian Government, backed up by the courts,98 has interpreted its obligations under the WHC as the protection and management of the ‘values’ of the World Heritage property for which it was inscribed, not the whole of the attributes of the property per se.99 This is now formally reflected in the EPBC Act, which only requires that ‘significant’ World Heritage values that would be damaged, or are likely to be damaged by any action, are subject to scrutiny.100 In conjunction with the Australian Heritage Commission Act 1975 (Cth), which protects marine areas registered on the national estate out to the limits of the territorial sea,101 the EPBC Act provides a further level of protection for the GBRWHA in respect of decision-making by other Commonwealth Government agencies. The EPBC Act provides for the assessment and approval of certain ‘controlled actions’ within the GBRWHA,102 including through formal environmental assessment processes. Under the environmental impact assessment provisions of the EPBC Act, the Commonwealth Environment Minister may agree to conduct a 'strategic assessment' of particular actions that could have a significant impact on a Commonwealth marine area. However, these provisions do not apply if the activities conducted in the Marine Park are 'authorised' by an instrument under the GBRMP Act or the Great Barrier Reef Marine Park Regulations 1983, such as a zoning


97 House of Representatives Standing Committee on Environment, Recreation and the Arts, 1996, p. 36.


101 Australian Heritage Commission Act 1975 s 4(3).

102 EPBC Act s 43.
plan, a plan of management, a permission (in the form of a permit), an approval or an authority.\textsuperscript{103} The implications of these provisions on emergency response are discussed in Chapter 8.

Within the GBRWHA, but outside of the Marine Park, the potential environmental impacts of marine and coastal development activities that provide the infrastructure for shipping operations\textsuperscript{104} may also be subject to scrutiny under the EPBC Act\textsuperscript{105} and could trigger a bilateral environmental assessment under the \textit{Integrated Planning Act 1997} (Qld) between the Commonwealth and Queensland governments.\textsuperscript{106} Although not directly related to the management of ships \textit{per se}, such developments may trigger an environmental assessment of the implications of increased ship or vessel use arising from port access arrangements, the potential for translocating exotic organisms, the implications of extra tug voyages and management of ship waste.

2.7. Conclusions

The establishment of the Marine Park by the GBRMP Act was prompted some 30 years ago by the prospect of mining on the Reef and has become an integral and iconic part of Australia’s natural heritage. The GBRMP Act establishes the GBRMPA as the principal advisor to the Australian Government on matters relating to the care and development of the Marine Park, providing an operational and institutional framework for the development of regulations, zoning and management plans. Being subject to international law, the Act provides a strong basis from which to regulate activities in the area as it applies to all domestic and foreign vessels, ships and persons.

The recognition of the Reef as a significant part of the world’s heritage under the WHC, and the establishment of the EPBC Act as the principle legislation to give effect to that

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\textsuperscript{103} ibid.


\textsuperscript{105} EPBC Act s 23(2) and s 67. This Act provides planning tools and an Integrated Development Assessment System for development activities on state or private land in and adjacent to the GBRWHA based on the principles of ecological sustainability.

\textsuperscript{106} \textit{Integrated Planning Act 1997} s 5.8.2.
Convention, requires that the values for which the Region has been nominated are managed consistently with the WHC to ensure that the Region is ecologically sustainable and not endangered due to cumulative impacts of use. The powers of the EPBC Act relating to environmental impact assessment, approval and permit processes for business and the community extend to the operation of ships and associated infrastructure within ports that are outside of the Marine Park but within the GBRWHA. To minimise regulatory duplication in the Region, the management of overlapping jurisdictions by the Commonwealth and Queensland Government has been facilitated under the Offshore Constitutional Settlement and Emerald Agreement.

Despite the extensive arrangements put in place to manage the Marine Park and World Heritage Area, the increasing and multiple uses of the Region have put pressure on the health and resources of the Reef, resulting in a decline in water quality. There is a strong public perception that this decline is due in part to ship and vessel-sourced pollution. It is therefore important to understand the real risk which shipping poses to the Marine Park. To this end, the next chapter will profile the environmental and socioeconomic impacts posed by shipping to the Reef ecosystem, the results of some key risk assessments and the reactions to those incidents.
3. SHIPPING AND ITS IMPACTS ON THE REEF

3.1. Introduction
The previous chapter highlighted the significance of the Reef and the role and mandate of the Commonwealth and Queensland governments in managing the uses and pressures upon the values of the Region. The purpose of this chapter is to describe the uses of the Reef by ships and other types of vessels and identify the risks to the environmental and socioeconomic values of the Region from those activities. In doing so, the outcomes of several inquiries and risk assessments undertaken by the ship regulatory authorities to understand and respond to shipping accidents are reviewed, thus providing the context for Chapter 4 which examines the measures implemented in the Reef under international law to improve ship safety and marine environment protection.

3.2. Shipping and vessel activities in the Reef
As a major use of the Reef, it is important to understand the nature of the threat posed by shipping and other vessel traffic. This section describes the areas and routes used by ships and other vessel types, the amount of vessel traffic in the Region, the commodities carried by ships through the Reef and their value to the Australian economy, both now and into the future.

3.2.1. Trade routes and passages
Due to the absence of a road network, the Reef was practically a maritime highway for Queensland, and indeed Australia, during the nineteenth century.1 Up until the mid 1800s, ships primarily transited the western side of the outer barrier of the Reef.2 The establishment of a pilot service for the eastern side of this Route during the late 1800s3 allowed an increase in shipping through the Region and is today the predominant route

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3 ibid.
for Australia's exports and imports from Queensland.

The ‘Inner Route’, as it is known, is comprised of a narrow channel that runs between the mainland and the inner edge of the outer barrier reefs, from Torres Strait to Gladstone (see Figure 3.1 of the Appendix to this thesis). The northern sector of the Inner Route from Cape York to Cairns, involves navigation within confined shallow waters for a period of approximately 40 hours over a distance of some 500 nautical miles. Intersecting the Inner Route are a number of recommended routes and sea-lanes. These include Hydrographers Passage, Capricorn Channel, Palm Passage and Grafton Passage, which provide access to the Inner Route from the Outer Route. These passages are very shall and narrow in places, which may affect underkeel clearance. Coupled with the ‘squat,’ length and form of the hull, a ship driven at speed may have its draught reduced by over 35 centimetres in such areas.

The Outer Route has been surveyed to a width of 10 kilometres. It extends parallel and some distance off the Queensland coastline and varies from 25 to 270 nautical miles seaward of the western boundary of the Marine Park. The route is depicted on Australian Navigational Charts and runs between the eastern end of the Torres Strait and Sandy Cape through the Coral Sea. While the Outer Route is some 120 nautical miles longer than the Inner Route, it is considerably simpler to navigate.

3.2.2. Ship and vessel traffic

In 2004, more than 2100 individual ‘ships’ undertook around 7600 voyages (a discrete transit commencing with an entry and exit) through the Inner Route and passages; an increase from 1650 ships that sailed the Inner Route in 1990; and an increase of around

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4 See generally United Kingdom Hydrographic Office, *Australia pilot, 7th edn*, vol. III, East coast of Australia from North Head to Cape York, including Great Barrier Reef, islands and reefs of Coral Sea, Great North East Channel, Torres Strait and the south coast of Papua New Guinea between South Cape and the meridian of 141°00′E, 2002.

5 Means the distance the vessel settles down in the water.


three per cent since 2001 (see Table 3.1). At any one time, there will be approximately 10 to 40 ships within the Marine Park.\textsuperscript{9} About 20 per cent of the ships utilising the Inner Route are transit vessels and do not trade at the 10 major ports located adjacent to the Marine Park.\textsuperscript{10}

Table 3.1: Ship traffic through the Great Barrier Reef from 2000 to 2004*

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Ships</th>
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<tbody>
<tr>
<td>2000</td>
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<td>2001</td>
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<td>2002</td>
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<td>2003</td>
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<tr>
<td>2004</td>
<td></td>
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</tbody>
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* Reports are based on the REEFVTS area only and include the routes through the Torres Strait but do not include areas of the Great Barrier Reef that extend southwards of latitude 22° 00' S.

In the three years from 2000 to 2002 inclusive, ships visiting the Marine Park were flagged to 56 States, about a quarter of which only made a single port call.\textsuperscript{11} While Australia receives approximately 3300 ships per year on a regular basis,\textsuperscript{12} up to a third of those ships move to other trades and are replaced by ships that visit Australia only occasionally or intermittently.\textsuperscript{13}

Analysis of REEFREP\textsuperscript{14} data shows that the average and maximum lengths of ships


\textsuperscript{11} REEFREP data 2000-2002.


\textsuperscript{14} REEFREP is the mandatory ship reporting system established by IMO Resolution MSC.52(66) in May 1996, as amended by Resolution MSC.161(78), and specified in Marine Orders, Part 56 (REEFVTS) Issue 2.
entering the Marine Park range from approximately 148 metres to 312 metres respectively while the draughts and speeds of these vessels ranged from 5 to 15 metres and 10 to 30 knots respectively. In the period 2000 to 2002, 57 percent of these ships were bulk carriers, 19 per cent were general cargo ships, 11 per cent were container ships, four per cent were oil tankers, three per cent were chemical or gas tankers with the remainder representing other vessel types (eg research vessels, livestock carriers, tug boats, barges etc).

The Australian coastal fleet is comprised of all vessels licensed to operate in Australia’s coastal trade, regardless of its flag or nationality. Australian owned ships greater than 24 metres gross registered tonnage are required to be registered under the Shipping Registration Act 1981 (Cth) unless exempt. The number of trading ships in the Australian trading fleet decreased from 90 ships in 1994 to 74 ships in 2003, and to 45 ships in 2006. Typically, about 16 of the Australian flagged vessels engaged in coastal trading regularly trade from, and to, southern ports through the Reef. Approximately half of the Australian trading fleet are bulk carriers, while a further quarter are tankers. General cargo, ro-ro and container vessels comprise the remainder of the fleet.

Cruise ships make up a small but important sector of the ship traffic within the Reef. Although largely an itinerant industry, the Reef is one of the top three Australian destinations for cruise passengers. Each year approximately 20 cruise ships make more than 240 calls to the ports and islands within the Region. The ships range in size from

16 See Shipping Registration Act 1981 s 56 (1).
17 An Australian flag ship is a ship registered in Australia on the Australian Register of Ships, pursuant to the Shipping Registration Act 1981.
20 ibid, p. 71.
22 Information sourced from the GBRMPA cruise ship bookings database for 2005; excludes calls to the
30 to 345 metres in length and have draughts from 4 to 10 metres.23

The types of cruise ship operations in the Marine Park are general transit, port visits and sight-seeing.24 Four ‘boutique’ style cruise ships (the Reef Endeavour, Orion, Clipper Odyssey and Coral Princess) include the Reef on their regular itinerary, operating anywhere from two to 12 months a year in the Region.25 Most international cruise ships visit the Reef from November to March and conduct a seven-night itinerary with three port stopovers, anchoring adjacent to islands or in designated cruise ship anchorages.26

In addition to cruise ships, a significant number of other types of vessels regularly use the waterways of the Reef for military, recreational and commercial purposes.27 Military uses of the Reef by the Australian Defence Force and its allies include aircraft overflight, general troop manoeuvres and related activities.28 Apart from general surface shipping, the types of vessels used by the military include ships as hovercraft, nuclear submarines, landing craft, frigates and mine sweepers.29 Non-military vessel based activities of the Reef include scientific research, hydrographic survey and recovery of wrecks.30 Small ships and coastal barges also service the isolated and island communities along the coast near Cape York Peninsula, Whitsunday Islands and Cairns. Typical of the coastal barges that access the non-trading and community ports along the Queensland coast is one that is designed to carry 30 cars, 200 tonnes of freight and 50 passengers.31

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24 ibid.
25 ibid.
26 ibid.
27 Personal knowledge.
29 ibid.
30 GBRMPA permits database, 14 June 2005.
In 2004, some 81 000 recreational vessels have direct access to the Marine Park,\textsuperscript{32} about two thirds of which are motorised and under five metres.\textsuperscript{33} These figures do not include an estimated 5000 interstate vessels and some 1000 international vessels that may access the Marine Park every year on a seasonal basis.\textsuperscript{34} Some 1500 vessels are permitted by the GBRMPA to undertake ‘commercial tourism activities’ within the Region, including several high-speed passenger craft.\textsuperscript{35} Around 85 per cent of commercial tourism is focused on accessible reef areas off the Cairns and the Whitsunday Islands region,\textsuperscript{36} where visitation levels have increased to over 300 passengers per day on average.\textsuperscript{37} While most of the reefs within the Region are being used at low intensity (0 to 30 passengers per day on average) particularly in the more remote parts of the Reef, about 90 per cent of reefs in the Reef are accessed at least once a year.\textsuperscript{38}

### 3.2.3. Commodity movements

In 2005 to 2006, ships carried approximately $250 billion of international freight\textsuperscript{39} or 97 per cent of the volume of Australian trade.\textsuperscript{40} Australian ships are a minor provider of international shipping services as more than 90 per cent of the volume of exports is

\textsuperscript{32} Section 56 of the \textit{Transport Operations (Marine Safety) Act 1994} (Qld) requires vessels with an engine of more than 4 horse power to be registered; see also P Lucas, Queensland Minister for Transport and Main Roads, \textit{Seascape} Oct-Dec 2004, vol. 1, Issue 3. p.2.


\textsuperscript{34} Vessel visitation to the Reef reduces with the onset of the cyclone season, generally from November to April.

\textsuperscript{35} GBRMPA permits database, 14 June 2005.


\textsuperscript{37} D Benzaken & J Aston, p. 454.

\textsuperscript{38} ibid.


carried by foreign shipping services. From 2003 to 2004, foreign ships carried approximately 27 per cent of Australia’s interstate and intrastate sea freight trade.

The main exports from Australia are general cargo, coal, grain and crude oil. Imports from Australia by weight and value are general cargo, chemicals and crude oil. The main cargoes which are traded from Queensland seaports are coal, bauxite, sugar, alumina, manganese, iron ore, general container freight and oil. Some of the cargoes that are carried to and from Queensland ports may be hazardous to the marine environment. These include fertilisers, ammonium nitrate, copper concentrate, oil and other petroleum products.

In the year ending 30 June 2005, the total trade throughput of Queensland’s port network exceeded 221 million tonnes, an increase of 7.1 per cent over the previous year. Exports increased by about 12.5 millions tonnes (7.2 per cent) and imports were up by almost 2.3 million tonnes (6.7 per cent). In 2004 to 2005 Gladstone, Hay Point and Townsville represented more than 72 per cent of the main throughputs by ports within Queensland, worth an estimated 12.2 billion dollars and corresponding to some 3400 port visits by ships in total to the major ports of the area. Bulk carriers comprised the greatest proportion of shipping, generated by trade through the bulk ore ports of Hay Point, Abbott Point and Gladstone. Bauxite is also regularly transported

41 Compiled from REEFREP data 2000-2002.
43 Department of Transport and Regional Services, Waterline, no. 38, March 2005.
44 ibid.
47 ibid.
48 ibid, p. 8.
from Weipa to Gladstone in vessels of about 70,000 dead weight tonnage.\textsuperscript{52}

Small product tankers (generally about 30,000 dead weight tonnage) represent about 10 per cent of the shipping traffic in the Reef.\textsuperscript{53} These ships carry refined oils such as petrol, diesel and heavy fuel oils from southern refineries (including Sydney and Brisbane) to ports located along the Reef, particularly Townsville, Cairns and Gladstone. Except in rare cases, all oil tankers carrying crude oil voluntarily transit the Outer Route, rather than the Inner Route, due to political and community sensitivity regarding oil tanker traffic within the Reef.\textsuperscript{54}

### 3.2.4. Future shipping trends

The demand for shipping services in Australia is growing as a result of the integration of the Australian economy into the world economy.\textsuperscript{55} Port arrival data for 1996 to 2003 shows a 10 per cent increase in the number of ships entering Australia from overseas, a 10 per cent increase in the number of voyages and a 20 per cent increase in the number of ship calls at Australian ports.\textsuperscript{56}

Ships are also now significantly bigger and carry a wider range of cargo.\textsuperscript{57} Globally, the current demand for new ships includes cape size bulk carriers and tankers of 105,000 to 300,000 dead weight tonnage,\textsuperscript{58} while tankers of less than 25,000 dead weight tonnage


\textsuperscript{56} Department of Transport and Regional Services, \textit{Waterline}, no. 38, March 2005

\textsuperscript{57} Department of Transport and Regional Services, \textit{Review of the Navigation Act 1912}, Final Report, Canberra, June 2000, p. iii.

will continue to be phased out by super-tankers, thus following a trend that has been occurring since the 1960s. \(^{59}\) Approximately 82 per cent of ships coming to Australia range from 15 000 to 45 000 gross registered tonnage, although many mid-range ships are being modified to enable carriage of 40 foot containers. \(^{60}\) Due to the restrictive depths of many of the routes within the Reef, shipowners that regularly use the Reef have also turned to building larger, more economical vessels with shallower draft. \(^{61}\)

Forecasts for Australia’s international maritime cargo trade show significant increases to 2020 in the international container, iron ore, alumina and coal export trade. \(^{62}\) More modest increases are expected for the Australian grain export trade and other dry bulk export trades. \(^{63}\) The demand for the services of bulk carriers and tankers in Queensland is expected to continue to increase, corresponding with the expansion of mining and additional secondary mineral processing. For example, in Townsville, Rockhampton and Gladstone, minerals developments are projected to increase by about 36 per cent from 2001 to 2020. \(^{64}\)

Apart from the merchant trade sector, cruise shipping in the Reef is also expected to continue to increase due to the attraction of Australia as a premiere cruise ship destination. \(^{65}\) The number of cruise ships using the Reef represents three per cent of the world cruise ship market, which has been growing at eight per cent or around five new

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62 For example, for the period 2005-2020, the Australian international container trade is expected to triple its current level of 4.4 million twenty-foot equivalent units to almost 12 million twenty-foot equivalent units; the Australian iron ore trade could double from 272 million tonnes to around 510 million tonnes; the Australian coal export trade could double from 243 million tonnes to 390 million tonnes and; the Australian alumina trade is forecast to double from around 16 million tonnes to 29 million tonnes; Meyrick and Associates, ‘International and domestic shipping and ports study’, report prepared for the Australian Maritime Group, 1 May 2007, p. 6, <http://www.atcouncil.gov.au/documents/shipping_ports_study.aspx> viewed 13 August 2007.
Chapter 3

ships per year over the last 20 years. This correlated with an increase in bookings for use of cruise ship anchorages throughout the Reef over the last five years, which range from 150 to 450 bookings per year, a 50 per cent increase from 2001 to 2004.

The expansion of the cruise ship industry is characterized by new cruise itineraries and destinations, increasing segmentation of the market and the development of mega-cruise ships over 500 metres in length, which can carry in excess of 8400 passengers and 4000 crew. At the same time, the industry is also able to reposition itself (to other locations) within a few months if conditions become unfavourable. The challenges for the GBRMPA in managing a growing cruise ship industry are examined in Chapter 6.

3.3. Ship and vessel-source environmental impacts in the Reef

The impacts of ship and vessel activities in the Reef include environmental hazards which harm or disturb natural ecosystem processes and social and economic impacts which can affect the amenity and use of an area. The environmental hazards associated with the activities of ships and vessels include operational discharges, accidental or intentional pollution; and physical damage to marine habitats or organisms. However, ship and vessel-sourced impacts on the Reef are poorly understood within the Marine Park due to the paucity of research and monitoring specifically targeted at this issue. As an ecosystem that is already vulnerable to the changing climate as well as a range

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of human pressures, and particularly a decline in water quality, it is important that the natural resilience of the Reef is not undermined further by the impacts of shipping. This section reviews the significance of ship-sourced impacts and the current state of knowledge of each of the environmental hazards associated with shipping and other vessel activities in the Region. It is followed by an account of shipping and marine pollution incidents that have occurred in the Marine Park and the efforts of the Australian and Queensland governments to better understand the nature of the risk of a shipping incident in the Region.

3.3.1. Significance of ship and vessel-sourced impacts

As with other environmental systems affected by external events, the significance of a shipping hazard is likely to be a function of a range of variables such as scale and severity of impact, probability of occurrence, resistance and resilience of impacted organisms or habitats, as well as the perceptions and concerns of interested parties. The geospatial extent of the impacts arising from ships and vessels may be restricted to an ecosystem at the immediate site of the incident or extend to a much broader area (e.g. over several square kilometres). The extent of the impacts to those ecosystems is likely to be a function of exposure to a pollutant (e.g. rate of release) or collateral damage as well as the sensitivity and adaptive capacity of the affected resources that make up the ecosystem. Coral reef communities that are already prone to disturbances such as from climate related (high temperature seawater) bleaching, crown-of-thorns starfish outbreaks and high-energy events including cyclones or severe storms are likely to be more susceptible to reduced water quality as a result of exposure to low levels of pollution than less frequently disturbed regions. Impacts to the Reef may also be more

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74 See also Standards Australia/Standards New Zealand, ‘Environmental management systems-General guidelines on principles, systems and support techniques’, AS/NZS ISO 14004:2004.


acute at particular times and locations such as at spawning, breeding and nursery areas, even at a regional scale. However, it is very difficult to establish a direct casual link between the discharge of a pollutant and the effects of that pollutant on an ecosystem, largely because of the degree of connectivity of marine environments, and particularly the large temporal and spatial variability inherent in reefal environments. Further, it may be difficult to establish that the impacted environment has not been affected by other activities that have occurred in the intervening period before a monitoring programme has been established to examine the causes and consequences of an incident, particularly in the remote localities of the Region.

3.3.2. Oils and fuels

It is well established that oil spills can harm coral reefs, biota and other benthic systems of the Reef. The main threat of an oil spill to the marine ecosystem is the asphyxiation or smothering of animals, plants or habitats by oil, or poisoning of animals that ingest the oil. Whether these effects are short lived or persist in the long term depends on the type and amount of oil spilt, type of biota affected and the morphology, hydrodynamics and physio-chemical properties of the receiving environment.

The most important behavioural elements affecting oils are evaporation, emulsification

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and dispersion, although exactly how these processes work in the field is poorly understood.\textsuperscript{84} In general, highly viscous persistent oils such as crude oil, fuel oil, heavy diesel oil and lubricating oil are difficult to disperse.\textsuperscript{85} Most modern ships are powered by conventional diesel engines capable of burning low-grade varieties of these fuel oils, which due to their viscosity can easily smother and kill marine life.\textsuperscript{86} Corals exposed to heavy oil exhibit higher levels of injury and grow more slowly than unoiled corals.\textsuperscript{87} The effects of oil on coral reefs will depend on the degree of exposure, depth, tide and morphology of the reef system and whether the corals are in direct physical contact with the oil.\textsuperscript{88} Heavy oils are likely to persist in sheltered areas of the Reef because of the long flushing time required to expel the oil from the porous reef framework before being broken up by sunlight, bacteria and wave action, in some cases eventually forming tar balls.\textsuperscript{89}

Sub-tidal corals on a reef crest may be exposed during the extremes of low water when oil rises to the surface as the sun warms it.\textsuperscript{90} In this case, oil can become trapped in the cavities, crevices and fissures of corals, acting as an oil reservoir, which leaches out for long periods after the spill.\textsuperscript{91} Extended exposure of oil to corals may stress the corals leading to bleaching, impaired reproductive functions and mucus overproduction,\textsuperscript{92} which could lead to the eventual collapse of large tracts of reef.\textsuperscript{93}

Intertidal low energy marine ecosystems and the marine life living within these systems situated in and around islands are the most vulnerable to oiling and are unlikely to be

\textsuperscript{84} ibid.
\textsuperscript{85} Personal knowledge.
\textsuperscript{86} See MEPC 54/6/4, \textit{Interpretations and amendments of MARPOL73/78 and related instruments: use and carriage of heavy grade oil on ships in the Antarctic Sea}, adopted 13 January 2006.
\textsuperscript{87} HM Guzman, KA Burns & JBC Jackson, ‘Injury, regeneration and growth of Caribbean reef corals after a major oil spill in Panama’, \textit{Marine Ecology Progress Series}, vol. 105, 1994, pp. 231-241.
\textsuperscript{88} Personal knowledge.
\textsuperscript{89} ibid.
\textsuperscript{91} ibid.
\textsuperscript{92} ibid, p. 143.
able to readily assimilate oil and fuel residues. For example, oil spill modelling studies conducted in 2000 within the Whitsunday Islands region (Hamilton Cover anchorage) predicted that at least 60 per cent of the type of heavy fuel oil modelled would persist on the water for five days or more and that the geographical extent and potential ecological and use impacts of the spill would be significant. Experience of oiling of similar habitats overseas, indicates that for most tropical systems, recovery of coral reef and mangrove communities is likely to take 20 years or longer, unless the ecosystem has evolved to adapt to the exposure of oil such as those in close proximity to oil seeps.

Non-persistent oils such as light end fuels, kerosene and diesels behave differently in the water column and may readily disperse in the water column, leading to a general belief in the maritime sector that the marine environment has an inherent capacity to assimilate fuel residues. For example, light crude oils can lose up to 50 per cent of their weight and volume in two days. However, when oil is suspended in solutions such as in the early stages of an oil spill, it can be highly toxic to marine life, affecting reproductive, developmental and behavioural processes of marine biota, resulting in


immediate and long lasting impacts to larvae and less mobile organisms.\textsuperscript{101} The effects of these oils on marine organisms are variable, wide-ranging and difficult to observe. For example, some species of pelagic fish will sense oil and swim away from a slick; however reef dwelling fish that rarely travel from their habitats could be affected by the exposure to the oil or fuel residues.\textsuperscript{102}

Oil spills may also have important socio-economic effects on the Region. A large spill (eg in excess of 1000 tonnes) may affect the economic viability of the Region in the short to medium term because tourists are likely to exclude high value tourism areas in the Reef from their travel plans, particularly if the spill receives a lot of publicity.\textsuperscript{103} Government authorities may also be concerned about the possible implications of a terrorism motivated oil spill on Australia’s security, as has occurred overseas.\textsuperscript{104}

3.3.3. Hazardous and noxious substances

Chemicals transported in containers or in bulk through the Inner Route that are known to be hazardous or noxious to human health and the ecology of Reef include bauxite, caustic soda, potassium nitrate, aqua-ammonia, industrial alcohol, ammonia nitrate, sulphuric acid and xanthates. Even relatively benign substances can be toxic in a marine environment. For example, research conducted in 2006 indicates that sugar carried in bulk throughout the Region, can be highly toxic to marine life.\textsuperscript{105} It has been postulated that if a bulk carrier carrying 40 000 tonnes of sugar were to release its cargo onto a reef, an area of between 200 and 400 square kilometres of coral reef could be killed to a


\textsuperscript{103} Personal knowledge.


depth of 15 to 20 metres.106

The potential impacts of chemicals that are released into the marine environment are complex and depend not only on the levels of toxicity, but also on physical properties and transport mechanisms, solubility, longevity and bioaccumulation.107 The stability and behaviour of chemicals can also change under differing environmental conditions, exhibiting properties that may be flammable, toxic, biological, acidic, poisonous, or caustic once in contact with water, marine biota and humans.108 In general, however, there is little that can be done to contain a chemical spill as many of the chemicals will dissolve in water, sink or evaporate or present an unacceptable long term health hazard to personnel conducting salvage and response operations.109

3.3.4. Sewage, grey water and food wastes

The main vessel related sources of sewage, grey water and comminuted foodstuffs in the Reef are emitted from cruise ships, large passenger carrying vessels, fishing vessels, and military craft.110 The quantities of these wastes expelled from vessels is thought to be a relatively minor problem in the large expanses of the Marine Park but can present

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107 See generally International Maritime Organisation, ‘IMO and dangerous goods at sea: the transport by sea of dangerous and harmful goods, including marine pollutants and waste’, Focus on IMO, Newsletter, May 1996.


localised problems in inshore areas, poorly flushed lagoons and enclosed bays.\textsuperscript{111} In contrast, current swept reef fronts are less likely to experience high concentrations of nutrients as pollutants are carried away and diluted.\textsuperscript{112}

The main concern with sewage, grey water and food wastes arises because the nutrients present in the efflux can affect the corals and coral reefs of the offshore areas of the Marine Park which are adapted to a generally low nutrient environment and vulnerable to enhanced nutrient regimes.\textsuperscript{113} High concentrations of nutrients in food wastes, sewage and ‘grey water’ (non-industrial wastewater generated from domestic processes onboard a vessel or ship, excluding water from toilets) can disrupt the reproductive processes responsible for the maintenance, renewal or repair of coral reef ecosystems.\textsuperscript{114} The high levels of organic matter present in these waste products can stimulate microbial production and kill corals and other reef organisms, either directly by anoxia, or by related hydrogen sulphide production.\textsuperscript{115}

The degree to which a particular reefal community may be affected by nutrients is dependent upon the quantity and quality of the effluent, the hydrodynamics of the receiving waters, and proximity to the mainland.\textsuperscript{116} Nearshore fringing reefs may tolerate inputs of nutrients better than reefs situated 50 nautical miles or more from land or reefs that are located in lagoons or other poorly flushed areas. Such areas often make


\textsuperscript{116} See K Fabricius, 2005, p. 185.
excellent anchorages or resort sites, both of which are attractive boating destinations. In these areas, the levels of phosphorus and nitrogen generated from the congregations of vessels and people swimming in the water may be sufficient to cause chronic stresses on the marine environment.\textsuperscript{117}

Studies within the Reef have shown that gradients in nutrients and turbidity can lead to increased macroalgal cover, reduced octocoral richness and weakening of the skeletons of corals.\textsuperscript{118} Continued nutrient enhancement can reduce light penetration to a reef and may bring about a proliferation of seaweeds where they rapidly outgrow, smother and eventually replace the slow-growing coral reef.\textsuperscript{119} Sewage and organic waste has also been correlated with a high incidence of disease on reefs with medium to high anthropogenic uses.\textsuperscript{120} Raw human wastewater contains a potent mixture of contaminants, high concentrations of the nutrients, particularly nitrogen and phosphorus and a variety of bacteria, protozoans, and viruses that are pathogenic to humans.\textsuperscript{121} Sewage discharge is also an amenity issue, particularly in confined and heavily used bays.\textsuperscript{122}

3.3.5. Marine debris and garbage

Marine debris is of increasing concern to the maritime and environmental sector.\textsuperscript{123}

\textsuperscript{117} For example, the daily ablution activities of one person are sufficient to raise the levels of nitrogen in 200 tonnes of seawater to 10 times that of ambient levels. Similarly, as little as 2µM phosphorus over a period of 3-4 hours per day can cause as much as a 50 per cent reduction in the rates of calcification in corals growing on an outer shelf reef; see DW Kinsey and PJ Davies, Effects of elevated nitrogen and phosphorus on coral reef growth, \textit{Journal of Limnology and Oceanography}, vol. 24, 1979, pp. 935-940.


\textsuperscript{122} The GBRMPA receives many complaints each year of sewage discharges from vessels offshore from the Whitsunday Islands and Cairns; personal knowledge.

Marine debris and litter blown, washed off or dumped from ships and other vessels into the water column can affect seabirds and a range of marine species including turtles, whales, dolphins, dugongs and sharks as they become entangled in the debris, resulting in reduced mobility, lose of limbs or infected wounds.\textsuperscript{124} Ingested debris can also result in intestinal blockages or internal injuries leading to the starvation, suffocation or the death of an animal.\textsuperscript{125} The economic costs of marine debris relate to the loss of commercial fish caught in ghost-nets; cost of cutting nets by hand from reefs;\textsuperscript{126} the environmental loss of endangered species and rare coral; and resources incurred by the entrapment of vessel, ships and submersibles fouled by nets and lines in propellers or damaged by collision with bulky floating debris.\textsuperscript{127} In addition, marine debris may also affect the wilderness qualities and aesthetic values of an area, with flow-on economic impacts to commercial fisheries and tourism resources.\textsuperscript{128} It also has the potential to act as a vector for marine pests.\textsuperscript{129}

In general, there is little information about the volume, origins and fate of garbage, litter or marine debris in the Marine Park.\textsuperscript{130} More marine debris has been found on islands and cays near the shipping lanes than in other areas of the Region.\textsuperscript{131} Most debris and litter washed up on the northern section of the Marine Park is probably of a marine origin, sourced from oceanic activities such as fishing, recreational and commercial shipping.\textsuperscript{132} Typically, the components of the ship-sourced debris include derelict fishing nets, other fishing waste and general food packaging.\textsuperscript{133} However, a survey of

\begin{footnotesize}
\begin{enumerate}
\item ibid.
\item Ibid.
\item MEPC 54/INF.4, ‘Australian studies on marine debris’, submitted by Australia, 13 January 2006.
\item ibid.
\item ibid.
\item ibid.
\end{enumerate}
\end{footnotesize}
coral cays in the Reef in 1996 found that plastics, rubber and glass objects were the most common items washed up on beaches.\footnote{D Haynes, 1997, p. 276.}

### 3.3.6. Ship groundings

A ship grounding, particularly involving a large displacement vessel,\footnote{These include trading vessels, commercial tourism vessels, hydrographic survey vessels, barges, research vessels and military surface craft.} can affect the marine environment through physical collateral damage to the habitat and consequent chemical contamination of the substrate.\footnote{See, eg, LD Smith, AP Negri, E Phillip, NS Webster & AJ Heyward, ‘The effects of antifoulant-paint-contaminated sediments on coral recruits and branchlets, \textit{Marine Biology}, vol. 143, no. 4, 2003, pp. 651-657; P Marshall, C Christie, K Dobbs, A Green, D Haynes, J Brodie, K Michalek-Wagner, A Smith, J Storrie & E Turak, ‘Grounded ship leaves TBT-based antifoulant on the Great Barrier Reef: an overview of the environmental response’, \textit{Spill Science & Technology Bulletin}, 2002; A Smith, P Marshall, C Christie & J Storrie, ‘Environmental management of a shipping accident in the worlds largest marine park’ \textit{Australian Journal of Environmental Management}, vol. 9, June 2002.} During a ship grounding, the active ingredients in chemicals or antifoulant (typically copper, tri-butyl tin and co-biocides such as diuron) applied to a ship’s hull and propeller to prevent the build up of organisms (typically octocorals, cnidarians, molluscs, bryozoans and echinoderms, algae and barnacles) can be scraped off, contaminating the sand and coral rubble.\footnote{Personal knowledge.}


Collateral damage to a reef can be caused through primary contact with a ship as it grounds, causing a large indentation in the reef matrix and altering the localised hydrodynamics of the reefal system. This is what occurred when the \textit{Carola}, an 11 000 tonne container ship, grounded on 30 March 1995 at South Ledge Reef at the northern tip of the Marine Park.\footnote{J Aston, ‘Things that go bump in the night’, \textit{Reef Research}, vol. 5, no. 2, 1995, pp. 5-6.} It left a scar about 60 metres long, 17 metres wide and three
metres deep plus an impacted zone comprising broken boulders and corals that extended up to eight metres from the site.\textsuperscript{141}

Attempts to rescue or refloat a grounded ship can also impact a reef.\textsuperscript{142} While the emergency towage of the ship would only have minimal impacts on amenity or access to an area such as when other vessels are temporarily excluded from the casualty site, the time to refloat ships that have grounded and stranded on a reef has ranged from five to 14 days due to the preparatory work needed to mobilise tugs and other resources to minimise the risk of damage to the hull and reef substrate.\textsuperscript{143} Over this period, the action of swells may rock the ship on the substrate, crushing and killing any corals and other infauna under the hull of the ship that escaped initial impact.\textsuperscript{144} Further, the extent of damage may be widened during salvage operations, when the ‘prop wash’ and sediment plumes from the salvage vessel operations tend to smother and injure corals up to several hundred metres of the grounding site.\textsuperscript{145} At the grounding site itself, tug cables can also cut into corals, seagrass or other biota.\textsuperscript{146}

The rate of recovery and recolonisation of coral in the footprint of a grounding is generally a function of the age and amount of antifoulant residue, reef morphology, strength of currents and type of substrate at the grounding site.\textsuperscript{147} Preliminary results of a monitoring programme commissioned in 2002 by the GBRMPA to examine the rates, types and recruitment of crustose coralline algae and hard corals at the grounding sites of the trading ships Peacock, Bunga Teratai Satu, New Reach and Doric Chariot indicate that the reef community may take decades to recover from the physical damage caused by ship groundings.\textsuperscript{148}

\textsuperscript{142} ibid.
\textsuperscript{143} ibid.
\textsuperscript{145} Personal knowledge.
\textsuperscript{146} ibid.
\textsuperscript{147} ibid.
Aside from direct ecosystem impacts, ship grounding sites can be considered by the Indigenous Traditional Owners as contaminated or taboo sites where it is ‘bad luck’ to conduct diving, fishing, collecting or hunting activities.\textsuperscript{149} Remote communities may be more affected by such events, as they are generally more reliant on natural resources provided by reefs for their subsistence. These socio-cultural impacts can be extensive since, from the perspective of Traditional Owner groups, coastal landscapes and seascapes are part of an integrated cultural domain comprising defined clan estates to which affiliated groups belong, and from which they derive their identity and customary rights to own and exploit resources.\textsuperscript{150}

3.3.7. Wrecks

Wrecks have the potential to produce both positive and negative socio-economic impacts.\textsuperscript{151} Although wrecked vessels can enhance fishing and diving opportunities, and with time, some may become historically and culturally significant,\textsuperscript{152} they can also upset the balance of nearby ecosystems by attracting fish from adjacent reefs as polyps and crustaceans settle on the surfaces of the hull, potentially depleting fish populations from those areas.\textsuperscript{153} Wrecks also need a high level of management as they can give rise to liability issues where a person is injured or property is damaged (e.g. as a result of a person diving on the wreck or where another vessel runs into or gets caught up in a...
wreck).  

3.3.8. **Collisions with other ships or vessels**

The interactions of ships and vessels in the narrow shipping routes of the Reef, particularly between trading ships and fishing trawlers, can lead to spillages of fuels, oils and cargo and, in some cases, loss of life. Collisions can occur anywhere in the Region, but collisions involving large ships with deep draft may be more prevalent in the approaches to ports and anchorages due to the difficulties encountered in manoeuvring and avoiding other ships or vessels. Smaller vessels can be difficult to see from a ship’s bridge and collisions can occur where there is excessive glare or where a vessel presents a small radar signature, particularly in rough weather or when there is a sea running. The trend in the building of lighter ships using cheaper, high tensile steel, may also render the hull more susceptible to failure in the event of a collision.

3.3.9. **Collisions with marine animals**

The hulls, propellers or skegs of fast moving ships and vessels can kill, debilitate or injure local populations of whales, dolphins, dugongs and marine turtles. The degree of threat to marine megafauna from ship or vessel strikes depends upon vessel type, vessel speed, weather conditions and behaviour of the animal. Whales in particular are susceptible to the dangers posed by ship strikes because of their habit of resting,

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154 Personal knowledge.


courting and feeding at the water’s surface.160 There have been several reports to the GBRMPA of whales and dugongs being struck by high-speed passenger ferries and catamarans operating offshore from Townsville and between the mainland and Magnetic Island as they feed or float on the water’s surface.161 The impacts on individual species range from minor lacerations to blunt trauma injury, however the impacts on the populations as a whole are less well known.162

The activities of other fast craft such as naval and commercial fishing vessels are also of concern, particularly in the shallow water areas of the Marine Park inhabited by dugong and turtle populations, such as in the Shoalwater Bay Military Training Area.163 Dugong populations throughout the southern Marine Park are already severely depleted and vulnerable to habitat loss, gill-netting, traditional hunting, incidental kills and illegal take.164 Apart from the injury to the animal itself, such activity could lead to reduced breeding capability of those animals, if not properly managed.165

3.3.10. Turbulence, propeller wash, wave wake and tri-butyl tin plumes

The movement and presence of a ship or vessel itself can create impacts in high conservation areas due to ‘backstream’166 and pressure waves and propeller wash; in some cases displacing other users of the Marine Park or affecting the amenity of an area. In general, the stream effects of surface waves, backstream and pressure waves spread by the movement of the ship through the water from the bow, side and stern of a ship or vessel are generally thought to have a negligible effect on the erosion of the

161 Personal knowledge.
165 ibid.
166 Water displaced around the stern of a ship travelling in the opposite direction to the ship’s movements.
seafloor, adjacent shorelines and marine life.\textsuperscript{167} Although related to ship length, draught and tonnage of a ship, these effects may be magnified in narrow channels between islands, particularly during periods of high water, or other areas depending on the geomorphic character, prevailing oceanographical conditions and ecological sensitivity of those areas.\textsuperscript{168} Satellite imagery for the Marine Park clearly shows sediment plumes left in the wake of ships traversing the shallower areas of the northern sectors of the Inner Route.\textsuperscript{169} The physical disturbance of the sea floor and adjacent shorelines can increase the turbidity of the water column, release toxins otherwise bound in sediments\textsuperscript{170} and reduce light penetration to epibenthos and seagrasses.

Additional impacts can arise from the leaching of antifoulant used to keep the hull of a ship or vessel free from marine growth. Antifoulant paint residues left behind in a ship’s wake have toxicological effects on some biota (e.g. molluscs) and is noticeably high in the sediment of many major shipping routes,\textsuperscript{171} although this problem has markedly decreased\textsuperscript{172} due to the entry into force of the Convention on the Control of Harmful Anti-Fouling Systems on Ships, 2001.\textsuperscript{173} Even zinc from sacrificial anodes attached to the hulls of smaller vessels, propeller shafts or seawater-cooled engines have the potential to be toxic to organisms above certain threshold concentrations.\textsuperscript{174}


\textsuperscript{168} H Wermelin, p. 274.


\textsuperscript{173} See Convention on the Control of Harmful Anti-Fouling Systems on Ships 2001, IMO Doc AFS/CONF 26 (in force 17 September 2008). This Convention was implemented in Australia under the \textit{Protection of the Sea (Harmful Anti-Fouling Systems) Act 2006}, no. 107, 2006. It aims to prohibit the application of tri-butyl tin paints by 2003 and to completely prohibit the presence of tri-butyl tin on ships by 2008. Resolution MEPC.46(30) adopted 16 November 1990 also urges governments to eliminate the use of antifouling paints containing 4 micrograms of organotin per square centimetre per day.

\textsuperscript{174} See JA Lewis (ed.), ‘10th International Congress on Marine Corrosion and Fouling’, Additional Papers, University of Melbourne, February 1999, DSTO-GD-0287,
3.3.11. Anchor damage

Anchoring of vessels and ships in the Marine Park carries with it a risk of damaging coral, seagrasses, or other marine habitats, depending on sea conditions, the type of tackle used and the method of securing the anchor in the substrate. Careless placement and recovery of an anchor can cause scaring of benthic communities through direct contact with the anchor and through movement of the anchor chain itself. For example, coral reef habitat can be damaged when the anchor chain flips, cuts, chafes or wraps around individual species, causing abrasions or breaking off coral branches up to 100 metres from the anchor. Areas that are subject to repeated anchoring, such as sites visited regularly by recreational and tourism vessels, may suffer significant degradation over the long term, making such areas more susceptible to disease and other stressors. The activities of trading ships are less likely to result in damage to a reef due to anchoring as they will generally only stop and anchor while awaiting an appropriate tidal window to enter a bay or port (due to congestion of traffic). The GBRMPA receives numerous reports every year of anchor damage, mostly by smaller vessels but also from cruise ships.

3.3.12. Noise

Although generally short lived and transitory, the underwater sound generated by ships may disrupt the echolocation capabilities of birds and marine mammals as well as the breeding, calving and feeding areas of turtles, cetaceans, whales and dugongs. The


175 Personal knowledge.
176 ibid.
179 Personal knowledge
180 ibid.
182 See RD McCaughley, DH Cato & AF Jeffery, ‘A study of the impacts of vessel noise on humpback
use of explosives and percussion charges in marine areas can generate high intensity underwater sounds but are conducted very infrequently and generally only in designated Defence exercise areas. For mammals such as dugongs, the ability to communicate in murky waters may be particularly important, without which the bond between mother and young can be weakened or destroyed, resulting in death of the offspring. There is, however, anecdotal evidence that some organisms, such as cetaceans and birds, may acclimate to the noise produced by ships that frequently traverse the same areas.

3.3.13. Amenity

Particular areas of the Marine Park have been recognized by different interest groups for their value as important sites for spiritual, scenic, recreation and educational opportunities. For example, those Indigenous Australians and Traditional Owners that have developed close spiritual and cultural associations with particular places (‘sea country’) within the Marine Park have expressed concerns that ships sailing in close proximity to such areas could disrupt the values of those areas or affect the rights of traditional clan ownership over those areas. The recognition of amenity is to make a conscious effort to fulfil the expectations of an individual, group or the public toward a particular resource, and to identify those factors which may detract from the enjoyment, appreciation, aesthetic value and use of that resource. Arguably, the ship regulatory

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184 Military exercise areas in the GBRWHA are located in or in the vicinity of Lizard Island; Cairns (Inner Reef and Outer Reef); Cowley Beach; Halifax Bay/Rattlesnake Island; and Shoalwater Bay Training Area.


189 See R Schreyer & L Scherl, ‘Amenity as a social value: a statement prepared for a workshop on
authorities, as agents of the Public Service, have at least a moral obligation to recognise amenity and the strong experiential preferences of the various interest groups for particular locations in the Region. While the social impacts resulting from displacement of existing users and the loss of wilderness spaces and values is an important but little understood phenomenon,\textsuperscript{190} it is incumbent on ship regulatory authorities to make every effort to take account of the potential for displacement of interest groups due to the growth of the tourism, diving, fishing and recreational boating sectors in the Region when planning for the growth of the shipping trade.

3.4. \textbf{Shipping incidents in the Marine Park}

Having established that ship and vessel activities are of concern to the maintenance of the World Heritage values of the Region, this section provides a brief overview of the numbers and types of shipping incidents that have occurred in the Region. The causes and nature of the risk of these incidents is discussed in the following section.

According to GBRMPA records, there have been 23 major ship groundings and 11 collisions in the Marine Park since 1987,\textsuperscript{191} correlating to around 1.7 incidents per annum,\textsuperscript{192} as well as numerous other vessel related incidents (see Table 3.2). Several of these incidents occurred in compulsory pilotage areas on piloted ships. Although the figures do not include reports of near misses or close quarters, none of these incidents resulted in major spills of oil or chemicals.

\begin{itemize}
\item Recent high profile groundings of cargo ships or bulk carriers within or immediately adjacent to the Marine Park include the \textit{Karma} (Agnes Waters, 14 November 2003), \textit{Doric Chariot} (Piper Reef, July 2002), \textit{Bunga Terati Satu} (Sudbury Reef, November 2000), \textit{New Reach} (Heath Reef, May 1999), \textit{Peacock} (Piper Reef, July 1996), \textit{Svendborg Guardian} (Kurrimine Beach, June 1995) and \textit{Carola} (South Ledge Reef, March 1995).
\item Figures sourced from GBRMPA’s maritime incident database.
\end{itemize}
Groundings are the most common cause of shipping incidents in the Reef, closely followed by collisions between trading ships and smaller vessels. For the period 2000 to 2004, in any one year there were from four to 15 groundings of vessels less than 50 metres in length and seven to 19 sinkings because of collisions or capsizings. Groundings tend to occur along ‘bends’ in the Inner Route’s compulsory pilotage area, where ships often pass in close proximity to reefs to save steaming time. Evidence in the form of reef scarring obtained during diver surveys suggest that not all ship and vessel groundings are reported to the ship regulatory authorities.

Between 1991 and mid 2002, the Australian Transport Safety Bureau investigated nine collisions between trading ships and smaller vessels within the Region and estimated that the rate of occurrence of such incidents is about one per year. In the period 1990 to 2003, there were 10 incidents of ship drift groundings (foundering) around the Australian coastline. During 2001 alone, approximately 44 vessels and ships stopped for repairs along the Inner Route while a further 15 vessels and ships stopped for repairs

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194 Figures sourced from GBRMPA’s maritime incident database.

195 Personal knowledge.


along the Outer Route.\textsuperscript{199} Most of the vessels have foundered or been disabled due to mechanical and engine breakdown and have either occurred outside of the Marine Park or within the designated Shipping Areas.\textsuperscript{200} Typically, most ships are able to undertake repairs and get underway within a few hours.\textsuperscript{201}

3.5. Marine pollution incidents in the Marine Park

Every year, the GBRMPA, MSQ and AMSA receive from 50 to 100 reports of marine pollution reports in the GBRWHA (see Table 3.3). The majority of marine pollution incidents occur within ports where handling, loading and offloading of chemicals occur. Out in the Marine Park, most of the reports concern sightings of fuels, oils, oily compounds, chemicals, sewage and garbage (marine debris) and are reported by observers on ships and vessels, people on islands, government field patrols, commercial airlines and surveillance undertaken by Coastwatch.\textsuperscript{202} Reports of oil spills need to be validated, as spills and slicks are often confused with algal blooms (eg \textit{Trichodesmium} spp.) from July to September; coral spawn from October to January; suspended sediment; sea grasses or other sea surface irregularities; and related biological


\textsuperscript{200} Examples of ships adrift or foundering within the vicinity of the Reef include the \textit{Southern Harvest} which suffered engine problems on 16 March 2001 and was adrift approximately 34 kilometres north of Abbot Point; the \textit{Thor Alice} which suffered an engine breakdown on 12 September 2001 about 40 kilometres south of Lockhart River and had to be towed to Cairns; the \textit{ANL Purpose} which broke down on 7 August 2001 about 630 kilometres east of Townsville, outside the Marine Park; and the \textit{Stolt Otome}, a 7751 dead weight tonnage chemical tanker that was adrift in the Capricorn Channel in February 2000 and had to be rescued by small harbour tug and towed to Mackay for repairs. The most recent incident involved the bulk carrier \textit{Harmonic Progress}, which became disabled on 16 April 2004 when an internal ballast water line leaked into the main engine room and immobilised the main engine. At the time of the incident, the ship was approximately 90 nautical miles north of Hydrographers Passage and experiencing heavy weather. Due to the water depth, the ship was unable to drop anchor to stabilise its position and began drifting towards the outer edges of the Reef. The ship was without power for 43 hours and drifted within 30 nautical miles of the Reef. An incident management team was formed to monitor the condition of the ship (provided through hourly reports by the ship’s master) and organised the dispatch of two tugs, one from Townsville (\textit{Giru}) and one from Brisbane (\textit{Austral Salvor}). The smaller of the two tugs, the \textit{Giru}, was the first to stabilise the ship’s drift but was unable to tow the ship back to the mainland. In the meantime, the \textit{Austral Salvor} was dispatched from Brisbane and the ship was towed to Gladstone via Capricorn Channel for emergency repairs before moving under its own steam to Brisbane for major repairs; see also Australian Transport Safety Bureau, ‘Independent investigation into the engine room flooding of the Panamanian registered bulk carrier \textit{Harmonic Progress} in the Coral Sea on 16 April 2004’, Marine Safety Investigation report no. 202, March 2005.

\textsuperscript{201} Personal knowledge.

\textsuperscript{202} Coastwatch is Australia’s national surveillance programme providing broad area surveillance, patrol and incident management out to the limits of Australia’s EEZ.
phenomena.203

Table 3.3: Reports of marine pollution spills in the GBRWHA 2000 to 2004

Please see print copy for Table 3.3


Most of the discharges occur in the vicinity of the shipping routes (Recommended tracks) and other high use areas, particularly in the vicinity of areas offshore from Townsville, Cairns and Whitsunday Islands. 204 For example, some polycyclic aromatic hydrocarbons contained in crude oil and refined petroleum products have been detected in the sediments near Green Island as well as in the vicinity of powerboat moorings in other areas, and are thought to be associated with vessel based activities.205 Remnants of oil slicks and tar balls have also been observed in the more remote areas of the Marine Park, particularly on the beaches of offshore sand cays and islands.206 Thus, it is probable that the remoteness of much of the Marine Park disguises the amount of oil and other hydrocarbons unlawfully discharged into the marine environment.207

203 ibid.
204 Figures derived from the GBRMPA maritime incident database, 2006.
The main sources of petroleum or hydrocarbon based wastes from ships released into the marine environment are suspected to originate from cargo tank washings and slops, lubricating oil used in engines, generators, pumps winches and cranes; residual fuel oil or sludge lining empty fuel tanks, and general leakage from engine spaces into the bilge. Significantly, operational discharges of oils are more likely to account for a greater amount of oil in the marine environment than the oil that is spilled through accidents. Fishing vessels, bulk carriers and recreational vessels respectively, are thought to be the major sources of reported pollution incidents in Queensland. The sizes of these discharges have so far been small, ranging in volume from a few litres to a 1000 litres with only a few reports of 10 000 litres or more. Only a small number of incidents were significant enough to activate the Queensland Coastal Contingency Action Plan, a contingency plan especially developed for responding to oil spills in the Reef.

No chemical spills and no major oil spills over 1000 tonnes have been recorded within the Marine Park, although two major oil spills have occurred within and adjacent to

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209 By comparison, globally fuel oil sludge represents up to 68 per cent of operational input from vessels into the marine environment; Lloyd’s List, No. 59279, 24 October 2006, p. 5.
213 ibid.
214 Figures derived from the GBRMPA maritime incident database, 2006.
the GBRWHA. The first was the grounding of the *Oceanic Grandeur* in Torres Strait on 3 March 1970, estimated to have spilt 1067 tonnes of heavy crude oil.217 The second was a spill of approximately 25 tonnes of heavy fuel oil in Gladstone Harbour when the hull of the bulk carrier *Global Peace* was penetrated by a tug during berthing operations on 24 January 2006. These incidents resulted in the temporary closure of fisheries and tourism activities in the vicinity of the affected areas, as well as a loss of amenity.218

### 3.6. Inquiries into pollution and shipping incidents

As part of its ongoing effort to understand and improve ship safety in the Reef, the Australian and Queensland governments have conducted or commissioned 18 risk assessments, inquiries and reviews of ship safety since the late 1980s that have directly focussed on the Region,219 in addition to several major reviews of Australian maritime

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218 Personal knowledge.

legislation and planning instruments. None of the risk assessments conducted for the Reef have been based on a single methodology because of the relatively small number of incidents along the Reef shipping routes, the uniqueness of the routes and the risk treatments in the form of navigational technologies and other ship safety measures that have been implemented in the Reef in recent years. Notwithstanding these constraints, several conclusions can be made.

First, within the Reef, most of the risk of a shipping incident pertains to a grounding, stranding or collision of a ship as it navigates through the Inner Route, but the overall level of risk is considered low in comparison to other port approaches and narrow channels overseas. Most of the groundings and collisions in the Inner Route are a function of human error, both at an individual and organisational level, poor seamanship, technical failure and procedural errors. Contributory factors include poor navigation, machinery breakdowns, inadequate watch keeping, failing to keep a proper lookout, restricted vision, steering difficulties, unsafe speed, inappropriate lights, lack of training of crews of fishing vessels and fatigue. However, the Australian


Transport Safety Bureau have found shipping incidents occur randomly and unpredictably, even on the most well maintained and operated ships.227

In the mid 1990s, the differences in risk levels between the Inner Route and the Outer Route were not considered significant.228 At that time, the three most important determinants of risk were: distance of the track from the nearest reef or island; presence or absence of a pilot; and presence or absence of trawlers.229 Ten years later, the ship classification society Det Norske Veritas estimated that prior to 2000, there were on average, one shipping incident involving a grounding or collision per year on the Inner Route north, and slightly less than 0.6 per year on both the Inner Route south and Torres Strait.230 Vessel management issues also increase in the Outer Route if a ship gets into difficulty and has to be rescued or directed to a place of refuge.231 However, the incident risks decrease significantly as vessels travel southwards on the Inner Route, proportional to the lessening difficulty of navigation.232 Det Norske Veritas reports that the level of risk of an accident may have further declined as much as seven per cent from 2000 to 2004 around Australia as a whole, and up to 26 per cent within the Flinders Group to Townsville sector of the Marine Park.233

Second, the presence of a properly qualified and skilled pilot reduces the incidence of groundings and, to a lesser degree, the incidence of a collision by up to 50 percent, in navigationally hazardous areas of the Reef.234 However, in less navigationally restricted

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229 ibid.


231 Personal knowledge.


233 ibid, p. 22.

areas, such as in the southern areas of the Reef, the average reduction of risk from pilotage of ships decreases to around 25 per cent on a ‘per nautical mile’ basis.\(^{235}\) However, some industry sources contend that the introduction of compulsory pilotage may actually contribute to a shipping incident,\(^{236}\) for example, due to the high workload of pilots.\(^{237}\) Further, time and economic pressures may also be causative factors.\(^{238}\)

Third, the risk of an oil spill is proportional to the type of activities conducted on, and by, shipping and vessels. Accidental releases of fuels or oils during transfer operations (eg from fishing mother-ship operations), lightering (transfer operations between two vessels) and illegal discharges of bilge waste are mainly due to equipment failure (eg oily water separators) or errors of judgment.\(^{239}\) Contributory factors are occasionally attributed to the lack of reception facilities in some ports and the economic disincentives for using such facilities.\(^{240}\)

During the last ten years in Australia, over 87 per cent of ship-sourced oil spills that require some type of response action originated from vessels other than oil tankers.\(^{241}\) Most of the oil spills that have been attributed to ships occur particularly on bulk carriers and cargo ships, and is dependent on the number of handling operations, weight of cargo carried and volume of oil and fuel handled.\(^{242}\) In 1991, the probability of one or more major oil spills over 1000 tonnes from tankers within Australia was estimated as


\(^{236}\) See ‘Sleeping pilot causes grounding in Great Barrier Reef’, *Oil Spill Intelligence Report*, vol. 20, no. 13, 2002, p.3.


much as 37 per cent in any five year period and 84 per cent in any 20 year period.\textsuperscript{243} Ten years later, this estimate has been revised to one oil spill in excess of 100 tonnes in any five year period\textsuperscript{244} and is slowly decreasing, probably because of global maritime safety initiatives.\textsuperscript{245} The type of oil spilt from ships transiting the Marine Park is more likely to be a refined fuel oil\textsuperscript{246} rather than a crude oil because nearly all crude oil tankers elect to sail the Outer Route.\textsuperscript{247} There is, however, some risk that the substance spilt would be a non-hydrocarbon based persistent oil, for example a vegetable oil carried as cargo, which can also cause significant impacts to the marine environments of the Reef.\textsuperscript{248}

Fourth, maritime incidents involving groundings, collisions, fire, explosion, cargo reaction, mechanical faults, natural disasters, severe weather events and acts of terrorism could result in accidental or deliberate releases of these chemicals onto the Reef.\textsuperscript{249} However, while there have been no recorded significant spills of hazardous and noxious substances in the GBRWHA, as has occurred in other parts of Australia\textsuperscript{250} and overseas,\textsuperscript{251} the bulk quantities of these substances that are regularly carried by ships


\textsuperscript{244} Det Norske Veritas, \textit{Risk Assessment of Pollution from Oil and Chemical Spills in Australian Ports and Waters}, report prepared for the Australian Maritime Safety Authority, Victoria, 2000.


\textsuperscript{246} These include gasoline; marine diesel oil; lubrication and hydraulic oils; various grades of bunker fuel and heavy fuel oils; and waste oils from vessel machinery spaces.


\textsuperscript{248} See, eg, MEPC.148(54), \textit{Guidelines for the transport of vegetable oils in deep tanks or in independent tanks specially designed for the carriage of such vegetable oils on board dry cargo ships}, adopted 24 March 2006.

\textsuperscript{249} There is also the possibility that chemicals can inadvertently become weapons if they are incorrectly recorded and stored in close proximity to each other; A Forbes, ‘International shipping: trends and vulnerabilities’, \textit{Maritime Studies}, vol. 132, September-October 2003, p. 28.

\textsuperscript{250} There were six prosecutions for chemical spills recorded for the period 1997 to 2006 for all Australian jurisdictions; see <http://www.amsa.gov.au/Marine_Environment_Protection/Protection_of_Pollution_from_Ships/Prosecutions_for_Ship_Sourced_Pollution/Oil_pollution_prosecutions/index.asp> viewed 14 February 2007; Australian Transport Safety Bureau reports for the \textit{Marion Green} (2002), \textit{Ming Mercy} (1997).

could present a severe threat to the amenity and natural values of the Region. The risk of a chemical spill is expected to escalate as approximately four million tonnes of chemicals are shipped to Australia per annum, an amount that is expected to increase by 25 per cent in 2010.\(^{252}\)

Fifth, REEFVTS and other port vessel traffic management systems, integrated with other navigational positioning technologies, have significantly improved navigation through the Reef over the last 10 years.\(^{253}\) These services are invaluable in responding to traffic situations and assisting on-board navigational decision making throughout the Region.\(^{254}\) There are, however, up to eight occurrences per day\(^{255}\) of a ship deviating from its passage plan (submitted as part of the requirements of entering REEFREP), in some cases requiring intervention by the Vessel Traffic Service Operators at REEFFCENTRE, the operational centre located at Hay Point in Queensland which administers REEFREP and REEFVTS.

A significant reduction in accidents is also associated with the level of training and experience of the crew and their ability to deal with other factors such as bad weather, navigation error, uncharted dangers or hardware failure.\(^{256}\) Although partly compensated for by the increase in minimum standards prescribed under the International Convention on Standards of Training and Watchkeeping 1978,\(^{257}\) these trends could be easily reversed with the growth in ship traffic, decline in the number of quality seafarers\(^{258}\) and pollution within the framework of the Convention on the Protection of the Marine Environment of the Baltic Sea Area (Helsinki Convention), vol. 2, Annex 3, <http://www.kustbevakningen.se/ra/volume2/start.htm> viewed 12 May 2006.


\(^{254}\) Discussed further at Chapter 5.


other developments at the international level outside the control of Australia relating to an ageing world fleet, attitudes of ship owners and the quality of flag State administration.  

3.6.1. 2001 Ship safety and marine pollution review

In the last 10 years, the most significant reaction to a shipping incident followed the grounding of the 184 metre bulk carrier the *Bunga Teratai Satu* in the Marine Park on Sudbury Reef off Cairns on 2 November 2000. The incident was the impetus for the ‘Review of Ship Safety and Pollution Prevention Measures in the Great Barrier Reef’ (2001 Review). An intergovernmental ‘Shipping Management Group’, comprising the senior executives of the Australian and Queensland government shipping regulatory authorities was established to implement the 41 recommendations of the 2001 Review. Those recommendations included strengthening coastal pilotage; adopting new technology to improve ship safety and navigation; enhancing ship management and emergency response; and reviewing shipping regulatory and management measures. As part of the implementation of the recommendations, a *Shipping Management Plan* and *Shipping Impact Study* were finalised in 2003 following extensive consultation

259 G Toomer [AMSA], pers. comm., 12 November 2006.


with community and industry groups.

The Shipping Impact Study provides information about the main risks posed by shipping in the Reef and informs the Shipping Management Plan. The Shipping Management Plan is a strategic level document that provides a vision for how shipping will be managed, and sets out common goals and understandings between the various agencies involved in the management of shipping. The Plan’s objectives include reducing the environmental impacts of shipping by minimising the risks of incidents; reducing operational discharges; minimising the risk of introduced marine organisms; and enhancing incident response.

The 2001 Review recognised that the multiplicity of laws, some covering the same subject matter, causes confusion to the shipping industry and further complicates the discharge of legislative responsibilities by the ship regulatory authorities. A key recommendation (Recommendation 40) was that as part of the development of the Shipping Management Plan, the ship regulatory authorities should examine the existing regulatory regime to rationalise and simplify the complex jurisdictional and legislative arrangements for regulating shipping in the region.

3.7. Conclusions

Shipping and other vessel based activities are an integral part of the seascape of the Marine Park and the Australian and Queensland economies but present a potential source of harm to the World Heritage values of the Region. The impacts of ships and vessels can be categorised into those that harm or disturb natural ecosystem processes; those that result in collateral damage to benthic habitats and biota; and those that affect the amenity and use of an area. The hazards arising from shipping and other vessel based activities take a variety of forms but include the release of oil and fuels, other hazardous and noxious substances, human derived ship wastes and garbage. The movement of a ship itself can present use and access conflicts within particular localities of the Marine Park, diminishing the experiences for different interest groups. However, the significance of a shipping hazard is likely to be a function of a range of variables such as scale and severity of impact, probability of occurrence, resistance and resilience of impacted organisms or habitats, as well as the perceptions and concerns of
interested parties.

The steady growth in the number of voyages undertaken by ships in recent years, coinciding with the growth in shipping exports, has resulted in several shipping and marine pollution incidents, although the overall damage to the Marine Park from those incidents has, to-date, been relatively minor. The ship regulatory authorities, concerned about the potential for more pollution and accidents that could lead to chronic or serious pollution of the waters of the Marine Park, have sought to better understand the causes and nature of these incidents through commissioning a range of risk assessments and inquiries. However, as will be discussed in the next chapter, the adoption and implementation of international ship safety and marine pollution prevention measures into Australian law presents special challenges to the ship regulatory authorities in prescribing, enforcing and promulgating those laws in the Reef.
Chapter 4

4. INTERNATIONAL AND AUSTRALIAN LAW APPLICABLE TO THE MANAGEMENT OF SHIPPING IN THE REEF

4.1. Introduction

The previous chapter gave an account of the nature of the shipping and vessel activities in the Reef, the potential impacts of those activities to the values of the GBRWHA and the reaction of the Australian and Queensland governments to some of the more serious shipping and marine pollution incidents that have occurred in the Region. This chapter provides an overview of the most relevant international treaties and legislation that have been implemented under Australian law to prevent and manage marine pollution prevention and ship safety. A key focus of the chapter is upon the jurisdiction of the ship regulatory authorities and other Australian and Queensland government agencies over the management of ship safety and marine pollution legislation for the different types of ships and vessels that use the Region. The actions taken in the Reef to enforce and promote legislative provisions in respect of ship safety and marine pollution are also examined. The details of the development and implementation of the regulatory framework for managing safety of navigation; the use and entry of high value conservation zones by ships; waste discharge; and intervention in, and response, to an emergency are examined in subsequent chapters.

4.2. Overview of vessel-source marine pollution and safety treaties

Globally, in excess of 80 international treaties and related instruments deal with vessel-source marine pollution and safety; all of which can be grouped into five categories.1 The first category establishes jurisdictional competence for States to regulate and enforce the actions of both national and foreign ships within their waters; the second category comprises the general maritime and safety of navigation conventions; the third category concerns marine pollution prevention; the fourth category encompasses global and regional environmental initiatives that are designed to protect regions or areas of high ecological or oceanographical character that are especially vulnerable to vessel-

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1 These categories are an expansion of, and loosely based on, the Gard handbook on marine pollution; see E Gold, Gard handbook on marine pollution 2nd edn, Assuranceforeningen Gard, Norway, 1997, p. 56.
source pollution and where existing legal and management measures are insufficient to protect such areas; while the fifth category concerns maritime emergencies, including dealing with a ship casualty, marine pollution preparedness and response, and mechanisms for recovering costs in the event of ship-source marine pollution damage. These treaties are complemented by various guidelines, codes of practice and circulars, although space does not permit an analysis of the provisions of this material.


The 1982 United Nations Convention on the Law of the Sea (LOSC) is widely regarded as the ‘Constitution of the Oceans.’ It sets out the general duties, agreed responsibilities and jurisdictional competencies of the coastal State, flag State and port State in respect of the navigation of ships and vessels and the protection of the marine environment. It is not however, a framework treaty as it makes no formal provision for the adoption of further protocols as a means of meeting new priorities and challenges. Many of the principles of the LOSC are supported by a strong measure of opinio juris and can be viewed as declaratory of existing customary international law, but without

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5 Refers to the State in one of whose maritime zones a particular vessel lies.
6 Refers to the State under whose authority a ship is operating.
7 Refers to the State in one of whose ports a particular vessel lies.
prejudice to other conventions and agreements concerning the protection and preservation of the marine environment.\\footnote{11}{LOSC arts 237(1) and 311(2).}

### 4.3.1. Obligations

The LOSC provides that coastal and flag States have a fundamental legal obligation to protect and preserve the marine environment,\\footnote{12}{LOSC art 192.} and a general duty to take all necessary measures, consistent with the LOSC, ‘to prevent, reduce and control pollution of the marine environment from any source, using for this purpose the best practical means at their disposal’\\footnote{13}{LOSC art 194(1).} as well as a range of other obligations relating to the prevention, reduction and control of pollution without interfering unjustifiably with international navigation rights as set out in Part XII of the LOSC ‘Protection and Preservation of the Marine Environment’ and as established through the International Maritime Organization (the IMO).\\footnote{14}{See LOSC arts 197, 201, 211, 217, 218, 219, 220, 226 and 228.}

### 4.3.2. Jurisdiction

As a coastal State, Australia may regulate all shipping activities carried out by its own nationals but its right to curtail activities by foreign ships is carefully circumscribed by the location of the ship in respect of the maritime zones around Australia and the provisions of the LOSC.\\footnote{15}{See L. Kimball, *International ocean governance: using international law and organisations to manage marine resources sustainably*; IUCN, Gland, Switzerland and Cambridge, 2001, p. 35; Seas and Submerged Lands Act 1973 (Cth) s 3.} Within the Marine Park, the maritime zones of relevance to ship safety and marine pollution prevention and response are 'internal waters',\\footnote{16}{These are waters to the west of the territorial sea baseline, proclaimed and published in the *Commonwealth of Australia Gazette*, s 29 on 9 February 1983.} the ‘territorial sea’,\\footnote{17}{The *Seas and Submerged Lands Act 1973* (Cth) section 6 states that the territorial sea has the same meaning as Articles 3 and 4 of the LOSC.} the ‘contiguous zone’ and the exclusive economic zone (EEZ) (see

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Figure 4.1 of the Appendix to this thesis). Due to the large number of islands having fringing reefs, the majority of the baseline for measuring the breath of the territorial sea is taken at the seaward low-water line of the reefs adjacent to the coast, rather than the low-water line along the coast. These lines and their terminal points were proclaimed under the _Seas and Submerged Lands Act 1973_ (Cth) and gazetted on 9 February 1983 in the Commonwealth of Australia Gazette, prior to 16 November 1994 when the LOSC entered into force.

Within internal waters and the territorial sea, a coastal State may adopt laws relating to ‘the preservation of the environment of the coastal State and the prevention, reduction and control of pollution thereof,’ although these powers ‘shall not apply to the design, construction, manning or equipment standards of foreign ships unless they are giving effect to generally accepted international rules and standards,’ unless in special circumstances. The LOSC gives no guidance on the meaning of ‘generally accepted’ and various interpretations are possible, although as a minimum, the simple entry into force of a treaty would seem to imply that the rules and standards contained therein are ‘generally accepted.’ Any change to these standards requires the approval of the IMO, and coastal States must allow at least 15 months notice before these standards can come into effect within their own legislation.

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19 LOSC art 6.
20 LOSC art 5.
23 LOSC art 21(f).
24 LOSC art 21(2).
27 LOSC art 211(6).
4.3.3. Enforcement

Under the LOSC, flag, port and coastal States each have a role in the adoption and enforcement of international rules and standards.\(^{28}\) Flag States have primary responsibility for ensuring that ships flying their flag comply with all laws and regulations in the territorial sea and all ‘generally accepted’\(^{29}\) international rules for their safe operation and environmental protection\(^{30}\) including for the prevention of collisions at sea\(^{31}\) and vessel-sourced pollution.\(^{32}\) They must also ensure that their vessels carry the appropriate certificates and other documents as \textit{prima-facie} evidence that a ship complies with international rules relating to the vessel’s condition\(^{33}\) and other aspects of the operation of the vessel. However, while there is increasingly a greater emphasis on self-checking and reporting of deficiencies, particularly under the International Safety Management Code,\(^{34}\) there remains a need for enforcement of flag State obligations through domestic laws.\(^{35}\) In general, a State’s enforcement jurisdiction may be more limited than its legislative jurisdiction as enforcement should be based on legislation that has a sufficient jurisdictional link which is applicable to the specific circumstances of the event.\(^{36}\)

Article 220 of the LOSC provides that a vessel voluntarily in port that has committed an

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\(^{28}\) See LOSC arts 91, 94, 211 and 217.

\(^{29}\) Generally, a convention will need to attract more Parties than the minimum required for its entry into force for it to be ‘generally accepted’.


\(^{31}\) LOSC art 21(4).

\(^{32}\) LOSC art 220(2).

\(^{33}\) LOSC art 217(3).

\(^{34}\) The International Safety Management Code requires a vessel to carry a ‘document of compliance’ that the ship owner has in place a safety and environmental management system; Australian Maritime Safety Authority, Marine Orders Part 58, Issue 2, \textit{International Safety Management Code}, Canberra, July 2006.

\(^{35}\) See, eg, P Nelson, ‘Regulation and enforcement of crime in Australia’s maritime zones, in Proceedings of the critical issues workshop on the regulation and enforcement of crime in Australia’s maritime zones, University of Wollongong, Centre for Maritime Policy, 14-17 April 1998.

offence within the territorial sea or EEZ relating to violations of international marine pollution standards may be subject to investigation and criminal proceedings.\textsuperscript{37} Enforcement measures should also be proportional to the crime\textsuperscript{38} and ‘not endanger the safety of navigation or otherwise create any hazard to a vessel, or bring it to an unsafe port, or anchorage, or expose the marine environment to an unreasonable risk’.\textsuperscript{39} Generally, the practice of inspectors is to conduct an inspection of relevant shipping certificates and documents to satisfy themselves that the crew and the overall condition of the ship and its equipment meet the provisions of the relevant international instruments.\textsuperscript{40} If however, there are ‘clear grounds’ for believing that any requirements are not satisfied,\textsuperscript{41} or the ship presents an unreasonable threat of harm to the marine environment,\textsuperscript{42} a more detailed inspection may be conducted under the terms of the relevant conventions or procedures, including outside of port areas to the limits of the EEZ of the State.\textsuperscript{43} Where there is sufficient evidence of a breach of the legislation, a coastal State may institute proceedings against the vessel or detain the vessel.\textsuperscript{44} However, an unduly detained or delayed ship may be entitled to compensation and may appeal against the detention in cases where the action of a coastal State is beyond that reasonably necessary to verify compliance with any domestic regulatory requirements international rules and standards contained in international law.\textsuperscript{45} Nonetheless, only those provisions of the conventions which are in force and which Parties have accepted

\textsuperscript{37} LOSC art 220(1).


\textsuperscript{39} LOSC art 225.

\textsuperscript{40} See Z Oya Ozcayir, \textit{Port State Control}, 2\textsuperscript{nd} edn., Informa Professional, London, 2004, p. 188.

\textsuperscript{41} Under article 226(1)(a) of the LOSC, these requirements include where there are clear grounds for believing that the condition of the vessel or its equipment does not correspond substantially with the particulars of the documentation. Evidence of ‘clear grounds’ includes, but is not limited to, operational evidence that provisions under the International Convention for the Safety of Life at Sea 1974, as amended; the International Convention for the Prevention of Pollution from Ships 1973, as modified by the Protocol of 1978; the International Convention on Standards of Training and Watchkeeping 1978 or the International Convention on Tonnage Measurements of Ships 1969 are not being complied with; see Z Oya Ozcayir, 2004, p. 190.

\textsuperscript{42} LOSC art 220(5).

\textsuperscript{43} IMO Resolution A.787(19), ‘Procedures for Port State Control’, 29 November 1995, para 2.3.

\textsuperscript{44} LOSC art 220(6).

\textsuperscript{45} LOSC arts 228 and 235; see also Z Oya Ozcayir, \textit{Port State Control}, 2\textsuperscript{nd} edn., Informa Professional, London, 2004.
can be enforced.46

4.3.4. Interpretation

Partly owing to the agreed rules of its development,47 and the need to be flexible to cater for the many different systems of government and sovereign interests,48 the LOSC, similar to other international treaties, is broad and complex in scope and subject matter. The tension between the certainty of meaning aspired to give a treaty force of law requires interpretation of the provisions and language of the treaty, which can be vague, ambiguous or silent on many issues.49 The Vienna Convention on the Law of Treaties 196950 provides that treaties should be interpreted holistically,51 and in good faith in accordance with the ordinary meaning of the terms of the treaty.52 Account may be taken of the preamble and preparatory work of the treaty in question,53 subsequent agreements between the parties regarding the application of the treaty and subsequent State practice.54 The Vienna Convention on the Law of Treaties 1969 also provides for circumstances where States can be bound by treaties to which they are not a party.55 Further, where there is a conflict between a general and more specific provision of the treaty, the maxim generalia specialibus non derogant (the specific provision prevails).

Where disputes arise over the interpretation or application of a convention, a State Party

46 IMO Resolution A.787(19), ‘Procedures for Port State Control’, 29 November 1995, paras 1.2.2 & 1.2.3.
47 The United Nations General Assembly adopted a rule of procedure for the development of the LOSC in which the parties to the Conference would make every effort to reach agreement on substance by consensus and there should be no voting until all efforts of achieving consensus had failed; cited in L Johnson, Coastal State Regulation of International Shipping, Oceana Publications, New York, 2004, p. 27.
48 See also B Campbell, ‘The implementation of treaties in Australia’, in International law and Australian federalism, BR Opeskin & DR Rothwell (eds), Melbourne University Press, 1997, p. 145.
49 See also L Johnson, Coastal State regulation of international shipping, Oceana Publications, New York, 2004, p. 27; B Campbell, 1997, p. 145.
52 Vienna Convention on the Law of Treaties art 31(1).
54 Vienna Convention on the Law of Treaties art 31(3).
may submit the dispute to a competent court or tribunal.\footnote{56} In cases of dispute, the onus is on the parties to cooperate to find an agreed solution.\footnote{57} In the context of shipping, common sources of disputes relate to acts prejudicial to innocent passage and limitations on laws relating to the prevention, control, enforcement and reduction of pollution within the various maritime zones.\footnote{58} To date, however, there have been no instances where Australia has been required to resolve a maritime dispute relating to the Marine Park through an international tribunal.\footnote{59}

\subsection*{4.4. Safety of navigation}

The main international instruments with special significance for safety of navigation in the Reef are contained in the LOSC, the International Convention for the Safety of Life at Sea 1974\footnote{60} (SOLAS), the International Regulations for Preventing Collisions at Sea 1972\footnote{61} (COLREGS), the International Convention on Load Lines 1966,\footnote{62} the International Convention on Standards of Training and Watchkeeping 1978\footnote{63} and related IMO resolutions.\footnote{64} While, the LOSC places a duty on States to take all measures to prevent accidents and ensure the safety of operations at sea,\footnote{65} SOLAS is arguably the most influential international instrument that makes provision for the establishment of

\begin{footnotesize}
\begin{enumerate}
\item LOSC art \textsuperscript{297}, para \textsuperscript{1}(c).
\item Personal knowledge.
\item Convention on the International Regulations for Preventing Collisions at Sea 1972, UKTS 68. Cmnd. 9340 (in force 1 June 1983).
\item Examples of other international maritime safety conventions relevant to the safe navigation of ships in the Reef are the International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel 1995; and the Torremolinos International Convention for the Safety of Fishing Vessels 1977.
\item LOSC art \textsuperscript{194}(3)(b).
\end{enumerate}
\end{footnotesize}
ships’ routeing measures\(^{66}\) improving the efficiency of navigation and protecting the marine environment.\(^{67}\) The operational requirements contained in SOLAS are generally applicable to all ships, whilst the requirements for ship construction and equipment apply to ships built on or after the dates specified in the various regulations.\(^{68}\) Two notable measures in the Reef are the ‘Great Barrier Reef and Torres Strait Vessel Traffic System’ and the ‘Area-to-be Avoided’ (ATBA) in the Capricorn Bunker Group.\(^{69}\)

### 4.4.1. Vessel Traffic Systems

Under SOLAS, Governments may establish ship reporting systems and vessel traffic services that make provision for, and in relation to, the safety and efficiency of navigation and protection of the marine environment,\(^ {70}\) provided they are consistent with international law.\(^ {71}\) Governments wishing to adopt ship reporting systems are generally required to obtain the approval of IMO.\(^ {72}\) Governments may wish to adopt vessel traffic services when, in their opinion, the volume of traffic or the degree of risk justifies such services.\(^ {73}\) Significantly for an area the size of the Marine Park, vessel traffic services can only be made mandatory in the territorial sea areas of a coastal State.\(^ {74}\)

### 4.4.2. Ship routeing measures

As will be discussed in Chapter 5, the IMO recognised ship routeing measures\(^ {75}\) within the Reef include a two-way route in the northern sector of the Reef that extends from

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66 SOLAS Chapter V, reg 10.
67 SOLAS Chapter V.
69 Discussed at Chapter 6.
70 SOLAS Chapter V, reg 11 and 12.
71 SOLAS Chapter V, reg 11(8) and 12(5).
72 SOLAS Chapter V, reg 11(2).
73 SOLAS Chapter V, reg 12(2).
74 SOLAS Chapter V, reg 12(3).
Cape York south to Palm Isles (18º40’S);76 several ‘preferred routes’; a ‘recommended track’ that marks much of the Inner Route;77 and an ATBA established in the Capricorn Bunker Group in 1983.78 The General Provisions on Ships’ Routeing79 allow an ATBA to be established in high value areas to reduce the risk of a casualty and consequential environmental damage,80 or areas that are difficult for the navigation of certain classes of ships, or where local knowledge is considered essential for the safe passage of a ship.81 Although most are recommendatory only, the adoption of an ATBA as a ships’ routeing measure is the responsibility of the coastal State82 and to this end, most ATBAs around the world have been designated at the local ecosystem level.83

4.4.3. Aids to navigation

Under SOLAS, governments may establish various aids to navigation as the volume justifies and the degree of risk requires, but should take into account international recommendations and guidelines.84 The International Association of Marine Aids to Navigation and Lighthouse Authorities has prepared best practices that relate to planning, operating and managing aids to navigation.85 Those particularly relevant to the Marine Park include radio navigation services and use of Automatic Identification

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76 Previously this route only extended to Low Isles.
77 Recommended tracks are generally more extensively surveyed at a higher quality than ‘preferred routes’; K Slade [Australian Hydrographic Office] pers. comm., 20 March 2006.
78 See Resolution A.527(13) Ships’ Routeing - Annex 1: New and amended routeing measures other than traffic separation schemes and Annex 2: Amendments to the general provisions on ships’ routing.
81 As of 2003, approximately 34 ATBAs had been established around the world, of which two are in Australian waters, one of which is in the Capricorn Bunker section of the Marine Park; International Maritime Organisation, Ships’ Routeing, p. vii.
Systems\(^86\) (AIS) but the implications of the requirements for the carriage of these and other shipborne navigational systems and equipment\(^87\) are beyond the scope of this analysis.

### 4.5. Marine pollution prevention

The International Convention for the Prevention of Pollution from Ships 1973 and its 1978 Protocol (MARPOL)\(^88\) was the successor to the International Convention for the Prevention of the Pollution of the Sea by Oil 1954\(^89\) and is the primary international legislative instrument that deals with the procedural requirements, technical discharge, design and equipment standards of all vessel-sourced wastes and pollutants at sea.\(^90\) With the exclusion of certain non-commercial, government and military vessels,\(^91\) MARPOL sets out the duties of ship owners and ship masters in reporting incidents and discharges and establishes a system of certification and inspections.\(^92\) It also provides that compliance action should be taken against violators if sufficient evidence is available to enable proceedings to be brought in respect of an alleged violation,\(^93\) except in certain situations involving the safety of a ship or saving life at sea or as a result of damage to a ship or its equipment under certain conditions.\(^94\) Due to its widespread ratification, its codification in Article 211 of the LOSC,\(^95\) and ‘no more favourable

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86 ibid.

87 See, eg. Regulation 34 of SOLAS Chapter V which regulates the safe navigation and avoidance of dangerous situations.


90 MARPOL art 3(3).

91 Nevertheless, military vessels of flag States are to act in a manner so far as is reasonable and practicable with the LOSC; see also LOSC art 236.

92 MARPOL art 11(1)(f).

93 MARPOL art 4(1).

94 These conditions require (i) ‘that all reasonable precautions have been taken after the occurrence of the damage or discovery of the discharge for the purpose of preventing or minimising the discharge; (ii) except if the owner or Master acted either with intent to cause damage, or recklessly and with knowledge that damage would probably result; see MARPOL, Annex 1, reg 11(b)(i) and (ii).

treatment’ clause stipulated in Article 5(4) of MARPOL,\textsuperscript{96} non-parties to MARPOL may be required to comply with international discharge and construction, design, equipment and manning standards through the enactment of national laws and regulations that give effect to generally accepted international rules and standards.\textsuperscript{97} Vessel wastes and pollutants are set out in the associated protocols and annexes of MARPOL and include oil (and oily mixtures), noxious liquid substances, harmful substances in packaged form, sewage, garbage and air pollution.\textsuperscript{98} As discussed in Chapter 7, special allowances have been made for the regulation of these ship and vessel-sourced wastes in the Reef.

\subsection*{4.5.1. Oil wastes}

Annex I of MARPOL generally prohibits the discharge of oily substances within 50 nautical miles from the ‘nearest land’, unless the residue is passed through an oily water separator with an inbuilt membrane filter system and is discharged at a very low concentration (less than 15 parts per million). Oil is defined as petroleum in any form as well as substances such as asphalt solutions, distillates, gas oil, gasoline, jet fuels and naptha.\textsuperscript{99} Following amendments to Annex I of MAPROL in 2003 involving the accelerated phase out of various categories of oil tankers and a phase-in schedule for existing tankers to fit double hulls that took effect on April 2005,\textsuperscript{100} Australia will deny single-hull tankers entry to its ports and offshore terminals from 1 January 2015.\textsuperscript{101} However, as less than 25 oil tankers per year transit the Reef, no further examination of

\textsuperscript{96} MARPOL art 5(4) reads ‘with respect to ships of non-Parties to the Convention, Parties shall apply the requirements of the present Convention as may be necessary to ensure that no more favourable treatment is given to such ships’.

\textsuperscript{97} LOSC arts 211(2) and 211(5), MARPOL art 6; see also EJ Molenaar, \textit{Coastal State jurisdiction over vessel-source pollution}, Kluwer Law International, De Haag, 1998, pp. 119-121 for a discussion on limitations of investigation powers embodied under the ‘no more favourable treatment’ provisions of MARPOL.

\textsuperscript{98} See MARPOL Annexes I, II, III, IV, V and VI respectively.

\textsuperscript{99} MARPOL Annex I, Appendix I – List of oils.

\textsuperscript{100} The phasing out date for Category 1 tankers was brought forward from 2005-2007 while Category 2 and Category 3 tankers dates changed from 2010-2015; MEPC 49/16/1, ‘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.

this development is warranted.

### 4.5.2. Noxious liquid substances

The prevention of pollution by noxious liquid substances and harmful packaged substances are considered under Annex II and III of MARPOL. Annex II of MARPOL sets out special rules for the carriage, storage and discharge of noxious liquid substances, including certain cargo residues. Regulation 6 of Annex II (at Appendix II) of MARPOL categorises and lists a range of noxious liquid substances and other substances (but not oils) that have been provisionally assessed by the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) under a four category system according to the hazard they present to marine resources, human health or amenities. Noxious liquid substances provisionally assessed under regulations 3, 6 and 13 of Annex II to MARPOL carried as cargo or part cargo in bulk, from a ship into the sea cannot be discharged into the sea, putting the onus on ships to discharge the bulk of their tank washing containing residues of noxious liquid substances to a waste reception facility. The remaining residue is required to be diluted to an accepted international level and can be discharged providing certain

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103 Substances cover inter alia petrochemicals, solvents, waxes, lube oil additives, vegetable oils and animal fats.

104 Category ‘X’ substances are deemed to present a major hazard to either the marine environment or human health; category ‘Y’ substances are deemed to present a hazard to either the marine environment or human health and justify a limitation on quality and quantity of discharge; category ‘Z’ substances are deemed to present a minor hazard to either the marine environment or human health and therefore justify less stringent restrictions on quality and quantity of discharge; while the ‘other substances’ (OS) category are considered to present no harm to marine resources or human health.

105 Also known as the GESAMP Hazard Profile; the profile indexes the substance according to its bio-accumulation, bio-degradation, acute toxicity, chronic toxicity, long term health effects and effects on marine wildlife and benthic habitats.

operational conditions are met. These conditions provide that the discharge can only be made when the ship is proceeding *en route* at a speed of at least seven knots; or the substance or mixture has been mixed with water to reduce the concentration of the substance to one part in 11 parts; and the discharge occurs when the ship is not less than 12 nautical miles from the nearest land. Substances that are considered to present no harm to marine resources, human health, amenities or other legitimate uses of the sea when discharged into the sea from tank cleaning of deballasting operations are not subject to any requirements of the Annex.

4.5.3. Packaged harmful substances

Annex III of MARPOL is similar in intent to Annex II but deals with the prevention of harmful substances carried by sea in packaged form. It prescribes details on packing, marking, labelling and stowage of harmful substances referred to in the International Maritime Dangerous Goods Code. The International Maritime Dangerous Goods Code has, since 1991, included marine pollutants and works in conjunction with SOLAS by regulating the carriage of solid bulk cargoes and the carriage of dangerous goods in bulk. Amendments to Annex II of MARPOL made the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk mandatory. The purpose of the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk is to provide an international standard for the safe transport by sea in bulk of liquid dangerous

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107 MARPOL Annex II, r 14.
108 MARPOL Annex II, r 13(2).
110 See MARPOL arts 2(2) and 3 for a definition of harmful substances.
113 SOLAS Chapter VI.
114 SOLAS Chapter VII.
115 This Code was developed to improve and update the existing ‘Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk.’
chemicals, by prescribing the design and construction standards of ships regardless of
tonnage involved in such transport and the equipment they should carry so as to
minimize the risks to the ship, its crew and to the environment, having regard to the
nature of the products carried.\textsuperscript{116} SOLAS also refers to various IMO resolutions\textsuperscript{117} and
codes\textsuperscript{118} for details on procedures to be followed and precautions to be taken in loading,
trimming, carriage and discharge of cargoes.\textsuperscript{119}

4.5.4. Sewage

Annex IV of MARPOL deals with the discharge of sewage from ships. An amended
version of MARPOL Annex IV entered into force internationally on 27 September
2003\textsuperscript{120} and was adopted in Australia on 27 May 2004 through amendments to the
Protection of the Sea (Prevention of Pollution) from Ships Act 1983 (Cth)\textsuperscript{121} and the
Navigation Act 1912 (Cth).\textsuperscript{122} Chapter 7 gives extensive treatment of the way in which
these regulations were applied to control discharges of sewage from vessels and ships
operating within the Marine Park.

4.5.5. Garbage

Annex V of MARPOL sets out regulations for the disposal of plastics at sea, while
permitting the discharge of other types of waste such as garbage and litter and certain
cargo tank washings at varying specified distances from the ‘nearest land’. In general,
floating garbage (includes dunnage, lining and packaging materials) can only be
disposed of at sea more than 25 nautical miles from nearest land while unprocessed
garbage (includes food wastes, paper products, rags, glass, metal, bottles and crockery)
cannot be discharged within 12 nautical miles of nearest land unless it has been

\textsuperscript{116} See International Maritime Organisation, ‘MARPOL 25 years’, \textit{Focus on IMO}, Newsletter, October
1998.


\textsuperscript{118} See, eg, A.862(20), \textit{Code of Practice for the Safe Loading and Unloading of Bulk Carriers}, adopted 27
November 1997.


\textsuperscript{120} MARPOL, Annex IV, Reg. 8(1)(b)(ii), as amended by MEPC. 88(44) and MEPC 44/20, Annex 10 at
Regulation 11(1)(2)(2).

\textsuperscript{121} \textit{Protection of the Sea (Prevention of Pollution) from Ships Act 1983} s 26C-26D.

\textsuperscript{122} \textit{Navigation Act 1912} div 12C.
comminuted, in which case the minimum distance from land at which a discharge is permitted is three nautical miles.123

4.5.6. Air pollution

Annex VI of MARPOL, which was introduced through a 1997 protocol to MARPOL, set limits on sulphur oxide and nitrogen oxide emissions from ship exhausts and prohibits deliberate emissions of ozone-depleting substances.124 In particular, it limits the release of volatile organic compounds from oil tanker cargoes, the use of ozone depleting substances and standards for, and the operation of, onboard incinerators.125 Annex IV entered into force internationally on 19 May 2005 and for Australia on 10 November 2007.126

4.6. Environmental protection of marine ecosystems

Supplementing the provisions of the maritime conventions that aim to prevent marine pollution are the global and regional biodiversity initiatives specifically developed to improve the environmental protection of marine ecosystems. The timing and interest generated by these initiatives has helped protect and ‘revive’ the international community’s obligations to safeguard their oceans and biodiversity against marine pollution.

4.6.1. Global environmental initiatives

Several pioneering international environmental initiatives, developed in the 1970s, such

as the Stockholm Convention on the Human Environment 1972,\textsuperscript{127} the Convention concerning the Protection of the World Cultural and Natural Heritage\textsuperscript{128} (WHC), the Convention on Wetlands of International Importance Especially as Waterfowl Habitat,\textsuperscript{129} and the Convention on the Conservation of Migratory Species of Wild Animals\textsuperscript{130} ignited interest in, and the notion of, ‘environment’. The principles encapsulated by these instruments include the need to identify and protect representative examples of natural ecosystems for current and future generations;\textsuperscript{131} the need to wisely manage wildlife and its habitat;\textsuperscript{132} and the need to promote education and scientific research in environmental matters.\textsuperscript{133}

Articles 4 and 5 of the WHC is relevant to the management of the Region as it confers a duty on its parties to take the ‘appropriate legal, scientific, technical, administrative and financial measures necessary’ to ensure the ‘identification, protection, conservation, presentation and transmission to future generations’ of the natural and cultural heritage of the nominated area on a permanent basis.\textsuperscript{134} However, while the WHC compels the international community to share in the responsibility for protecting the values of an area,\textsuperscript{135} the WHC also provides flexibility to parties in how they fulfil these obligations through inclusion of phrases as ‘in so far as possible’\textsuperscript{136} and ‘as appropriate for each country’\textsuperscript{137} and to do ‘all it can…to the utmost of its resources’\textsuperscript{138} to comply with the WHC. Nevertheless, failure to protect a World Heritage property to the detriment of


\textsuperscript{128} Convention Concerning the Protection of the World Cultural and Natural Heritage 1972, 1037 UNTS 51.

\textsuperscript{129} Convention on Wetlands of International Importance Especially as Waterfowl Habitat, Ramsar, 2 February 197, <http://www.ramsar.org/>, viewed 2 October 2006.


\textsuperscript{134} WHC arts 4 and 5.

\textsuperscript{135} WHC art 6.

\textsuperscript{136} WHC art 5.

\textsuperscript{137} ibid.

\textsuperscript{138} WHC art 4.
World Heritage values for which it was listed through inappropriate management practices could constitute a breach of a signatory’s duties. Parties to the WHC are also obligated to adopt a general policy which aims to give their cultural and natural heritage a function in the life of the community and to integrate the protection of that heritage into comprehensive planning programmes. An example of a comprehensive planning programme is the Great Barrier Reef Marine Park Zoning Plan 2003, whose development is discussed in Chapter 6.

Chapter 17 of Agenda 21, although not legally binding, encourages States to identify marine ecosystems exhibiting high levels of biodiversity, prior assess potentially harmful activities and establish limitations on such areas inter alia through the designation of protected areas. It lists several actions to protect marine and coastal biodiversity including ratification and implementation of relevant shipping conventions; cooperating on monitoring marine pollution from ships; taking action to implement applicable measures in particularly sensitive areas; promoting navigational safety; adopting appropriate rules to prevent the spread of non-indigenous species; and assessing the need for stricter international regulations to reduce further accidents and pollution from cargo ships.

The Convention on Biological Diversity (CBD) is the primary international legal instrument for advancing the conservation of biological diversity and the sustainable

140 WHC art 5.
142 See, eg, Principle 17, Chapter 22 of Agenda 21.
144 Biodiversity in this context includes ecosystem biodiversity, species diversity and genetic diversity.
use\textsuperscript{147} of its components.\textsuperscript{148} Parties to the Convention are required to establish a system of protected areas to conserve biological diversity, as far as possible and as appropriate\textsuperscript{149} and to implement special precautionary measures and strategies to conserve, regulate or manage biological diversity whether \textit{within} or \textit{outside} protected areas,\textsuperscript{150} consistently with the rights and obligations of the LOSC.\textsuperscript{151} Arguably, those activities could relate to the management of ship operations, including in an emergency.\textsuperscript{152} The responsibility to protect and conserve biological diversity at the ecosystemic, species and genetic levels can be conducted \textit{inter alia} with other sectoral plans, programmes and policies.\textsuperscript{153} Implementation of the CBD is further encouraged through the Jakarta Mandate on the Conservation and Sustainable Use of Marine and Coastal Biodiversity 1995\textsuperscript{154} which aims to protect representative examples of biodiversity at a range of temporal and spatial scales\textsuperscript{155} and the World Summit on Sustainable Development Plan of Implementation.\textsuperscript{156} A key guiding principle of the Jakarta Mandate is the recognition that the ‘ecosystem approach’ should be the primary

\textsuperscript{147} CBD art 10.


\textsuperscript{149} CBD art 8.

\textsuperscript{150} CBD arts 8 and 9.

\textsuperscript{151} CBD art 22(2).


\textsuperscript{153} CBD arts 2 and 6(b).


\textsuperscript{155} The \textit{Jakarta Mandate on Marine and Coastal Biological Diversity} is the Ministerial Statement on the Implementation of the Convention on Biological Diversity. It sets out guidance on the process to be used to develop a work programme on marine and coastal biological diversity and on key elements to be included in the work programme, as well as providing guidance to Parties; see generally ‘Jakarta Mandate Marine and Coastal Biodiversity – Background,’ \textlangle http://www.biodiv.org/programmes/areas/marine/default.asp\textrangle viewed 1 March 2005.

\textsuperscript{156} The Commission on Sustainable Development was established by the United Nations to ensure the effective follow-up of the United Nations Conference on Environment and Development, enhance international cooperation and rationalize the intergovernmental decision-making capacity for the integration of environment and development issues and examine progress in the implementation of Agenda 21 at the national, regional and international levels; Agenda 21, para. 38.11); see \textlangle http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/WSSD_PlanImpl.pdf\textrangle viewed 14 September 2007.
framework of action to be taken under the Convention.\textsuperscript{157} The ecosystem approach recognizes the varying temporal scales and lag-effects that characterize ecosystem processes, and that objectives for ecosystem management should be set for the long term.\textsuperscript{158}

4.6.2. Marine Protected Areas

A common means of protecting representative examples of natural ecosystems, promoted by the CBD and Agenda 21, is through the establishment of marine protected areas (MPAs). The International Union for the Conservation of Nature, define an MPA as:

Any area of inter-tidal or sub-tidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment.\textsuperscript{159}

MPAs identify and define areas of significance to meet certain objectives relating to ecological, biological, scientific, historical, cultural, educational and other non-use values.\textsuperscript{160} MPAs seek to maintain or restore marine biodiversity and ecosystem function as well as improve socioeconomic conditions by increasing revenues from fisheries production due to an increase in the size and number of fish migrating out of the MPA.\textsuperscript{161} MPAs are distinguished from other marine areas as the uses and activities within them are generally regulated to provide a higher level of protection than their surroundings.\textsuperscript{162} However, the levels of protection within MPAs can vary from almost

\begin{footnotesize}
\begin{enumerate}
\item ibid.
\item See RS Pomeroy, LM Watson, JE Parks \& GA Cid, ‘How is your MPA doing?: a methodology for evaluating the management effectiveness of Marine Protected Areas’, \textit{Ocean \& Coastal Management}, vol 48, no. 7-8, 2005, pp. 486-487.
\end{enumerate}
\end{footnotesize}
complete absence of restrictions on activities in some areas, to areas where almost no human activities are permitted.

4.6.3. Regional environment conventions

The obligation to have due regard to the protection of Australia’s waterways is reinforced by the Convention for the Protection of the Natural Resources and Environment of the South Pacific Region 1986 and related protocols, of which Australia is a party. Among other things, this regional Convention compels parties to progressively implement measures to prevent, reduce and control pollution in the Convention Area (includes the east coast of Australia, islands and the continental shelf in that region) to establish protected areas and to take appropriate measures in rare and fragile ecosystems. Appropriate measures include the obligation for parties to prohibit or regulate any activity in a protected area likely to have an adverse effect on the species, ecosystems or biological processes that such areas are designed to protect, but not at the expense of rights of other parties or third States under international law.

4.6.4. Maritime conventions protecting special sea areas

Conventions that specifically protect sensitive maritime resources and areas of high conservation value are contained in the LOSC and MARPOL. Apart from the general duty under the LOSC for States to take measures to protect rare or fragile ecosystems, special protective measures may be justified for regions or areas especially vulnerable to vessel-sourced pollution where existing (generic) legal and management measures are insufficient to protect such areas. Such measures include the declaration of Special Areas under MARPOL, the implementation of special mandatory measures under

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164 Convention for the Protection of the Natural Resources and Environment of the South Pacific Region 1986 art 6.
165 Convention for the Protection of the Natural Resources and Environment of the South Pacific Region 1986 art 14.
166 ibid.
167 ibid.
168 LOSC art 194(5).
169 See A.927(22), Guidelines for the Designation of Special Areas under MARPOL 73/78 and Guidelines
Article 211(6) of the LOSC,\textsuperscript{170} or through the designation of an area as a Particularly Sensitive Sea Area\textsuperscript{171} (PSSA).

Special Areas under MARPOL are areas where the danger to the marine environment is particularly acute; generally areas of enclosed or semi-enclosed seas demonstrating unique oceanographical, ecological or shipping characteristics.\textsuperscript{172} Particularly strict waste discharge standards can be applied under Annexes I, II and V of MARPOL within these areas.\textsuperscript{173} While no ‘special areas’ \textit{per se} have been declared in Australian waters under MARPOL,\textsuperscript{174} the significance of the Reef was first recognised in an amendment\textsuperscript{175} to the International Convention for the Prevention of Pollution of the Sea by Oil 1954\textsuperscript{176} in 1971 where ‘nearest land’ was defined as a staggered line drawn along the eastern boundary of the outer edge of the Reef (see Figure 4.2 of the Appendix to this thesis).\textsuperscript{177} The objective of the amendment was to ‘maintain and preserve the Great Barrier Reef in its natural state free from pollution in any form, particularly that caused by discharges from ships of oil or oily mixtures even in limited quantities.’\textsuperscript{178} However, as the amendment to the International Convention for the Prevention of Pollution of the Sea by Oil 1954 never entered into force, the full benefits of the designation were not realised.

\textit{for the Identification and Designation of Particularly Sensitive Sea Areas,} adopted 29 November 2001. The guidelines for Special Areas and PSSAs are separate annexes (I and II respectively).

\textsuperscript{170} See LOSC art 211(6).


\textsuperscript{172} See Resolution A.927(22), \textit{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.

\textsuperscript{173} Relates to discharges of oil, noxious liquid substances and garbage.

\textsuperscript{174} Special areas can also be designated under regional conventions (eg the Convention for the Protection of the Natural Resources and Environment of the South Pacific Region 1986, art 14).


\textsuperscript{178} ibid.
until it was incorporated into MARPOL in November 1990\textsuperscript{179} when it applied to Annexes I, II, IV and V.\textsuperscript{180} The protection afforded to the Reef by the nearest land designation is examined in Chapter 7.

In special circumstances and after international measures have been shown to be inadequate, Article 211(6) of the LOSC allows States to adopt special \textit{mandatory} measures to address the particular risks associated with international shipping in clearly defined areas, after appropriate consultations and processes have been completed involving the IMO.\textsuperscript{181} There are, however, varying views on what Article 211(6) permits\textsuperscript{182} and it is not clear whether its provisions have been enacted as no specific Article 211(6) guidelines have been developed to date.\textsuperscript{183} Some commentators have advised that examples of such areas likely to be approved by the IMO for the adoption of special mandatory measures could include areas of extreme vulnerability where there is a history of non-compliance by particular vessels with existing protective measures or in controlling the passage of ships carrying environmentally sensitive cargos in the vicinity of those areas.\textsuperscript{184}

A PSSA is ‘an area that needs special protection through action by IMO because of its significance for recognized ecological, socio-economic, or scientific reasons and because it may be vulnerable to damage by international shipping activities.’\textsuperscript{185} The measures permitted by the PSSA can be applied at an ecosystem level ‘to achieve a

\begin{itemize}
\item \textsuperscript{179} Resolution MEPC 44(30), \textit{Identification of the Great Barrier Reef Region as a Particularly Sensitive Area}, adopted 16 November 1990.
\item \textsuperscript{180} See MARPOL reg 1(9) of Annex I, reg 1(4) of Annex II, reg 1(5) of Annex IV and reg 1(2) of Annex V.
\item \textsuperscript{181} See LOSC arts 211(6) and (7).
\item \textsuperscript{182} See, eg, J Roberts, \textit{Marine environment protection and biodiversity conservation: the application and future development of the IMO’s particularly sensitive sea area concept}, Springer-Verlag, Berlin, 2007.
\item \textsuperscript{185} Resolution A.927(22), \textit{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, para 1.2.
\end{itemize}
reasonable degree of protection, taking into account other legitimate uses of the sea and may include any measure that already exists under an existing IMO instrument; any measure that does not yet exist but that should be made available as a generally applicable IMO measure; and any measure proposed for adoption in the territorial sea or pursuant to Article 211(6) of the LOSC. The key benefit of a PSSA is that it provides a diplomatic and quasi legal basis for the imposition of ‘associated protective measures’ which themselves serve to reassure the public that an area of high conservation value that is vulnerable to shipping is being adequately protected.

To protect the Reef from shipping activities, the IMO declared the Region a PSSA in 1990. The Information Paper accompanying the original submission to the IMO described the characteristics of the Reef as fulfilling all of the ecological, social, cultural, economic and scientific criteria set out in the original PSSA Guidelines, even though only one of these criteria is required for an area to be designated a PSSA. As will be discussed in Chapter 5, two ‘associated protective measures’ have been approved by the IMO for implementation in the Reef; compulsory pilotage in certain sectors of the Reef and a mandatory vessel traffic reporting system.

Articles 192 to 194 and 211(6) of the LOSC, in concert with other environmental law treaties appear to have been the impetus, or perhaps the ‘legal expression’, for the

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186 Resolution A.720(17), Guidelines for the designation of Special Areas and the identification of Particularly Sensitive Sea Areas, adopted 6 November 1991.

187 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, Annex 2, para 7.4.2.3.


190 MEPC 30/INF.12, ‘Declaration on the protection of sensitive sea areas’, 17 September 1990.

191 MEPC 30/19/1, Guidelines for the designation of Special Areas and Particularly Sensitive Sea Areas, adopted 17 August 1990.


194 See F Spadi, ‘Navigation in Marine Protected Areas: national and international law,’ Ocean
development of the PSSA concept. While Article 211(6) does not provide for the designation of PSSAs per se, there appears to be a practical relationship between the provisions of Article 211(6) and the designation and adoption of associated protective measures. For example, the preamble to IMO Resolution MEPC.44(3) establishing the Reef as a PSSA in 1990, refers to Article 211(6) of the LOSC as well as to the World Heritage listing of the Region, special MARPOL measures and the 1978 International Conference on Tanker Safety and Pollution Prevention as the basis for the identification of the Reef as a PSSA.

Other commentators contend that a PSSA is separate in concept and scope to Article 211(6) as it allows new or non mandatory measures to be taken in all maritime zones of a coastal State including ships’ routeing or reporting measures, compulsory pilotage schemes, discharge restrictions, operational criteria and other prohibited activities. Further, those measures can be given effect through the general authority and approval process of the IMO, rather than through amendment of a multilateral convention or other instrument, as for a special area under MARPOL. Because the PSSA concept is

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199 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, para 7.4.2.1(b).


created by a non-binding IMO resolution, several commentators have contended that the mere designation of a PSSA has no legal significance in and of itself,202 and is ‘nothing more than a qualification and a basis on which protective measures may be taken through IMO measures’203 and that it is the associated protective measures that give legal effect to a PSSA.204 Others argue that the uniform acceptance by the international community of a PSSA is in itself sufficient to provide the legal basis for the establishment of exceptional measures. 205

4.7. Intervention in, and response to, a ship casualty or marine pollution event

Shipping emergencies are dealt with under treaty law, as well as through regional or bilateral agreements, guidelines, customary and case law.206 Treaties setting out the sovereign rights of coastal States in taking action to intervene prior to or during a maritime emergency include the Convention on the International Regime of Maritime Ports 1923,207 the International Convention on Salvage 1989,208 the Convention on Facilitation of International Maritime Traffic 1965,209 and SOLAS.210 Related actions that can be taken post incident are prescribed in MARPOL,211 the LOSC212 and


209 See especially SOLAS Chapter I, r 19.

210 MARPOL art 12.

211 LOSC arts 221, 94(7) and 25(2).
SOLAS\textsuperscript{213} and, to a more limited extent, the International Convention on Load Lines 1966.\textsuperscript{214} These conventions also allow a marine inquiry to be conducted in the event of an incident involving serious damage to a ship or the marine environment. The dumping\textsuperscript{215} of a vessel into the marine environment, or when a vessel is forced to jettison cargo outside of its normal operations,\textsuperscript{216} is targeted by the LOSC\textsuperscript{217} and the 1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972\textsuperscript{218} (London Convention Protocol). The Nairobi International Convention on the Removal of Wrecks 2007\textsuperscript{219} may also be relevant where a wreck follows upon a maritime casualty. This recently concluded Convention, although not yet in force, will deal with the prompt removal of abandoned wrecks due to the hazards they constitute to navigation; the potential for a wreck to cause damage to the marine and coastal environments; and the costs involved in the marking and removal of hazardous wrecks.\textsuperscript{220} The articles of the Convention cover reporting of wrecks, criteria for determining if a wreck constitutes a hazard, measures to facilitate the removal of wrecks, liability and settlement of disputes.\textsuperscript{221} Although the Convention has not been implemented in Australia, many of its provisions are encapsulated under the \textit{Environment Protection (Sea Dumping) Act 1981} (Cth), the GBRMP Act and associated wreck removal policy.\textsuperscript{222}

\begin{itemize}
\item SOLAS Chapter I, r 21 and Chapter V.
\item Dumping includes ‘any deliberate disposal of wastes or other matter from vessels’ and ‘any deliberate disposal of vessels’ at sea, 1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972, art III.
\item The disposal of wastes from a vessel as a result of normal operations is governed by MARPOL.
\item LOSC arts 210 and 216.
\item ibid.
\item Discussed at Chapter 8.
\end{itemize}
4.7.1. **Places of Refuge**

The long standing principle of providing assistance to ships in distress, or when lives are at risk, has become general practice accepted at customary international law and may entitle a ship within a foreign jurisdiction to be bestowed with certain exceptional rights on humanitarian and safety grounds.\(^{223}\) The ‘refuge custom’ entails a fundamental right of self preservation for persons on board a ship in distress, and a counterpart humanitarian obligation by those in a position to do so to assist and receive those persons.\(^{224}\) However, while the duty of a State to render assistance to a ship in distress has since been codified in conventional law in the form of the LOSC\(^{225}\) and SOLAS,\(^{226}\) the conditions on the exercise of that right have not been explicitly and singularly stated in a modern economic and environmental context in any particular multilateral maritime treaty.\(^{227}\)

With the steady increase in the size of ships and carriage of greater quantities of dangerous and hazardous cargo, a coastal State may find itself in a position where it has to identify promptly the appropriate powers to order a ship that is disabled, ‘in need of assistance’ or ‘in distress’ into a Place of Refuge\(^{228}\) to preserve human life, property and the environment or conversely, refuse entry into an area under its sovereignty. Ships that are not in imminent danger\(^{229}\) have been referred to as ‘leper ships’\(^{230}\) but

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\(^{225}\) Article 98 of the LOSC requires States to render assistance to other ships out to the EEZ.

\(^{226}\) SOLAS Chap. V, r.33 and 7(1).

\(^{227}\) The right of refuge is most evident in case law and the writings of authoritative jurists; see A Chircop, ‘Ships in distress, environmental threats to coastal States, and Places of Refuge: new directions for an Ancien Regime?’, *Ocean Development and International Law*, vol. 33, 2002, pp. 214-215.

\(^{228}\) This term has replaced ‘port of refuge’ and ‘safe haven’ in the IMO literature.

\(^{229}\) For example, a ship may simply anticipate foul weather.

\(^{230}\) The term ‘leper ship’ is used to refer to a ship that is shunned by port authorities and refused entry into potential places of refuge; A Chircop & O Linden (eds), *Places of Refuge for ships: emerging environmental concerns of a maritime custom*, Koninklijke Brill NV, Netherlands, Martinus Nijhoff Publishers, 20062006, p. 299; see also EJ Molenaar, *Coastal State jurisdiction over vessel-source pollution*, Kluwer Law International, De Haag, 1998, p. 198.
nonetheless may pose a risk to other vessels or structures or disrupt other uses of the marine environment. If the ship or the conditions further deteriorate, the ship may find itself in a situation where it becomes a ‘maritime casualty,’ causing serious impacts to the marine environment.\textsuperscript{231}

The most relevant treaty expressly for dealing with a maritime casualty is provided by the International Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties 1969 as amended by the 1973 Protocol relating to the Intervention on the High Seas in Cases of Marine Pollution by Substances other than Oil\textsuperscript{232} (Intervention Convention) and Article 221 of the LOSC which empower coastal States to take exceptional circumstances to avoid pollution or the threat of damage to their coastline following upon a maritime casualty or oil or chemical spill.\textsuperscript{233} Under the Intervention Convention, account is to be taken of the extent and probability of imminent damage if certain measures are not taken; the likelihood of those measures being effective; and the extent of the damage that may be caused by such measures.\textsuperscript{234} The operation of the Intervention Convention is guided by the IMO \textit{Guidelines on places of refuge for ships in need of assistance}.\textsuperscript{235}

In most cases, the first priority of a ship in distress is to seek shelter in a port. The rights of States to regulate, and to place conditions on, entry into its ports, to protect its coastlines and marine resources from pollution or the threat of pollution is provided under the various articles of the LOSC.\textsuperscript{236} These rights are tempered by the need to ensure that any measures taken by States to prevent, reduce or control pollution do not

\textsuperscript{231} The sinking, break-up and release of fuel from ships such as the \textit{Prestige} and \textit{Erika} illustrate this point. Several other examples are also provided in GC Kasoulides, ‘Vessels in distress: safe havens for crippled tankers’, \textit{Marine Policy}, vol. 11, no. 3, 1987, pp. 184-195.


\textsuperscript{234} Intervention Convention art VI.

\textsuperscript{235} Resolution A.949(23), \textit{Guidelines on places of refuge for ships in need of assistance}, adopted 5 December 2003.

\textsuperscript{236} See LOSC arts 2, 25, 198, 211(3), 221 and 255.
affect the interests of other States or result in the transfer of pollution hazards from one area to another. Such measures to prevent, reduce or control pollution of the marine environment should be proportional to the actual or threatened damage ‘for preventing accidents and dealing with emergencies, ensuring the safety of operations at sea’ to the limits of the EEZ.

Under the Intervention Convention, the right of intervention arises when the pollutant is a type of oil or ‘substances other than oil’ and ‘other substances which 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’. Thus, intervention considerations relate inter alia to the amount of bunkers carried on board, the environmental significance of the area and the likelihood of the spill itself. However, the burden of proof is on the intervening party to prove that any of these substances could reasonably give rise to an imminent danger.

Another important issue for the intervention of a ship in distress is its location. The LOSC allows coastal States to place conditions on the use of its ports by foreign vessels that might assist in the control of pollution. Where a coastal State has already established ‘particular requirements’ for the prevention, reduction and control of pollution relating to certain preconditions for entry to their ports or internal waters, it is obliged ‘to give due publicity to such requirements.’ This has been tested by the

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237 LOSC art 194(2).
238 LOSC art 195.
239 LOSC art 221(1).
240 LOSC art 194(3)(c).
241 These are defined in the Protocol to the relating to Intervention on the High Seas in Cases of Pollution by Substances Other than Oil 1973.
242 Protocol relating to Intervention on the High Seas in Cases of Pollution by Substances Other than Oil 1973 art I.3.
245 LOSC art 211(3).
International Court of Justice in the *Nicaragua* case, which stated that it is ‘by virtue of its sovereignty that the coastal State may regulate access to its ports.’ Otherwise, a ship’s right to enter port is supported by other treaties, regional or bilateral agreements, as well as case law. The earliest of these treaties, the Treaty of Amity, Commerce and Navigation 1794, allows for ‘distress due to weather, danger from enemies or other misfortune.’ Under this treaty, the burden of proof was on those claiming distress and the onus was on the ship’s master to convince authorities of the necessity of a place of refuge.

The Geneva Convention on the International Regime of Maritime Ports 1923, to which Australia is a party, provides the basis for State parties to take exceptional measures in cases of emergency affecting their safety or vital interests providing the principles of the Convention are observed and provided they are temporary. The Convention affirms sovereignty over access to port areas but obligates coastal States to grant ‘freedom of access’ on the basis of equality of treatment of vessels and reciprocity. This would suggest that Australia, as a coastal State, has a right to deny entry to ships to a port within the Marine Park of any nationality and probably for any reason depending on whether it has arrangements of reciprocity with the flag State of the ship in distress. However, in spite of being a signatory to this Convention, Australia has not entered into any formal arrangements with other parties to the Convention.

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250 ibid.
Further, given a treaty is only binding on the parties to it, this Convention would have no authority to non-parties.

Under the Convention for the Facilitation of International Maritime Traffic 1965, temporary measures can be applied to prevent a ship accessing a port for reasons such as ‘to preserve public morality, order and security or to prevent the introduction or spread of diseases or pests affecting public health, animals or plants.’ However, the threat or actual occurrence of spills of oil or other dangerous substances is not mentioned in this Convention, and therefore may not provide sufficient basis for taking temporary measures to deny entry to a stricken ship seeking a place of refuge.

A vessel may stop and anchor in the territorial sea if it is incidental to the ordinary navigation of the ship; in the case of force majeure; or where assistance is offered to a person or ship in distress. The ability of a coastal or port State to prevent a disabled ship from taking refuge is prescribed by the LOSC. Within the territorial sea, Australia as a coastal State cannot impose restraints on navigation, providing passage is innocent, continuous and expeditious. However, Australia may exercise criminal and civil action to prevent passage through its territorial sea that is not ‘innocent,’ including when that ship is in lateral passage and en-route to a port of the State concerned, and engages in activities that are ‘prejudicial to the peace, good order or security of the coastal State’ or ‘any other activity not having a direct bearing on passage’ by temporarily suspending innocent passage where actual environmental

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259 LOSC art 18(2).

260 LOSC art 17.

261 LOSC art 25(1).

262 That is, not proceeding to or from internal waters of a coastal State.

263 LOSC arts 25(2) and 211(3)

264 LOSC art 19(2).

266 LOSC art 19(2)(i).
damage has occurred. As part of temporary suspension, a ship may be directed to a place of refuge to effect repairs.

The meaning of ‘innocent’ has many nuances and implications for the granting of a disabled ship a place of refuge. The LOSC articulates that ships carrying noxious or inherently dangerous substances have a right of innocent passage providing certain precautions are undertaken, despite the potentially extreme risk to the marine environment. These precautions relate to the labelling, stowage and segregation of dangerous goods under MARPOL, SOLAS and the International Maritime Dangerous Goods Code. Some commentators however, have questioned whether the exclusions relating to innocent passage under Article 19 of the LOSC are exhaustive and definitive. For example, the International Law Association Committee on Coastal State Jurisdiction has adopted a broad interpretation that allows coastal States to consider ships whose condition is ‘so deplorable that it is extremely likely to cause a serious incident with major harmful consequences, including to the marine environment’ as not being entitled to claim the right of innocent passage. Others however, have argued that innocent passage under LOSC does not preclude delinquent acts involving substandard ships or a violation of construction, design, equipment or manning standards and should not be compromised for environmental or economic reasons.

268 LOSC art 23.
270 MARPOL Annex III.
271 SOLAS r II-2.
As a party to the Convention for the Protection of the Natural Resources and the Environment of the South Pacific 1986, Australia is obliged to immediately notify other countries it deems likely to be affected by a pollution event that creates a significant risk of harm to another nation and must use its best endeavours to ensure that measures to prevent or reduce marine pollution do not result in the pollution of the marine environment outside the Convention Area. The concept of an obligation to co-operate implies a duty to enter into negotiations and exchange information concerning environmental risks with a view to arriving at an agreement and in taking into account the positions of the other interested States or parties. The LOSC and the Intervention Convention are examples of international instruments that note the need to consult and cooperate with other parties as well as placing a legal obligation to act in good faith in discussions and negotiations to address the threats and risks to human health and vulnerable ecosystems.

The Convention on Wetlands of International Importance Especially as Waterfowl Habitat, 1971 could also be of relevance to the conservation of the three wetland areas within the Marine Park listed under the Convention to the placement of a maritime casualty. Under the Convention, these wetlands should be the subject of a management plan and a monitoring program to detect changes in ecological character.

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275 Convention for the Protection of the Natural Resources and Environment of the South Pacific Region 1986 art 15(2).
276 Convention for the Protection of the Natural Resources and Environment of the South Pacific Region 1986 art 5(2).
282 Convention on Wetlands of International Importance Especially as Waterfowl Habitat 1971, arts 3(1) and 4(1). Assessment of the likely impact on ecological character of proposed actions as required under
Should the ‘ecological character’\textsuperscript{283} of any of the boundaries of the listed wetlands suffer, for example, from the consequences of locating a casualty in or adjacent to those areas, State parties could be obligated to compensate for any loss of the values of that site by creating additional nature reserves either in the same area or elsewhere and for the protection of an adequate portion of the original habitat.\textsuperscript{284}

4.7.2. Sunken, abandoned or derelict ships

Despite all efforts to salve a ship, it is sometimes necessary to consider how to sink a ship to save lives or minimise any further damage to the environment. There may also be occasions where a decrepit ship is abandoned by its owners, and has to be towed to safe waters.\textsuperscript{285} Under the London Convention Protocol, the scuttling or sinking of a ship can only be carried out when it is necessary to secure the safety of human life, or vessels at sea, in \textit{force majeure} situations if dumping appears the only way of averting the threat and if there is every probability that the damage consequent upon such dumping will be less than would otherwise occur.\textsuperscript{286} When a State takes action that results in the scuttling of a ship, it is important that the State does not ‘transfer, directly or indirectly, damage or likelihood of damage from one part of the environment to another.’\textsuperscript{287} States that are party to the London Convention Protocol are also required to take a precautionary approach\textsuperscript{288} in dealing with the dumping of ships and related wastes in an

\textsuperscript{283} The ecological character description gives a baseline description of the wetland at a given point in time. As a party to the Convention on Wetlands of International Importance Especially as Waterfowl Habitat 1971, Australia is expected to describe and maintain the ecological character of their sites and notify the Convention of any changes; see Environment Protection Agency (Queensland), Nationally and Internationally Important Wetlands <http://www.epa.qld.gov.au/wetlandinfo/site/PPL/DOIWandRAMSAR.html> viewed 11 November 2007.

\textsuperscript{284} Convention on Wetlands of International Importance Especially as Waterfowl Habitat 1971, art 4(2).

\textsuperscript{285} For example, in accordance with AMSA’s responsibilities, emergency towing arrangements have been implemented to prevent damage to the Australian marine environment and reduce navigation hazards from an 80 metre derelict vessel that was drifting in the Gulf of Carpentaria south of Weipa on 24 March 2006. AMSA arranged a salvor, Adsteam Marine Pty Ltd, to facilitate safe passage of the vessel to Weipa; ‘AMSA Implements Emergency Towage Response for Derelict Vessel’, Media Release, 25 March 2006, <http://www.amsa.gov.au/about_amsa/media_releases/2006/2006_mar_24.asp#0gen> viewed 30 August 2006.

\textsuperscript{286} London Convention Protocol art VIII.

\textsuperscript{287} London Convention Protocol art 3(3).

\textsuperscript{288} The precautionary principle is also recognised in the Rio Declaration (Principle 15), the CBD and the EPBC Act.
emergency and take into account the principle the polluter should bear pollution costs.\textsuperscript{289}

Outside of an emergency, the dumping of a ship in the marine environment requires all potentially hazardous wastes on board the ship to be assessed and monitored after the vessel sinks.\textsuperscript{290} In 2000, guidelines were developed by the IMO to assist States assess vessels for dumping purposes, including waste prevention audit, waste management options, best environmental practices, monitoring and permit conditions.\textsuperscript{291} The guidelines stipulate that as a minimum, vessels shall be cleaned of potential sources of pollution and of fuel or other substances that are likely to cause harm to the marine environment, and materials capable of creating floating debris shall be removed.\textsuperscript{292} Other guidelines set out basic criteria for determining emergency situations and procedures for consultative advice to affected States and the IMO; and the safe disposal of matter at sea in such circumstances.\textsuperscript{293}

If the casualty has been abandoned at port, for example, because it is a constructive total loss, or is in a bad state of repair, or is detained for safety reasons by a Port State Control (PSC) inspector, the coastal State has to consider the relevance of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal 1989.\textsuperscript{294} While this Convention is generally concerned with the movement of hazardous wastes between two countries, it is not clear when a ship casualty becomes ‘waste’ for the purposes of the Convention.\textsuperscript{295} Although an area of

\textsuperscript{289} London Convention Protocol arts 3 and 2
\textsuperscript{290} Under Annex 2 of the London Convention Protocol, permit applicants are required to conduct a waste prevention audit; formulate alternative waste management strategies; screen all candidate wastes against a contaminant thresholds determined by each party (that is, an 'action list'); assess the impact of dumping on the marine environment and monitor the results. Guidance is also given on dumpsite selection.
\textsuperscript{292} ibid.
\textsuperscript{295} A Chircop, ‘Law of the sea and international law considerations for places of refuge for ships in need of assistance’, in A Chircop & O Linden (eds), Places of refuge for ships: Emerging environmental concerns of a maritime custom, Publications on ocean development, vol. 51, Martinus Nijhoff Publishers,
unsettled law, a ship abandoned at a place of refuge is potentially in violation of the requirement under the Convention to notify the ‘State of export’ and ensure that the ‘wastes’ in question are taken back into the State of export, if alternative arrangements cannot be made for their disposal in an environmentally sound manner.\(^{296}\) In that case, the coastal State could draw upon Article 6 of the Convention and use the insurance, bond or other guarantee required by the State of import or any State of transit which is a Party to remove the wreck, or parts of the ‘wastes’ out of the marine environment.\(^{297}\) As discussed in Chapter 8, such guarantees have also been used in the context of securing and safeguarding wrecks and artificial reefs in the Marine Park.

### 4.7.3. Response to pollution events

The LOSC covers matters to be considered in marine pollution preparedness and response on four accounts. First, it details the actions that flag, port and coastal States\(^{298}\) can take to enforce waste discharge offences. Second, Part XII of the LOSC makes special reference to regional cooperation in combating accidental marine pollution and requires States to ‘jointly develop and promote contingency plans for responding to pollution incidents in the marine environment.’\(^{299}\) Third, Article 204 of the LOSC encourages States to exercise systematic monitoring of the risks or effects of pollution in the marine environment.\(^{300}\) Fifth, Article 235 declares that States are responsible and liable for the fulfilment of their international obligations concerning the protection and preservation of the marine environment.\(^{301}\)

The other main international instruments of relevance to the response to spills of oil and hazardous and noxious substances are the ‘International Convention on Oil Pollution, The Netherlands, 2006, p. 262.


\(^{298}\) See especially LOSC arts 217, 218 and 220.

\(^{299}\) See LOSC arts 194(3), 198 and 199.

\(^{300}\) See LOSC art 204.

\(^{301}\) See LOSC art 235.
Response and Co-operation 1990 (OPRC) and the Guidelines for facilitation of response to a pollution incident. Originally limited in scope to a variety of oils, but not persistent oils, the Convention has been expanded with a protocol (OPRC-HNS Protocol) to include spills of hazardous and noxious substances. These instruments are complemented by other guidelines that have been prepared by the IMO to assist countries to establish a response organisation and prepare contingency plans relating to oil and hazardous and noxious substances.

The OPRC creates a framework for international cooperation and obligates parties to create a national system for responding to oil spills. It also requires ships to have on board a Shipboard Oil Pollution Emergency Plan that details the actions to be taken before and after an accident. The first of those actions requires the ship’s master or crew to report any event involving a discharge or ‘probable discharge’ of oil or hazardous and noxious substances above specified permitted levels that could damage the marine environment to the flag State and the nearest coastal State without delay.

305 These include liquefied gases, liquid substances with a flashpoint not exceeding 60°C, dangerous, hazardous and harmful materials and substances carried in packaged form, and solid bulk materials defined as possessing chemical hazards.
307 See OPRC art 8(3).
308 See OPRC art 6.
309 OPRC art 3(1).
310 Resolution A.948(23), Revised survey guidelines under the harmonized system of survey and certification, adopted 5 December 2003.
311 See OPRC art 5, OPRC-HNS Protocol art 4; the need to report marine pollution events without delay is also contained in LOSC art 198, MARPOL arts I, II and 8, Resolution MEPC.21(22), Adoption of amendments to Protocol I to MARPOL 73/78 and the text of the Protocol, as amended, annexed thereto, adopted October 1997 and Resolution MEPC 138(53), Amendment to the general principles for ship reporting systems and ship reporting requirements, including guidelines for reporting incidents involving dangerous goods, harmful substances and/or marine pollutions (Resolution A.851(20)), adopted 22 July 2005.
Other articles of OPRC require Parties to establish equipment stockpiles;\(^{312}\) conduct research;\(^{313}\) as well as training and exercising programmes.\(^{314}\) Parties are also required to facilitate the arrival of vessels and equipment used in the response effort.\(^{315}\) Guidelines for requesting assistance from other countries in the event of an oil pollution incident are also provided by IMO resolution.\(^{316}\) The International Convention on Salvage 1989\(^{317}\) is also relevant as it further obligates a State Party dealing with a pollution event or ship casualty to take into account the need for cooperation between the owner and salvor, other interested parties and public authorities,\(^{318}\) particularly where safety of life is no longer a concern.\(^{319}\) Australia’s system of contingency planning for oil and hazardous and noxious substances is described in Chapter 8.

4.7.4. **Recovery of costs for vessel-source marine pollution damage**

The recovery of the costs of responding to a marine pollution event is provided through domestic statutes, marine insurance and the international liability and compensatory regimes.\(^{320}\) The purpose of these regimes is to induce shipowners and operators to avoid accidents and discharges (for fear of having to pay compensation) and provide financial compensation to victims of ‘pollution damage’.\(^{321}\) Shipowners have accepted strict liabilities under the international compensation and liability conventions, in exchange for the right to limit those liabilities to insurable levels. All of the liability and

\(^{312}\) OPRC art 6.2a.

\(^{313}\) OPRC art 8.

\(^{314}\) OPRC art 6.2b.

\(^{315}\) OPRC art 7.


\(^{317}\) International Convention on Salvage 1989 art 11.


\(^{319}\) International Convention on Salvage 1989, art 11.


compensatory treaties require the vessel to have compulsory insurance or other financial security to cover the liability it may incur. Such insurance is generally covered by the insurance of the shipowners’ Protection and Indemnity (P&I Club). Subsection 4.1.1.2 Under the P&I Club rules, the limit of liability for most forms of oil pollution is set at US$1 billion for each event or accident.

The two most important liability and compensation conventions cover losses resulting from spills of persistent oil from tankers are the ‘International Convention on Civil Liability for Oil Pollution Damage and the 1992 Protocol’ (CLC 92) and the ‘International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage and the 1992 Protocol’ (Fund 92). Fund 92 supplements the CLC 92 where damages exceed the owner’s liability or if the owner is financially incapable of meeting his or her obligations.

The CLC 92 and Fund 92 entitle the shipowner to limit the amount of compensation available and the scope of coverage to an amount based on the ship’s overall tonnage. Subsection 4.1.1.2 For the majority of ships traversing the Region, the total compensation payable per incident under CLC 92 is limited to 4.51 million SDR (approximately US$7 million). Subsection 4.1.1.2 The maximum compensation payable by the 1992 Fund for any one incident is 203 million SDR (US$310 million) whatever the size of the ship. If a major incident

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327 This covers ships between 5000-140 000 gross tonnage.


329 This maximum amount includes the compensation paid by the shipowner or their insurer under CLC 92.
exceeded these limits, the International Oil Pollution Compensation Fund would make provisional payments only until all claims are accounted for.330

The CLC 92 and Fund 92 cover the costs associated with the recovery of clean up of persistent oils from laden and unladen tankers out to Australia’s EEZ, but only under certain conditions. These conditions extend to any party suffering pollution damage providing the damage did not result from the ‘owners’ personal act or omission committed with intent to cause such damage, or recklessly and with knowledge that such damage would probably result.*331 Also excluded are acts of war332 or ‘a natural phenomenon of an exceptional, inevitable and irresistible character’,333 acts intended to cause damage334 and negligent acts by an authority responsible for maintenance of navigational aids.335 Pollution damage from oil under these conventions means any persistent hydrocarbon mineral oils carried by tankers or ships that are ‘constructed or adapted to carry oil as cargo.’336 To be eligible for compensation, measures must be reasonably taken to avert or minimise any damage which might be caused if there was an escape or discharge of oil of a ‘grave and imminent’ magnitude.337 In addition, the CLC 92 and Fund 92 will also reimburse other costs relating to the reasonable reinstatement of actual pollution damage to the marine environment.338

On 3 March 2005, the ‘Protocol establishing an International Oil Pollution Compensation Supplementary Fund’ entered into force.339 Although optional, this fund provides a third tier of compensation to victims of oil pollution from oil tanker

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331 See CLC 92 art V(2).
332 CLC 92 art III(2)(a).
333 CLC 92 art III(2)(a).
334 CLC 92 art III(2)(b).
335 CLC 92 art III(2)(c).
336 CLC 92 art I(1) and (5).
337 See CLC 92 art I(8).
338 See CLC 92 art I(6).
339 The impetus for the creation of the Fund was the Erika and Prestige incidents; see Z Oya Ozcayir, Port State Control, 2nd edn., Informa Professional, London, 2004, p. 3.
accidents. The total amount payable for any one incident will be 750 million SDR, including the amount payable under the existing conventions.

Insurance for hazardous and noxious substances is provided by the ‘International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea 1996’ (HNS Convention). The HNS Convention establishes a two tier liability and compensation regime to provide compensation for victims of accidents involving hazardous and noxious substances. Under the first tier, the shipowner will be liable for compensation up to a limit which increases with the size of the ship. If compensation costs exceed the amount obtainable from the shipowner, compensation will be payable from an international fund up to a maximum of approximately $600 million. The fund will be financed by an annual levy imposed on companies and persons who receive hazardous and noxious substances by sea. Although not yet in force, the HNS Convention is important to the safety of chemical carrying ships in the Region as it covers inter alia loss of, or damage to property outside the ship carrying hazardous and noxious substances caused by those substances and preventative measures and further loss or damage caused by preventative measures.

The ‘International Convention on Civil Liability for Bunker Oil Pollution Damage 2001’ (Bunkers Convention), also not in force, sets out requirements for insurance for damage and clean up costs caused by spills of bunker oil from ships over 1000 gross

343 ibid.
344 ibid.
345 The levy is imposed based on the amount of hazardous and noxious substances received by an individual company or person.
346 HNS Convention art 1.6.
348 Bunker oil is defined as ‘any hydrocarbon mineral oil, including lubricating oil, used or intended to be
registered tonnage other than oil tankers within the EEZ of a State. The Bunkers Convention primary advantage is that it fills a gap in the liability regime for oil spills because it recognises that some bulk carriers and container ships carry more oil as bunkers than coastal tankers carry as cargo. The Bunkers Convention differs slightly from the CLC and Fund 92 Conventions in two ways. First, where more than one person is liable, liability is not directed solely at the registered shipowner but shall be joint and several. Second, the Bunkers Convention does not expose salvors and clean up contractors to liable actions unless the liability in question resulted from their personal acts or omissions, committed with the intent to cause damage, or recklessly and with knowledge that such damage would probably result. However, the Convention does not establish independent limitation amounts; these are referred to national laws or the International Convention on the Limitation of Liability for Maritime Claims 1976 (LLMC), depending on the type of claim.

The LLMC is relevant in situations where a ship can be identified as the polluter but that ship is not a tanker and is not responsible for spilling a persistent hydrocarbon mineral oil. In that case, the limits of liability under the LLMC would take effect depending on the type of the claim and size of the ship. As will be discussed at Chapter 8, the limits of liability under the LLMC are considerably lower than those claimable under the 92 conventions and could fall short of the tens of millions of dollars required to compensate persons, businesses and governments for losses sustained from a spill arising from a cargo or bulk carrier that typically transit the Reef. Further, while a

used for the operation or propulsion of the ship, and any residues of such oil’.

349 Gross tonnage has the same meaning as determined under the 1969 Tonnage Convention; Resolution A.493(XII), Use of the term ‘Gross Tonnage’ in lieu of ‘Tons Gross Tonnage’, adopted November 1981.


351 Bunkers Convention art 3.2.


353 See Bunkers Convention art VI.


355 See especially LLMC art 2(1).

356 The LLMC applies to ships that may not be eligible for compensation under the CLC 92 and Fund 92 conventions but excludes claims for oil pollution and hazardous and noxious substances.
decision to grant refuge to a ship in distress would more properly be based on assessment of risk to the interests of a coastal State, a lowered limit of liability or compensation for damage or disruption to a port or place of refuge may cause the State authorities to be risk averse and hesitate to grant refuge.  

4.8. Implementation of international ship safety and marine pollution laws into Australian law

The international environmental and maritime conventions described in the preceding section encourage States to link their administrative, procedural or legal instruments directly to the objectives of international law to ensure they are consistent with, and do not derogate from, the intent of international law. However, while the implementation of international law for either prescriptive, enforcement or adjudicative purposes is a matter for each State, most treaties are given effect in Australia through modifying existing laws, drafting new laws or establishing administrative arrangements (in cases where the obligations are solely those of the Australian or state/Northern Territory governments). The obligations of an international treaty to which Australia is a party do not form part of Australian law unless those provisions have been validly incorporated into municipal law by statute. It has been Australian Government policy to implement and enforce international environmental and shipping laws endorsed by the international community and ensure they are uniformly applied, including within the Marine Park. However, the implementation of international conventions relating to

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363 See Australian Government, ‘Trick or Treaty?: Commonwealth power to make and implement treaties’, November 1995,
marine pollution and environment protection under Australia’s system of federalism poses significant challenges for the Australian Government, particularly within the Marine Park.

4.8.1. Legislative responsibilities for shipping and other vessel based operations in the Region

The legislative responsibilities for shipping derive from the jurisdictional arrangements established under Australia’s system of federalism for the management of the Region. To that end, three Commonwealth authorities and one state authority have responsibility for implementing and administering ship safety and pollution prevention regulations and for ensuring the safety of ship’s crews, passengers and other users of the Marine Park. However, the Commonwealth Department of the Environment, Water, Heritage and the Arts (Environment Department) may intervene in these functions in exceptional circumstances where there is a significant risk to the marine environment.

The competent national organisation in respect of the implementation of international standards for the regulation of shipping is the Australian Maritime Safety Authority (AMSA). Established under section 5 of the Australian Maritime Safety Authority Act 1990 (Cth), AMSA is responsible for enhancing ship safety; providing a national system of aids to navigation services; administering programmes and contingency plans to combat marine pollution; and coordinating marine search and rescue services through several statutes. These statutes include the Navigation Act 1912 (Cth); Protection of the Sea (Prevention of Pollution from Ships) Act 1983 (Cth) – (POTS Act); Protection of the Sea (Powers of Intervention) Act 1981 (Cth) - (POI Act); Protection of the Sea (Civil Liability) Act 1981 (Cth); and the Lighthouses Act 1911 (Cth). Subordinate


364 See Chapter 2.

365 The three authorities are the Australian Maritime Safety Authority, Department of Infrastructure, Transport, Regional Development and Local Government and the Great Barrier Reef Marine Park Authority.

366 This agency is Maritime Safety Queensland.
legislation, in the form of Marine Orders and Regulations, are used to implement the relevant standards and operational procedures established under the *Navigation Act 1912* and the POTS Act.\(^{367}\)

The Department of Infrastructure, Transport, Regional Development and Local Government (Infrastructure Department) is responsible for the Australian Government’s transport policy framework. It administers coastal shipping licences and permits for foreign ships wishing to engage in trade between Australian ports via such statutes as the *Maritime Transport and Offshore Facilities Security Act 2003* (Cth); *Transport Safety Investigation Act 2003* (Cth); *Protection of the Sea (Harmful Anti-fouling Systems) Act 2006* (Cth); and Part VI of the *Navigation Act 1912* (pertaining to registration of ships and permission requirements for ships engaging in coastal trading). The Infrastructure Department is also working towards the implementation of other international conventions including the Bunkers Convention\(^ {368} \) and HNS Convention.\(^ {369} \)

As previously discussed,\(^ {370} \) a number of ship and vessel based management initiatives are managed by the GBRMPA through the *Great Barrier Reef Marine Park Act 1975* (Cth) (GBRMP Act) and subordinate legislation including the *Great Barrier Reef Marine Park Regulations 1983*, the *Great Barrier Reef Marine Park Zoning Plan 2003* (Zoning Plan 2003) and various statutory plans of management. Table 4.1 provides a chronology of some of the key shipping and marine pollution provisions enacted through the GBRMP Act.

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\(^{367}\) The *Navigation Act 1912* s 425(1AA) and the POTS Act s 34(1) provide that AMSA may make orders with respect to any matter for or in relation to which provision may be made by regulation.


\(^{370}\) See Chapter 2.
Table 4.1: Chronology of shipping and marine pollution provisions under the GBRMP Act

<table>
<thead>
<tr>
<th>Relevant provisions for shipping and marine pollution offences under the GBRMP Act</th>
<th>Commencement date</th>
</tr>
</thead>
<tbody>
<tr>
<td>s 7 - The function of the GBRMPA to prepare zoning and management plans for the Marine Park and is responsible for the management of the Marine Park.</td>
<td>1975</td>
</tr>
<tr>
<td>s 38A - Zones only to be used for permitted purposes</td>
<td>1988</td>
</tr>
<tr>
<td>s 38H - Removal of property (vessels) that is in the Marine Park</td>
<td>1988</td>
</tr>
<tr>
<td>s 38J - A person may not discharge waste into the Marine Park. Waste includes oil, noxious liquids, packaged harmful substances, sewage and garbage.</td>
<td>1988</td>
</tr>
<tr>
<td>s 38M - A ship may only operate in a zone permitted by the zoning plan.</td>
<td>1988</td>
</tr>
<tr>
<td>s 61A - Where the Minister has a reasonable belief that an offence has occurred he may order the repair or remedy any condition arising from the incident, mitigate any damage arising from the incident, or prevent any further damage occurring.</td>
<td>1988</td>
</tr>
<tr>
<td>s 59B - A ship cannot navigate in a compulsory pilotage area without a pilot.</td>
<td>1991</td>
</tr>
<tr>
<td>s 59C to 59E - A ship cannot enter a port after navigating a compulsory pilotage area without a pilot.</td>
<td>1991</td>
</tr>
<tr>
<td>s 59F to 59M - Exemption to navigate without a pilot</td>
<td>1991</td>
</tr>
<tr>
<td>s 38L - A vessel may not discharge waste into the Marine Park.</td>
<td>1995</td>
</tr>
<tr>
<td>s 38MA to 38MC - Permission requirements to be observed for ships in certain zones.</td>
<td>2001</td>
</tr>
<tr>
<td>s 38MC - Vessels causing damage in the Marine Park</td>
<td>2001</td>
</tr>
</tbody>
</table>

The (Commonwealth) Environment Department administers several pieces of legislation that may have a bearing on the regulation of shipping activities, particular those relating to actions that can be taken to deal with a wreck. These are the Environment Protection and Biodiversity Conservation Act 1999 (Cth)\textsuperscript{371} (EPBC Act), the Environment Protection (Sea Dumping) Act 1981 (Cth) (implementing the London

\textsuperscript{371} The EPBC Act covers a number of environmental assessment and approval processes relating to matters of national environmental significance within the GBRWHA including values of a World Heritage property, listed threatened species and the management and protection of Commonwealth marine and coastal environments.
Protocol), the *Historic Shipwrecks Act 1976* (Cth) and the *Sea Installations Act 1981* (Cth). In most cases, however, the Environment Department takes advice from the GBRMPA when those activities fall within the GBRWHA, just as the GBRMPA routinely provides information to the Environment Department about the GBRMPA’s operations.372

Maritime Safety Queensland (MSQ), an agency of the Queensland Department of Transport, is responsible for the Queensland marine transport sector. The Acts administered by MSQ include the *Transport Operations (Marine Safety) Act 1994* (Qld) - (TOMSA), the *Transport Operations (Marine Pollution) Act 1995* (Qld) - (TOMPA) and the *Transport Operations (Marine Pollution) Regulations 1995* (Qld). In addition, there are several other pieces of Queensland legislation administered by the Queensland Environment Protection Agency and the Queensland Parks and Wildlife Service that seek to protect the natural environment and water quality of Queensland’s coastal areas, coastal waters and marine parks. These include the *Marine Parks Act 2004* (Qld),373 the *Marine Parks (Great Barrier Reef Coast) Zoning Plan 2004* (Qld), the *Environment Protection Act 1994* (Qld), the *Environment Protection (Water Policy) 1997* (Qld), the *Coastal Protection and Management Act 1995* (Qld) and the *Nature Conservation Act 1992* (Qld). Although some of this legislation applies to ‘vessels’, it does not seek to duplicate the legislation administered by MSQ by regulating the activities of ships or the areas offshore from Queensland.374 For example, while the object of the *Coastal Protection and Management Act 1995* is to provide a broad power of enforcement to protect the coast and foreshore from environmental damage, its coverage does not extend beyond those areas except in circumstances involving a vessel where the activity of that vessel is likely to have a significant impact on the coastal management of the mainland of Queensland or an island under the control of Queensland.375


374 Contra the sections 20 and 24 of the *Marine Parks Act 1990* which provides respectively that a person must not discharge any waste in the Marine Park or abandon a vessel without permission.

375 See *Coastal Protection and Management Act 1995* s 3.
4.8.2. Operation and interaction of marine pollution legislation in Commonwealth and state waters

The preceding analysis established that the three main statutes giving effect to Australia’s international obligations in respect of marine pollution prevention are the GBRMP Act, POTS Act and the TOMPA. As the POTS Act and the TOMPA specifically address marine pollution prevention within Commonwealth and Queensland waters, those statutes potentially duplicate (at least in part) what the GBRMP Act achieves in the one piece of legislation. Australia has dealt with the jurisdictional complexities of the operation and interaction of the POTS Act and state maritime Acts through the application of a ‘rollback’ scheme within the POTS Act, a scheme that is designed to expressly preserve the enactment of the MARPOL by the other state and Northern Territory governments until suitably equivalent or similar marine pollution legislation can be implemented by those governments for waters that come under its jurisdiction. Although the scheme recognises the limitations of the constitutional powers of the Queensland Government over activities in the maritime zones that are within and beyond those areas of the Marine Park that are not ‘connected’ with the state, the rollback arrangements under the POTS Act have not been designed to specifically address the jurisdictional complexities in the GBRWHA.

Nonetheless, the TOMPA itself acknowledges that it is part of a national scheme complementing the approach of the Commonwealth. In general, under the ‘rollback’ model, the TOMPA is limited by the Coastal Waters (State Powers) Act 1980 (Cth) to the first 3 nautical miles of the territorial sea (subject to the ebb and flow of the tide) while the POTS Act does not apply landward of the three nautical mile limit unless the TOMPA is inconsistent with the POTS Act or does not ‘cover the field’

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376 POTS Act s 5(2).
379 TOMPA s 3(3)(a).
380 TOMPA s 11(1) provides that ‘the body of law governing Australian waters is extremely complex and this section is intended to provide only a very general overview of the State’s jurisdiction in the territorial sea.’
381 TOMPA s 11(3).
through the enactment of a marine pollution statute. Further, the POTS Act provides that it is to ‘be read and construed as being in addition to, and not in derogation of, or in substitution for, any other law of the Commonwealth.’³⁸²

In contrast, the GBRMP Act applies landward of the three nautical mile limit (i.e. within Queensland coastal waters) and hence there may be occasions where both pieces of legislation (i.e. the GBRMP Act and TOMPA) apply to the same subject matter within the same geographic area. For example, several provisions in both the TOMPA and GBRMP Act relate to the offences involving pollution incidents,³⁸³ however the TOMPA would be invalid if it were inconsistent with the GBRMP Act by virtue of section 109 of the *Commonwealth of Australia Constitution Act* and both the GBRMP Act and the POTS Act would be applicable to those waters.³⁸⁴

Aside from the complexities of prescriptive and enforcement jurisdiction over marine pollution, control of a ship as an entity is further complicated because the Commonwealth and state jurisdiction over ships is dependent upon the destination and function of the ship itself. The *Navigation Act 1912* applies to trading ships proceeding on an interstate or overseas voyage and ships belonging to the Commonwealth,³⁸⁵ but does not apply to ships to the extent that a law of a state makes a provision giving effect to SOLAS.³⁸⁶ By contrast, MSQ is responsible under the *Transport Operations (Marine Safety) Act 1994 (Qld)* (TOMSA) for regulating all vessels ‘connected’ with Queensland including fishing and recreational vessels (wherever they may be) and all ships on intrastate voyages in Queensland waters,³⁸⁷ but not to the extent that the *Navigation Act 1912* applies to a ship.³⁸⁸

³⁸² POTS Act ss 5(1).
³⁸³ For example, the section 38J of the GBRMP Act sets out a range of offences involving the discharge of waste into the Marine Park, attracting a maximum penalty of 2000 penalty units ($220,000 for an individual and $1.1 million for a corporation). Similarly, sections 26(1), 35(1) and 42(1) of TOMPA provides for a maximum of 3500 penalty points for the discharge of oil, noxious liquid substances and harmful substances.
³⁸⁵ *Navigation Act 1912* s 2.
³⁸⁶ *Navigation Act 1912* s 187.
³⁸⁷ TOMSA s 11(1).
³⁸⁸ TOMSA s 12(1).
In practice, while the application of maritime legislation operating in the Region is
dependent upon the location, ship size and type of voyage a ship is undertaking, the
circumstances and actual or perceived consequences of the activities of a vessel or ship
are also relevant. For example, an incident involving a ship grounding in the Marine
Park where there is no oil spill and no risk of an oil spill would more likely invoke a
provision of the GBRMP Act389 or possibly the TOMPA if the ship was on an interstate
voyage390 within Queensland coastal waters and a person caused it to be operated
unsafely in a way that causes a marine incident.391 Within the same area and where there
is a real likelihood of an oil spill or where an actual oil spill has occurred, TOMPA is
more likely to be invoked to respond to the situation.392 There is no express provision in
the GBRMP Act for this situation (where there is a real likelihood of an oil spill) and
only the general management provisions of the GBRMP Act and the Great Barrier Reef
Marine Park Regulations 1983 would apply, depending on the circumstances. However,
TOMPA,393 the POTS Act394 and the GBRMP Act395 could all potentially apply to a
situation where an oil spill poses a grave or imminent threat to the coastline of
Australia. As will be apparent in later chapters, these jurisdictional issues have generally
not hindered the ability of the Commonwealth to work with MSQ and other Queensland
Government agencies to cooperatively regulate shipping in the Reef.

4.8.3. Australia’s Port State Control enforcement of IMO Conventions

Within Australia, PSC is administered and conducted within port areas by AMSA
authorised personnel through an inspection of ships and their equipment under the
Tokyo Port State Control Memoranda of Understanding for the Asia Pacific Region.396

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389 See, eg, GBRMP Act s 38MC.
390 TOMPA s 11(1).
391 TOMPA s 43(2)(a).
392 See, eg, TOMPA s 3, 92, 96 and 98.
393 ibid.
394 See, eg, POTS Act s 8, 9 and 10.
395 See, eg, GBRMP Act s 38L.
396 Member States include Australia, Canada, Chile, China, Hong Kong, Fiji, Indonesia, Japan, Republic
of Korea, Malaysia, New Zealand, Papua New Guinea, Philippines, Russian Federation, Singapore,
Solomon Islands, Thailand, Vanuatu and Vietnam; see Tokyo MoU Secretariat, <http://www.tokyo-
Under the Tokyo Port State Control Memoranda of Understanding, a minimum of 50 per cent of ‘eligible ships’ visiting Australian ports are inspected in ports for ship safety defects. An eligible ship is one that has not been inspected by AMSA during the last six months (three months for an oil or chemical tanker over 15 years old and all passenger ships of any age) immediately preceding the date of arrival at port. Given the time constraints of a ship in port, these inspections are subject to Port State Control Guidelines and are generally limited to cursory inspections of certification, documentation, equipment and other components of the ship that are accessible while the ship is in port. The types of deficiencies can be categorised as structural (equipment related), operational, human factors or procedural in nature.

Ships visiting Australia may also be targeted for inspection by any one of the 42 marine surveyors located in 13 ports around Australia through tracking of the risk profiles of ships using the Australian Ship Survey and Inspection Management System. The Australian Ship Survey and Inspection Management Systems’ modules include the identification details of the ship, contacts relating to those ships, port arrival data, results of past inspections and records of incidents associated with each ship. The scheme acts an early warning system for identifying and inspecting sub-standard ships according to risk based on a vessel’s general condition, past performance as well as records of the ‘recognised organisations’ (classification societies) they employ.

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398 ibid.


404 See also HG Payer, ‘Insurer and class and marine accidents’, in MH Nordquist & JN Moore (eds),
Alternatively, inspectors may be alerted to a deficiency (defects, damage, deficiencies or other limitations) from the Rescue Coordination Centre or the REEFCENTRE under the reporting requirements of AUSREP or REEFREP.

Inspection of some 3000 ships per year by PSC inspectors indicate an overall improvement in the standard of ships coming to Australia since 1995. The number of deficient ships entering Australia is generally low, and ranged from 4.4 to 5.0 per cent for the period 2001 to 2005. For example, a concentrated campaign targeting bulk carriers during the period from 1 September 2003 to 30 November 2003 resulted in only 18 of 396 bulk carriers being identified as deficient. Thirteen of these ships had structural or load line deficiencies which required remedial action. The remaining five vessels were detained for non-compliance with SOLAS and for other miscellaneous deficiencies.

A serious deficiency deemed to pose an immediate threat to the ship, crew or environment may result in the detention of the vessel until the crew undertakes rectification work. Hardware deficiencies continue to be a major cause of detention, indicating a failure in the ship’s safety management system or International Safety


This is operational centre located at Hay Point in Queensland which administers REEFREP and REEFVTS.


REEFREP is the Great Barrier Reef and Torres Strait Ship Reporting System.


ibid.

SOLAS Chapters VI and XII.


Management Code. Examples include damage or lack of maintenance to miscellaneous fittings that are essential for navigation or for maintaining the integrity of the hull. Most deficiencies are traced back to systematic errors in the ship’s safety management system. The exposure and publicity associated with a PSC deficiency could affect the reputation of the ship owner or charterer, acting as a major disincentive for other companies wishing to trade in the Reef using substandard ships. As well as the financial burden place on the ship resulting from delays to its sailing plan and any fines imposed for breaches of the legislation, such action could result in the ship missing out on future charters or trade with Australia.

4.8.4. Enforcement of shipping and marine pollution laws within the Reef

As part of its risk management strategy, the GBRMPA places a high priority on enforcing and investigating maritime pollution offences within the Marine Park, due to the potential for significant environmental damage and endangerment of marine biota. Over the last few years, there have been renewed efforts to improve compliance in the Marine Park. Shared use of intelligence amongst state and federal agencies and AMSA’s counterpart marine administrations overseas; changes to the marine pollution and shipping offence provisions; resourcing of additional infrastructure involving enhanced vessel, aircraft and satellite imagery surveillance over the Marine Park, have all contributed to better detection and successful prosecution of offences, both for ships and vessels.

416 ibid, p. 20.
417 ibid, p. 19.
419 ibid.
421 Personal knowledge.
422 Personal knowledge.
As a single incident may be subject to several different pieces of legislation, the investigation of a shipping offence in the Marine Park could involve more than one ship regulatory authority or other enforcement agency (eg Australian Federal Police), depending upon the circumstances, nature, location, seriousness or complexity of an incident.\textsuperscript{424} The GBRMPA has developed shipping incident investigation guidelines to ensure that investigations are coordinated across all agencies involved, and that the investigation considers the roles and obligations of each of these agencies.\textsuperscript{425}

In general, under these (internal) guidelines, incidents involving marine pollution from \textsl{ships} are investigated and case managed primarily by AMSA and occasionally by the GBRMPA, while issues involving ship safety or safety of life are investigated by the Australian Transport Safety Bureau.\textsuperscript{426} Policing of marine safety and pollution laws for \textsl{vessels} is carried out by the GBRMPA, MSQ, Queensland Boating and Fisheries Patrol, the Queensland (Water) Police Service and the Queensland Parks and Wildlife Service. However, ships (eg the Weipa bauxite carriers) operating solely in Queensland coastal waters that come under Queensland jurisdiction would generally only be inspected or investigated by MSQ. Inspection of safety standards on commercial vessels that come within Queensland’s jurisdiction has moved away from a set of prescriptive requirements referencing the Uniform Shipping Laws Code\textsuperscript{427} involving an annual survey by a government inspector to a system where the onus is upon the ship owner to engage an accredited private contractor\textsuperscript{428} to ensure their ship meets certain ‘general safety obligations,’\textsuperscript{429} and is seaworthy and operated safely.\textsuperscript{430} The shift from a prescriptive standard to a performance-based standard of compliance has created difficulties in establishing precedents as to when a ship is ‘safe’ and when a ship is


\textsuperscript{425} ibid, p 19.

\textsuperscript{426} Personal knowledge.


\textsuperscript{428} TOMSA s 40.

\textsuperscript{429} TOMSA s 40, 41 and 43.

being operated ‘unsafely’. These difficulties are being overcome through the promotion and establishment of precedents by MSQ in respect of the construction and application of the general safety obligations.

4.8.5. Prosecution of shipping and marine pollution offences in the Reef

The Investigations Unit of MSQ has brought a range of prosecutions against the owners of commercial and fishing ships for discharging oil and other types of vessel-sourced waste into Queensland coastal waters. Minor offences have been dealt with by marine infringement notices issued under the State Penalties Enforcement Act 1999 (Qld) and the State Penalties Enforcement Regulation 2000 (Qld). More major contraventions of TOMPA or TOMSA have been dealt with summarily in the Queensland Magistrates' Court pursuant to Part 6 of the Justices Act 1886 (Qld).

Within Commonwealth waters, investigations conducted by either the Australian Federal Police, the AMSA or the GBRMPA are referred to the Commonwealth Director of Public Prosecutions, who considers the brief of evidence prepared as part of the investigation into the incident and likelihood of a successful prosecution before deciding whether to proceed with prosecutorial action. AMSA will transmit evidence to a flag State of any significant breach of international or Australian legislation to allow them to cause proceedings to be brought in respect of the alleged violation, but in accordance with the obligations under the relevant law. These referrals have so far been met with limited success, in part due to a lack of resources or information to act on

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431 ibid, p 99.
432 ibid, p 98.
434 ibid pp. 96-114.
435 ibid, p. 98.
438 For example, MARPOL article 6 specifies the rights and obligations in the detection of violations and cooperation in the enforcement of MARPOL.
Some commentators have observed that flag State responsibility may be concerned more with admitting ships to their registers under flag of convenience arrangements as a source of revenue, rather than matters of enforcement. Despite the efforts of the IMO Sub Committee on Flag State Implementation, the IMO Model Audit Scheme and related initiatives, it is of concern that of the 3080 ships inspected by AMSA as part of their PSC program in 2006, 60 per cent of the 138 ships detained because of serious defects were flagged in Panama, Cyprus, Liberia, Bahamas, Malta Hong Kong and China, bringing into question the operational and safety standard of such ships.

The task of securing the elements required by each statute to prove the commission of an offence can be difficult. For example, in order to prove the elements of a marine pollution offence, it may be necessary to identify tell tale signs of tampering (such as a reconfiguration of an oily water separator, associated piping or measurements of fuels and oil levels), prove that certain equipment is deficient or establish the exact whereabouts of the vessel in relation to the boundaries of the Marine Park or a zone within the Marine Park. Factors such as remoteness of the incident, heavy seas, poor water quality or visibility can all confound the investigation and ability to connect a

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441 The primary objective of the Sub-Committee on Flag State Implementation is the identification of measures necessary to ensure effective and consistent implementation of global instruments, including the consideration of difficulties faced by developing countries, primarily in their capacity as flag States, but also as port and coastal States.

442 The aim of the audit scheme is to determine to what extent Member States are implementing and enforcing the applicable IMO instruments, with a view to enhancing their performance; see International Maritime Organization, ‘Model Audit Scheme – Objectives approved’, <http://www.imo.org/Newsroom/mainframe.asp?topic_id=114&doc_id=2794> viewed 2 October 2007.


444 Personal knowledge.
ship or vessel to a specific incident. Other operational difficulties can arise if investigators need to seize the charts of a ship that is involved (or suspected of involvement) in an incident, as part of evidentiary collection procedures, effectively immobilising the ship if that equipment is essential for navigation, or as a result of political concerns arising from the possibility of compensation claims should the ship be unduly delayed or improperly detained.

4.8.6. Awareness raising of shipping laws in the Reef

In the main, the strategic approach of the GBRMPA, AMSA and MSQ to compliance with the shipping regulations is to proactively seek to prevent serious environmental harm through engaging the community and commercial shipping and port industries in management, policy and regulation development, and decision-making. The formal requirements for consultation with interested and affected parties from government and peak industry bodies in developing any new legislation by the Commonwealth and Queensland governments helps raise awareness of proposed measures and the benefits of those measures prior to the legislation coming into effect. The primary means of communicating new maritime laws or policy to commercial vessel and ship owners, masters and crews has been through ‘Marine Orders’, ‘Marine Notices’ ‘Notice to Mariners’, Annual Notice to Mariners and the Australian Seafarers Handbook. Communication with private vessel owners is primarily conducted through publications

445 Personal knowledge.
446 ibid.
447 See, eg, MARPOL art 7.
449 Personal knowledge.
and ‘best practice’ guidelines produced by the ship regulatory agencies.\footnote{For example, a set of guidelines have been produced by the GBRMPA for responsible best practices in respect of Anchoring, Fuel Transfer, Waste Disposal, Marine Wildlife (birds and mammal) watching, Collecting, Fish feeding and Island visits; see Great Barrier Reef Marine Park Authority, ‘Responsible Reef Practices’ <http://www.gbrmpa.gov.au/onboard/home/high_standards/responsible_reef_practices> viewed 9 August 2005.} However, due to the itinerant and international nature of shipping in the Marine Park, other participants of the shipping industry including chart correcting agents, charterers, underwriters, shipping agents, classification societies and industry associations, in conjunction with industry forums and conferences, may also be used to raise awareness of new measures across all sectors of the shipping industry, within and outside of Australia.\footnote{Personal knowledge.}

4.9. Conclusions

As shipping is a globalised industry, it is best managed and regulated cooperatively in accordance with international maritime and environmental instruments. The current regime for achieving the goals of ship safety, marine pollution prevention and environmental protection has evolved rapidly since the 1970s. The LOSC, supported by a range of global and regional biodiversity and maritime conventions provide a comprehensive framework to manage international shipping activities, providing significant flow on benefits for the protection of the Reef from those activities that would normally be outside of the influence of the Australian ship regulatory authorities.

Although there have been no major shipping accidents in the Reef, the Australian and Queensland governments have recognised the potential for shipping related risks and accidents by implementing nearly all of the major maritime and environmental treaties and giving effect to those treaties through a mix of federal and state laws, in accordance with Australia’s constitutional arrangements. This has been achieved through the inherent benefits brought about by designation of the Region as a PSSA and the progressive development of two associated protective measures; by designating a zoning scheme where the navigation of ships can be conducted without conflicting with other activities; by controlling pollution discharges through legislation; and by establishing arrangements for dealing with maritime casualties and marine pollution.
events. A range of compliance, enforcement and awareness raising activities are also undertaken to ensure that these laws work effectively. Consequently, the waters of the Reef arguably have the most stringent management arrangements for commercial shipping of any water body in the world. However, the implementation of arrangements to safeguard the marine and maritime environments of Australia agreed to at the international level is a complex process, affected by the division of legislative powers between the Commonwealth and Queensland governments under Australia’s system of federation. Subsequent chapters will examine the practical application of ship safety and pollution prevention measures in the Reef, the interaction of those laws and the issues affecting the extent to which those measures protect the Reef.
5. SAFETY OF NAVIGATION MEASURES PROTECTING THE REEF

5.1. Introduction

It has long been recognised that the Reef is a navigationally hazardous and restricted waterway. It is not unusual for ships to be confined for extended periods to sea-lanes which are shallow and narrow or interspersed with sharp turns in close proximity to islands or fringing reefs. Errors in the navigation of a ship, coupled with the presence of complex tidal streams, strong trade winds, occasional cyclones and reduced visibility, particularly during the ‘wet’ season, have given rise to several groundings, strandings and collisions in the Region. Such incidents could damage the ship’s hull, leading to a loss of cargo or spills of bunkers into the water column, threatening the safety of human life or harming or injuring marine fauna. These concerns, and the knowledge of the root causes of the incidents progressively acquired through the series of risk assessments described in Chapter 3, have lead to the establishment and ongoing improvement of a network of safety of navigation and ship routeing measures in the Reef. The two ‘associated protective measures,’ afforded by the Reef’s PSSA designation (compulsory pilotage and a mandatory ship reporting system; the Great Barrier Reef and Torres Strait Ship Reporting System - REEFVTS) have further enhanced the safety of ships and helped to reduce the likelihood of maritime accidents over the last 25 years, providing the opportunity to review how they have worked in practice, as well as evolved in response to the changes to the shipping and vessel traffic in that time.

This chapter starts by describing the network and infrastructure of navigational aids installed throughout the Reef. It then traces the origins, development and implementation into Australian law of compulsory pilotage, REEFVTS and the ‘negligent navigation’ provisions under the GBRMP Act. Experiences with, and matters affecting, compliance with these measures are identified as a means of reviewing the

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1 See generally United Kingdom Hydrographic Office, *Australia pilot*, 7th edn, vol. III, East coast of Australia from North Head to Cape York, including Great Barrier Reef, islands and reefs of Coral Sea, Great North East Channel, Torres Strait and the south coast of Papua New Guinea between South Cape and the meridian of 141°00’E, 2002.

2 Navigation in this context is ‘the nautical art or science of conducting a ship from one place to another’; *Steedman v Scofield* (1992) 2 Lloyd’s Rep 163.
benefits and effectiveness of safety of navigation measures in reducing the risk of a
grounding or collision incident in the Reef.

5.2. **Aids to navigation in the Reef**

Since the early 1970s, the Australian Government has developed and implemented a
range of routeing measures and navigation aids in the Reef to help the operators of ships
and vessels precisely establish their location at sea. One of the earliest efforts of the
Australian Government to improve the safety of navigation in the Reef was the
establishment of an Area-to-be-Avoided (ATBA) in the Capricorn Bunker Group under
the *General Provisions on Ships Routeing* in 1978 by the Australian Maritime Safety
Authority (AMSA). Covering an area of 2425 square kilometres, the ATBA specifies
that ships greater than 500 gross registered tonnage should avoid the area due to the
high environmental values of the islands and surrounding waters, particularly sea bird
and turtle nesting sites. As discussed in Chapter 6, the *Great Barrier Reef Marine Park
Zoning Plan 2003* (Zoning Plan 2003) has effectively superseded this ATBA. Although
outside of the main shipping route, *vessel transit lanes* have also been designated in
inshore areas known to be used by endangered or vulnerable species, such as in the
Hinchinbrook Islands, as a means to minimise the chance of injury to dugongs that cross
the channel.

The Australian Hydrographic Service has been resurveying the main navigation routes
and ports of the Reef over several years to provide accurate, high density digital depth
and positional data from two to 50 metres depth. The resurvey of ‘LADS Passage’ and
‘Fairway Channel’ (Far Northern Section at latitude 13 degrees South) alone resulted in
savings of some 21 nautical miles from the existing inshore route. Because vessels with
daughts of less than 10 metres can use the new route, encounters with fishing vessels

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3 Figure derived from the GBRMPA’s spatial information database.
5 Personal knowledge.
6 See Australian Hydrographic Service, ‘Amendments to Admiralty Sailing Directions, 2004
7 C Davidson, ‘A safer shipping route through the Great Barrier Reef’, *Maritime Studies*, vol. 132,
September-October 2003, p. 30.
8 Up until 1 July 2004, only ships with draughts of 12.2 metres or less could transit the northern Inner
that previously operated in the old route have been reduced by approximately 20 percent. Various other potential routes through the Reef have also been surveyed but not adequately marked due to the costs of servicing these areas with navigation aids.

The Australian Hydrographic Service resurvey initiative has resulted in a scheme of nautical paper and electronic charts that cover the entire Region. An Electronic Chart Display and Information System covering the entire Reef has also been developed to a standard that satisfies the International Hydrographic Office and International Convention for the Safety of Life at Sea 1974, as amended (SOLAS) requirements in respect of the carriage of charts on vessels. Although there is currently no Australian legislative requirement for ships to carry an Electronic Chart Display and Information System, the Great Barrier Reef and Torres Strait Shipping Management Group recommended that ships use this technology when sailing within or through the Region.

In addition to the charts, more than 300 navigational aids including lights, radar, radar transponder beacons, unlit beacons and tide gauges mark the Inner Route. Differential global positioning systems and seven Automatic Identification System (AIS) base stations provide highly accurate positional information in the main shipping areas to help prevent collisions between ships, while also enabling the ship regulatory authorities to monitor ships within the Region. These are complemented by Pilot guides and handbooks that contain information about underkeel clearance, real time tidal information, tidal predictions and vessel draught restrictions (most of which apply

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11 Also abbreviated to ‘ECDIS.’


in the northern sector of the Marine Park).\textsuperscript{15}

5.3. **Compulsory pilotage in the Reef**

Pilotage in the Reef commenced during the 1800s when unlicensed pilots were employed by shipping companies to take ships through the Inner Route, via the Torres Strait and the passages and entrances to the Reef.\textsuperscript{16} Licensing of pilots began in August 1884 under the *Navigation Act 1876*\textsuperscript{17} and by 1967 there were 39 licensed pilots with the Queensland Pilot Service.\textsuperscript{18} A year later, in 1968, the International Maritime Organization (IMO)\textsuperscript{19} recommended to governments that they should ‘organise pilotage services in those areas where such services would contribute to the safety of navigation…and should, where applicable, define ships…for which employment of a pilot would be mandatory.’\textsuperscript{20} Despite these recommendations, nothing in the way of pilotage was implemented in Australian legislation until 1978 when the Australian Government, in a report entitled ‘Oil Spills,’ encouraged the pilotage of oil tankers and other types of vessels over 1000 tonnes in areas where detailed knowledge is required.\textsuperscript{21} This report was the impetus for a series of risk assessments of shipping in the Inner Route as well as Hydrographers Passage,\textsuperscript{22} a complex restricted deepwater channel subject to strong tidal streams located approximately 120 nautical miles east of Mackay.\textsuperscript{23}


\textsuperscript{16} See JCH Foley, *Reef pilots: the history of the Queensland Coast and Torres Strait Pilot Service,* Banks Brothers and Street, Sydney, 1982.

\textsuperscript{17} FD Simon, ‘The Queensland coast and Torres Strait Pilot Service,’ transcript of a lecture to the Naval Historical Society of Australia, 5 August 1994, Garden Island, Australia.

\textsuperscript{18} FD Simon, 1994, p. 2.

\textsuperscript{19} At that time the IMO was named the Intergovernmental Maritime Consultative Organisation (IMCO); EJ Molenaar, *Coastal State jurisdiction over vessel-source pollution,* Kluwer Law International, De Haag, 1998, p. 37.

\textsuperscript{20} Resolution A.159(ES.IV), *Recommendation on pilotage,* adopted 27 November 1968.


\textsuperscript{22} Hydrographers Passage shortens the route between Hay Point, Dalrymple Bay or Mackay and the North Pacific Basin by more than 200 miles.

\textsuperscript{23} These include Det Norske Veritas, *Risk analysis of ship navigation through Hydrographers Passage,* report prepared by for the Commonwealth Department of Transport, Sydney, 1984; Det Norske Veritas &
As Hydrographers Passage is routinely used by bulk carriers carrying coal from the Port of Hay Point, it was one of the first areas in the Reef to be assessed as a pilotage area.\textsuperscript{24} A risk analysis of navigational safety in Hydrographers Passage conducted in 1984 concluded that the risk of a ship grounding in this area was low, with grounding the most likely ship accident that could result in a release of oil or coal.\textsuperscript{25} The study noted that this risk could be reduced by up to 50 per cent if ships could be confined to sailing the Passage in suitable weather and tidal conditions,\textsuperscript{26} but that the risk of a grounding could be reduced by a further 10 per cent should compulsory pilotage be introduced.\textsuperscript{27} The study lead to the passage being extensively surveyed and serviced with navigation aids later that year.\textsuperscript{28}

\subsection{5.3.1. Voluntary pilotage in the Inner Route and Hydrographers Passage}

Cognisant that the risk of a shipping accident is sensitive to the presence of a pilot, the Australian Government took steps at the international level in 1987 to gain support for a voluntary pilotage scheme within the Reef and Torres Strait that would provide the maximum possible level of protection for these areas.\textsuperscript{29} The scheme was endorsed by the IMO and specified that ships of 100 metres or more in length and all ships carrying potentially hazardous cargo, regardless of length, should use the Queensland coast and Torres Strait Pilotage Service when navigating in the Torres Strait, the Great North East Channel, the Inner Route of the Reef (between Booby Island and latitude 16 degrees 40 minutes South) and Hydrographers Passage.\textsuperscript{30}

\begin{footnotesize}
\begin{enumerate}
\item ibid.
\item ibid.
\item ibid.
\item Resolution A.619(15), \textit{Use of Pilotage Services in the Torres Strait and Great Barrier Reef Area}, 19 November 1987.
\end{enumerate}
\end{footnotesize}
The voluntary pilotage scheme resulted in an increase from 75 to 90 per cent of ships being piloted. However, some 200 ships, including tankers and large container ships carrying significant volumes of bunker oil, ignored the resolution. The Australian Government felt this situation constituted an unacceptable risk to the Reef and in February 1990 proceeded to make international representations to the IMO to seek mandatory compliance with the existing voluntary scheme of pilotage through the development of the Particularly Sensitive Sea Area (PSSA) concept at the IMO. The scheme applied to ships greater than 70 metres in the northern sector of the Inner Route as well as Hydrographers Passage due to the number of grounding incidents in those areas. The lower limit of 70 metres was set in view of the number of groundings during the 1980s of ships in the 70 to 100 metres length range.

5.3.2. Compulsory pilotage in the Inner Route and Hydrographers Passage

The impetus for a formal pilotage regime escalated with the stranding of the unpiloted Indonesian cargo ship, the *Caraka Jaya Niaga III* on South Warden Reef, approximately 160 kilometres north of Cooktown in April 1990. The ship had strayed from the marked shipping lane and stranded at low tide before it was lifted off the reef with the assistance of a salvage tug. Although the incident did not result in the release of oil, there was no compulsion on its master or owner to retain a pilot as the ship was 98 metres in length.

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32 ibid, p. 48.
34 From 10 degrees 41 minutes South to 16 degrees 40 minutes South.
36 ibid.
The compulsory pilotage concept was eventually recognised as enhancing the protection of sensitive sea areas at an Marine Environment Protection Committee (MEPC) meeting held from 12 to 16 November 1990, which issued a resolution calling upon governments to inform ships flying their flag that they should ‘act in accordance with Australia’s system of pilotage’ within the Region. The Australian Government promulgated the resolution by announcing on the 20 November 1990 that pilotage would be compulsory for ships constituting a potential threat to the environment of the Reef in areas that are difficult to navigate.

Compulsory pilotage was introduced in Australian domestic legislation for the northern Inner Route and Hydrographers Passage through amendments to the *Great Barrier Reef Marine Park Act 1975* (GBRMP Act) on 15 May 1991. The GBRMP Act provides that *regulated ships* must carry a pilot when navigating in a compulsory pilotage area as prescribed in the *Great Barrier Reef Marine Park Regulations 1983*. ‘Regulated ships’ are vessels 70 metres in length and all loaded oil, gas and chemical carriers regardless of length, except vessels belonging to the Australian Defence Force. Exceptions, exemptions, certification requirements, prosecution of offences, powers of inspectors and defences in respect of pilotage are dealt with in Part VIIA of the GBRMP Act.

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38 ibid, p. 9.
40 Media Release ‘Australia to implement compulsory pilotage scheme for environmental protection of the Great Barrier Reef’, issued on 20 November 1990 by the Acting Minister for Foreign Affairs and Trade and Minister for Trade Negotiations, Neil Blewett, the Minister for Shipping and Aviation Support, Senator Bob Collins, the Minister for the Arts, Sport, the Environment, Tourism and Territories, Mrs Ros Kelly and the Attorney General, Micheal Duffy; copy with author.
43 GBRMP Act s 59B.
45 GBRMP Act s 3.
the GBRMP Act, as described below.

The compulsory pilotage provisions of the GBRMP Act have remain largely unchanged since they were initially enacted more than 16 years ago. The only significant change was to the boundaries of the Hydrographers Passage compulsory pilotage area which were amended in 2001 some three and half nautical miles to seaward to enclose Blossom Bank and Marilyn Shoal, as a means of ensuring that the pilot boarding ground was well within the boundaries of the area (see Figure 5.1 of the Appendix to this thesis).

5.3.3. Compulsory pilotage in the Whitsunday Islands

Compulsory pilotage was introduced for the Whitsunday Islands region on 19 July 2001 through amendments to the Great Barrier Reef Marine Park Regulations 198346 after two separate studies identified the potential for collision with small craft and other commercial vessels passing through the area.47 The Queensland Government considered hosting the Whitsunday Island pilotage area under the Transport Operations (Marine Safety) Act 1994 (Qld) (TOMSA) as the area falls entirely within Queensland coastal waters. However, due to the excellent record of operation of the GBRMPA compulsory pilotage scheme for the Inner Route and Hydrographers Passage and to avoid any confusion created by having two separate regulatory regimes, it was agreed that the compulsory pilotage area would be incorporated into the Great Barrier Reef Marine Park Regulations 1983.48 Incorporation of the amendments into the Great Barrier Reef Marine Park Regulations 1983 allows the boundaries of the pilotage area to be more easily altered than through the extensive approval processes required for an amendment


47 See Australian Maritime Safety Authority, ‘An evaluation of shipping operations in the Whitsunday Islands area’, Unpublished consultancy report for the Great Barrier Reef Marine Park Authority, 1997, pp. 1-65; Queensland Transport & Great Barrier Reef Marine Park Authority, Oil spill risk assessment for the coastal waters of Queensland and the Great Barrier Reef Marine Park, August 2000, Great Barrier Reef Marine Park Authority, Townsville, 2002. These studies identified the Whitsunday Islands as having a high risk of exposure to an oil spill due to the nature of shipping operations in the area; the economic and environmental values supported by the area; the large numbers of small craft operating within the area; the near-shore environments within which cruise shipping operate and anchor; and the commercial shipping route through the area.

to the GBRMP Act. However, a change to the Act would still be necessary for more substantial changes such as reducing the minimum size of ships subject to the compulsory pilotage provisions.

The combined areas of the three compulsory pilotage areas within the Marine Park meant that compulsory pilotage areas cover 61,000 square kilometres or 18 per cent of the area of the Marine Park (see Figure 5.2 of the Appendix to this thesis). Currently, three coastal pilotage service providers with a combined labor force of approximately 58 pilots operate throughout the Reef to service compulsory pilotage in the Inner Route, Torres Strait and Whitsunday Islands. Licensing, qualifications and training requirements of these pilots are set out in Marine Orders Part 54. The skill base of these pilots is enhanced by the ‘check pilot’ (mentoring) system and professional development courses covering such areas as passage planning, bridge resource management, fatigue management and simulator exercises.

5.3.4. Offence provisions

Under the GBRMP Act, the navigation of a ship in a compulsory pilotage area without a pilot attracts a maximum penalty of 500 penalty units ($55,000) for a natural person (master, owner and operator) and 2500 penalty units ($275,000) for a body corporate.

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51 The sizes of the individual compulsory pilotage areas are respectively: Far Northern Inner Route area 55,184 km², Whitsunday Islands area 3041 km² and Hydrographers Passage 3171 km².


54 Personal knowledge.

55 GBRMP Act pt VIIA.
Offences also apply if a ship ‘navigates without a pilot’ when it is being towed by another vessel that is navigating with a pilot. In this case, the vessel under tow is to be treated as if it were navigating with a pilot. However, it is a defence to these offences if the master or owner proves that the regulated ship navigated in the compulsory pilotage area ‘because of stress of weather or other unavoidable cause’ or if the owner proves that he did not know that the regulated ship was in contravention of the relevant section.

Other offences under the GBRMP Act concern ships that have navigated in a designated compulsory pilotage area without a pilot and their subsequent entry into an Australian port. Both the owner and master may be prosecuted if a ship enters an Australian port under the command of a master who navigates in a compulsory pilotage area without a pilot. If a ship navigates in a compulsory pilotage area without a pilot and later enters an Australian port on the same or later voyage under the command of a different master, then only the owner will be liable. Even though the above offences are indictable, a court of summary jurisdiction has discretion to hear and determine proceedings in respect of offences if the court is satisfied that it is proper to do so and both the defendant and the prosecutor consent.

5.3.5. Exemptions

The master or owner of a regulated ship may apply to the Commonwealth Minister for the Department of the Environment, Water, Heritage and the Arts (Environment Department) for an exemption from the requirement to navigate with a pilot in the compulsory pilotage area. Exemptions may be granted to the ship if it is the Minister’s

56 GBRMP Act s 3(5) and (6).
57 GBRMP Act s 3(6).
58 GBRMP Act s 59H(1).
59 GBRMP Act s 59H(2).
61 GBRMP Act s 59C(1).
62 GBRMP Act s 59D(1).
63 GBRMP Act s 59I(3).
64 GBRMP Act s 59F(1).
opinion that to require that ship to navigate with a pilot would not improve environmental protection in the Region;\textsuperscript{65} or if the ship would not pose a threat to the environment because it is likely to remain stationary; or in a limited area within the compulsory pilotage area.\textsuperscript{66}

There are two components to pilotage exemptions.\textsuperscript{67} The first relates to an assessment of the construction and safety equipment on board the ship; the second component involves a review of the navigational officer’s experience, skills and qualifications.\textsuperscript{68} Applications must be in writing and are generally assessed by AMSA who make a recommendation to the GBRMPA as to whether or not the exemption should be granted.\textsuperscript{69} For a fee of $750.00,\textsuperscript{70} exemptions are normally issued with conditions\textsuperscript{71} for the whole or part of a ship’s proposed navigation in the compulsory pilotage area,\textsuperscript{72} but may be renewed upon application.\textsuperscript{73} The conditions usually relate to the number of navigational watchkeepers, the number and duration of rest breaks, and the need to comply with the International Safety Management Code.\textsuperscript{74} About 15 ships, generally coastal traders, some cruise ships and motherships for fishing fleets, have been issued with exemptions under the GBRMP Act since the pilotage scheme was first implemented.\textsuperscript{75}

\textsuperscript{65} GBRMP Act s 59F(3)(a).
\textsuperscript{66} GBRMP Act s 59F(3)(b).
\textsuperscript{67} Great Barrier Reef Marine Park Regulations 1983 r 118.
\textsuperscript{68} Personal knowledge.
\textsuperscript{69} Great Barrier Reef Marine Park Regulations 1983 r 119.
\textsuperscript{70} Great Barrier Reef Marine Park Regulations 1983 r 133.
\textsuperscript{71} Great Barrier Reef Marine Park Regulations 1983 r 121.
\textsuperscript{72} GBRMP Act s 59F(5). In most cases, the delegate has decided to issue exemptions for a period of 5 years.
\textsuperscript{73} GBRMP Act s 59F(5).
\textsuperscript{75} The first exemption was issued in March 1992; personal knowledge.
5.3.6. Enforcement

To verify that pilotage has been undertaken in the proper manner, pilots are required to issue certificates to the master before disembarking the ship after navigating through a compulsory pilotage area. In most cases, however, proof of a pilotage voyage, including where pilots disembark a ship, is monitored through reporting to REEFCENTRE as well as through a system of administrative checks undertaken by the pilotage companies. Presumably, the risk of voiding the ship’s insurance also acts as an incentive to comply with the pilotage scheme by the ship owners.

The powers of inspectors under the GBRMP Act are wide and extend to stopping the ship in a port, within the compulsory pilotage area and to places outside those areas if there are reasonable grounds to do so. Australia can legitimately seek information concerning the ship’s identity and its next port of call, as well as any other information required to establish whether a violation has occurred, consistent with Article 220 of the LOSC. Any Master, or Officer-of-the-Watch at the time on board the ship that wilfully transmits information which is incorrect, false or misleading, will have committed an offence subject to a penalty. There are also powers to detain the vessel but where a ship is detained for more than seven days and was not involved in the commission of an offence, any person who has suffered loss or damage by reason of the seizure is entitled to reasonable compensation. Powers to arrest seafarers are retained by the Australian Federal Police.

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76 GBRMP Act s 59E(2).
77 Operational centre located at Hay Point in Queensland which administers REEFREP and REEFVTS.
78 Personal knowledge.
79 GBRMP Act s 59M.
80 GBRMP Act s 59M(2)
81 LOSC art 220(3).
82 Marine Orders Part 56.
83 GBRMP Act s 39S.
84 GBRMP Act s 47(3).
85 Crimes Act 1914 (Cth) s 8.
5.4. Great Barrier Reef and Torres Strait Ship Reporting System

The impetus to set up a system in the Reef to monitor the movements of shipping is credited to the Lord Donaldson inquiry\(^{86}\) which concluded that the reasons for needing to know the identity of ships in coastal waters included being able to identify an incident ship in an emergency, being able to enforce navigational safety, and prevent marine pollution.\(^{87}\) Based on these expectations and backed up by the results of several risk assessments conducted in the 1990s,\(^{88}\) an incremental approach to the system’s development was contemplated involving remote sensing technology that would rely upon predicted ship position reports, with primary radar coverage of critical areas.\(^{89}\)

5.4.1. Reef Reporting System

The broad objectives of the Reef’s ship reporting service were to achieve an effective mandatory ship reporting service which meets the IMO Guidelines and criteria for ship reporting systems\(^{90}\) and other requirements of SOLAS\(^{91}\) using current available technology; ensure there was scope for introducing emerging technology; and delineate an operational area which would be limited to coverage of the main shipping routes in the Torres Strait and the Reef with due regard to the expected ranges of VHF radio and radar.\(^{92}\) In order to formally seek international acceptance of the service, Australia sought the adoption of a mandatory ship reporting service covering the Torres Strait and

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\(^{90}\) MSC.43(64), *Guidelines and criteria for ship reporting systems*, adopted 9 December 1994 as amended by MSC.111(73) *Adoption of amendments to guidelines and criteria for ship reporting systems*, adopted 1 December 2000, MSC.189(79) *Adoption of amendments to the Guidelines and Criteria for Ship Reporting Systems*, adopted 6 December 2004 and revised by MSC.113(73) *Adoption of revised performance standards for shipborne GLONASS receiver equipment*, adopted 1 December 2000.

\(^{91}\) SOLAS Chapter 5, reg 8-1.

the Inner Route of the Reef at the 41st session of the Safety of Navigation Sub-Committee of the IMO during September 1995.93 One of the stated objectives of the proposal was ‘to provide a capability for a shore monitoring station to interact with shipping, enabling the provision of improved information on the presence, movements and patterns of shipping in the area and the ability to respond more quickly to an incident or pollution should this occur’.94

In 1996, mandatory reporting took the form of REEFREP, a 24 hour ship-reporting scheme where ships are required to report their position at designated reporting locations throughout the Torres Strait and Inner Route of the Reef in accordance with SOLAS.95 The area covered by REEFREP is 185 000 square kilometres or 54 per cent of the area of the Marine Park (see Figure 5.3 of the Appendix to this thesis).96

Administered jointly by AMSA and MSQ, the area of REEFREP includes the Torres Strait and the waters of the Reef between the Australian coast and the outer edge of the Reef.97 REEFREP forms an integral but separate component of the Australian Ship Reporting System (AUSREP)98 that applies to all Australian waters in the territorial sea outside of the REEFREP boundaries.99

REEFREP become operational on 30 August 1997 under the powers of the Navigation Act 1912 to make Marine Orders100 and applies to all ships of 50 metres or more in

95 SOLAS Chapter V, reg 11.
96 Figures derived from the GBRMPA Spatial Information database, May 2006.
97 Commencing from the outer edge of the Reef at latitude 10° 44’ S, longitude 144° 00’ E, and extending southwards to latitude 22° 00’ S; Australian Maritime Safety Authority, REEFVTS user manual, 2nd edn, March 2005, p. 3.
98 AUSREP is established under Division 14 of Part IV of the Navigation Act 1912; see Australian Maritime Safety Authority, ‘AUSREP: ship reporting instructions for the Australian area’, Australian Maritime Safety Authority, Canberra, March 2006.
100 Marine Orders, Part 56, Issue 2 (Order No 10 of 2004 56), for the purposes of section 191 of the Navigation Act 1912, gives effect to Regulation V/11, Ship Reporting Systems, of SOLAS 74, as amended.
Chapter 5

length, all tankers and Irradiated Nuclear Fuel Code\textsuperscript{101} ships and certain ships engaged in towing or pushing.\textsuperscript{102} These ships are required to report in to the REEFCENTRE on entry into the REEFREP area and at predesignated reporting points,\textsuperscript{103} about 100 to 120 nautical miles apart, or approximately every 5 hours.\textsuperscript{104} Situated at Hay Point near Mackay, REEFCENTRE is manned and operated on a 24 hour a day basis by MSQ personnel. However, those ships that report their positions automatically or submit a route plan for their entire voyage are not obliged to report at the predesignated reporting points.\textsuperscript{105}

5.4.2. Reef Vessel Traffic System

REEFREP, evolved into a Coastal Vessel Traffic Service\textsuperscript{106} (REEFVTS) on 1 December 2005, also under the terms of SOLAS,\textsuperscript{107} to become an effective shore based control measure for monitoring and managing shipping operations at sea in near real time.\textsuperscript{108}

Once a ship leaves the seaways to enter a port of Queensland, a port vessel traffic service takes up the tracking of the position of the ship until it exits that port.\textsuperscript{109} REEFVTS is comprised of a mandatory ship reporting service and a highly sophisticated monitoring and surveillance system incorporating sonar, AIS, electronic corridors, Dynamic Ship Traffic Information, Critical Waypoint Monitoring, Route Monitoring, Automated Position Reporting and Message Delivery via Inmarsat C and


\textsuperscript{102} Resolution A. 827(19), \textit{Ship’s routeing}, adopted 23 November 1995; Marine Order Part 56 sets out the requirements of the Ship Reporting System.


\textsuperscript{104} N Trainor [AMSA] pers. comm., 4 August 2004.


\textsuperscript{107} SOLAS Chapter V, reg 12.


5.4.3. Offence provisions

The legislative basis for REEFREP is the general power within Section 191 of the *Navigation Act 1912* to make regulations to implement SOLAS\(^{111}\) and the related power to make Marine Orders.\(^{112}\) Marine Order part 56\(^{113}\) provides for the imposition of penalties not exceeding 50 penalty units ($5500)\(^{114}\) where ships fail to provide position reports while navigating within the REEFREP region.\(^{115}\) Marine Order 56 applies to all ships in the categories set out above (i.e. generally vessels over 50 metres in length), irrespective of whether they are on overseas, interstate or intrastate voyages.\(^{116}\) Other vessels transiting the REEFVTS area are encouraged to report on a voluntary basis.\(^{117}\)

5.4.4. Interaction of compulsory pilotage schemes at Commonwealth and State level

Coastal pilotage in the Reef is governed by Commonwealth legislation, principally the *Navigation Act 1912*. On the other hand, port pilotage is administered under Queensland legislation,\(^{118}\) generally outside of the jurisdiction of the GBRMPA. The *Navigation Act 1912* avoids conflict with any Queensland legislation, as it is not intended to affect the operation of any law of a state or Territory governing pilots or pilotage in relation to a

\(^{110}\) ibid.

\(^{111}\) *Navigation Act 1912* s 191A.

\(^{112}\) *Navigation Act 1912* s 425(1AA).

\(^{113}\) Marine Orders, Part 56 (REEFREP),’ Issue 2, Order no. 10 of 2004.

\(^{114}\) *Navigation Act 1912* s 425(h).


\(^{118}\) TOMPA s 35.
port in the state or Territory.\textsuperscript{119} Given that 16 pilotage areas have been gazetted within the Region under the TOMSA, adjacent and within port areas,\textsuperscript{120} this would effectively render the operation of the \textit{Navigation Act 1912} ineffective in those areas.

When introducing the compulsory pilotage scheme in 1991, a deliberate decision was made by the Australian Government to contain the provisions under the scheme within the GBRMP Act to void international concerns that Australia might try and implement similar measures elsewhere in Australian waters.\textsuperscript{121} This action was designed to enhance the chance of success in gaining IMO approval by attaching it to environmental protection legislation.\textsuperscript{122} It was also considered a means of separating enforcement and compliance activities from AUSREP reporting requirements, which were not mandatory at the time compulsory pilotage was first declared in the GBRMP Act.\textsuperscript{123} However, this changed in 2006 with the amendments to the \textit{Navigation Act 1912}\textsuperscript{124} to implement the internationally endorsed extension of the Reef PSSA and compulsory pilotage scheme for the Torres Strait,\textsuperscript{125} which has lead to concerns about whether Australia has acted consistently with international law.\textsuperscript{126}

In the late 1990s, before these (Torres Strait compulsory pilotage) amendments were made, AMSA had proposed that it would be preferable to embody compulsory pilotage provisions in the \textit{Navigation Act 1912} to avoid multiple specific laws in the Region and

\textsuperscript{119} \textit{Navigation Act 1912} s 186A.


\textsuperscript{121} The author’s review of the correspondence received by the GBRMPA indicated that this action was effective as no formal protests or complaints were raised by other States over the proposal; see also Department of Transport and Regional Services, \textit{Review of the Navigation Act 1912}, Final Report, Canberra, June 2000, p. 98.

\textsuperscript{122} ibid.

\textsuperscript{123} G Toomer [AMSA] pers. comm., 12 September 2004.

\textsuperscript{124} \textit{Navigation Act 1912} s 186I.

\textsuperscript{125} See Marine Orders Part 54 and Marine Notice 8/2006: \textit{Revised pilotage requirements for Torres Strait}.

\textsuperscript{126} Those concerns relate to whether Australia has a right to implement and enforce compulsory pilotage measures in an international strait under the LOSC (see particularly article 233) but are outside the scope of this thesis because they are not relevant to the Great Barrier Reef Marine Park and World Heritage Area. Nonetheless, there are strong indications that Singapore and the United States will take legal action against Australia for establishing a compulsory pilotage regime in the Torres Strait; P Nelson [AMSA] pers. comm., 23 January 2008. See also J Roberts, ‘Compulsory pilotage in international straits: the Torres Strait PSSA proposal’, \textit{Ocean Development and International law}, vol. 37, 2006, pp. 93-112.
streamline the administration and assessment of all pilotage exemptions under the one piece of legislation. The reasoning put forward was that the *Navigation Act 1912* should be the instrument that can declare, alter or revoke areas within Australian waters which require specific navigation measures, including coastal pilotage, vessel traffic reporting and information systems, traffic separation systems and ship routeing systems.

As Australia’s specialist maritime safety agency, it would seem appropriate that AMSA would be the most appropriate agency to administer compulsory pilotage legislation, including within the Marine Park. The *Navigation Act 1912* already empowers AMSA to prescribe areas requiring special navigation measures to meet safety and environmental objectives. The compulsory pilotage requirements could also be implemented quickly through specially designed regulatory directives such as Marine Orders. It would provide a ‘one stop shop’ for the lodgement of applications for pilot licences and the granting of exemptions from compulsory pilotage to more efficiently service the needs of industry. In addition, funding by AMSA would not be subject to the vagaries of government funding as its activities are funded largely through levies on the shipping industry.

Conversely, revocation of Part VIIA of the GBRMP Act in its entirety would reduce the management flexibility of the GBRMPA and curtail its capacity to act swiftly and, if required, ‘unilaterally’ in relation to compulsory pilotage if the circumstances warranted. This would require an amendment to the GBRMP Act, requiring agreement by both federal Houses of Parliament; however this is unlikely to occur in the short term due to the low priority currently given to maritime issues on the Parliamentary agenda. In the result, the status quo has been maintained where both the *Navigation Act 1912* and the GBRMP Act have provisions enabling the respective agencies to declare and manage compulsory pilotage areas.

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127 See also Department of Transport and Regional Services, *Review of the Navigation Act 1912*, June 2000.

128 ibid, p. 100.

129 See *Navigation Act 1912* pt IIIA.

5.5. Negligent operation of a vessel

The introduction of the negligent navigation provisions under section 38MC of the GBRMP Act was in response to the inability of the GBRMPA to show ‘reckless intent’ for offences under the *Navigation Act 1912* and the need to show that negligent actions on the part of a ships’ crews caused, or had the potential to cause, environmental damage to the Marine Park. The intent of the amendments was to ensure that an incident involving a ship which does not, or is not likely to, result in an oil or chemical spill can be regulated by the GBRMPA. The amendments were made on 5 April 2001, just a few months after the grounding of the Malaysian registered ship the *Bunga Teretai Satu* on Sudbury Cay on 2 November 2000, and before the Great Barrier Reef and Torres Strait Shipping Management Committee were formed to examine the implications of the *Bunga Teretai Satu* incident for ship safety and marine pollution prevention in the Reef. The amendments also complements the *Cairns Area Plan of Management* and *Whitsunday Area Plan of Management* which both provide that ‘a person must not damage coral’.

5.5.1. Offence provisions

Section 38MC of the GBRMP Act applies to a person that intentionally or negligently operates a vessel in a manner that results in, or is likely to result in, damage to the Marine Park. It is a two-tiered offence involving a fault element offence and a strict liability offence. The first tier applies only to the intentional or negligent conduct of the operator and provides for a maximum penalty of $220 000 for a natural person and $1.1 million for a body corporate. The second tier is a strict liability offence with a

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134 GBRMP Act s 38MC(1).
maximum penalty of $55,000 for a natural person and $275,000 for a body corporate.135 Both the owner and the operator of the vessel are potentially liable under the strict liability provision.136

As the negligent navigation offence provision can be prosecuted on a single element (i.e. whether the incident was caused by the negligent act or omission of an individual or corporation), the normal operations of ships within the Marine Park are not affected by the provision if those ships are operated properly.137 Further, there is no requirement to demonstrate and quantify environmental impact and set a penalty or fee based on the amount or extent of that damage, reducing the need for the GBRMPA to conduct detailed monitoring of levels of impact and recovery, as is the case in the United States.138 The negligent navigation provision also negates the requirement for the GBRMPA to engage experts to establish the legal threshold of reckless intent on the part of the master or crew of a vessel in navigating unsafely leading to a section of reef being damaged.

Section 38MC complements and is similar in intent to section 38A of the GBRMP Act which also gives rise to two offences. The first offence is committed where a person either negligently or intentionally enters or uses a zone for a purpose not provided for under the relevant zoning plan.139 Alternatively, an offence may be committed where a person is strictly liable for entering or using a zone for a purpose other than a purpose that is permitted under the relevant zoning plan.140 As discussed in Chapter 6, none of the objectives of the zones under the Great Barrier Reef Marine Park Zoning Plan 2003 (Zoning Plan 2003) allow a ship to be navigated in a way as to cause damage to the

135 GBRMP Act s 38MC(3).
136 GBRMP Act s 38MC(2).
139 GBRMP Act s 38A(1).
140 GBRMP Act s 38A(2).
Section 38MA and 38A offences are similar to the intent of section 24A(2) of the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) dealing with offences relating to marine areas in that the offence is created by actions likely to have a significant impact on the environment. These actions are usually considered by the Commonwealth Minister for the Environment who, assisted by guidelines, assesses the ‘significance’ of an action upon the marine environment. However, the ambit of section 38MC of the GBRMP Act extends to prohibiting conduct that is likely to result in damage to the Marine Park at large, even where no damage has occurred, and not just significant impacts as for section 24A(2) of the EPBC Act. Further these impacts do not have to be assessed by the Commonwealth Minister for the Environment, only at the Officer level by the GBRMPA. Thus, there is a risk that section 38MC of the GBRMP Act may be used to pursue an offence involving damage to a reef caused by the grounding of vessels of any size, not just ships (which can cause substantial collateral damage to the reef matrix). Although the World Heritage status of the Region could justify a higher standard than for other Commonwealth MPAs, marine incidents with the potential to cause damage to the Reef should be evaluated on a case-by-case basis. For example, a yacht made of steel that becomes shipwrecked on a reef may do more damage to a reef than a grounded ship especially where that yacht is pushed by wind and wave action across the top of the reef, crushing and killing large tracts of coral gardens in the process.

Although there is no reference to the grounding or negligent operation of a vessel under 141 The penalties for the offence are structured under two tiers. Under section 38A(1), the first tier relates to the intentional or negligent conduct of the person and provides for a maximum penalty of $22 000 for a natural person and $110 000 for a body corporate. Section 38A(3) provides that the second tier is a strict liability offence with a maximum penalty of $6600 for a natural person and $33 000 for a body corporate. 142 EPBC Act s 24A(2) provides that a person is guilty of an offence if the person takes an action; and the action is taken in a Commonwealth marine area; and the action is likely to have a significant impact on the environment and the person is reckless as to that fact. 143 See Australian Government, EPBC Act Policy Statement 1.1: Significant Impact Guidelines, May 2006, <http://www.environment.gov.au/epbc/policy/index.html> 5 August 2007. 144 See Environment Protection and Biodiversity Conservation Regulations 2000 (Cth) s 5.03A. 145 See Chapter 3. 146 Personal knowledge.
the *Navigation Act 1912*, section 258 of the *Navigation Act 1912* prescribes measures to be observed for the prevention of collisions, provisions on the use of lights and signals\(^{147}\) as well as provisions giving effect to Convention on the International Regulations for Preventing Collisions at Sea 1972 (COLREGS),\(^{148}\) but only outside of the territorial sea where TOMSA gives effect to those provisions.\(^{149}\) However, AMSA, if it chooses, may use the *Navigation Act 1912* to make orders by legislative instrument *inter alia* for ‘the safe navigation and operation of ships.’\(^{150}\) Where the appropriateness of making those orders is in doubt, this power could be extended to the power conferred by the *Navigation Act 1912* to make modifications by regulation including the power to omit any matter or add any new matter.\(^ {151}\)

Within Queensland coastal waters, the *Transport Operations (Marine Pollution) Act 1995* (Qld) (TOMPA) and the TOMSA set out offences applicable to individuals who cause a ship to be operated *unsafely* in a way that leads to a marine incident in Queensland coastal waters\(^ {152}\) or in a way declared by the *Transport Operation (Marine Safety) Regulation 1995*.\(^ {153}\) In that case, a person can cause a ship to be operated unsafely *inter alia* if the person causes the ship to be operated in a way that ‘causes a marine incident’\(^ {154}\) where a ‘marine incident’ includes the stranding of a ship’ or ‘material damage to a ship’ or ‘material damage caused by a ship’s operations’.\(^ {155}\) As will be discussed in Chapters 8, the TOMPA also establishes a power to ‘deal with shipping casualties that are polluting, or *threatening* to pollute, coastal waters’.\(^ {156}\)

\(^{147}\) *Navigation Act 1912* s 258(1).

\(^{148}\) *Navigation Act 1912* s 258(2).

\(^{149}\) *Navigation Act 1912* s 258(2C).

\(^{150}\) *Navigation Act 1912* s 425(1)(db).

\(^{151}\) *Navigation Act 1912* s 425(4).

\(^{152}\) TOMSA s 43(1).

\(^{153}\) *Transport Operation (Marine Safety) Regulation 1995* s 43(2)(b).

\(^{154}\) TOMSA s 43(2)(a).

\(^{155}\) TOMSA s 123.

\(^{156}\) TOMPA s 3(c).
5.6. **Compliance of safety of navigation offences in the Marine Park**

As outlined in Chapter 4, Australia has promulgated and raised awareness of ship safety regulations through Marine Notices, Marine Orders as well as various other means.\(^{157}\)

Awareness of the requirements of compulsory pilotage in certain sectors of the Reef as well as the existence of the PSSA has also been raised through the depiction of ‘notes’ in respect of the PSSA on all of the nautical charts for the Reef.\(^{158}\) The chartlet notes are a direct and Port State Control (PSC) enforceable means\(^{159}\) of communicating with the master and crew of the ship of the need to take extra care when approaching and operating within the Marine Park.\(^{160}\) This section reviews the compliance with compulsory pilotage, REEFVTS and safety of navigation measures detected through PSC inspections.

### 5.6.1. Compulsory pilotage

Since compulsory pilotage covering the northern sector of the Inner Route and Hydrographers Passage was introduced under Australia’s domestic legislation from 1 October 1991, the rate of accidents within the Reef has been reduced by more than 50 per cent.\(^{161}\) While the reduced rate of accidents in the high risk areas of the Reef would also be due to the REEFVTS, the low number of incidents within the difficult passages

\(^{157}\) The declaration of compulsory pilotage areas was also publicised via an amendment to the ‘Reef Guide’ (an explanatory guide for shipping using the Great Barrier Reef and Torres Strait), amendment of navigation charts and the *General Provisions on Ships Routeing* adopted by the IMO by Resolution A.572(14), *General Provisions on Ships’ Routeing - Annex: General Provisions on Ships’ Annex 2 A.527(13) Routeing*, adopted 1995 as amended by MSC.71(69), *Adoption of amendments to the general provisions on ships’ routeing*, adopted 19 May 1998 and MSC.165(78), *Adoption of amendments to the general provisions on ships’ routeing*, adopted 17 May 2004.

\(^{158}\) For example, the *Australian Notice to Mariners 499/2004*, Note for chart Aus 837 reads as follows: ‘PARTICULARLY SENSITIVE SEA AREA (PSSA): Areas of this chart are part of the Great Barrier Reef Marine Park, which is an IMO approved Particularly Sensitive Sea Area (PSSA). Legislated restrictions apply to access, discharge of waste and other activities. Significant penalties may apply for breaches. For details see Australian Notice to Mariners No 28.’


\(^{161}\) Between 1 January 1985 and 1 October 1991 (prior to compulsory pilotage), there were ten incidents in these areas, giving an accident rate of 1.667 per year. In the eleven years since compulsory pilotage, there have been eight incidents, giving an accident rate of 0.727 per year; see NAV 50/3, ‘Torres Strait PSSA Associated Protective Measure Compulsory Pilotage,’ submitted by Australia and Papua New Guinea on 22 March 2004.
and restricted waterways of the Reef is likely to be at least partly attributed to the benefits of compulsory pilotage, confirming the premise that an experienced pilot familiar with local conditions significantly assists the safe passage of a ship through such areas.\(^\text{162}\)

Since inception of the compulsory pilotage scheme, only six breaches of the compulsory pilotage provisions of the GBRMP Act have been recorded. All offences have been dealt with summarily with the fines ranging from $1000 to $8000 because of the circumstances of each offence, the lack of any significant environmental harm having resulted from the unpiloted voyages and commercial and international law imperatives in ensuring that the ships are not unduly delayed.\(^\text{163}\) The most recent incident occurred on 25 August 2006 when the master of a 32 metre Singaporean registered tug towing a 105 metre barge through the compulsory pilotage area of the Inner Route was convicted and fined $6000 for being in contravention of section 59B of the GBRMP Act.\(^\text{164}\) In this case, section 3(6) of the GBRMP Act was relevant because the vessel under tow exceeded 70 metres but was not being towed by a vessel with a pilot on board.\(^\text{165}\) During the hearing at the Sydney Central Court, the judge commented that the offence was a cost cutting exercise by the defendant and his company; there was no adverse weather conditions; that the defendant knew he required a pilot; and the defendant was fortunate that the barge had not caused damage to the reef (the vessel tow line had broken twice during the voyage and required the assistance of a salvor).\(^\text{166}\)

Despite the new pilotage provisions in the Whitsunday Islands area, the shipping industry has had to make few real adjustments. A study by the AMSA in 1997 to evaluate shipping operations in the area showed that of the approximately 50 ships


\(^{163}\) The $8000 fine was imposed on the master of the MV Svendborg Gold, Captain Jacobsen of Norway, who pleaded guilty to the offence in the Townsville Magistrates on the 15 May 2000; personal knowledge.


\(^{166}\) See GBRMP Act s 3(6).

\(^{166}\) Personal knowledge.
transiting the Whitsunday Islands area, at least 70 per cent of those ships had pilots embarked.167 While most of the ship traffic in the Whitsunday Islands area comprises bulk carriers, the area is also a popular destination for cruise ships; these ships are also already required to carry a pilot under the provisions of the *Whitsunday Area Plan of Management.*168

5.6.2. REEFVTS

While there have been no prosecutions arising from breaches of Marine Orders Part 56 dealing with REEFVTS offences, several advisory and warning letters have been sent to ships that have failed to comply with the requirements of REEFVTS.169 Nonetheless, because REEFVTS has the capability to predict potential traffic conflicts ahead of time and advise on appropriate action such as when a ship may be standing into shallow water or deviating from a recommended route,170 it is probably the most significant and effective safety of navigation measure implemented for navigational hazardous areas within the Reef over the last 10 years.171 For example, from 2002 to 2005, Vessel Traffic Service Operators from REEFCENTRE averted at least five near misses by initiating interaction with individual ships and providing information to assist on-board decision-making in the vicinity of the Cairns-Mourilyan sector.172

The real value of REEFVTS is that events affecting navigation and defects that could cause a ship to sustain damage, failure or breakdown must be provided to REEFCENTRE without delay.173 A ‘record and playback’ feature of the system also allows individual voyages or incidents to be analysed, a feature that has been used in


171 Personal knowledge.

172 Information provided to the author as a member of the 2001 *Review of Ship Safety and Pollution Prevention Measures in the Great Barrier Reef*.

enforcement and for responding to marine pollution incidents.\textsuperscript{174} The REEFVTS has also served to communicate to mariners the requirements of ship safety and some of the critical marine pollution regulations for the Torres Strait and Reef.\textsuperscript{175} REEFVTS’s other advantage is that it is a source of historical information on ship movements that can be used to monitor shipping trends in the Reef.\textsuperscript{176}

5.6.3. **Safety of navigation deficiencies detected by Port State Control**

As discussed at Chapter 4, PSC is the primary means for checking that ships operating in Australian waters comply with maritime safety and marine pollution prevention standards prescribed by relevant conventions and supporting codes and resolutions. A deficiency under SOLAS that is considered serious enough to warrant the detention of a ship concerns the absence of corrected navigational charts and all of the relevant nautical publications necessary for the intended voyage.\textsuperscript{177} As part of a three-month intensive inspection campaign of trading ships in 2003, 32 per cent of ships (comprising bulk carriers, general cargo vessels and container ships respectively) did not have the most appropriate, or properly corrected, Australian nautical charts or publications for the Gladstone to Cairns region.\textsuperscript{178} A further 10 per cent of the deficiencies were ascribed to ships that failed to consider environmental protection measures as part of their voyage plan.\textsuperscript{179} These deficiencies were corrected prior to the ship sailing and no ships were detained as a result of these breaches.

5.7. **Issues affecting the efficacy of navigational safety measures**

The network of navigational aids, compulsory pilotage and REEFVTS servicing the Reef has not prevented several ‘near miss’\textsuperscript{180} groundings and collisions in the Region.

\textsuperscript{174} Personal knowledge.
\textsuperscript{175} ibid.
\textsuperscript{176} ibid.
\textsuperscript{178} The campaign targeted 670 trading ships for compliance with the 2000 amendments to Chapter V of SOLAS; see Thirteenth Meeting of the Port State Control Committee, Port Villa 23-26 February 2004.
\textsuperscript{179} Thirteenth Meeting of the Port State Control Committee, Port Villa, 23-26 February 2004.
\textsuperscript{180} ‘Near misses’ have been defined as ‘an incident in which the pilot, master or other person in charge of navigating a vessel successfully takes action of a non routine nature to successfully avoid a collision with another ship, structure, or aid to navigation, or grounding of the vessel or damage to the environment’; L
With the continued expansion of tourism and shipping in the Region, close vessel encounters in these areas will increase which could lead to more shipping incidents of this nature. Arguably, some of these incidents may be prevented through the extension of pilotage and REEFREP areas, and advances in safety of navigation technologies. However, an extension of these schemes under Australian law needs to be properly justified, taking into account existing controls and other interests.\(^{181}\)

5.7.1. **Extension of the Inner Route compulsory pilotage areas and identification of new areas**

During the 2001 *Review of Ship Safety and Pollution Prevention Measures in the Great Barrier Reef* (2001 Review), the Great Barrier Reef and Torres Strait Shipping Management Group\(^{182}\) charged with implementing its recommendations\(^{183}\) considered three separate proposals for extending compulsory pilotage: that is, south of Cairns to the entire length of the Marine Park; within Torres Strait; and within the Whitsunday Islands.\(^{184}\) Of these, only the proposals to introduce compulsory pilotage within the Torres Strait\(^{185}\) and Whitsunday Islands were successful.\(^{186}\)

The proposal to extend the existing compulsory pilotage scheme south of Cairns was not considered appropriate on the basis that the routes in this area are wide, sheltered, and already well serviced by navigation aids.\(^{187}\) The Great Barrier Reef and Torres Strait Shipping Management Group further considered that other measures (such as

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\(^{182}\) This group comprised the chief executives of AMSA, GBRMPA, MSQ, and a senior executive of the Infrastructure Department; see Chapter 3.


\(^{184}\) ibid, p. 20.

\(^{185}\) See Resolution MEPC.133(53), *Designation of the Torres Strait as an extension of the Great Barrier Reef particularly sensitive sea area*, adopted 22 July 2005.

\(^{186}\) The implementation of the Whitsunday Islands compulsory pilotage area under Australian law is discussed below.

REEFVTS) would be more cost effective in preventing accidents. Additional concerns were raised in respect of the increased transport costs; pilot fatigue arising from the longer passages; and the lack of available suitably trained and qualified pilots to undertake the work.

In the five years since the 2001 Review, there have been several incidents involving near misses in the area south of the Inner Route compulsory pilotage area. During those incidents, a few ships failed to make the 26 degree course change to the south after the pilot had disembarked at Cairns and were in danger of running on to the reefs in the vicinity of Stag Patches, Scott Reef or Sudbury Reef. These incidents are of concern and provide a basis to further consider the extension of the Inner Route compulsory pilotage area.

While it is acknowledged that the sea-room south of the southern limit of the Inner Route compulsory pilotage area is less restrictive and eases the navigation burden for ships, the region experiences a relatively high volume of local vessel traffic and has high conservation value, to the extent that activities within the area are regulated under the Cairns Area Plan of Management. A degree of control is provided by the ‘Pilot Advisory’ issued by AMSA which strongly recommends the use of a pilot by masters unfamiliar with other areas of the Inner Route or the entrances to Palm and Grafton Passages. However, compulsory (rather than recommended) pilotage may be preferred because those ships that are less likely to adhere to this advice are more likely to be ships of poorer quality and with poor safety records. While the AMSA has used its extensive contacts to encourage shipping agents, charterers and flag States to ensure only high standard ships trade with Australia, if commercial pressures dictated otherwise, then the risk of an accident is also increased.

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188 Personal knowledge.
189 Great Barrier Reef Shipping Review Steering Committee, p. 30.
190 Personal knowledge.
Apart from the need to give consideration to the southern extension of the compulsory pilotage area to include Grafton and Palm Passages and possibly as far south as Townsville to allow pilots to more easily embark and disembark the ship, compulsory pilotage candidate areas could also be identified from those regions within the Reef that were classified as ‘high risk’ areas in the *Oil Spill Risk Assessment for the Coastal Waters of Queensland and the Great Barrier Reef Marine Park* conducted in 2002 by MSQ and GBRMPA, in addition to other areas.\(^{194}\) The other candidate areas include those areas where the shipping traffic or local weather patterns are rapidly changing or where new scientific research has identified particularly vulnerable biota. As well as helping reduce the risk of a grounding or collision,\(^ {195}\) the mere presence of a pilot onboard a ship may act as a deterrent to the master or crew of a ship that is operating in an unsafe manner. Further, under Marine Order Part 54 for Coastal Pilotage, pilots are required to promote the practises and principles of bridge management teamwork; report all serious safety deficiencies, near misses, accidents, equipment failures, and illegal waste discharges to the appropriate authorities; and identify, describe and respond to potential emergency shipboard situations.\(^ {196}\)

Areas of extremely high natural and heritage value may benefit from the allocation of two officers on watch for the period when the pilot is on the bridge (pilot plus officer-on-watch), with the extra person providing a ‘verification and approval’ function of the critical actions of the pilot.\(^ {197}\) While there are some concerns that such a proposal could raise crew fatigue during the remainder of the voyage and during the critical time of entering a port,\(^ {198}\) a dual watch system has been implemented in the United Kingdom


\(^{195}\) See the analysis of risk assessments of ship safety at Chapter 3.


under the *Pilotage Act 1987* by requiring a licensed pilot to be accompanied by a qualified assistant\(^{199}\) and also for ships transiting the Strait of Magellan and Patagonian Channel (Chile) where two pilots must be deployed on each ship over 200 metres in length.\(^{200}\)

If Australia were to consider adopting a new compulsory pilotage area within the Region, it would need to give due consideration to the authority provided by the original designation of the compulsory pilotage in the Reef and the particular opportunities and obligations it has under Article 21(1) of the LOSC and Regulation 8 of Chapter V of SOLAS to designate such areas. For example, while consent was given to a system of compulsory pilotage within the Region by Resolution MEPC.45(30),\(^{201}\) some commentators argue that this resolution is non-legally binding and did not give Australia a clear legal right to prescribe the mandatory use of pilotage within the Reef, except where those areas fall within the territorial sea due to the powers under Article 21(1) of the LOSC.\(^{202}\) Aside from the overall generic obligation under Part XII of the LOSC to protect and preserve the marine environment, it could also be argued that Article 21(1) alone clearly provides the specificity to allow a coastal State to adopt laws and regulations in conformity with the LOSC and other rules of international law relating to the safety of navigation and the regulation of maritime traffic. Further justification may be provided by SOLAS Regulation V/8 which implies that routeing systems may exist outside the IMO by referring to ‘ships routeing measures not intended to be submitted by the Organization.’\(^{203}\) Thus, until such a proposal is looked at in more detail, in principle at least, there may not be a formal requirement to seek approval from the IMO if the boundaries of the compulsory pilotage area were to be confined to the territorial sea, although it would be in Australia’s interests to do so to ensure it is acting ‘consistent with international law, including the relevant provisions of

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203 SOLAS Regulation V/8 section (j), (e)
the LOSC.’ However, a compulsory pilotage area that falls within the EEZ is likely to be considered by the IMO or its sub-committees as a special mandatory measure outside of a measure that conforms to, and gives effect to, generally accepted rules and standards, and would therefore be subject to the consideration, approval and endorsement by the IMO in accordance with Article 211(6) of the LOSC.204

5.7.2. Additional costs of pilotage

Any proposal for additional pilotage or the extension of an existing compulsory pilotage area could be expected to increase the overall transport costs both because of the additional pilotage fees and from the additional costs incurred in making up lost time from picking up and discharging pilots in the extended pilotage areas.205 Current estimates of the cost of the pilotage of a ship in the Reef vary from $1000 to $6500.206 The pilotage costs through the length of the Inner Route are approximately $4000 to $6500, depending on the type of ship to be piloted; while the costs of pilot services during a transit of the Whitsunday Islands compulsory pilotage area, an area that would be similar in extent to the proposed area south of Cairns, is approximately $1500 per passage.207 This compares with typical daily charter rates for bulk carriers of at least $25 000 per day.208 However, these costs are negligible in comparison to the cost, inconvenience and delay incurred in a shipping casualty, which for a grounding of a bulk carrier in the Reef, would amount to hundreds of thousands to millions of dollars when the costs of salvage and pollution response are included.

One of the suggestions put forward in the 2001 Review was to offset the costs of compulsory pilotage through the granting of exemptions in the case where ships can demonstrate superior levels of performance and consistent compliance with

204 LOSC art 211(6)(a).
206 Personal knowledge.
207 Australian Reef Pilots and Torres Pilots Pty Ltd, pers. comm., 1 August 2003.
regulations.\textsuperscript{209} In this regard, scope exists to exempt ships from pilotage costs that are fitted with state of the art navigation technology, or ships that can demonstrate a high standard of compliance with PSC requirements, or can show evidence of membership of the ‘green award’ shipping schemes.\textsuperscript{210} The exemptions could eventually form part of an accreditation system that operate to ‘best environmental practice’ for ships, similar to that developed for large tourism operations.\textsuperscript{211}

5.7.3. **Meaning of ‘operator’ and ‘pilot’ under the GBRMP Act**

An investigation involving the grounding of the *Doric Chariot* on Piper Reef in July 2002 in a compulsory pilotage area\textsuperscript{212} highlighted that a pilot could be deemed to be an ‘operator’ of a vessel for the purposes of section 38MC of the GBRMP Act and liable for actions causing damage to a reef.\textsuperscript{213} In that case, the Australian Transport Safety Bureau reported that the grounding occurred because the pilot was fatigued and fell asleep in an inappropriate area of the pilotage passage and, in doing so, failed to provide the Officer on Watch (Second Mate) with sufficient clear, unambiguous, instructions regarding the intended course.\textsuperscript{214} Although a brief of evidence had been prepared for indictment of the pilot of the *Doric Chariot* under section 38MC of the GBRMP Act, the case presented by the Commonwealth Director of Public Prosecutions against the

\textsuperscript{209} Great Barrier Reef Shipping Review Steering Committee, 2001, p. 29.

\textsuperscript{210} ‘The Green Award scheme’, for example, aims to improve quality in shipping through encompassing best practice safety and environmental guidelines, including those in upcoming IMO standards; see ‘The Green Award Foundation’, ‘Green Award’, <http://www.greenaward.org/default.htm> viewed 2 August 2005.


\textsuperscript{213} Under section 38MC(2) of the GBRMP Act, if a vessel is operated in the Marine Park and that operation results in, or is likely to result in, damage to the Marine Park, the operator and the owner of the vessel are each guilty of an offence punishable be a fine of not more than 500 penalty units. Section 38MC(3) provides that an offence under section 38MC(2) is an offence of strict liability.

pilot was eventually dropped in the public’s ‘best interest’.215 These ‘interests’ related to the circumstances of the incident and shortage of qualified coastal pilots in the Reef.216 In the result, the pilot involved in the *Doric Chariot* incident had his licence suspended for over 12 months and both the Second Mate and owners of the ship (the Doric Chariot Corporation) were convicted and fined $10 000 and $100 000 respectively under section 38MC of the GBRMP Act on 1 November 2004 in the Cairns Magistrates Court.217

During the investigation of the *Doric Chariot* grounding incident, concerns were expressed by the ship regulatory authorities and industry over the precedent ascribed to the scope and meaning of ‘operator’ and its relationship to the ‘pilot’ under the GBRMP Act.218 Moreover, one of the pilotage providers argued that the indictment of the pilot servicing the *Doric Chariot* threatened to undermine the statutory indemnity from pecuniary damages granted to coastal pilots under the *Navigation Act 1912*.219 The pilotage provider also argued that it was unreasonable that a pilot could risk their licence and livelihood under Marine Orders Part 54 if they act recklessly or negligently.220 To consider the implications of this incident, it is necessary to examine the duties of a pilot under Australian law, as well as other cases in Australia dealing with pilot liability, and comparing those duties with practices overseas.

Under the *Navigation Act 1912*, a master is held responsible for the ships operation and the pilot is considered to be merely an adviser to the shipmaster and generally exempt from civil action, but not prosecution.221 The *Navigation Act 1912* provides that neither the pilot nor any pilotage provider responsible for the provision of the pilot’s services

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215 Personal knowledge.
216 ibid.
218 Personal knowledge.
220 ibid.
221 *Navigation Act 1912* s 410B.
222 Pilotage provider means a person who assigns or allocates a pilot to the transit of a ship through particular waters, irrespective of the legal relationship, contractual or otherwise, between that person and the pilot; *Navigation Act 1912* s 186B.
is liable in civil proceedings for loss or damage caused to, or by, the ship provided that the particular act or instruction is done in good faith. The provisions under the Navigation Act 1912 also allow for regulations to be made stipulating the professional relationship of the pilot with other ship’s officers. Marine Order Part 54 provides that the duties of an Australian Coastal pilot is ‘to provide information and advice to the master of the ship to assist the master and the ship’s navigating officers to make safe passage through the pilotage areas or areas for which the pilot is engaged.’ Such persons must hold a valid Queensland and Torres Strait Pilot’s licence. While Marine Order Part 54 binds pilots and pilotage service providers and requires the development of fatigue management plans by pilotage providers with which pilots must comply, a pilot is not always in a position to direct the steering of a ship for the entire sector of the pilotage area. For example, a pilot on a ship transiting the northern Inner Route compulsory pilotage area, which takes a ship around 40 hours to complete, will only be present on the bridge at certain key points, having to take rest breaks during the less challenging sectors of the 730 kilometre route.

In Braverus Maritime Inc v Port Kembla Coal Terminal Ltd, where a Capesize bulk carrier SA Fortius struck a coal berth in Port Kembla inner harbour, the position and liability of a pilot as regards the ship, the interaction between the Master and the pilot, and the relative responsibilities of the pilot’s general employer and the ship owner were decided by the full Federal Court of Australia on 15 December 2005 by Justice Brian Tamberlin. The decision confirmed that the ship’s master and owner were liable for the negligence of compulsory pilots to the exclusion of any liability that the general

223 See especially Navigation Act 1912 s 410B(3).
224 Navigation Act 1912 s 186D.
226 A valid licence means a licence or restricted licence issued or renewed under Marine Orders Part 54 that is current, is not cancelled or under suspension, and that bears the signature of the holder; Australian Maritime Safety Authority, Coastal Pilotage, Marine Orders Part 54, Issue 4, Order no. 10, Canberra, December 2006.
227 Australian Maritime Safety Authority, Marine Orders, Part 54, Coastal Pilotage, Issue 3 came into operation on 1 August 2002.
employer of the pilot might have. That particular case also held that the master’s failure to intervene during the berthing operation was the result of his own negligence, not his reliance on the pilot.230

At the Queensland state level, the TOMSA231 provides that a ship must not operate unsafely but gives the master limited immunity from civil liability.232 TOMSA233 extends this immunity to conducting pilots,234 supervising pilots235 and their general employers (pilotage providers). However, TOMSA further provides that ‘the owner and master of a ship being navigated by a pilot because the pilotage is compulsory under this Act or another Act is liable for loss or damage caused by the ship, or by a fault of the navigation of the ship, as if the pilotage were not compulsory.’236 In these circumstances, pilots may be strictly liable for any breaches of the international collision regulations or ‘wilful acts’ under other laws.

Generally, in most other countries, pilots are regarded in law as advisers to the master, and their liabilities are largely excluded or limited.237 In Britain for example, under the Pilotage Act 1913 (UK),238 ‘the owner or master of a vessel navigating under circumstances in which the pilotage is compulsory shall be answerable for any loss or damage caused by the vessel or by any fault of the navigation of the vessel in the same manner as he would if pilotage were not compulsory.’239 Further, a ships’ master would need a good reason to interfere with the actions, orders or instructions of a compulsory

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230 ibid.
231 TOMSA s 43.
232 TOMSA s 102.
233 TOMSA s 101.
234 Means a pilot who has the conduct of a ship as its pilot; TOMSA s 101(5).
235 Means a person who is licensed under a regulation as a pilot and who is on board a ship to train a conducting pilot or assess a conducting pilot’s competence as a pilot; TOMSA s 101(5).
236 TOMSA s 102(3).
238 Pilotage Act 1913 (UK) s 15.
5.7.4. Review and extension of the REEFVTS reporting area

SOLAS provides governments with the capacity to establish and review the operation of a ship reporting service or vessel traffic service, when, in their opinion, the volume of traffic or the degree of risk justifies such services. A limitation of REEFVTS is that it does not protect the whole of the Marine Park, stopping short of the southern boundary of the Marine Park, curtailing the ability of the AMSA and MSQ to provide navigational assistance and control traffic in those areas. While much of the REEFVTS area covers Australia’s internal waters and territorial seas (see Figure 5.3 of the Appendix to this thesis), an extension of REEFVTS to the whole of the Reef would provide more assurance for the protection of the World Heritage values of the Region and allow better reporting of ship traffic information.

With the upgrade of the REEFREP to a vessel traffic service, the extension of the system to the whole of the Marine Park including out to the boundary of the EEZ seems unlikely to be approved by the IMO because SOLAS requires that the use of a vessel traffic service can only be made mandatory in sea areas within the territorial seas of a coastal State. Nevertheless, it can be inferred from discussions within the Legal Committee of the IMO that because the LOSC defers to IMO on navigational rules, regulations and standards, the IMO could approve the extension of the REEFVTS area out into a part of the EEZ if processes established under Article 211(6) of the LOSC were followed. The application for extension of the compulsory pilotage area

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241 SOLAS V, reg 11 and reg 12.
242 SOLAS V, reg 12.
243 SOLAS Chapter V, reg 12(3).
244 However, there is no provision in SOLAS that excludes the operation of the system outside of the territorial sea; see also Resolution MSC.43(64), Guidelines and criteria for ship reporting systems, adopted 9 December 1994 as amended by Resolution MSC.111(73) Adoption of amendments to guidelines and criteria for ship reporting systems, adopted 1 December 2000.
would involve the preparation of a submission by Australia to the IMO of ‘the oceanographic and ecological conditions’ and ‘particular character’ of the traffic as well as navigational hazards and risk of a shipping accident in the area.\textsuperscript{247} This process would likely involve consultations with IMO and affected States and submission of scientific and technical evidence to support adoption of special mandatory measures for the prevention of pollution from vessels.\textsuperscript{248} If approved by the IMO, such additional laws that relate to navigational practices would not become applicable to foreign vessels entering Australian waters 15 months after the submission of the communication to IMO, provided that the IMO agrees within 12 months after the submission of the communication.\textsuperscript{249} At the very least, to ensure REEFVTS protects a greater area of the Marine Park, it should be possible to extend the REEFVTS operational area south to the boundary of the Marine Park and as far as the outer eastward boundary of the territorial sea while remaining consistent with international law, if, once again, Article 21 of the LOSC is to be relied upon.\textsuperscript{250}

5.7.5. Frequency of reporting under REEFVTS

As noted earlier, Marine Orders Part 56 obligates the master of a ship to make several reports to the REEFCENTRE during its voyage in the REEFREP area of the Reef.\textsuperscript{251} The requirement for vessels to report at the mandatory reporting points is dependant on the type of route plan provided by the ship and method of reporting. Ships that have submitted a partial voyage plan or who communicate their voyage plans purely by (VHF) radio are required to report their position to REEFCENTRE on an hourly basis and at all of the designated reporting points through the Reef.\textsuperscript{252} Although more than 90 per cent of ships now provide electronic position reports via satellite and automated

\textsuperscript{247} See LOSC art 211(6)(a).

\textsuperscript{248} ibid.

\textsuperscript{249} See LOSC art 211(6)(c).

\textsuperscript{250} LOSC art 21(1).

\textsuperscript{251} The master of a ship navigating in the REEFREP area must make the following reports: a pre-entry position report, an entry report, a passage plan report, a route deviation report (if applicable), intermediate position reports, defect reports (if applicable) and a final report; Marine Orders, Part 56, pt 5.

\textsuperscript{252} See Australian Maritime Safety Authority, \textit{REEFVTS user manual}, 2\textsuperscript{nd} edn, March 2005, pp. 16-17.
position reporting, resulting in more than 80,000 position reports per day from ships in the REEFREP area,\textsuperscript{253} there remains a possibility that ships without an automatic reporting mechanism may stray off track within any given hour before REEFCENTRE has had an opportunity to advise the ship of a more appropriate navigation route through the Reef. As more ships adopt more satellite and automated position reporting technologies, this is unlikely to be a problem in the future, but it would be difficult to impose additional reporting requirements on foreign ships and continue to be consistent with the LOSC. For example while Australia, as a coastal State, has substantial powers to adopt laws in its internal waters and territorial sea,\textsuperscript{254} particularly with respect to the safety of navigation and the regulation of maritime traffic,\textsuperscript{255} Article 24(1) of the LOSC provides that a coastal State has a duty not to impose requirements that hamper the passage of foreign ships through the territorial sea\textsuperscript{256} or discriminate in form or fact against the ships of any State.\textsuperscript{257}

5.7.6. Application of REEFVTS to include smaller vessels

Aside from trading ships, (small) vessels under 50 metres in length also have the potential to affect safety of navigation within the Reef. Currently, REEFCENTRE does not monitor those vessels, some of which may at best only have radar or, at worst, no navigational equipment at all.\textsuperscript{258} SOLAS however, provides that ship reporting systems and vessel traffic systems can be applied to ships of less than 500 gross tonnage engaged on any voyage as well as fishing vessels.\textsuperscript{259} AIS may be fitted to these types of vessels, predominantly as a collision avoidance tool.\textsuperscript{260} Such systems are being currently considered by AMSA and MSQ for fishing vessels, recreational craft and port service vessels to assist their safe passage through the REEFREP area and help reduce the

\textsuperscript{253} N Trainor [AMSA] pers. comm., 23 August 2007.
\textsuperscript{254} See LOSC arts 2, 24, 42 and 44.
\textsuperscript{255} LOSC art 21(1)(a).
\textsuperscript{256} LOSC art 24(1)a).
\textsuperscript{257} LOSC art 24(1)(b).
\textsuperscript{259} SOLAS Chapter I, reg 3.
\textsuperscript{260} Under SOLAS Chapter V, regulation 9, the IMO shall determine the extent to which AIS may be implemented for different types and sizes of vessels.
incidence of collisions between those types of vessels and trading ships.261

5.7.7. ‘Hands free’ navigation

While the incremental and continual improvement of REEFVTS should result in higher environmental outcomes for the Reef, it is not clear to what extent REEFVTS will take on the functionality and control of ships. For the foreseeable future, the services REEFVTS provides to mariners are likely to continue to be of an advisory nature rather than a form of ‘hands free’ navigation, similar to that used in air traffic control. This is due inter alia to the narrowness of the channels in parts of the Reef, which do not allow sufficient time for directions to be given and responded to by ships in critical situations and also to the issues associated with the transfer of liability from the ship's master to the Vessel Traffic Service Operators at REEFCENTRE, if by following the directions of one of those operators, an accident occurs. To that end, the ship regulatory authorities will need to ensure that REEFVTS does not encroach upon the master's responsibility for safe navigation, or disturb the traditional relationships between the ship’s master and pilot.262 To that extent, the IMO Guidelines for Vessel Traffic Services recommend that 'when the vessel traffic service is authorized to issue instructions to vessels, these instructions should be result-oriented only, leaving the details of execution, such as course to be steered or engine manoeuvres to be executed, to the master or pilot on board the vessel.'263

5.8. Conclusions

The implementation of the two associated protective measures afforded by the designation of the Reef as a PSSA, acting in concert with a suite of other safety of navigation technologies and some unique ‘negligent navigation’ provisions in the GBRMP Act has helped to systematically strengthen safety of navigation and reduce the

potential for accidents in the Reef, particularly those related to vessel groundings, collisions, strandings and sinkings. However, the challenge will be to find new ways to improve existing safety of navigation measures allowed for under SOLAS and the LOSC without delaying ships or unduly impairing innocent passage in the territorial sea or the freedoms of navigation enjoyed by ships in the EEZ areas of the Marine Park. Measures considered in this chapter include continuing to upgrade the technologies employed by REEFTS; extending the compulsory pilotage and REEFREP areas; and introducing AIS on smaller vessels to reduce the risk of collisions and improve long range identification and tracking for security purposes. Nonetheless, to safeguard the environmental values and socioeconomic values of the Region into the future, and build redundancy into all of the existing safety of navigation measures, the subject of the next chapter is the fortification of safety of navigation in the Region through regulatory measures that prescribe the conditions for the use and entry of the high conservation areas of the Marine Park.
6. USE OF, AND ENTRY INTO, HIGH VALUE CONSERVATION AREAS BY SHIPS

6.1. Introduction

As a multiple use marine protected area (MPA), one of the main challenges for the GBRMPA is to manage a range of potentially conflicting recreational, commercial, research and indigenous activities within a defined geographic area in accordance with the objects of the GBRMP Act.\(^1\) The management of shipping activities within the Marine Park is no exception and presents particular challenges due to the need to balance the freedoms ships enjoy to navigate unhindered within Australia’s territorial sea and exclusive economic zone (EEZ) under international law,\(^2\) whilst ensuring the need to present, control, care and develop the Marine Park.\(^3\)

The principal means of prescribing the permitted uses and access to areas of the Marine Park is by way of zoning plans, area plans of management, and to a lesser extent, site management plans and permits.\(^4\) Zoning plans are used for managing declared areas of the Marine Park\(^5\) while plans of management may be prepared for a specific management issue, areas, species or ecosystems within the Marine Park.\(^6\) The *Great Barrier Reef Marine Park Zoning Plan 2003* (Zoning Plan 2003) is the principle means of regulating the environmental consequences of ship operations that relate to the movement and presence of a ship or vessel, especially in the high value conservation areas of the Marine Park.

This chapter recounts the origins, evolution and development of the Zoning Plan 2003, including the actions that were taken to address cruise ship access in the Marine Park once the rezoning process was completed. It then examines several matters relating to

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1. GBRMP Act s 5(1).
2. See especially LOSC arts 17 and 58.
3. GBRMP Act s 5(1).
4. GBRMP Act s 7(1)(c) and 7(1)(ca).
5. GBRMP Act s 32(1).
6. GBRMP Act s 39X.
the shipping management provisions and freedom of navigation powers permitted under international law considered by the GBRMPA and the AMSA in the development of the Zoning Plan 2003. Australian domestic law issues were resolved during the consultations in developing the provisions under the Zoning Plan 2003 and are generally out of the scope of this analysis. The chapter is concluded by examining the management issues that may affect the efficacy of zoning as a means to manage shipping in the Marine Park.


The origins of the first zoning plans had their genesis at the first (4 October 1979) meeting of the Ministerial Council established by the Emerald Agreement where it was agreed that the proclamation of the first part of the Marine Park, the Capricornia section, should occur as soon as practicable. At that time, the main impacts on the Marine Park were recognised as pollution introduced through terrestrial runoff, coastal discharges and shipping but that extractive activities, particularly commercial and recreational fishing, also required careful planning. To that end, the GBRMPA resolved to set aside 'some areas of the Great Barrier Reef in its natural state undisturbed by man except for the purposes of scientific research'. This was to be achieved through the progressive declaration of sections of the Reef as parts of the Marine Park and by developing zoning plans, starting with the most heavily used areas, which specify what uses may occur within each zone and the conditions under which those uses may proceed. The philosophy at the time was to regulate activities to the minimum considered necessary to achieve conservation objectives. Under the Great Barrier Reef Marine Park Act 1975, matters that needed to be considered by the GBRMPA in preparing a zoning plan

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8 ibid.

9 See GBRMP Act s 32(7).


include:

a. the conservation of the Great Barrier Reef;
b. the regulation of the use of the Marine Park so as to protect the Great Barrier Reef while allowing the reasonable use of the Great Barrier Reef Region;
c. the regulation of activities that exploit the resources of the Great Barrier Reef Region so as to minimize the effect of those activities on the Great Barrier Reef;
d. the reservation of some areas of the Great Barrier Reef for its appreciation and enjoyment by the public; and
e. the preservation of some areas of the Great Barrier Reef in its natural state undisturbed by humans except for the purposes of scientific research.12

The primary function of the zoning plans is to protect representative areas of biodiversity and other high conservation areas of the Marine Park. Progressively restricted access is provided to areas of the Marine Park which range from ‘General Use zones’ though to ‘Preservation Zones’.13 A broad spectrum of uses is allowed in ‘General Use zones,’ the aim of which is to provide for the conservation of areas of the Marine Park while providing opportunities for reasonable use. Conversely, activities are more strictly controlled in ‘Preservation Zones,’ which aim to provide for the preservation of the natural integrity and values of areas of the Marine Park, generally undisturbed by human activities.

6.2.1. Background to the Representative Areas Programme

The enactment of the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) in 1999 led to a renewed commitment on behalf of Australia to review existing protection arrangements of marine reserves under Australia’s Oceans Policy, including within the Great Barrier Reef World Heritage Area (GBRWHA)14 and an increasing awareness of the value of an ‘ecosystem approach’ to management of such areas. This approach attaches importance to the level of the interconnectivity among habitats, species and communities that exist in the marine environment.

12 GBRMP Act s 32(7).
14 Department of Environment and Heritage, Australia’s ocean policy: caring, understanding, using wisely, Department of Environment and Heritage, Canberra, 1998.
Concurrently, as part of a major review of the Marine Park arrangements, it was recognised that only a small percentage of the Region was adequately protected by ‘no take’ and ‘no go’ areas and that much of the previous zoning was focused on areas of the Marine Park dominated by coral reef habitat. These concerns lead to the establishment of the Representative Areas Programme, the aim of which was to extend the network of ‘no take areas’ while ensuring a minimum of 20 per cent of each bioregion was protected, mitigating the potentially deleterious effects of open access. The Representative Areas Programme was progressed through a systematic and comprehensive broad scale planning process involving the classification of a range of biophysical and social information into bioregions, the application of a set of operating principles endorsed by scientists and computer based marine reserve design software. The Representative Areas Programme resulted in the identification and broad classification of 70 reef and non-reef bioregions comprising mangroves, seagrasses, algal beds, sponge gardens, deepwater oceanic communities across the Marine Park into manageable units.

In October 2001, the Australian Government announced that it would rezone the Marine Park to implement the outcomes of the Representative Areas Programme and increase the protection of the Marine Park. Seven months later, a notice of intent to prepare a new (revised and amalgamated) Zoning Plan 2003 was issued on 7 May 2002.

15 A Federal Coalition Government policy was to ‘…progress the representative areas process, ensuring that all habitat types in the Great Barrier Reef are adequately protected…’; A better environment, Australian Government Coalition Platform, 2001.

16 National Marine Park zones.

17 Preservation zones.


Interested parties were invited to make representations to preliminary drafts of the Zoning Plan 2003 over two periods of formal public consultation from 7 May to 7 August 2002 and from 2 June to 4 August 2003 respectively,\(^{23}\) prior to consideration by the GBRMPA,\(^{24}\) the Commonwealth Environment Minister (also responsible for the GBRMPA)\(^{25}\) and tabling at both Houses of Parliament.\(^{26}\)

The zoning plans for the Far Northern, Cairns, Central, Mackay/Capricorn (representing the Management Sections of the Marine Park) and Gumoo Woojabuddee Sections developed since 1981\(^{27}\) (see Table 6.1 below), and the 28 new coastal areas that were previously excluded from the Marine Park because of earlier concerns about their potential to impact on industrial or port development, were brought into the boundaries of the Marine Park between August 2000 and July 2001, and amalgamated under the Zoning Plan 2003 on 1 July 2004 (see Figure 6.1 of the Appendix to this thesis).\(^{28}\) On the 5\(^{th}\) November 2004, the Queensland Government ‘mirrored’ the new zoning in adjoining state waters under the *Marine Parks (Great Barrier Reef Coast) Zoning Plan 2004*, ensuring there was complementary zoning for virtually all Commonwealth and state waters within the Region.\(^{29}\) However, as will be discussed shortly, the increase in number and extent of highly protected areas had the potential to affect Australia’s international obligations as well as opportunities for the use and access to those areas, including by ships.

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23 GBRMP Act s 32(2) and (8).
24 GBRMP Act s 32(9).
25 GBRMP Act s 32(11).
26 GBRMP Act s 33.
29 This state plan also refers to the provisions of the various plans of management developed by the GBRMPA.
Table 6.1: Chronology of zoning plans

<table>
<thead>
<tr>
<th>Zoning Plan</th>
<th>Commencement date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capricorn Bunker Zoning Plan</td>
<td>1981</td>
</tr>
<tr>
<td>Cairns Cormorant Pass Zoning Plan</td>
<td>1983</td>
</tr>
<tr>
<td>Far Northern Zoning Plan (original)</td>
<td>1986</td>
</tr>
<tr>
<td>Central Section Zoning Plan</td>
<td>1987</td>
</tr>
<tr>
<td>Mackay Capricorn Section Zoning Plan</td>
<td>1988</td>
</tr>
<tr>
<td>Cairns Section Zoning Plan</td>
<td>1992</td>
</tr>
<tr>
<td>Far Northern Section Zoning Plan (Revoked the 1986 Far Northern Section Zoning Plan)</td>
<td>2002</td>
</tr>
<tr>
<td>Gumoo Woojabuddee Section Zoning Plan</td>
<td>2003</td>
</tr>
<tr>
<td>Great Barrier Reef Park Zoning Plan 2003 (Revoked the Far Northern Section Zoning Plan, the Cairns Section Zoning Plan, the Central Section Zoning Plan, the Mackay/Capricorn Section Zoning Plan and the Gumoo Woojabuddee Section Zoning Plan.)</td>
<td>2004</td>
</tr>
</tbody>
</table>

6.2.2. Development of ship management provisions within the Zoning Plan 2003

The shipping management provisions prescribing the use and entry requirements of zones across the four sections of the previous zoning plans for the Marine Park (as summarised in Table 6.2 of the Appendix to this thesis) varied among each of the zones and were potentially confusing for ship operators and the ship regulatory authorities. There were different definitions of a ‘ship’ depending on the section of the Marine Park being referred to, which in turn affected the conditions for use and entry into those areas.30 There was also uncertainty for the ship regulatory authorities in the way they should conduct notification requirements for salvage, Defence (military) operations and construct navigation aids or carry out government geodetic survey and emergency response under each of the zoning plans, especially when considered in the context of other shipping management legislation.31

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31 ibid.
In developing the shipping provisions within the new Zoning Plan 2003, the main challenge for the GBRMPA was to balance the recreational, cultural and economic opportunities provided by the Region with measures to protect its special ecological and geographic values. During the development of the Zoning Plan 2003, a wide range of information sources, consultations and more than 31,500 submissions from the community and key government and non-government interest groups and agencies helped resolve the placement of zones in the new Zoning Plan 2003 and the most appropriate types of uses within those zones. Analysis of the submissions from the ship regulatory authorities and the shipping industry revealed five main concerns.

First, it was contended that ships should be able to continue to access all navigable areas of the Marine Park including adjacent ports and safe anchorage areas. There were concerns that the proposed increase in ‘green zones’ from four and half per cent of the Marine Park to greater than 30 per cent would result in an attendant decrease in General Use zones (where the navigation of a ship is allowed) and limit the areas of the Marine Park used for shipping. Further, it was submitted that any reduction in the areas available for the transit of ships could increase the risk of congestion and vessel encounters (e.g. between fishing vessels and ships) and that the number and shape of zones should not interfere with the manoeuvrability of vessels using those areas.

Second, several of the submissions noted that the ability to direct a ship to a safe haven, respond to an emergency, secure the safety of a ship without notification or direction should be without interference by the GBRMPA to minimise delays in responding to

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33 Details and sources of the submissions cannot be identified for reasons of privacy and confidentiality as the GBRMPA collected the information to obtain submissions from interested persons in connection with the proposed amendments to the *Great Barrier Reef Marine Park Zoning Plan 2003* as authorised by the *Great Barrier Reef Marine Park Act 1975*.


such situations. Other government agencies with a maritime interest also wanted assurances that navigation aids could be accessed without having to notify the GBRMPA to minimise liability for the Australian Government in the event of a ship casualty being found to be caused by any fault of that aid.

Third, any new zoning requirements should be swiftly and widely promulgated to the shipping industry including through the correction of official navigation charts. Fourth, it was submitted that any changes to the previous zoning arrangements should be in accordance with international law requirements including obligations under the World Heritage Convention (WHC). Finally, the changes to the previous zoning plans should be in accordance with particular domestic (non statutory) planning instruments such as the 25 Year Strategic Plan for the Great Barrier Reef\(^\text{36}\) and the Great Barrier Reef and Torres Strait Shipping Management Plan.\(^\text{37}\)

With the extension of highly protected areas under the new Zoning Plan 2003, the challenge was to meet the objectives of each of the newly designated zones whilst simultaneously increasing the size and number of designated ‘Shipping Areas’ throughout the Marine Park. Defining the boundaries of the designated Shipping Areas was a two-step process. First, a broad overview of existing use of the Region by ships was obtained by plotting three years of ship position reports for all ships navigating the Marine Park (see Figure 6.2 of the Appendix to this thesis).\(^\text{38}\) Second, a series of workshops with experts from the shipping industry and government helped ascertain the most appropriate boundaries for the new Shipping Areas.

The placement of the boundaries was guided by considerations relating to infrastructure issues such as the plans to expand particular ports; environmental considerations such as proximity to sensitive marine resources and habitats; administrative issues relating to


\(^{38}\)The data was based on a subset of data from REEFREP reports for the period 2000 to 2003; information identifying individual ships was not provided for privacy reasons.
the existing and proposed zoning; and navigational issues. In respect of the navigational issues, the designated Shipping Areas took into account preferred routes for ships, density of traffic, and channels customarily used for international navigation in the territorial sea and EEZ (only to the extent of the limit of the boundaries of the Marine Park), existing recommended tracks, and proposed new routes to allow for the full range of shipping operations and forecasted growth of the industry. In general, matters that related to the conservation values of any particular area were considered on equal terms with issues that could affect the safety of navigation in that area. For example, in adjusting the boundary of the shipping area in the vicinity of Princess Charlotte Bay to avoid the turtle breeding area adjacent to the Bay, it was important to consider the impact of moving the boundaries out into deeper water. This required consideration of the types of bioregions (both reefal and non reefal); whether the existing recommended tracks would traverse the proposed high conservation value zones (green zones); weighing up the impacts of the risk of an oil spill on inshore (tidal) marine flora and fauna versus an offshore coral reef and deepwater algae (*Halimeda* spp.) beds; and the implications of relocating ships into other areas of the Marine Park that could lead to conflict with other types of uses of that area (e.g., diving).

In the result, the Shipping Areas were extended to all of the newly acquired 28 coastal areas to the limits of port pilotage areas and approaches to the port so as to not obstruct the manoeuvrability of ships within port limits, and provide for the expansion of the port (even in shallow areas) not currently accessible by ships (see Figure 6.3 of the Appendix to this thesis). Under the former zoning schemes, 78 per cent of the Marine Park (268 286 square kilometres) was proclaimed as ‘General Use’, thus allowing most ships to navigate through most areas of the Marine Park (see Table 6.3 of the Appendix to this thesis). The areas available for the navigation of ships in these plans was further increased by designating Shipping Areas over several highly protected zones of the Marine Park (covering 2248 square kilometres or 0.65 per cent of area of

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39 Issues in respect of international navigational rights are discussed below.

40 Note however, that barges in excess of 50 metres in length may be considered a ‘ship’ for the purposes of the Zoning Plan and are capable of accessing shallow areas.

41 Names of General Use zones vary under different zoning plans declared for the five sections of the Marine Park.

the Marine Park) that coincided with the recognised shipping passages and recommended routes. In the amalgamated Zoning Plan 2003, the percentage of General Use zones decreased from 268 000 square kilometres to 117 000 square kilometres (34 per cent of the total area of the Marine Park), representing a significantly greater area that could not be used for the navigation of ships, including within the recommended shipping passages and routes. To counteract the net loss of areas within the Marine Park available for the navigation of ships, the size of the designated Shipping Areas was increased from 2248 to 163 000 square kilometres (47 per cent of the total area of the Marine Park). Thus, the total area of the Marine Park available for the navigation of ships has remained consistent under both the previous and current Zoning Plan 2003 (approximately 80 per cent of the area of the Marine Park). With the exception of some very small areas of the Marine Park, the majority of the areas outside of the designated Shipping Areas and General Use zones are essentially non-navigable areas, with much of those areas being unsurveyed or exposed reef areas. Aside from expanding the areas available for ships to navigate through the Marine Park, new legislative provisions were developed under the Zoning Plan 2003 for the purposes of emergency response, designation of temporary closure areas and ‘places of refuge’, conduct of salvage operations, and remediation and monitoring activities (see Table 6.4 of the Appendix to this thesis). The importance of these provisions for responding to a ship casualty or marine pollution event will be discussed in Chapter 8.

6.2.3. Shipping provisions under the Zoning Plan 2003

Shipping Areas that are designated in the General Use zones are indicative only and do not, by way of the Zoning Plan 2003, restrict the navigation of ships in those zones. Additional Shipping Areas may also be designated under the Great Barrier Reef Marine Park Regulations 1983 through the Governor-General’s regulation making powers under section 66 of the GBRMP Act, thus providing an alternative method for implementing many of the management arrangements provided for by ‘designated areas’. Subject to any limitations prescribed in the Great Barrier Reef Marine Park Regulations 1983 and the provisions in Part 5 of the Zoning Plan 2003 in respect of the

43 Zoning Plan 2003 s 5.1.
44 Part 4 of the Zoning Plan 2003 provides for three kinds of ‘Designated Areas’ within zoned areas: Shipping Areas, Special Management Areas and Fisheries Experimental Areas.
'Additional Purposes for Use and Entry' (with or without the permission of the GBRMPA), the amalgamated Zoning Plan 2003 allows ships to navigate through the Marine Park via General Use zones and the designated Shipping Areas. Ships requiring access to areas outside of the Shipping Areas, other than General Use zones, require a permit.

Permission may be obtained to access nearly all other areas of the Marine Park for special ‘one off’ activities (e.g. use of barges and dredges in port areas that are more than 50 metres in length) subject to the activity being consistent with the objectives of the particular zone. The GBRMPA must not grant a permission to enter or use, or carry on an activity that is not consistent with the purposes for which a zone is to be used, or may be used or entered, unless an assessment has been made of the likely impact on the Marine Park. During the assessment process, the GBRMPA is required to have regard for a number of matters including the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).

In the 30 years that the GBRMPA has been administering the Marine Park, several thousand permissions have been granted under the GBRMP Act and the Great Barrier Reef Marine Park Regulations 1983 for the activities of commercial and vessel based tourist operations, barges and cruise shipping. The permit itself may stipulate one or more conditions relating to an operation. Most decisions of the GBRMPA in relation

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46 GBRMP Act s 38B.
47 Zoning Plan 2003 s 4.1.3.
48 GBRMP Act s 32(6).
50 The permit assessment process considers inter alia the objective of the zone; the need to protect the cultural and heritage values held in relation to the Marine Park by the traditional inhabitants and other people; the likely effect of granting permission on future options for the Marine Park; the conservation of the natural resources of the Marine Park; the nature and scale of the proposed use in relation to the existing use and amenity, and the future or desirable use and amenity, of the relevant area and of nearby areas; and the likely effects of the proposed use on adjoining and adjacent areas and any possible effects of the proposed use on the environment and the adequacy of safeguards for the environment; Great Barrier Reef Marine Park Regulations 1983 r 74.
51 EPBC Act s 341(ZC).
52 See GBRMP Act s 66.
53 Great Barrier Reef Marine Park Regulations 1983 r 74(5).
to permissions (eg the grant, refusal, transfer, suspension, or revocation of a permission) are subject to internal reconsideration within the GBRMPA,\textsuperscript{54} and review by the Administrative Appeals Tribunal\textsuperscript{55} at the request of either the person who applies for the permission or a party whose interests are affected by the decision.\textsuperscript{56}

Part V of the GBRMP Act contains several provisions relating to the use of a zone by ships, the penalties of which can be significant.\textsuperscript{57} For example, under section 38M of the GBRMP Act, it is an offence for a ship to be operated in a zone where a ship is not permitted to be operated under the relevant zoning plan.\textsuperscript{58} This is a two-tiered offence provision - the first tier providing for a maximum penalty of 2,000 penalty units ($220,000) for a natural person and 10,000 penalty units ($1,100,000) for a body corporate, and the second tier being a strict liability offence with a maximum penalty of 500 penalty units ($55,000) for a natural person and 2,500 penalty units ($275,000) for a body corporate. Both the owner and the operator of the ship are potentially liable under the strict liability provision.

\textbf{6.2.4. Subordinate instruments relevant to shipping and vessel activities}

Whilst the Zoning Plan 2003 is the primary instrument for managing the multiple use objectives of the Marine Park, subordinate legislation in the form of management or site plans may prescribe more detailed or comprehensive management actions. This is usually achieved through a mix of statutory mechanisms and non-statutory policy based statements of management intent to inform decision making and park management programs and actions.\textsuperscript{59} To this end, management plans may be developed for areas where nature conservation values, cultural and heritage values, or scientific values are, or may be, threatened.\textsuperscript{60} Such areas may also be of special interest to community groups

\textsuperscript{54} Great Barrier Reef Marine Park Regulations 1983 r 185 and 186.

\textsuperscript{55} Great Barrier Reef Marine Park Regulations 1983 r 187.

\textsuperscript{56} Great Barrier Reef Marine Park Regulations 1983 r 185, 196 and 187.

\textsuperscript{57} See particularly sections 38A, 38M and 38MB of the GBRMP Act which provide the details of the zones permitted to be used by ships and permission requirements to be observed by ships.

\textsuperscript{58} GBRMP Act s 38M.


\textsuperscript{60} GBRMP Act s 39Y(a).
that have some form of title to an area (eg under Native title)\textsuperscript{61} or its resources or have some other special identification with the area or its resources.\textsuperscript{62} To date, five management plans have been developed for the Marine Park,\textsuperscript{63} generally in response to the excessive resource demands for managing increasing use of those areas under the GBRMPA permission (permits) system (see Figure 6.4 of the Appendix to this thesis).\textsuperscript{64} These plans complement the statutory and regulatory foundation provided by the GBRMP Act for managing use of those areas but do not otherwise affect any requirement of the Zoning Plan 2003.\textsuperscript{65}

With the exception of the Shoalwater Bay Management Plan, management plans are generally aimed at controlling vessel based tourism and cruise shipping operations. The Plans of Management establish a range of settings, restricting the level of use within the areas covered by the plans to ensure the ‘carrying capacity’ or ecologically sustainable use of those areas is not exceeded. Examples of regulatory actions stipulated within the plans include limits on the number of permitted moorings at a site; restricted discharge areas;\textsuperscript{66} speed limits;\textsuperscript{67} group size limits aboard individual ships, vessels or aircraft;\textsuperscript{68} limits on excessive noise to minimise the risks of disturbing nesting or roosting seabirds;\textsuperscript{69} limits on anchoring practices; designated anchorage areas;\textsuperscript{70} preferred navigation routes and (voluntary) vessel transit lanes;\textsuperscript{71} and best practice guidelines for

\textsuperscript{61} Under section 1.7(3) of the Zoning Plan 2003, nothing in the Great Barrier Reef Marine Park Zoning Plan 2003 is intended to extinguish any native title rights and interests or affect the operation of section 211 of the Native Title Act 1993 (Cth).

\textsuperscript{62} GBRMP Act s 39V.


\textsuperscript{64} See also P McGinnity & A Williams, 1994, pp. 2-6.

\textsuperscript{65} Zoning Plan 2003 s 1.7(2)(a).

\textsuperscript{66} See, eg, Cairns Area Plan of Management 2004 s 1.15.

\textsuperscript{67} For example, vessel speed is limited to 6 knots within the Hinchinbrook Plan of Management area as well as in the Low Island and Michaelmas Cay localities.

\textsuperscript{68} See, eg, Cairns Area Plan of Management 2004 s 1.14.

\textsuperscript{69} See, eg, Cairns Area Plan of Management 2004 s 1.15.

\textsuperscript{70} See, eg, Cairns Area Plan of Management 2004 s 2.4.

\textsuperscript{71} For example, vessel speed is limited to 25 knots through the ‘transit lane’ and 10 knots over seagrass areas under the Hinchinbrook Plan of Management to protect dugongs in these areas.
approaching marine wildlife.\textsuperscript{72}

Some sites (within or outside of the areas covered by the plans of management) are of such importance that more detailed management arrangements or ‘site plans’ are necessary to identify and protect the natural and cultural resources of those areas. To date, ten such plans have been developed within the Marine Park.\textsuperscript{73} In keeping with the obligations to preserve the GBRWHA, access may be restricted to ship, vessel or aircraft operations that do not disturb the values of those areas. Provisions under the zoning schemes of Queensland\textsuperscript{74} and the development of dedicated anchorage areas for cruise ships,\textsuperscript{75} support these arrangements.

\subsection*{6.2.5. Cruise ship access to the Marine Park post Zoning Plan 2003}

Once the Zoning Plan 2003 was completed, it became apparent that cruise ships could no longer enter and exit the Reef using the main shipping passages or access the designated cruise ship anchorages located within the Marine Park unless permitted to under the conditions of their individual permits. Aware of the potential delays that could result from the process of applying for a new permit (or changing the conditions on an existing permit) to access such areas, one of the pilotage providers that service the Reef, in consultation with several cruise companies, requested the GBRMPA to consider granting permanent access to 32 additional routes and areas (to become known as ‘cruise ship transit corridors’) outside the designated Shipping Areas for the purposes of sightseeing and waste discharge.\textsuperscript{76} At the same time, an Australian government ‘white paper’ pressed for a ‘whole of government’ approach to remove all impediments to the

\textsuperscript{72} See, eg, Whitsundays Plan of Management 2002 pt 1, div 2, s 1.7(2)(e).
\textsuperscript{73} Sites plans have been prepared for: Raine Island, Moulter Cay, MacLennan Cay, Low Isles (offshore from Port Douglas), Clump Point (Mission Beach), Cairns Area Plan of Management, Horseshoe Bay (Magnetic Island), Blue Pearl Bay (Hayman Island), Bauer Bay (South Molle Island), Fitzroy Reef, Lady Elliot Island Reef and Lady Musgrave Island Reef; \texttt{<http://www.gbrmpa.gov.au/corp_site/management/site_management.html>} viewed 21 April 2006.
\textsuperscript{74} See, eg, the Marine Parks (Great Barrier Reef Coast) Zoning Plan 2004, Marine Parks Regulation 1990 (Qld) and Nature Conservation Act 1992 (Qld).
\textsuperscript{76} See Chapter 7 for details of waste management on cruise ships.
growth of the cruise shipping industry.\textsuperscript{77} Concurrently, there has been a strong emphasis by both the Queensland and Australian governments to meet those obligations under Article 4 of the WHC that relate to the ‘presentation’ of the values of the GBRWHA by creating financial incentives and removing regulatory barriers to attract foreign cruise ships to Australia, and particularly to Queensland.\textsuperscript{78} This lead the GBRMPA to work closely with the cruise industry and other ship regulatory authorities to explore use and access opportunities in the Marine Park under the GBRMP Act and the GBRMPA cruise shipping policy.\textsuperscript{79} As a result of that process, the GBRMPA reviewed and revised the GBRMPA cruise shipping policy; established additional cruise ship anchorages in the Marine Park, conducted a strategic assessment of cruise ship operations; and considered options to further regulate the use and access provisions of cruise ships in the form of ‘cruise ship corridors’.\textsuperscript{80} It is this latter exercise that is of interest to this analysis.

Consideration of the cruise ship corridor concept commenced with the formation of a technical committee comprising the ship regulatory authorities, Australian Reef Pilots and the Australian Hydrographic Office. To minimise the potential liability for accidents arising from designating cruise ship transit corridors, the committee appraised a range of issues relating to safety of navigation, vessel traffic and the quality of hydrographic survey associated with the proposed corridors. Initially, the technical committee recommended that 18 of the 32 cruise ship ‘transit corridors’ should be considered as safe for navigation, but that some corridors should be subject to more

\textsuperscript{77} The \textit{Revised action plan for the development of the Australia-Pacific cruise industry 2006} provides actions for both industry and government to implement to grow cruise shipping in Australia including exempting cruise liner trades from certain provisions of the \textit{Navigation Act 1912} in respect of cruise ships in excess of 5000 gross registered tonnage capable of a speed of at least 15 knots and of carrying 100 passengers; see \textit{Revised action plan for the development of the Australia-Pacific cruise industry 2006}, prepared by the Tourism Division of the Department of Industry, Tourism and Resources in consultation with Government and cruise shipping industry stakeholders, March 2006, <http://www.industry.gov.au/assets/documents/trinternet/RevisedActionPlanForAustralianCruiseIndustry200620060413120440.pdf> viewed 7 December 2006.

\textsuperscript{78} See also WHC art 4.


stringent navigational requirements. However, further consultations with other government agencies and interest groups considered that several of these corridors should not be used by cruise ships, primarily because of the potential conflicts with the use settings under the various area and site plans of management, as well as the potential impacts on amenity and traditional and cultural heritage values held by Indigenous Australians.

In the result, only nine transit corridors were made available to the cruise ship industry through amendment to the Schedules of their cruise ship permits to allow the boundaries of the existing corridors to be easily amended or new corridors to be assessed on a case-by-case basis and added to the permit. Hosting of the cruise ship transit corridors in other regulatory instruments such as the Zoning Plan 2003 was also considered but not adopted because of the difficulties of withdrawing such areas via legislative amendment. The conditions of the permit also refer to the AMSA safety requirements and the need to comply with the ‘Pilot Advisory Notes’, written especially for cruise ship operations in such areas. Figure 6.5 of the Appendix to this thesis shows the cruise ship transit lanes and cruise ship anchorages in relation to the designated Shipping Areas.

6.3. Consideration of international law obligations

The GBRMPA is obliged to ensure the Zoning Plan 2003 does not authorise an act or omission that would, apart from the plan, contravene an obligation of Australia under international law or the object of the GBRMP Act, the Great Barrier Reef Marine Park Regulations 1983 or a plan of management. Those objects are those that do not relate

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81 Includes situations where a particular corridor is affected by severe winds, coastal erosion or cyclonic activity.


83 Under this option, the Shipping Areas would be extended through amendment to the Great Barrier Reef Marine Park Regulations 1983 with the use of such areas restricted to a particular type of ship, in this case a cruise ship. Alternatively, the cruise ship transit corridors could be declared as ‘Special Management Areas’ under the Zoning Plan 2003, however, such measures are essentially a temporary measure and would not provide the certainty required by the shipping industry in the longer term.

84 These are not published but were incorporated into GBRMPA’s internal permit management guidelines.

85 Zoning Plan 2003 s 1.7(2)(c).
inter alia to the ‘establishment, control, care and development of a marine park in the
Great Barrier Reef Region’ or that exclude the exercising of ‘any other relevant power’
that are within the legislative powers of the Australian Parliament including ‘external
affairs’, and ‘trade and commerce with other countries’.86 In this context, there is the
potential for the use and access provisions under the Zoning Plan 2003 to affect trade
with Australia, or alter the rights to use traditional routes, which could be beneficial to
some types of vessels and detrimental to others. This could occur, for example, where
the rights of foreign flagged vessels to navigate within the Marine Park through the
various maritime zones under international law87 are in some way diminished; or if
foreign ships are subject to discrimination through having to meet different sets of
obligations in each zone; or where the zoning scheme itself has not been properly
promulgated.

6.3.1. Navigational rights of ships in internal waters

Internal waters in the context of the LOSC are the waters landward of the baseline of the
territorial sea.88 These waters enclose ports, lakes, lagoons, estuaries, bays and rivers
adjacent to the mainland of the Marine Park. Under the Zoning Plan 2003, 26 000
square kilometres (54 per cent) of the internal water areas89 of the Marine Park were
declared as either Shipping Areas or General Use Areas.

The LOSC provides Australia with full sovereignty over its internal waters,90 providing
unrestricted prescriptive jurisdiction over the navigation of foreign vessels, except for
those areas that have become ‘internal’ through the use of straight baselines.91 In such
cases, ‘a right of innocent passage as provided in this [LOSC] Convention shall exist in

86 See GBRMP Act s 5(1).
87 Those maritime zones of relevance to the navigation of a vessel in the Marine Park include internal
waters, the territorial sea and exclusive economic zone. The contiguous zone is considered to be part of
the EEZ in regard to matters relating to navigation and is not applicable to the analysis.
88 LOSC art 8(1).
89 These are waters landward of the baseline of the territorial sea; see LOSC 8(1).
90 LOSC arts 2(1) and 8(1)
91 LOS art 8(2); EJ Molenaar, Coastal State jurisdiction over vessel-source pollution, Kluwer Law
those waters.’”92 There are several areas of the Marine Park enclosed by straight baselines proclaimed under the *Seas and Submerged Lands Act 1973* (Cth).93 Nonetheless, the Shipping Areas and General Use zones established under the Zoning Plan 2003 provide for a right of innocent passage for foreign ships navigating in those waters,94 whether enclosed or not by internal baselines, and thus were considered to have no effect on the innocent passage of ships in those areas.

### 6.3.2. Navigational rights of ships in the territorial sea

The territorial sea of Australia is a belt of sea not exceeding 12 nautical miles in width measured from the territorial sea baseline.95 Australia’s sovereignty extends to the territorial sea, its seabed and subsoil, and to the air space above it.96 Under Article 21(1)(d) of the LOSC, a coastal State may prescribe laws and regulations in the territorial sea in conformity with the provisions of the LOSC and other rules of international law including for ‘the conservation of the living resources of the sea,’ but which do not have the practical effect of denying or impairing the right of innocent passage.97

That ships of all States have the right of ‘innocent passage’ within the territorial sea is provided by Article 17 of the LOSC.98 The regime of innocent passage in the territorial sea is set out in Part II (section 3) of the LOSC and includes a list of activities that would preclude a passage as being considered ‘innocent’.99 The term ‘passage’ is defined under Article 18 *inter alia* as navigation through the territorial sea for the purpose of ‘traversing that sea without entering internal waters or calling at a roadstead or port facility outside internal waters’ or ‘proceeding to or from internal waters or a

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92 ibid.
94 The right of port States to set conditions for entry into ports and the right of foreign vessels to access ports is discussed in Chapter 8.
96 LOSC art 2(2).
97 LOSC arts 24(1)(a) and 211(4).
98 LOSC art 17.
99 LOSC art 19.
call at such roadstead or port facility.\textsuperscript{100} Passage is to be continuous and expeditious, but may include anchoring and stopping if this is incidental to ordinary navigation; rendered necessary by force majeure or distress; or for the purpose of rendering assistance.\textsuperscript{101} Ships that are ‘cruising’, ‘hovering’ or merely ‘lying’ in’ the territorial sea cannot claim their passage to be innocent.\textsuperscript{102}

As an instrument that is primarily concerned with the conservation and management of the Marine Park,\textsuperscript{103} the Zoning Plan 2003 could be considered a legitimate application of Article 21(1)(d) of the LOSC that principally provides a coastal State with the capacity to make laws for the ‘conservation of the living resources of the sea’.\textsuperscript{104} Article 21(1)(a) of the LOSC is also relevant to the provisions within the Zoning Plan 2003 concerning the navigation of ships as it provides coastal States with the capacity to prescribe laws for ‘the safety of navigation and the regulation of maritime traffic’.\textsuperscript{105} However, whether Article 21 allows coastal States to outlaw the passage of ships within the entire territorial sea is uncertain.\textsuperscript{106} Shipping Areas constructed within the Zoning Plan 2003 are intended to facilitate and provide ‘certainty of access’ for shipping through the Marine Park.\textsuperscript{107} To this end, 71 000 square kilometres (47 per cent) of the territorial sea areas of the Marine Park\textsuperscript{108} were declared as either Shipping Areas or General Use Areas under the Zoning Plan 2003. The making available of a considerably large area for the navigation of ships is also in conformity with one of the objects of the GBRMP Act, namely maintaining a capacity for Australia to trade and conduct commerce with other countries.\textsuperscript{109}

\textsuperscript{100} LOSC art 18(1).
\textsuperscript{101} LOSC art 18(2).
\textsuperscript{103} Zoning Plan 2003, p. 1.
\textsuperscript{104} LOSC art 21(1)(d).
\textsuperscript{105} LOSC art 21(1)(a).
\textsuperscript{107} See Preface to the Zoning Plan 2003, p. 5.
\textsuperscript{108} This estimate excludes the areas of the internal waters and EEZ areas of the Marine Park.
\textsuperscript{109} GBRMP Act s 5(1)(f).
Because of the nexus between navigational safety and environmental protection, it could be argued that the Shipping Areas are more connected to the safety of navigation, rather than the prohibition or regulation of navigation. Indeed, it has been suggested that the obligation of a coastal State under Article 21(1)(a) to provide for the safety of navigation is much stronger in some high conservation value biomes (eg reefs) that are themselves dangerous for vessels (eg due to being located in areas of strong currents). To facilitate the movement of ships through such areas, Article 22(1) of the LOSC permits coastal States to require foreign ships exercising the right of innocent passage to use prescribed sea lanes and traffic separation schemes. As ‘environmental protection’ has now been specifically incorporated in the International Convention for the Safety of Life at Sea 1974 (SOLAS) regulations on ships’ routeing and endorsed by IMO, coastal States can legitimately exercise their power under the LOSC by establishing routeing measures for environmental reasons.

Although the designated Shipping Areas broadly demarcate where a ship’s master or pilot can elect to navigate, and not a form of recommended route, they should not be regarded as a routeing measure per se as these areas do not guarantee, or necessarily relate to, the safety of a ship. Conversely, the General Provisions on Ships’ Routeing define a routeing system as any system of one or more routes or routeing measures aimed at reducing the risk of casualties. Thus, while a Shipping Area is not a route per se, it may be considered a form of routeing measure. Under the General Provisions on Ships’ Routeing, routeing measures should not impose unnecessary constraints on shipping. However, in designating routeing measures or areas within the territorial sea under Article 22(1), Australia is not obliged to obtain prior approval of the IMO but must take into account any recommendations of the IMO and channels customarily used by international shipping, any special characteristics of particular ships, and the density

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111 LOSC art 22(1).
112 SOLAS V reg 10(1).
113 See LOSC arts 22(2), 22(3), 41 and 211(6).
114 See also F Spadi, 2000, p. 290.
115 General Provisions on Ships’ Routeing pt A.
116 See General Provisions on Ships’ Routeing, para 3.7.
of traffic to ensure the free movement of shipping.\textsuperscript{117} On this basis, it seems that proposals for ships routeing in the territorial sea can exist under the LOSC without having to be referred to, and subsequently approved by, the IMO.\textsuperscript{118}

Another issue considered during the rezoning process was the effect, or potential effect, of the zoning scheme on the use of anchorages in the Marine Park. Suitable anchoring areas within close proximity to the lee of islands and reefs may need to be accessed by ships on occasion for various reasons to take shelter, undertake temporary repairs or land a sick crew member. While trading ships will generally navigate or transit the Marine Park as quickly as possible for commercial reasons, the LOSC provides that a vessel may legitimately anchor in another States territorial sea where the anchoring of a ship is an incident of ordinary navigation and a legitimate part of the right of innocent passage, and for emergency purposes as discussed previously. The requirement to anchor a ship occasionally is provided for under the Zoning Plan 2003, because \textit{to navigate} also means to moor, or anchor, in the course of navigation.\textsuperscript{119} However, ships can normally only navigate in the designated Shipping Areas and the General Use zones,\textsuperscript{120} but not in any other zone of the Marine Park without permission of the GBRMPA.\textsuperscript{121} Other vessel types (but not ships) can navigate and anchor without permission in all zones of the Marine Park except for Special Management Areas and Preservation Zones if the vessel being navigated is accessing an area that forms part of Queensland, and any equipment normally used for fishing is stowed or secured.\textsuperscript{122}

The areas available for anchoring are generally located in the territorial sea and published by the International Hydrographic Office as ‘Sailing Directions’. The Admiralty Sailing Directions\textsuperscript{123} for the Region recognises 98 anchorages in the Marine

\textsuperscript{117} LOSC art 22(3).
\textsuperscript{118} See also F Spadi, p. 285-302.
\textsuperscript{119} Zoning Plan 2003, Dictionary, s 1.5.
\textsuperscript{120} See generally part 5 of the Zoning Plan 2003.
\textsuperscript{121} These other zones are the Habitat Protection Zone, Conservation Park Zone, Buffer Zone, Scientific Research Zone, Marine National Park Zone, Preservation Zone and Commonwealth Islands Zone.
\textsuperscript{122} Zoning Plan 2003 pt 2, s 2.8.3 and pt 4 s 4.2.1.
\textsuperscript{123} The Admiralty Sailing Directions provide general advice on sailing conditions; see <http://www.ukho.gov.uk/notices_to_mariners.html> viewed 14 March 2006.
Park (see Figure 6.6 of the Appendix to this thesis). These are in addition to the 30 cruise ship anchorages declared for the Marine Park by the GBRMPA. Compiled from best available information, the Admiralty Sailing Directions are generally intended for use by vessels of 12 metres or more in length. They are kept up to date every three years and corrections are published in the Admiralty Notice to Mariners. While most ships can access most areas of the Marine Park, 43 of those anchorages are outside of the designated Shipping Areas and General Use zones but within the territorial sea (in the vicinity of major ports) and are mostly used by ships less than 50 metres in length. Nonetheless, the exclusion of such areas could contradict the rights foreign ships have to anchor in the territorial sea, unless the anchorage is located in a port and access is granted to the anchorage as a condition of port entry.

A further issue concerns the notion of whether the Zoning Plan 2003 has hampered innocent passage of foreign ships in the territorial sea. The term ‘hamper’ is not defined in the LOSC but Article 24(1)(a) of the LOSC implies that it includes impairing or denying the right of innocent passage. In practice, the degree of impairment under the Zoning Plan 2003 will depend upon the specific aspects of navigation and anchoring practices, the purposes those practices serve including whether the provision is ‘incidental to ordinary navigation’ pursuant to Article 18(2) of the LOSC, as well as the size of the areas precluded from anchoring. In principle, if innocent passage were rendered non-continuous or non-expeditious by a particular requirement under the Zoning Plan 2003 that resulted in the prohibition of anchoring carte blanche within the territorial sea areas of the Marine Park, it would be arguable that such a requirement could be deemed as impairing innocent passage. Ultimately, however, the arbiter of

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124 United Kingdom Hydrographic Office, *Australia pilot*, 7th edn, vol. III, East coast of Australia from North Head to Cape York, including Great Barrier Reef, islands and reefs of Coral Sea, Great North East Channel, Torres Strait and the south coast of Papua New Guinea between South Cape and the meridian of 141°00'E, 2002.


126 LOSC arts 18(2) and 211.


128 See LOSC arts 24(1) and 211(4).

whether passage has been impaired or not is the courts, international tribunal or the
IMO (depending on the circumstances). At the very least, it would be prudent to amend
the Admiralty Sailing Directions in order to advise mariners intending to navigate
within the Marine Park of the availability of anchorages for vessels over 50 metres in
length for reasons other than an emergency situation.

6.3.3. Navigational rights of ships in the EEZ

The EEZ is an area beyond and adjacent to the territorial sea,130 not extending more than
200 nautical miles from the baseline131 and is defined in Australia by the *Seas and
Submerged Lands Act 1973*.132 The powers of a coastal State in its EEZ are set out in
Parts V, XII & XIII of the LOSC. Coastal States have sovereign rights in regard to the
natural resources of the seabed, its subsoil and superjacent waters and jurisdiction *inter
alia* to protect and preserve the marine environment,133 providing those rights are
exercised in a manner consistent with the LOSC.134 All States enjoy the freedom of
navigation in the EEZ and other internationally lawful uses associated with the
operation of ships,135 although the terms ‘navigation’ and ‘freedom of navigation’ are
not defined.

Under the Zoning Plan 2003, 117 000 square kilometres (80 per cent) of the EEZ areas
of the Marine Park136 were declared as either Shipping Areas or General Use Areas.
While much of the areas within the remaining 20 per cent are not navigable by ships
(consisting largely of the outer shelf barrier reef complexes), there is a possibility that
these ‘non navigable’ areas could impact on the freedom of navigation that foreign ships
enjoy in the EEZ.137 These concerns, however, must be balanced by the rights of coastal

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130 LOSC art 55.
131 LOSC art 57.
132 The outer limit of the Australian EEZ is set out in the Proclamation under the *Seas and Submerged
proclamation entered into force on 1 August 1994.
133 LOSC arts 56(1)(a) and 56(1)(b)(iii).
134 LOSC art 56(2).
135 LOSC art 58.
136 This estimate excludes the areas of internal waters and territorial sea areas of the Marine Park.
137 LOSC art 58.
States relating to the conservation and management of their natural resources in the EEZ established in Article 56 of the LOSC138 and whether that right extends to the designation of sea lanes.139 In this context, Article 211(1) of the LOSC is relevant as it allows international navigational standards, such as routeing measures ‘designed to minimise the threat of accidents which might cause pollution of the marine environment’ to be prescribed with IMO approval.140

Of potential relevance to the protection of the Reef using a zoning scheme is the definition of ‘natural resources’ under Article 56(1)(a). The ‘natural resources’ referred to in Article 56 are not defined but, by implication, include the water column, seabed and subsoil. It is however, doubtful as to whether the biodiversity that the Zoning Plan 2003 is designed to protect is specifically referred to in Articles 56 of the LOSC. According to Article 68, Part V of the LOSC (which relates to the EEZ) does not apply to ‘sedentary species,’141 that is, organisms which either are immobile on or under the seabed,142 much of which account for the type of organisms that inhabit the Reef. While this does not necessarily mean that ‘sedentary species’ are not ‘living resources’, it does mean that none of the extensive conservation or resource-sharing provisions in Part V of the LOSC aimed at living resources apply to sedentary species. That said, it is possible that Part XII of the LOSC relating to the protection and preservation of the marine environment, particularly Article 194(5) provide the scope to enable, or indeed require, a coastal State to protect and preserve the sensitive ecosystems and habitats of the Reef that are within the EEZ. Subject to Article 194(4) of the LOSC which provides that States should refrain from unjustifiable interference with activities carried out by other States in their exercise of their rights, Article 194(5) could be interpreted as a free-standing power to protect fragile ecosystems and habitats comprising the Reef, and may be capable of being exercised independently of other measures under Part XII of the LOSC. However, it is not clear if the power is claimed as part of the jurisdiction to protect and preserve the marine environment of the EEZ from pollution specific

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138 LOSC art 56(1)(a).
140 LOSC art 211(1).
141 LOSC art 68.
142 LOSC art 77(4) to which art 56 refers.
damaging activities, or whether it also provides a power to regulate any activity that threatens those ecosystems or habitats, subject to limits on such regulation imposed by the LOSC. Given that the Zoning Plan 2003 is primarily concerned with the regulation of the spatial use of the marine environment, it is unlikely that the powers under Article 194 would provide the basis for a broad range of actions outside of generally accepted international standards to protect the Marine Park from pollution.

Another potential legal avenue that Australia could pursue to have zoning recognised as a measure to exclude shipping from at least a part of the EEZ is through the use of routeing systems under Chapter V of SOLAS,143 conferred under the jurisdiction of Article 211(1) of the LOSC. As discussed earlier in this Chapter and in Chapter 5, the relevant instrument that deals with routeing systems for the protection of environmentally sensitive areas under the International Convention for the Safety of Life at Sea 1974, as amended (SOLAS) is the General Provisions on Ship’s Routeing.144 Routeing measures include traffic separation schemes, two way routes, recommended tracks, Areas to be Avoided, inshore traffic zones, roundabouts, precautionary areas and deep water routes,145 but not MPAs or conservation zones which may not coincide with safe navigational features of shipping routes nor take into account such factors as depth, tides, vessel type, draught and load.146 On that basis alone, the Zoning scheme would not qualify as a form of routeing measure and could not be considered a legitimate tool to control navigation in the EEZ areas of the Marine Park. There are, however other instances of States developing unilateral legislation in respect of designating marine areas beyond their territorial seas.147 An example of such State practice occurred in the United States when they declared the Flower Garden Banks National Sanctuary off Texas and Louisiana.148 In that case, the United States contended that the regulations

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143 See particularly SOLAS Chapter V/8.
145 See General Provisions on Ships’ Routeing pt A.
146 The Shipping Areas and General Use zones marked on the zoning maps ‘are not to be used for navigational [position fixing] purposes’ under the Zoning Plan 2003.
147 These include Bangladesh, Canada, Estonia, Russia, United States and Sri Lanka; cited in EJ Molenaar, Coastal State jurisdiction over vessel-source pollution, Kluwer Law International, De Haag, 1998, p. 418.
were resource motivated and were not pollution measures falling within the restrictions of Article 211 of the LOSC.\footnote{A Tan, \textit{Vessel-source marine pollution}, Cambridge University Press, New York, 2006, p. 223.} Further, in recognising the apparent or perceived bias of the LOSC in favour of the rights of navigation of flag State ships, some commentators have argued that coastal States should be allowed to adopt their own national measures to protect their resources in the EEZ, but only where there is strict joint consultation of such proposals between the coastal State and the IMO.\footnote{See, eg, A Tan, \textit{Vessel-source marine pollution}, Cambridge University Press, New York, 2006, p. 224.}

Regardless of the relationship between the Shipping Areas and the nature of ship routeing systems under SOLAS, it seems that the zoning scheme could affect the ‘navigational practices’ of ships using the Marine Park and that the Australian Government should have submitted the Zoning Plan 2003 to the IMO for its endorsement as a ‘special’ measure in accordance with Article 211(6) of the LOSC. As this has not occurred, there is some doubt as to whether the zoning scheme within the EEZ is authorized under international law \textit{vis a vis} the LOSC.

\subsection*{6.3.4. Non-discrimination in standard setting for different vessel types}

It is important not to violate the principle of non-discrimination under the LOSC by ascribing discriminatory provisions on some types of vessels and not others.\footnote{See, eg, LOSC arts 24(1)b and 25(3).} Those provisions provide that the coastal State shall not discriminate in form or in fact against the ships of any State on innocent passage through the territorial sea, or against ships carrying cargoes to, from or behalf of any other State.\footnote{LOS C art 24(1)(b).} The condition of non-discrimination has been observed as embracing not only the principle of national treatment but also the principle of equal treatment among foreign vessels.\footnote{See The \textit{United Nations Convention on the Law of the Sea: a commentary}, MH Nordquist (ed.), Martinus Nijhoff Publishers, Dordrecht, The Netherlands, 1991, p. 396.} Thus, while a coastal State must not, for example, impose stricter standards on foreign vessels than its own-flagged vessels, the principles of non-discrimination could be important for the navigation of a ship through the Marine Park whereby different provisions could apply to different types of cargo ships under the Zoning Plan 3003 merely because of the way
that ship is identified or flagged. It follows that while a foreign vessel or ship would not in principle be prevented from undertaking innocent passage, the prescription of different vessel or ship length and tonnage requirements, for example, could have an effect on the generally accepted construction, design, equipment and manning standards specifically and inadvertently exclude those ships from some areas of the Marine Park.

There is no singularly accepted or uniform definition of ship or vessel in the international, Commonwealth or state legislation; the definitions vary widely such as under MARPOL where it can mean ‘any vessel of any type whatsoever operating in the marine environment’ to a definition according to the perceived functions of the vessel. For example, SOLAS defines a ship on the basis of whether or not it is carrying passengers. Meanwhile, the Shipping Registration Act 1981 (Cth) and the Navigation Act 1912, identifies a ‘ship’ to mean a floating craft that is used for navigation on water. The TOMSA also refers to a vessel as ships that are capable of being navigated, however propelled but only to the extent that the ship is on an interstate voyage while they are in Queensland waters and to all ships on overseas voyages while they are in Queensland waters.

Within the GBRMP Act and its subordinate legislation there are several meanings of

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154 Construction, design, equipment and manning standards have been laid down in nearly all of the maritime conventions and are aimed at preventing and reducing vessel-source pollution by ensuring adequate quality of the vessel, the equipment it carries and of the crew by which it is operated; EJ Molenaar, Coastal State jurisdiction over vessel-source pollution, Kluwer Law International, De Haag, 1998, p. 23.

155 MARPOL art 2(4).

156 For example, SOLAS part A, regulation 2 defines a cargo ship as ‘any ship that is not a passenger ship’ and a passenger ship is ‘a ship that carries more than 12 passengers.’

157 For example, the Shipping Registration Act 1981 section 3(1) defines a ship as ‘any kind of vessel capable of navigating the high seas’ including a barge, lighter or other floating vessel; a structure that is able to float or be floated and is able to be moved as an entity from one place to another; or an air cushion vehicle or similar craft, used wholly or primarily in navigation by water.’ The Navigation Act 1912 section 3(1) defines a ‘ship’ as ‘any kind of vessel used in navigation by water, however propelled or moved’, and includes a barge, lighter or other floating vessel; an air cushion vehicle, or other similar craft, used wholly or primarily in navigation by water or; an offshore industry mobile unit.

158 TOMSA sections 12(1) and 11(1) defines a ship as ‘any kind boat or other vessel used or, for a boat or other vessel being built, intended to be used, in navigation by water or for any other purpose on water; whatever its size; and however it is propelled or moved.’

159 See TOMSA s 12(1) and 11(1).
vessels and ships. Partly due to the different periods over which the previous five zoning plans were developed for the Region, a ‘ship’ was either defined as ‘a vessel over 70 metres in overall length’\textsuperscript{160} or ‘a vessel of 1500 gross tonnage.’\textsuperscript{161} Therefore, a vessel less than 70 metres in overall length but over 1500 gross tonnage travelling from one management area of the Marine Park to another could potentially require a range of different permissions to access those areas or conduct certain activities in those areas.

To ensure that all of the ship regulatory authorities could identify ‘ships’ consistently across the Region, including within the Commonwealth and state areas of the Marine Park, a new definition of a ‘ship’ was adapted from REEFREP and incorporated into the Great Barrier Reef Marine Park Regulations 1983\textsuperscript{162} to mean a class of vessel\textsuperscript{163} that is:

\begin{enumerate}
\item[(a)] 50 metres or more in overall length; or
\item[(b)] an oil tanker (within the meaning given by the Protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships, 1973), regardless of its length; or
\item[(c)] a chemical carrier or liquefied gas carrier, regardless of its length; or
\item[(d)] a ship to which the INF Code applies,\textsuperscript{164} regardless of its length; or
\item[(e)] a vessel that is adapted to carry oil or chemicals in bulk in cargo spaces; or
\item[(f)] a vessel engaged in towing or pushing another vessel or vessels if any of paragraphs (a) to (e) applies to the towed or pushed vessel, or the total length of the tow, from the stern of the towing vessel to the after end of the tow, is greater than 150 metres; but does not include:
\item[(g)] a vessel of the Defence Force; or
\end{enumerate}


\textsuperscript{162} The new definition of ship was contained in the \textit{Great Barrier Reef Marine Park Regulations 1983}, rather than the GBRMP Act so that the definition could be easily amended.

\textsuperscript{163} The GBRMP Act s 3(1) defines a vessel to mean ‘a ship, boat, raft or pontoon or any other thing capable of carrying persons or goods through or on water, and includes hovercraft.’

\textsuperscript{164} The INF Code is the ‘International Code for the Safe Carriage of Packaged Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive Wastes on Board Ships’. The Code has effect under Chapter VII of SOLAS.
(h) a vessel of the armed service of another country, if the vessel is in Australian waters with the consent of Australia; or

(i) a super-yacht (that is, a vessel more than 50 metres in overall length used for private recreational activities).  

However, the GBRMP Act also contains a definition for a class of ‘ship’, known as a regulated ship. Under the GBRMP Act, a regulated ship means ‘any kind of vessel that is 70 metres or longer in overall length; or that is a loaded oil tanker; or chemical carrier; or liquefied gas carrier other than a vessel belonging to an arm of the Defence Force of Australia or to the naval, military or air forces of a country other than Australia; or a vessel in respect of which an exemption [from the requirement to navigate with a pilot in compulsory pilotage areas] under section 59F is in force’.  

Thus, ‘regulated ships’ are by definition 20 metres or longer than a ‘ship’ for the purposes of the Zoning Plan 2003, and while there is an inconsistency, both types of vessels are subject to the Zoning Plan 2003. It is only a regulated ship that is subject to the compulsory pilotage provisions when transiting the compulsory pilotage areas of the Marine Park.

A further area of inconsistency can be found in some of the plans of management developed for high use areas of the Marine Park, particularly the Cairns Area Plan of Management and Whitsunday Area Plan of Management. Within these plans, a ‘large vessel’ is defined to mean ‘any vessel with an overall length of more than 35 metres but not more than 70 metres’.  

There is therefore the potential for vessels larger than 50 metres (cruise ships, trading ships and superyachts), considered to be a ‘ship’ under the Zoning Plan 2003, to be excluded from a particular ‘setting’ within these areas on the basis of their length. However, as the management plans are subordinate legislation, the provisions of the Zoning Plan 2003 would prevail.  

The Zoning Plan 2003 does not prescribe a definition for ‘cruise ship’, as for previous

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166 GBRMP Act s 3(1).
167 See Cairns Area Plan of Management pt 1 s 14 and Whitsunday Area Plan of Management, Schedule.
168 See GBRMP Act s 39ZD(3).
zoning plans, but does provide for the definition of a ‘superyacht’. Under the Zoning Plan 2003, superyachts that are greater than 50 metres and ‘used for private recreational activities’ are specifically excluded from the definition of ‘ship’. This was a change from the earlier Far Northern Section Zoning Plan where ships, including superyachts greater than 70 metres in overall length required a permit to operate in ‘General Use B’ zones (the equivalent of Habitat Protection Zones) and above, regardless of whether the activities they were engaged in were of a recreational or commercial nature. It is also a departure from the non-statutory policy document, the Superyacht Guide to the Great Barrier Reef which takes a superyacht to ‘mean a vessel between 35 to 70 metres in overall length.’ There are currently at least six superyachts (over 50 metres in length) engaged in commercial activities with permits to operate in the Marine Park.

Common to all of the definitions of *ship* or *vessel* under the GBRMP Act and its subordinate legislation is length, use and passenger carrying capacity. These defining characteristics are particularly relevant in the context of an MPA as they can affect the setting of an area and the types of recreational opportunity experiences desirable for those areas, which range from intensive use to wilderness areas. Whether ships are carrying passengers may also be important if it is assumed that the passengers carried by those vessels will disembark at islands or reefs and put pressure on, or disturb the fauna and flora in those areas. Conversely, common to all of the definitions of ship or vessel under the *Navigation Act 1912* (Cth) or the *Transport Operations (Marine Pollution) Act 1995* (Qld) (TOMPA) is the method of navigation, and by implication, control or propulsion. However, in the context of regulating ships in a MPA what may be more important is the capacity of the ship or vessel to pollute or injure the marine environment. For example, vessels as little as 24 metres in overall length are

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169 Under the *Far Northern Section Zoning Plan*, a ‘cruise ship’ means ‘a ship engaged in the conduct of tourist program in accordance with a permission’.

170 *Great Barrier Reef Marine Park Regulations 1983* r 31(i).

171 Far Northern Section Zoning Plan, s 5.4(h).


173 Personal knowledge.

174 A ship has been interpreted to mean a vessel that is capable of undertaking a voyage under some form of control; C Hill, *Maritime Law*, 6th edn, Lloyds Practical Shipping Guide, Legal Books, United Kingdom, 2003, pp. 30-31.
capable of carrying more than 500 tonnes of heavy fuel oil and about 150 to 500 tonnes of cargo including product fuel. The benefits of the new definition of ship in the amalgamated Zoning Plan 2003 is that it helps to reduce the risks and impacts of a significant oil or chemical spill in the high conservation areas of the Marine Park from ships, coastal traders and barges less than 50 metres in overall length that are ‘adapted to carry oil or chemicals in bulk in cargo spaces’.

6.3.5. Promulgation of the zoning scheme

The LOSC requires that States which establish particular requirements for the prevention, reduction and control of pollution of their marine environment within ports or internal waters shall give due publicity to such requirements and communicate them to the IMO. Although the Shipping Areas under the Zoning Plan 2003 may not be considered to be a safety of navigation or ships’ routeing measure per se, the general obligations of SOLAS in requiring contracting Governments to communicate to the IMO the text of laws and regulations within the scope of the [SOLAS] Convention are relevant since masters and ship owners may liable for offences under the Zoning Plan 2003 where penalties of up to $220 000 may be incurred by the operators or owners of ships for unauthorised or non-permitted use of a zone. To maximise compliance with the scheme, the GBRMPA extensively promoted and distributed the Zoning Plan 2003 free of charge through its own media, as well as through the avenues available to the Australian Hydrographic Office and other government agencies.

177 LOSC art 211(3).
179 See, eg, GBRMP Act s 38M, 38MA and 38MB.
180 GBRMPA published a series of zoning maps at scales of 1:250 000 and 1:1 million respectively in hard copy, on their website and in electronic format for inclusion in Global Positioning System units and plotters. These were distributed free of charge to the public, ships chandlers, pilots, shipping companies and their agents; see GBRMPA, ‘Zoning Maps’, <http://www.gbrmpa.gov.au/corp_site/management/zoning/zoning_maps.html> viewed 26 May 2005.
181 Details of the zoning scheme and explanatory notes were published via Notice-to-Mariners, Annual Notices, Australia Pilot, Reef Guide and the Australian Seafarers Handbook.
As SOLAS requires all ships are to carry ‘adequate and up to date’ nautical publications and charts necessary for the intended voyage,\(^{182}\) the Australian Hydrographic Office\(^{183}\) amended the entire series of *Australian Navigational Charts* in hard copy and electronic format for the Reef to show the boundaries of the designated Shipping Areas, highly protected areas (Habitat Protection Zones and above), Environmentally Sensitive Sea Areas\(^{184}\) and the Particularly Sensitive Sea Area over the whole of the Marine Park to internationally agreed standards. As well as updating the charts, the chart-let notes were also amended to warn mariners that penalties apply to ships violating the requirements of the zoning scheme. These charts were sent to charting agents located within Australia and throughout the world as well as to the International Hydrographic Office for inclusion in their *Notice to Mariners*.\(^{185}\)

6.4. **Efficacy of zoning and issues affecting shipping**

Considering the volume of vessel and ship traffic within the Region, compliance with the new provisions under the Zoning Plan 2003 has to-date been exemplary. Since 1 January 2001, three offences have been recorded for ships navigating outside of Shipping Areas and General Use zones under section 38M of the GBRMP Act with the fines ranging from $10 000 to $15 000.\(^{186}\) Otherwise, there have only been a few suspected breaches of the Zoning Plan 2003 thus far and these have been dealt with by way of a warning letter or other correspondence with the ship or vessel owner or master.\(^{187}\)

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\(^{182}\) SOLAS Chapter V, reg 27.

\(^{183}\) In Australia, the collection and compilation of up-to-date hydrographic data, as well as publication and dissemination of relevant information for safe navigation is the role of the Australian Hydrographic Office; SOLAS Chapter V, reg 9.

\(^{184}\) Also known as ESSAs but not widely recognised as such in Australia.

\(^{185}\) An estimated 95 per cent of all ships entering Australian waters carry nautical paper charts supplied by the Australian Hydrographic Office or their agents; K Slade [Australian Hydrographic Office] pers. comm., 18 August 2004.


\(^{187}\) Personal knowledge.
Nonetheless, given that the Zoning Plan 2003 has only been in operation for a few years the full implications of the scheme has not been realised. Preliminary research has shown there have been some environmental and socioeconomic benefits for the Marine Park and its users. In general, this research has shown that commercial and non-commercial use values and ecosystem services of the Marine Park are likely to be enhanced by the rezoning process in the short, medium and long term, however, no formal studies have to-date been conducted on the direct benefits of the shipping provisions under the Zoning Plan 2003 per se.

6.4.1. Environmental benefits

Research has shown that because habitats, populations and species are allowed to function as a whole ecosystem, undisturbed in large areas of the Marine Park, fish are now up to 60 per cent more abundant on mid and outer shelf reefs closed to fishing since the Zoning Plan 2003 come into effect on 1 July 2004. In respect of shipping, it is expected that the greatest benefit of the Zoning Plan 2003 has been to reduce the impacts of propeller wash, noise and secretion of toxic antifoulant from the hull of ships as they transit through high value conservation areas of the Marine Park (closed to shipping) and by concentrating these contaminants in the shipping lanes (which tend to be deeper water areas).

The practice of allowing shipping to use routes or areas that have been set up for environmental purposes may also meet some of the broader obligations that a company has to its shareholders to meet certain international environmental management standards to compete in the global marketplace. Within Europe, for example, many

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189 ibid.


organizations gained ISO 9000 environmental certification to meet growing demands from customers, certification; a primary requirement for doing business in many regions or industries.\textsuperscript{192}

The new Shipping Areas could also reduce the risk of a grounding in the inter-reefal areas outside of the Shipping Areas as these areas are largely unsurveyed or poorly surveyed. Further, as the findings of a risk assessment, conducted in 1994 showed,\textsuperscript{193} re-routeing of shipping to more remote areas is not a reasonable risk control measure because of the increased threat of total catastrophic loss faced by shipping, the consequent potential for greater pollution and the difficulties in responding to a major pollution incident in such areas.\textsuperscript{194}

6.4.2. Socioeconomic benefits

The main benefits of the Zoning Plan 2003 for society and industry is that conflicting uses are separated and reasonable uses of the Marine Park are provided for in larger ecologically connected areas than that which existed previously. The amenity of an area may be further improved because ships are expected to avoid transiting areas that have important wilderness value or areas that have important cultural and heritage values. For example, the Zoning Plan 2003 contains a provision whereby a vessel cannot stay more than 14 consecutive days in the one vicinity or for more than 30 days in any period of 60 days, regardless of the type of zone.\textsuperscript{195} This gives the GBRMPA the ability to ensure that a vessel’s continued occupation of a location does not create use or amenity conflicts or create a potential environmental impact through, for example, concentrating the discharge of waste in one location, becoming derelict, sinking or dragging anchor and damaging other moored vessels which are in close proximity to that vessel.

\textsuperscript{192} See, eg, ‘International Standard ISO 14000 from the Quality Network’ <http://www.quality.co.uk/iso14000.htm#whyhave> viewed 2 December 2006.


\textsuperscript{195} See, eg, Zoning Plan 2003 s 2.2.4(j).
Whilst not necessarily a tangible benefit to a mariner on a ship and depending on the type of navigation system used on board the vessel, operators of other types of vessels may benefit from the revised method of describing zone coordinates. In previous zoning plans, the ‘metes and bounds’ used for boundary descriptions were based on a specified distance from geographic features such as the ‘reef edge’. However, in complex reefal systems and turbid water areas of the Reef, the exact location of the reef edge is difficult to locate from the deck of a vessel or ship. As this created problems for both the public and enforcement officers, the Zoning Plan 2003 adopted a coordinate-based system for describing zone boundaries. This approach uses points of latitude and longitude to define zone boundaries\textsuperscript{196} and has been integrated into modern navigational aids such as Global Positioning Systems, plotters and electronic navigational charts. The zoning was also compiled into an Electronic Digital Information System.\textsuperscript{197} Recent amendments to the SOLAS have meant that Electronic Digital Information Systems are now a ‘specially compiled database’\textsuperscript{198} that can be used on board ships without the need for paper charts.\textsuperscript{199} In addition, the Electronic Digital Information System is capable of displaying and integrating selected information from an electronic navigation chart with other positional data from other sources.\textsuperscript{200} Despite recent amendments to SOLAS in mid 2002 encouraging the uptake of Electronic Digital Information Systems, feedback from some of the coastal pilots indicates that very few ships coming to Australia use Electronic Digital Information Systems and those that do, continue to carry a full folio of paper charts.\textsuperscript{201}

6.4.3. Benefits to the ship regulatory authorities

The process of developing the Zoning Plan 2003 has helped to build more consensual and cooperative relationships with the shipping industry and the ship regulatory authorities than would otherwise be the case. Further, the adoption of the meaning of

\textsuperscript{196} Referenced to the Geocentric Datum of Australia 1994 (GDA94).

\textsuperscript{197} Also known as ECDIS.

\textsuperscript{198} SOLAS Chapter V, r 2(2).

\textsuperscript{199} This amendment came into force on 1 July 2002.


\textsuperscript{201} J Foley [ReefPilots Pty Ltd] pers. comm., 5 July 2005.
‘ship’ from REEFREP (as the primary tool for monitoring the movement of ships in the Marine Park) provides a means of streamlining information collection and enhanced enforcement of illegal shipping activities by the ship regulatory authorities. While the zones themselves may not have been of substantial benefit to the merchant shipping industry, the provisions within the Zoning Plan 2003 are at least consistent across the entire Marine Park, thus helping to minimise confusion among mariners as they transit the four management sections of the Marine Park. Anecdotal observations since the commencement of the new Zoning Plan 2003 do not support the supposition that area closures have affected the safety of navigation of ships and smaller vessels using the Marine Park.

As far as contributing to the knowledge base of ship regulatory practices is concerned, the development of the Zoning Plan 2003 has highlighted the interplay between marine protected area management and the constraints of regulating the passage of ships at the national and international level. However, the main limitation with the approach taken to regulate shipping under the scheme is that it may have merely institutionalised the pattern of shipping use in certain areas of the Marine Park and thus has only met the conservation and user needs of the Reef at a particular point in time. It is therefore unclear at this point as to whether GBRMPA has met all of its obligations relating to the need to care and develop the Marine Park in perpetuity. In this respect, the Zoning Plan 2003 and supporting plans of management are not the complete solution to the environmental problems created by the movement of ships in high value conservation areas of the Marine Park. This situation is acceptable, provided resources are made available to monitor the changes and effects of shipping on the use or the state of the Marine Park and vice versa.

6.5. Conclusions

The Representative Areas Programme leading to the development of the amalgamated Zoning Plan 2003 was purely an exercise in protected area management designed to substantially increase the protection of the biodiversity of the underlying ecosystems of the Reef. While it was not the intention of the GBRMPA to use these initiatives to directly influence ship management regulations within the Marine Park, the exercise provided an opportunity to consider changes to the nature and trade of shipping in the
Reef and revise, amalgamate and standardise ship management access provisions and definitions among the previous five zoning plans and 28 additional areas that had recently been added to the Marine Park.

The boundaries of the network of zones throughout the Marine Park have not necessarily coincided with the safest navigable routes through the Reef, although they have influenced where ships can transit the Region. They also have the potential to exclude shipping activities in the more highly protected areas of the Marine Park. Through extensive consultations with other government and shipping industry interests at the local and national level, designated ‘Shipping Areas’ in addition to the General Use zone, provided certainty of access for ships transiting those highly protected areas and currently cover all of the recommended tracks and all previous shipping routes. On this basis, the Zoning Plan 2003 has only marginally affected the rights of navigation of ships through the Marine Park under international law. To that extent, it may even provide an example for the evolving practice of customary international maritime law. Conversely, the Zoning Plan 2003 is an example of a tool that has the capacity to overregulate shipping activity, and cut across the jurisdiction and mandates of other ship regulatory authorities. One major potential deficiency is the failure of the Zoning Plan 2003 to take account of the LOSC requirement to obtain approval for zoning measures implemented in the EEZ, if such measures were to be considered a routeing measure. It remains to be seen whether this will satisfy international expectations and requirements.
7. **REGULATION OF SHIP AND VESSEL-SOURCED WASTE DISCHARGES IN THE MARINE PARK**

7.1. **Introduction**

There has long been concern about the increasing amounts of waste discharged into the marine environment.\(^1\) Although most of the pollution\(^2\) entering the Marine Park derives from terrestrial sources, marine pollution from shipping and vessel operations can affect the corals and other biota of the Reef at regional and localised scales, as highlighted at Chapter 3.\(^3\) The task of minimising and regulating ship and vessel-sourced waste discharges is complex because three separate schemes of legislation, administered by three separate ship regulatory authorities, can potentially apply within the same areas of the Marine Park.

This chapter describes the development, implementation and application of international standards for controlling the main forms of waste streams from vessels in the Marine Park. The focus of the chapter is upon the development of vessel-sourced sewage regulations to illustrate how deliberate operational discharges are managed and administered within a large, multi-jurisdictional Marine Protected Area (MPA). In doing so, it highlights the trade off between setting standards that are achievable with the available technologies and putting in place drivers to encourage the development of those technologies.

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2. See generally T Tomczak, ‘Defining marine pollution: a comparison of definitions used by international conventions’, *Marine Policy*, vol. 8, no. 4, 1984, pp. 311-322 for a discussion on the evolution of the definition of ‘pollution’ in the international sector.

and uptake of more stringent standards, ultimately improving water quality within the Reef. The analysis is completed by examining a range of practical, technological and environmental issues confronting operators and ship regulatory authorities that affect the efficacy of vessel-sourced waste regulatory measures in the Marine Park.

7.2. Origins of waste discharge regulations under Australian law

Australia’s interest in controlling vessel-sourced waste discharge extends as far back as 1954 when delegates of the Australian Government attended a conference in London to develop the International Convention for the Prevention of Pollution of the Sea by Oil.4 The Convention entered into force internationally on 26 July 1958 and operated in Australia from 29 November 1962 to 14 January 1988,3 until the commencement of the International Convention for the Prevention of Pollution from Ships 1973, as modified by the Protocol of 1978 (MARPOL) in Australia under the ‘Protection of the Sea’ Acts6 and Navigation Act 1912.7 The first of the ‘Protection of the Sea’ Acts was the Protection of the Sea (Discharge of Oil from Ships) Act 19818 but while that Act dealt only with the discharge of oil and oily waste,9 it also specifically referred to ‘nearest land’ being off the Great Barrier Reef.10 Two years later, the Protection of the Sea (Prevention of Pollution from Ships) Act 1983 (Cth) (POTS Act)11 came into effect with the first provisions relating to oils and noxious liquid substances under Annex I and II of MARPOL.12 Waste provisions specific to the Marine Park did not commence under the Great Barrier Reef Marine Park Act 1975 (GBRMP Act) until December 1988.13


5 This Convention imposed obligations on ship owners and masters to operate their ships so as to minimise the incidence of accidental and operational pollution.


Those amendments provided that waste could not be discharged in the Marine Park unless the discharge were authorised by a permission granted to the person under the *Great Barrier Reef Marine Park Regulations 1983*. However, human waste, offal from a fish caught within the Marine Park or biodegradable waste were not considered waste for the purposes of this regulation.\(^{14}\)

In 1993, awareness of waste initiatives was given a boost when the Australian and New Zealand Environment and Conservation Council established a task force comprised of representatives of the Australian and state governments and New Zealand to investigate a range of issues relating to maritime accidents and pollution and to advise how the Australian and New Zealand Environment and Conservation Council might help to minimise the environmental impacts of shipping.\(^{15}\) The results of this work were released for public comment in 1995, leading to the publication of a *Strategy and Action Plan* in 1996.\(^{16}\) Priority issues included developing and promoting best practice in relation to communicating areas sensitive to shipping and boating operations; improving waste reception facilities; managing marine debris; and coordinating input into the International Maritime Organization (IMO) to improve international shipping standards.\(^{17}\) Specific outputs of the ‘Managing Marine Debris’ sector of the strategy was the development of a pilot study to trial and implement an onboard garbage recording and auditing system for domestic vessels less than 400 tonnes to complement similar requirements under the POTS Act and equivalent state legislation based on Annex V of MARPOL.\(^{18}\) However, there have been no formal reviews or follow up of the outcomes of this strategy.\(^{19}\)

\(^{14}\) GBRMP Act s 38J(1) and (4).


\(^{16}\) ibid.

\(^{17}\) See generally Australia and New Zealand Environment and Conservation Council, 1996.


\(^{19}\) Personal knowledge.
7.3. Development of vessel-sourced sewage regulations

The earliest water quality standards developed specifically for the Marine Park were a single set of standards for sewage outfall licences based on two water quality parameters; biochemical oxygen demand and suspended solids.20 These standards were developed in 1987 as a direct response to scientific investigations conducted during the 1980s into the effects of nutrient runoff from land on coral growth and reproduction,21 but were not enacted and implemented under the GBRMP Act until December 1988. At that time, section 38J of the GBRMP Act allowed the discharge of sewage anywhere within the Marine Park except if the vessel (or ship) was fitted with a holding tank.22 In such cases, a vessel could only discharge sewage effluent at a distance greater than 500 metres from the edge of the nearest reef. By the early 1990s, it was the policy of the GBRMPA to require tourist operators using the same site regularly (greater than one visit to any reef in a week) or overnighting at a reef to install and use holding tanks.23 The policy also declared that holding tanks should be installed on any vessel that regularly visits or stays overnight at a reef.24 However, this policy was not given effect to other non-commercial operations through regulations or other means.25

Permissions for commercial tourist activities and the earlier plans of management including the Low Isles Management Plan and Offshore Cairns Strategy,26 prohibited the discharge of sewage in several localities within the areas covered by the plans.27 Permits held by some of the larger vessel tourism operators had (and still have) more stringent sewage management conditions, in addition to the basic requirements contained in section 38J of the GBRMP Act mentioned above. Typically, permit conditions on larger vessels, tourist operators using the site regularly (greater than one

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20 The licenses specified the level of Biological Oxygen Demand at 20mg/l and Suspended Solids at 30 mg/l.
22 The regulations applied to all ships and all vessels.
25 Personal knowledge.
26 These plans ceased to have effect in regard to the Cairns Area of the Cairns Section from the commencement date of the Cairns Area Plan of Management 2002; GBRMPA Policy no. 170/10.
27 Personal knowledge.
visit to any reef within a week) or staying at a reef overnight required that sewage was to be held on board and discharged at a shore-based facility or at varying distances from a reef or island, generally on return to port. Unfortunately, this had the effect of creating differing sewage management conditions at different sites across the Marine Park.

Prompted by complaints from the public about the amenity issues associated with inappropriate vessels sewage discharges, particularly in high use areas, on 1 January 1991 the GBRMPA considered that the present levels of nutrients should not be allowed to increase through human use of the Marine Park and that both shore based and marine sewage discharges into the Marine Park would be required to meet defined ‘tertiary’ or ‘equivalent tertiary’ treatment standards by 1 January 1996. However, these standards were based on national water quality management guidelines, and the capabilities of municipal biological wastewater treatment plant technology, not the smaller treatment systems capable of being installed on vessels. Realising that shore and marine operators would have difficulty complying with such standards, on the 5 December 1997, the Board of the GBRMPA agreed to extend the due date for implementation of the new standards, initially to 30 June 1998 and then to 1 March 2002.

In April of 1994, the Board of the GBRMPA introduced a policy to phase-in vessel sewage discharge controls. The new policy would ‘apply to all vessels above a certain size or passenger capacity, and if necessary for all vessels in key areas, to be implemented by appropriate legislation’. The policy noted that a co-ordinated approach would be required, with marinas to provide pump-out facilities as part of a broader strategy to effectively control inputs of nutrients into the Marine Park. The policy also recommended that a strategy should be developed to deal with sewage discharge from cruise ships. However, insufficient resources were made available to

28 GBRMPA Board Policy 144/10, 1 January 1991.
30 GBRMPA Board Policy 169/4(e), 5 December 1997.
31 GBRMPA Board Policy 147/5, 20 April 1994.
32 ibid.
33 ibid.
34 GBRMPA Board Policy 147/5, 20 April 1994.
further develop or properly implement any of the details of the policy.35

During the intervening years that these initiatives were being developed by the GBRMPA, the Maritime Division of Queensland Transport were themselves developing their own vessel sewage legislation, but largely in isolation from those of the GBRMPA. In June 1996, Queensland Transport proposed that the discharge of vessel-sourced sewage would be prohibited in three zones of high, medium and low environmental sensitivity.36 A high sensitivity zone was defined as being waters 500 metres seaward of a reef edge or the nearest point of land. Medium zones were considered to be those waters 500 metres from the seaward edge of a high sensitivity zone while low sensitivity zones were those areas not contained within high or medium sensitivity zones.37 The proposal, was to come into force under the Transport Operations (Marine Pollution) Act 1995 (Qld) (TOMPA) during 1998 and would require vessels over 200 tonnes (considered as large ships) not to discharge within any of the three zones, while medium ships (not a large or a small ship) and small ships (less than 10 metres in length) would not be allowed to discharge in high or medium sensitive zones.38 The GBRMPA were concerned, however, that the zoning system in the Queensland legislation could be confused with the system of zones under the various Zoning Plans in effect for the Marine Park.39

During the public review period, there was significant opposition to the proposed legislation because of the prescriptive requirements for the installation of sewage holding tanks on vessels of 10 metres or more in length.40 The boating community objected to the requirement for holding tanks, arguing that they were dangerous, malodorous, expensive to install and difficult to maintain.41 They also objected to the absence of on-board sewage treatment systems and provisions providing for the

35 Personal knowledge.
37 ibid.
38 GBRMPA Board Policy 161/4, 28 June 96.
39 ibid.
41 ibid.
discharge of treated effluent. 42 Noting that the continued unilateral development of sewage legislation could lead to a disjointed management regime for sewage within the same sea areas, in 1995 the GBRMPA and Queensland Transport agreed to introduce complementary legislation so as to create a seamless system of vessel-sourced sewage regulatory arrangements across Queensland coastal waters and Commonwealth waters of the Marine Park.43

In August 1997, proposed amendments to section 38J of the GBRMP Act prohibited the discharge of sewage from vessels under 200 tonnes in size within 1000 metres of land, a reef or an island and prohibited all discharges of sewage for vessels over 200 tonnes. Consultation on the proposal was limited in scope to a small number of peak interest and industry groups at a regional level and government bodies. However, because of administrative difficulties encountered in getting the proposals through Commonwealth Parliament44 and the possibility of inconsistent legislation between the two jurisdictions, the GBRMPA decided to delay (and eventually abandon) these proposed amendments until Queensland had finalised its vessel sewage management proposals.45

On 30 November 2000, Queensland Transport initiated a new public consultation process proposing that sewage could be discharged at varying distances from sensitive resources but would be prohibited in other designated areas depending on the numbers of people on board, the location of the vessel and whether the sewage had received treatment.46 The consultation process involved the mail out of 1574 position papers to clubs, industry, government and community groups; a ‘freecall’ number; meetings with stakeholder representatives as well as the preparation of media releases via newspaper, radio, television and the Queensland Transport internet site.47 By October 2001, the Queensland Cabinet had given approval for the newly formed Maritime Safety

42 ibid.
43 GBRMPA Policy no. 161/9, 12 July 1996.
44 The amendments were not given priority on the Parliamentary legislation programme.
45 Personal knowledge.
Queensland (MSQ) within Queensland Transport to develop amendments to the vessel-sourced sewage provisions of TOMPA using the results of the consultation process. A ‘key stakeholder group’, comprising representatives of recreational and boating associations and ship regulatory authorities as well as the GBRMPA, was established to review the initiatives and help progress the legislation. Although GBRMPA had agreed to promote the Queensland Transport amendments under the GBRMP Act, the new proposals were viewed as overly complicated by GBRMPA who decided to delay implementation of their proposed sewage regulations until Queensland had fully reviewed their situation.48

On 25 May 2001, the need for a national approach to ship-sourced sewage discharges was recognised by the Australian Transport Council when it had agreed that Australia should implement Annex IV of MARPOL49 but noted that it was unlikely to enter into force internationally for several years. However, forewarned that some other Australian states were seeking to implement sewage legislation in advance of the international entry into force of Annex IV, AMSA as the lead representative of Australian Government on this issue, sought the views of all of the Australian states and the Northern Territory on the most appropriate ways of progressing national sewage discharge standards throughout Australian waters.50

There was an expectation amongst the Commonwealth and state government agencies that Annex IV of MARPOL, once implemented in Australian law, would result in a ban on all sewage discharges from vessels in the Region.51 The Board of the GBRMPA adopted a formal policy that appropriate authorities should be assisted to implement Annex IV of MARPOL and TOMPA when enacted.52 In addition, to ensure consistency with Annex IV and minimise any potential inconsistencies between the two Commonwealth statutes, the GBRMPA decided to defer any regulatory requirements

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48 Personal knowledge.
49 Annex IV deals with regulations for the prevention of pollution by sewage from ships.
50 Personal knowledge.
52 GBRMPA Policy no. 166/5, 11 April 1997.
for ships on an international voyage to the POTS Act.53

In 2001, the vessel sewage provisions under the *Great Barrier Reef Marine Park Regulations 1983* were amended so that from 1 January 2004, untreated sewage could only be discharged from vessels surveyed to carry more than six people at a distance of more than 1000 metres seawards of an island (at mean low water), the nearest reef or mainland.54 However, effluent that has received tertiary treatment could be discharged at any location.55 Penalties of up to 50 penalty units ($5500) would apply for contravention of these provisions unless the discharge was for the purpose of saving life at sea or securing the safety of the vessel.56 The amendments were not widely promulgated and some government agencies were worried that these standards would have significant cost and operational implications for existing boat owners, prospective boat owners and boat builders.57 These concerns, and the entering into force of Annex IV of MARPOL on 27 September 2003,58 lead to a process of close and extensive liaison with MSQ, negotiations with their key stakeholder group and a formal commitment to complementary management of this issue, over a period of about three years.59 The consultations were directed at the majority of vessels and ships where it would be expected that most of the sewage would be discharged. There was also concern that the level of risk should be proportionate to the inconvenience placed on vessel operators and owners in complying with the new measures.60 Considerations were given to the size of the vessel, frequency of use, overnight capability and the sewage generating capacity relative to the numbers of people permitted on board, to ensure that any new regulations were achievable, practical and enforceable. In 2004, the input from these consultations was used by the GBRMPA and MSQ to develop and

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53 POTS Act, div 2, Part IIIB.
55 ibid.
56 ibid.
57 Personal knowledge.
59 Personal knowledge.
60 ibid.
enact new regulations covering vessel sewage management in the Marine Park.

7.4. Implementation of MARPOL under Australian law

Today, within Australian waters and the Marine Park, waste discharges from all vessels and ships are regulated through the POTS Act and associated Marine Orders, TOMPA and the GBRMP Act. All three statutes regulate the actions that can be taken to prevent marine pollution by directly referencing, and giving effect to, the core provisions of the relevant annexes of MARPOL relating to discharges of oil (and oily mixtures), discharges of noxious liquid substances, jettisoning harmful substances in packaged form, discharging of sewage and disposal of garbage. The terms under all three statutes generally have the same meanings as the annexes of MARPOL and should be interpreted as such.

7.4.1. Application

In general, the POTS Act governs waste discharge from Australian SOLAS class ships, both within and outside Australia to the extent of every external Territory (including the Australian Antarctic) and to foreign ships within the limits of the exclusive economic zone of Australia (including the Commonwealth areas of the Marine Park). TOMPA deals with the discharge of pollutants from all ships and specific types of vessels operating within its coastal waters. In contrast, the waste discharge provisions of the

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61 TOMPA s 3(2).
62 Matters pertaining to the construction and equipment on board ships and surveys and inspections are contained in the Navigation Act 1912 (Cth) and TOMPA (section 44) but are beyond the scope of this thesis.
63 The POTS Act pt IIID also regulates air pollution but is not implemented in legislation pertaining to the Marine Park and is thus not relevant to this thesis.
64 See, eg, POTS Act s 8; TOMPA s 5, GBRMP Act s 38J(7).
66 The Antarctic Area means the sea area south of 60° south latitude; POTS Act s 3.
67 See POTS Act s 6.
68 See TOMPA s 12.
69 See TOMPA pt 7.
Chapter 7

GBRMP Act may apply to any vessel or ship within the Marine Park. TOMPA also permits the deliberate, negligent or accidental discharge of ship-sourced pollutants into coastal waters to be dealt with through marine pollution strategies approved by the relevant Queensland Government minister. Pollution entering coastal waters emanating from other sources is triggered by other legislation and management plans.

7.4.2. Discharge standards

The regulations for dealing with operational wastes under the requisite Commonwealth and Queensland State legislation provide that any release of waste constitutes an offence. The standards for discharging the waste are generally derived from or directly refer to MARPOL. Those standards may be contained in the various Acts, regulations and Orders.

Under the POTS, TOMPA and GBRMP Acts, the discharge of oil and oily waste is not permitted unless the oil content is less than 15 parts per million, a concentration at which oil is not normally visible either visually or with remote sensing equipment. As noted in Chapter 4, the POTS, TOMPA and GBRMP Acts also prohibit a range of noxious liquid substances and other substances under Annex II of MARPOL that have been provisionally assessed by the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) according to the hazard they present to marine resources, human health or amenities. Similarly, packaged harmful substances

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70 See GBRMP Act s 38J and Great Barrier Reef Marine Park Regulations 1983 r 93A-93F.
71 TOMPA s 15.
73 Section 38J(7)(g) of the GBRMP Act, for example, allows for ‘any other matter that is declared by the regulations to be waste.’ However, to-date, no new substances have been declared in the Great Barrier Reef Marine Park Regulations 1983 as waste.
74 See POTS Act s 9; TOMPA s 26; GBRMP Act s 38J(7)(b).
76 ‘Category X’ substances are deemed to present a major hazard to either the marine environment or human health; ‘category Y’ substances are deemed to present a hazard to either the marine environment or human health and justify a limitation on quality and quantity of discharge; ‘category Z’ substances are
carried in bulk under Annex III of MARPOL identified under the *International Maritime Dangerous Goods Code*,\(^\text{77}\) likely to be harmful to the marine environment and the ship are also prohibited if they are jettisoned under these Acts.\(^\text{78}\) TOMPA further specifies that a harmful substance is taken to have been ‘jettisoned’ if it is discharged into coastal waters because of a leakage of the substance.\(^\text{79}\)

Under the GBRMP Act, the discharge of waste containing chemical substances into the Marine Park is an offence, whether or not carried in bulk as cargo or part cargo in bulk, unless the discharge is authorised by a permission\(^\text{80}\) or where the waste is discharged from a vessel in a zone where the relevant zoning plan makes provision for the zone to be used or entered for that purpose.\(^\text{81}\) As none of the previous zoning plans or the new Zoning Plan 2003 contain waste discharge offence provisions, the practical effect of section 38J of the GBRMP Act is to prohibit the washing of the residues of decks and tanks from all cargo ships within the Reef. Under the POTS Act, however, certain tank and deck washings are permitted if conducted in accordance with the *Procedures and Arrangements Manual*, containing the matters set out in Appendix 4 of Annex II of MARPOL (prescribing tank cleaning, stripping and ventilation operations) and the International Bulk Chemical Code.\(^\text{82}\) Prior to GESAMP revising the hazard evaluation procedure for chemical products carried by ships in 2006 under the International Bulk Chemical Code,\(^\text{83}\) together with the inclusion of vegetable oils and animal fats,\(^\text{84}\) and

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\(^{78}\) POTS Act s 26AB(1); TOMPA s 42; GBRMP Act s 38J(7)(d).

\(^{79}\) TOMPA s 42(2).

\(^{80}\) GBRMP Act s 38J(b)(i) and (ii).

\(^{81}\) GBRMP Act s 38J(3).

\(^{82}\) POTS Act s 15.

\(^{83}\) The GESAMP Hazard Profile, as it is also known, was revised to bring the International Bulk Chemical Code in line with the United Nations Globally Harmonized System of Classification and Labelling of Chemicals has meant that the vast majority of noxious liquid substances. An amended International Bulk Chemical Code reflecting the changes to MARPOL Annex II entered into force on 1 January 2007. Ships constructed after 1986 carrying substances identified in Chapter 17 of the International Bulk Chemical Code must follow the requirements of design, construction, equipment and operation of ships contained in the Code.

\(^{84}\) See, eg, MEPC.148(54) *Guidelines for the transport of vegetable oils in deep tanks or in independent*
concomitant improvements in ship technology relating to revised tank stripping procedures, the standards for the discharge of chemicals under the GBRMP Act were in effect much higher than those under the POTS Act. From an operational perspective, this meant that ships were receiving different advice from two different Commonwealth agencies on whether they were permitted to wash down their decks in the Marine Park, usually as they were entering or exiting the port areas.

The disposal of garbage is also prohibited under the POTS Act (where that garbage is comprised of plastics) while the discharge of other types of waste (eg dunnage, lining or packing materials which will float) is permitted providing the vessel is at a distance of 25 nautical miles from the nearest land. Garbage (excluding plastics and food wastes) that is passed through a comminuter or grinder so that it is capable of passing through a screen with no opening greater than 25 millimetres can be discharged when the ship is at a distance of not less than three nautical miles from the nearest land. Food waste may be discharged at a distance of not less than 12 nautical miles from the nearest land. By contrast, the TOMPA and GBRMP Acts prohibit the disposal of all garbage into the sea. There is a minor distinction between the two Acts, however, in that the GBRMP Act does not consider fresh fish, or parts of fresh fish, to be considered garbage while TOMPA is silent on the matter.

The discharge of sewage is regulated consistently with Annex IV of MARPOL under
the POTS, TOMPA and GBRMP Acts. Part IIIB of the POTS Act provides that the
discharge of sewage into the waters of the Marine Park (the majority of those waters
being inside nearest land) by new ships of 400 gross tonnage and above, and new ships
of less than 400 gross tonnage which are certified to carry more than 15 persons, is
prohibited except where the sewage has been treated using an IMO approved sewage
treatment plant.91 Effluent treated by a treatment plant may be discharged at any
location within the Marine Park providing the effluent does not produce visible floating
solids nor cause discolouration of the surrounding water.92 Existing ships of 400 gross
tonnage and above, and existing ships of less than 400 gross tonnage which are certified
to carry more than 15 persons will have to comply with Part IIIB of the POTS Act on a
date fixed by proclamation.93 Most of the ships that regularly trade within the Region
apparently already have an IMO approved sewage treatment plant on board; those that
do not hold the sewage in holding tanks before disposal.94 Outside of the Marine Park,
sewage that has been comminuted and disinfected using a system approved in
accordance with the regulations, or orders made pursuant to the regulations,95 may be
discharged at a distance of not less than 3 nautical miles from the nearest land.96 Sewage
that does not meet the aforementioned standard can only be discharged when the ship is
at a distance of not less than 12 nautical miles from the nearest land.97 Where the
sewage has been stored in holding tanks, it may be discharged when the ship is
proceeding en route at a speed of not less than 4 knots, but not instantaneously.98 Under
the POTS Act, a prescribed officer may also require the owner or master of a ship to
discharge sewage at a reception facility.99

91 Treatment should be in compliance with Resolution MEPC.2(VI), International Specifications for
Effluent Standards, Construction and Testing of Sewage Treatment Systems, adopted 3 December 1976 as
amended by Resolution MEPC.159(55), Revised Guidelines on Implementation of Effluent Standards and
Performance Tests for Sewage Treatment Plants, adopted 13 October 2006; POTS Act s 26D(7).
92 POTS Act s 26D(7)(b).
93 To be consistent with Annex IV of MARPOL, the date of proclamation is not expected to occur until
95 Giving effect to paragraph 1.2 of Regulation 9 of Annex IV to MARPOL.
96 POTS Act s 26D(6)(a).
97 POTS Act s 26D(6)(b).
98 POTS Act s 26D(6)(c).
99 POTS Act s 26DAA.
Amendments to the Queensland legislation in 2003 concerning sewage management from vessels in the coastal waters of Queensland commenced in several phases to encourage the boating community and marine industry to develop or adopt technologies and practices that would result in sewage managed or treated to the highest standards. During the first phase, from 1 January 2004 to 31 December 2009, sewage that is discharged from a vessel with a fixed toilet on board must pass through a macerator; a vessel cannot discharge untreated sewage in the vicinity of harbours and ports, other designated areas or within one nautical mile of an aquaculture fisheries resource. Any vessel operating in ‘open waters’ and carrying 16 or more people on board may only discharge untreated sewage at a distance of at least one nautical mile from a reef, the mean low water mark of an island or the mainland. From 1 July 2004, treated sewage could not be discharged in port areas but may be discharged at either a half nautical mile from a reef, aquaculture facility or person in the water if it is treated to Grade C standard or 700 metres from a reef, aquaculture facility or person in the water if it is treated to Grade B standard. Sewage treated to Grade A standard can be discharged anywhere except in a harbour or marina.

‘Declared ships’ that operate in ‘nil discharge’ waters must be fitted with a
sewage holding device.\footnote{111} Declared ships are also required to have on board a shipboard sewage management plan,\footnote{112} a current sewage disposal record book,\footnote{113} and ensure that any sewage treatment systems on board are in proper working order.\footnote{114} Standards are also set out under the Transport Operations (Marine Pollution) Regulation 1995 for the levels of sewage quality treated by a sewage treatment system.\footnote{115} From 1 January 2010, progressively stringent requirements will apply to declared ships to encourage the development of better effluent discharge practices, treatment systems and ensure consistency with the implementation of Annex IV of MARPOL.\footnote{116} For example, a ‘declared ship’ carrying 16 or more people on board will be completely prohibited from discharging untreated sewage in open waters, while declared ships carrying between seven and 15 persons on board can only discharge more than one nautical mile from a reef, the mean low water mark of an island or the mainland.\footnote{117}

Amendments to the Great Barrier Reef Marine Park Regulations 1983 sought to complement the MSQ and AMSA initiatives and achieve a consistent vessel-sourced sewage management regime in the Marine Park.\footnote{118} The GBRMP Act does not apply to a discharge of sewage to which Division 2 of Part IIB of the POTS Act applies and thus does not implement those obligations of the revised Annex IV of MARPOL\footnote{119} that relate to survey and certification or the types of equipment to control discharges\footnote{120} of trading ships.\footnote{121} The GBRMP Act does, however, apply to all other types of vessels

\footnote{111} Transport Operations (Marine Pollution) Regulation 1995 s 38E.
\footnote{112} Transport Operations (Marine Pollution) Regulation 1995 s 38M.
\footnote{113} Transport Operations (Marine Pollution) Regulation 1995 s 38H.
\footnote{114} Transport Operations (Marine Pollution) Regulation 1995, s 38A(c).
\footnote{115} Transport Operations (Marine Pollution) Regulation 1995, s 38A(c).
\footnote{116} Transport Operations (Marine Pollution) Regulation 1995, s 38A(c).
\footnote{117} Transport Operations (Marine Pollution) Regulation 1995, s 38A(c).
\footnote{118} Great Barrier Reef Marine Park Amendment Regulations 2004 (No. 6).
\footnote{120} MARPOL, Annex IV, r 4 and 9.
\footnote{121} See GBRMP Act r 93A.
except Defence vessels.\textsuperscript{122} Sewage may also be discharged in a zone where a person has a permission to use a zone for such purposes\textsuperscript{123} and has completed an application for permission to discharge waste.\textsuperscript{124}

Commencing on 1 January 2005, the Great Barrier Reef Marine Park Regulations 1983 provide that any vessel fitted with a toilet carrying less than 15 persons on board with untreated sewage may discharge sewage that has been reduced to a fine slurry anywhere in the Marine Park outside of a port\textsuperscript{125} and more than one nautical mile from the seaward edge of an aquaculture operation.\textsuperscript{126} Any vessel fitted with a toilet carrying more than 15 persons on board with untreated sewage may discharge sewage that has been reduced to a fine slurry outside of a port and at least one nautical mile seawards of the nearest reef; or the low water mark of the nearest island or mainland; or an aquaculture operation.\textsuperscript{127}

The treatment standards for sewage are almost identical to those of MSQ. Tertiary treated sewage\textsuperscript{128} can be discharged anywhere in the Marine Park.\textsuperscript{129} Grade A treated sewage can be discharged anywhere in the Marine Park outside of a port.\textsuperscript{130} Grade B treated sewage must be discharged outside of a port and more than 700 metres seawards of the seaward edge of the nearest reef, aquaculture operation and any person in the water.\textsuperscript{131} Grade C treated sewage must be discharged outside of a port and more than half a nautical mile seawards of the seaward edge of the nearest reef, aquaculture operation and any person in the water.\textsuperscript{132} Table 7.1 in the Appendix to this thesis

\begin{itemize}
\item \textsuperscript{122} These include a vessel belonging to an arm of the Defence Force of Australia or to the naval, military or air forces of a country other than Australia; or a vessel in respect of which an exemption under section 59F is in force; GBRMP Act s 3.
\item \textsuperscript{123} Great Barrier Reef Marine Park Regulations 1983 r 93C(3).
\item \textsuperscript{124} Great Barrier Reef Marine Park Regulations 1983 r 96.
\item \textsuperscript{125} In this context, a port means a boat harbour, canal or marina.
\item \textsuperscript{126} Great Barrier Reef Marine Park Regulations 1983 r 93D(1).
\item \textsuperscript{127} Great Barrier Reef Marine Park Regulations 1983 r 93D(2).
\item \textsuperscript{128} Complying with sub-regulation 135 (3) of the Great Barrier Reef Marine Park Regulations 1983.
\item \textsuperscript{129} Great Barrier Reef Marine Park Regulations 1983 r 93(a).
\item \textsuperscript{130} Great Barrier Reef Marine Park Regulations 1983 r 93(b).
\item \textsuperscript{131} Great Barrier Reef Marine Park Regulations 1983 r 93E(c).
\item \textsuperscript{132} Great Barrier Reef Marine Park Regulations 1983 r 93E(d).
\end{itemize}
provides the details of vessel-source sewage legislation under Queensland and Commonwealth jurisdiction.

7.4.3. Liable parties

Under the POTS, TOMPA and GBRMP Acts, any person that causes a discharge of pollutant from a vessel into the sea and who is reckless or negligent as to causing the discharge commits an offence.\textsuperscript{133} Section 38J of the GBRMP Act further provides that the discharge of waste by \textit{any person} can be an offence of strict liability.\textsuperscript{134} Under the POTS Act, it is the \textit{master} and \textit{owner} of the ship that discharges a pollutant into Australian waters that commit an offence of strict liability.\textsuperscript{135} In that case, the discharge must occur into the territorial sea (excluding the coastal sea) or EEZ, or if the discharge is in the high seas the ship must be an Australian ship.\textsuperscript{136} TOMPA extends the liability of persons that commit an offence to crew members, that is, those that contributed to the discharge, unless the member was complying with an instruction from the master or of someone authorised by the master to give the instruction.\textsuperscript{137} TOMPA has a separate section dealing specifically with identifying the responsible person for a discharge occurring during or because of a transfer operation.\textsuperscript{138} A responsible person could include the master or person in charge of the vessel, owner, co-owner or operator of the ship or vessel at the time the offence was committed, rather than solely the owner or master of the ship or vessel as is the case under the POTS Act.\textsuperscript{139} Under the GBRMP Act, the responsible person would be guilty of an indictable offence if by use of a ship or vessel an offence is created under section 38J of the Act; and a responsible person knew, or had reasonable grounds to suspect, that the ship or vessel would be used in committing the offence; and did not take reasonable steps to prevent the use of the ship or vessel in committing the offence.\textsuperscript{140}

\begin{itemize}
\item \textsuperscript{133} In the case of the discharge of oil and oily mixtures see POTS Act s 9(1); GBRMP Act s 38J(1); TOMPA s 36.
\item \textsuperscript{134} In the case of the discharge of any type of ship’s waste, but not sewage, see GBRMP Act s 38J(1C).
\item \textsuperscript{135} In the case of the discharge of oil and oily mixtures see POTS Act s 9(1B).
\item \textsuperscript{136} See, eg, POTS Act s 9.
\item \textsuperscript{137} TOMPA s 26.
\item \textsuperscript{138} TOMPA pt 9.
\item \textsuperscript{139} GBRMP Act s 38L(4).
\item \textsuperscript{140} GBRMP Act s 38L(1).
\end{itemize}
7.4.4. Penalties

The penalties for waste discharge offences under the POTS Act, GBRMP Act and TOMPA differ depending on the severity and nature of the offence. In this context, primary offences under the POTS Act are those that relate to the discharge of a pollutant. For example, primary offences involving the negligent or intentional discharge of waste under the POTS Act or the GBRMP Act may attract fines of up to 2000 penalty units ($220,000) in the case of an individual and 10 000 penalty units ($1.1 million) in the case of a corporation. Waste discharge offences under the TOMPA are significantly higher and may attract fines of 3500 penalty units ($262 500) for a strict liability offence in the case of an individual and five times that amount for a corporation. Most offences relating to waste discharge under TOMPA are indictable offences as the maximum penalty is at least 850 penalty units ($63 750) and may be taken at the discretion of the prosecution by way of summary proceedings under the Justices Act 1886 (Qld) or on indictment.

Secondary offences under the POTS Act and TOMPA relate to the failure to report prescribed discharges, have on board certain documents, and correctly complete and retain those documents. Under the POTS Act, such offences may attract a penalty of up to 200 penalty units ($22 000) and under TOMPA the penalties range from 350 penalty units ($26 250) to 850 penalty units ($63 750). Secondary offences in circumstances where the discharge of waste is done with the permission of the

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141 See TOMPA s 35, 42, 47 and 55.
142 In Queensland, 1 penalty unit is the equivalent of $75.00.
143 Penalties and Sentences Act 1992 (Qld) s 181B.
145 TOMPA s 124(1).
146 These include record books for oils, garbage and noxious liquid substances; International Oil Pollution Prevention Certificates; and emergency response plans for oils and noxious substances.
147 See, eg, POTS Act s 12, 13 and 14; TOMPA s 30, Transport Operations (Marine Pollution) Regulation 1995 s 16 and 18.
148 See, eg, POTS Act s 12, 13 and 14.
149 See, eg, TOMPA s 30, Transport Operations (Marine Pollution) Regulation 1995 s 16 and 18. The higher penalties apply where the ship fails to carry an oil pollution emergency plan.
GBRMPA but any condition of the permission is negligently or intentionally contravened, also attract a penalty of 200 penalty units ($22 000) in the case of an individual and five times that for a corporation.\textsuperscript{150}

In some cases, it may be difficult to justify enforcement action where the costs of an investigation can easily exceed $5500, especially for offences which attract the lower penalties.\textsuperscript{151} The differing penalty levels can also create problems for enforcement due to the generally high standards and types of evidence required to satisfy a prosecution.\textsuperscript{152} In the majority of Commonwealth cases, evidence is rarely available to mount a case where the higher penalty of negligence applies because of the requirements to prove the offence or obtain an admission of guilt.\textsuperscript{153} In addition to establishing that the pollutant came from the particular (suspect) ship, the prosecution would need to show that a particular crew member or the corporation was responsible for the discharge, and that the crew member or corporation was reckless or negligent in causing the discharge.\textsuperscript{154}

### 7.4.5. Reportable events

Reportable events involving the discharge of wastes or oil, noxious substances and packaged harmful substance that should be reported to the ship regulatory authorities in a prescribed manner and form are defined in the POTS Act,\textsuperscript{155} as well as Part 91(Oil),\textsuperscript{156} Part 93 (Noxious liquid substances)\textsuperscript{157} and Part 94 (Packaged harmful substances)\textsuperscript{158} of the Marine Orders issued by the AMSA. These Orders provide that an incident is to be

\textsuperscript{150} GBRMP Act s 38J(2).
\textsuperscript{151} Personal knowledge.
\textsuperscript{152} See also H Jackson, ‘Who is liable for marine pollution? – personal liability for ship-sourced oil spills in four Australian jurisdictions’, \textit{MLAANZ Journal}, vol. 19, 2005, pp. 74-95
\textsuperscript{154} ibid.
\textsuperscript{155} POTS Act s 11, 22, 26B.
notified in the prescribed manner if it is conveyed either direct to the Rescue Coordination Centre or directly to a ‘Prescribed officer’ under section 9 of the POTS Act.\textsuperscript{159} Prescribed incidents on ships more than 15 metres in length involving damage, failure or breakdown that affects the safety of the ship or impairs the safety of navigation of the ship should also be reported.\textsuperscript{160} Under TOMPA, there is also a duty to report certain incidents of discharges of ship waste without delay.\textsuperscript{161} By contrast, section 38J of the GBRMP Act does not define a prescribed incident or the minimum amount of waste that could be discharged into the Marine Park that could be constituted as a ‘reportable event.’ The GBRMP Act does however, define ‘discharge’ to mean ‘release’ however caused and includes ‘any escape, disposal, depositing, spilling, leaking, pumping, emitting or emptying’\textsuperscript{162}

Given the absence of a dedicated oceanographic monitoring system within the Region,\textsuperscript{163} the authorities with responsibility for oil spill response in the Reef tend to rely on visual reports of oil or chemical spills. Most ship operators report sightings of oil slicks to REEFCENTRE while recreational mariners tend to report sightings via ‘freecall’ telephone numbers set up for the Queensland Environment Protection Agency (EPA), GBRMPA, AMSA and MSQ.\textsuperscript{164} In some cases, commercial airlines and Coastwatch have notified the ship regulatory authorities directly of oil spills during their overflights of the Marine Park.\textsuperscript{165} The occasional sightings of ‘tar balls’ on some of the popular islands used for tourism within the Reef suggests that there is also a degree of non-reporting of oil spills.\textsuperscript{166} However, this may change with advancements in intelligent systems used to monitor high risk vessels.\textsuperscript{167}

\begin{thebibliography}{99}
\bibitem{159} POTS Act s 9(2)(e).
\bibitem{160} POTS Act s 22(10).
\bibitem{161} TOMPA pt 11.
\bibitem{162} GBRMP Act s 38J(7).
\bibitem{164} Personal knowledge.
\bibitem{165} ibid.
\bibitem{166} ibid.
\end{thebibliography}
7.4.6. Defences

Defences to a prosecution for a discharge offence common to all statues are where the discharge was for the purpose of securing the safety of the vessel or for the purpose of saving life at sea\(^{168}\) or the discharge was for the purpose of combating specific incidents of pollution in order to minimise the damage from pollution.\(^{168}\) The nature of these defences are extended under TOMPA which allows discharges of a pollutant by an authorised officer for training purposes.\(^{170}\) Both the POTS Act\(^{171}\) and TOMPA\(^{172}\) may allow a discharge if that discharge resulted from damage, other than intentional damage, to the ship or its equipment and all reasonable precautions were taken after the damage happened or the discharge was discovered to prevent or minimise the discharge.\(^{173}\) For example, TOMPA defines damage to a ship or its equipment to be intentional damage only if the damage arose in circumstances in which the ship’s owner, master or other member of the ship’s crew acted with intent to cause damage or acted recklessly and with knowledge that damage would probably result.\(^{174}\) ‘Damage’ is defined in the TOMPA Schedule Dictionary as ‘an express reference to damage to a ship or its equipment, does not include any existing defect in the ship or its equipment resulting from an event, a lack of maintenance or anything else’.\(^{175}\) Further, the High Court has held that damage will only support a defence if it is a ‘sudden change in the condition of the ship or its equipment that was the instantaneous consequence of some external or internal event’.\(^{176}\) The GBRMP Act, however, does not have defences relating to waste discharge offences where all reasonable precautions (eg adequate maintenance) to a ship and its equipment were taken to prevent a discharge. In the case of sewage however, the

\(^{168}\) For example, in the case of defences for a discharge of oil the relevant provisions are POTS Act s 9 (2)(c); GBRMP Act s 38J(5)(a); TOMPA s 28(1)(a).

\(^{169}\) See POTS Act s 9(2), 21(2), 26AB(6), 26D(5) and 26F(A); GBRMP Act s 38J(5)(b)(i); TOMPA s 28(c).

\(^{170}\) TOMPA s 28(1)(d).

\(^{171}\) See, eg, POTS Act s 9(3).

\(^{172}\) See, eg, TOMPA s 51A(2).

\(^{173}\) See POTS Act s 9(2)(d); TOMPA s 28(1)(b).

\(^{174}\) TOMPA s 28(2).

\(^{175}\) TOMPA Schedule Dictionary.

\(^{176}\) See *Morrison v Peacock* (2002) 210, CLR 274.
defences to a prosecution for an offence under the *Great Barrier Reef Marine Park Regulations 1983* include where a person holds a relevant permission to discharge sewage under the Great Barrier Reef Marine Park Zoning Plan 2003.\textsuperscript{177}

### 7.4.7. Communication

The enactment of new legislation or amendments to existing legislation by the Commonwealth or Queensland requires that a Regulatory Impact Statement be prepared to ensure that it does not have any significant impacts on individuals or businesses, particularly through restricting competition.\textsuperscript{178} The legislation should also be effective in addressing an identified problem and efficient in terms of maximising the benefits to the community, taking account of costs.\textsuperscript{179} In the case of the vessel sewage amendments to Queensland marine pollution legislation, exposure to the Regulatory Impact Statement released for public comment in February 2003 led to renewed industry, public and government interest in the proposed regulations.\textsuperscript{180} The release of the Regulatory Impact Statement coincided with the launch of a communication strategy by MSQ to promulgate the amended vessel sewage regulations to the boating community. The intention of the strategy was to educate the Queensland boating community about the need to protect environmentally sensitive habitats and encourage people to adopt particular boat based sewage conservation measures.

At the same time, the GBRMPA conducted a risk assessment to identify stakeholders who would be affected by the vessel sewage amendments, as a first step in developing their own communication strategy. The risk assessment identified that in 2002 there were approximately 55 000 recreational boat owners and 1500 commercial vessel owners registered adjacent to the Marine Park that could be affected by the changes to the vessel sewage regulations proposed by GBRMPA.\textsuperscript{181} Approximately 55 000 vessels

\textsuperscript{177} *Great Barrier Reef Marine Park Regulations 1983* c 93C(4).


\textsuperscript{179} ibid.


\textsuperscript{181} These figures were derived from the 2003 MSQ vessel registrations.
that are fitted with a toilet would be required to fit a macerator to that toilet. However, up to 2141 of the 55 000 registered vessel owners, representing vessels 10 metres in length or more and capable of carrying 15 persons on board, would be affected by the need to discharge untreated sewage one nautical mile from an island or reef or other sensitive area.

The new GBRMPA vessel sewage legislation was drafted for limited public consultation. To this end, GBRMPA’s communication strategy was directed at other government agencies, particularly the EPA and the Royal Australian Navy, representatives of shipping and pilot associations and commercial tourism operators. There was limited consultation with the wider recreational boating community although some of the campaign was targeted at representatives of associations of cruising yachts and super yachts. The initial feedback from the shipping industry, vessel owners and representatives of other stakeholder groups in respect of the new regulations was positive.

Aside from the communication strategy itself, the relatively lengthy and disjointed consultation periods in the lead up to the new legislation (somewhat inadvertently) provided forewarning of existing commercial and recreational users to install sewage management systems without incurring unreasonable costs. The delay also provided time for boat designers, builders, owners and operators to become familiar with the new requirements and make longer-term business decisions relating to docking and maintenance cycles for installing any treatment systems.

### 7.4.8. Enforcement

Enforcement of the vessel-sourced pollution incidents within the jurisdiction of Queensland is carried out by several Queensland Government regulatory enforcement agencies including authorised shipping inspectors under the *Transport Operations Marine Safety Act 1994* (Qld) 182 (TOMSA) and officers of the Queensland Boating and Fisheries Patrol agency. There are approximately 50 authorised officers in the Region with powers under section 70 of TOMPA to investigate discharges and take action to

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182 TOMSA s 157.
minimise the effect and removal of pollutants. Authorised officers under GBRMPA legislation may also investigate compliance activities in relation to discharge offences on board ships and smaller vessels. In the case of trading ships, enforcement activity continued to be undertaken by the AMSA as part of Australia’s Port State Control (PSC) programme. Most of the enforcement activity for waste discharges relies on intelligence gathering operations, investigation of reports of discharges, backed up by satellite and aerial surveillance observations. Despite the existence of these technologies, it can be difficult to build a case proving beyond reasonable doubt that a discharge originated from a particular vessel within a particular jurisdiction when the vessel could be one of several within the area of discharge. Thus, the majority of incidences of operational pollution discharges in the Marine Park remain undetected and are difficult to enforce.

During the development of the sewage management provisions, for example, vessel owners, local governments and environmental groups were concerned that the boating community and industry would avoid the financial outlay to meet the new standards and that active enforcement would be necessary. It was acknowledged that direct discharge of sewage from vessels particularly in remote areas and under cover of darkness would be difficult to detect and that education, duty of care and self-regulation would be the primary means of achieving compliance with the new initiatives. During the initial phases, most of the effort was aimed at raising awareness of offences with shipping agents and companies before onboard inspections were conducted. Those

184 Personal knowledge.
185 See, eg, P Nelson, ‘Regulation and enforcement of crime in Australia’s maritime zones,’ in Proceedings of the critical issues workshop on The regulation and enforcement of crime in Australia’s maritime zones, University of Wollongong, Centre for Maritime Policy, 14-17 April 1998.
189 See generally MA Stephenson, 1993, pp. 267-286.
inspections focused on the in-service checklist and shipboard management plan on declared ships. The intention was to extend the compliance actions to recreational vessels after a settling in period. Vessel owners or operators that were identified as not complying with the new regulations but could demonstrate their intent to comply with the regulations were generally not indicted. In some cases, however, inspectors or investigators chose to issue advisory letters to the responsible party with a warning to comply, an infringement notice or conducted more detailed investigations into the alleged or suspected offences, generally under the TOMPA.

7.4.9. Compliance

From 1991 to 2004, there were 102 successful prosecutions relating to the illegal discharges of oils and other ship-sourced waste products in Australian courts. Since 1985, AMSA also referred 47 cases of pollution incidents that have occurred in Australian waters to various flag States for investigation; just over 27 of those cases have been investigated, resulting in 11 fines. During 1996 to 2001, AMSA also referred evidence in relation to 40 cases of pollution incidents that occurred outside Australian waters to the respective flag States; 14 of those cases were investigated, resulting in 4 fines. However, since 2001 AMSA has focused its resources on enforcing pollution incidents that occur within Australian waters.

Within Queensland, 27 successful prosecutions for oil spill offences were mounted by MSQ under the Transport Operations (Marine Pollution) Regulation 1995 from 1997 to 2006. Convictions and penalties up to $100 000 have been imposed for discharge offences by way of summary proceedings. The first vessel sewage discharge prosecution under the TOMPA was recorded on 14 August 2006 at the Proserpine Magistrates Court. In that case, the master of a 16 metre commercial passenger

192 ibid.
193 ibid.
195 See Australian Maritime Safety Authority, ‘Prosecutions for sewage pollution from ships:
carrying vessel on charter was fined $3000 for offences relating to the configuration of a sewage holding device and failing to carry a sewage management plan.196

7.5. Issues affecting the efficacy of the waste discharge regulatory measures

The waste discharge standards applicable to the Reef have evolved over a 50 year period and affect all vessels using or transiting the Marine Park including merchant ships, defence vessels, cruise ships, commercial and recreational vessels. This section investigates issues that affect, or have the potential to affect, the efficacy of those regulations in protecting the values of the Region particularly those related to vessel-source sewage management. Those issues relate to the relative contributions of nutrients in sewage and other wastes into the Marine Park, the identification of safe discharge distances from sensitive areas and the benefits of the designation of the nearest land line under MARPOL, effectiveness of on-board treatment technologies and the impact of the availability of waste reception facilities.

7.5.1. Relative contributions of nutrients as a component of vessel-sourced waste

The setting of waste discharge standards requires an understanding of the behaviour of the properties of the various wastes in the marine environment. As discussed in Chapter 3, even minute amounts of nitrogen and phosphorus present in sewage can affect the health of coral reef ecosystems.197 Given the complexity and lack of understanding of the responses of tropical marine biota to these inputs, it is not practical to accurately specify the nitrogen and phosphorus standards in vessel sewage effluent based solely on the volume of sewage discharged from a vessel as this will depend on the number of


persons carried by the ship or vessel and the duration and frequency of each voyage. Nonetheless, the POTS Act, GBRMP Act and TOMPA and their subordinate legislation have all sought to regulate sewage based on the number of people on board, rather than the size of the vessel or ship which bears no direct relationship to the potential amount of sewage generated by the ship or vessel.

A risk assessment conducted in 2003\(^{198}\) as part of the amendments to the *Great Barrier Reef Marine Park Regulations 1983* determined that most of the discharges from recreational vessels would occur in the vicinity of nearshore islands but generally outside of the Marine Park in estuaries, creeks and inshore areas owing to the restrictions afforded by the licensing requirements and capabilities of these vessels. The assessment found that the amounts of nitrogen and phosphorus generated by those vessels would be an order of magnitude less than that generated by a typical municipal sewage plant.\(^{199}\) Similarly, given that most ships carry less than 20 crew members, the quantity of processed or unprocessed sewage generated by the merchant shipping sector would be extremely small, except within ports and in the congested areas adjacent to Cleveland Bay, Townsville and Hay Point. While the *de minimis non curat lex* (i.e. the law does not pay heed to trifling matters) maxim, used in criminal law and the interpretation of statutes generally\(^{200}\) could justify more lax rules for vessels carrying just a few passengers, the rule is less justifiable where there are large numbers of these vessels congregating in the same area. By contrast, the risk assessment indicated that the waste discharge generated from the 1 650 000 people taken out into the Marine Park every year by commercial tourist vessels and cruise ships represents a more significant problem, adding at least twice as much nitrogen and phosphorus to the marine environment of the Reef as generated by a typical municipal sewage plant (where sewage is processed to a secondary standard) servicing the townships adjacent to the

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199 Approximately 765 tonnes of sewage, roughly equating to 1.8 tonnes nitrogen and 0.7 tonnes phosphorus per year.

Marine Park. 201

One of the means of reducing the effluent from the smaller tourism operations and larger cruise ship operations is to impose more stringent standards than encapsulated in the legislation is through a permission which sets conditions for conducting commercial activities in the Marine Park. Most commercial tourism or cruise ship permits stipulate that unprocessed sewage should be discharged at least four nautical miles seaward from the nearest reef, island or the mainland, in recognition of the limitations of the current forms of on-board sewage treatment and management by these types of vessels. In general, however, it has not been necessary to impose more stringent sewage discharge standards under the GBRMPA permit as the International Council of Cruise Lines and other sectors of the cruise ship industry have advised that they already achieve the highest sewage management standards through adoption of the Cruise Industry Waste Management Policy and Procedures. 202 This industry standard requires that waste discharge is to be conducted under an environmental management plan. The plan requires cruise ships to treat sewage to much higher standards than those set out under MARPOL, or contain and dispose of the waste at a suitable receptacle. However, disposal at a shore based facility can be expensive due to the handling and transport costs, 203 amounting to 35 cents per litre in some locations, especially considering cruise ships carrying around 1900 passengers can generate up to 600 000 litres of sewage effluent on a typical cruise around the Reef. 204

201 Approximately 12 000 tonnes of sewage which roughly equates to 30 tonnes of nitrogen and 11 tonnes of phosphorus per year.


203 Transport of the sewage to these receptacles is conducted by shore-side pump stations, road tankers, barges, vacuum trucks, quay connection to the sewers and local waste management contractors; personal knowledge.

Defence vessels are another category of vessel that has the potential to discharge considerable amounts of sewage into the Marine Park. However, the amount of sewage actually discharged from vessels engaged in military exercises is regulated by the Australian Defence Force, whose policy it is to comply with other government environmental legislation and regulations, unless operational capability is compromised.  

To that end, the Australian Navy have developed very high marine pollution prevention standards and procedures for dealing with shipboard wastes on-board their fleet of vessels, despite the weight and space challenges posed by many of the different classes of vessels used for such activities. Further, the Defence Force is bound by the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) if any of their activities are deemed to have a significant impact on the environment, where their activities are matters of national environmental significance or relate to controls on access to, and activities within, Commonwealth marine protected areas. However, environmental approvals under Part III of the EPBC Act are not required where action is taken in the Marine Park and those actions are regulated by the GBRMP Act and its subordinate instruments. As part of the process of assessing the significance of Defence Force vessel based activities under the GBRMP Act, a strategic environmental assessment was conducted for the GBRWHA in 2006. The assessment concluded that the majority of Defence routine activities, including those relating to the risk of sewage discharges and oil spills would only have minor or negligible consequences on the values of the GBRWHA. The assessment also satisfied section 5.2(d) of the Zoning Plan 2003 relating to use and entry of the Marine Park, negating the need to undertake an assessment of every individual Defence activity or exercise.

208 See EPBC Act pt 3.
209 Subordinate instruments include a zoning plan, a plan of management, a permission, an authority, an approval or a permit; see EPBC Act s 43;
211 ibid.
planned in the Marine Park under the EPBC Act.  

7.5.2. Safe discharge distances for untreated sewage

The preamble to MARPOL makes reference to the need to preserve the human environment in general and the marine environment in particular. The pathogens in vessel sewage such as bacteria, viruses and parasites, ingested while swimming, diving or eating seafood, can affect human health or the health of the biota in the receiving environment. Ideally, discharge of sewage should only be exercised in circumstances where environmental quality and public health are not jeopardised. While the maceration of the sewage (a basic requirement of its management under the GBRMP Act, POTS Act and TOMPA) itself improves amenity by helping to quickly disperse any visible plumes, this alone does not reduce the nutrient or pathogen loadings of the sewage. Nonetheless, given that vessel sewage cannot always be taken out of the Marine Park, it is important therefore to determine the most appropriate distance that untreated macerated sewage effluent can be discharged from a sensitive area.

A study commissioned by MSQ showed that dilution of sewage discharges occurs more rapidly in greater water depths (because of the increased depth available for vertical mixing) and that higher current speeds may transport material further than lower current speeds before the required dilution is achieved. The study recommended that for vessels carrying less than 10 people, the recommended safe discharge distance of untreated sewage from a reef was 400 metres. For vessels carrying more than 10 persons, a safe discharge distance for untreated sewage was 2000 metres from a reef.

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212 Personal knowledge.


216 These recommended ‘safe distances’ were considered not to cause environmental harm or nuisance and satisfied the ANZECC water quality guidelines.
edge, increasing to 5000 metres for vessels greater than 200 gross registered tonnage.\textsuperscript{217}

A separate study\textsuperscript{218} of vessel sewage inputs in Nara Inlet in the Whitsunday Islands by Griffith University showed that the levels of bacteria from marine toilets at anchorages throughout the bay varied both spatially and seasonally but were well below the Australian and New Zealand Environment Conservation Council Water Quality Guidelines.\textsuperscript{219} Other factors influencing the levels of bacteria were rainfall, water temperature, the type of seafloor substrate and levels of re-suspension bought about by wave and wind action. The results of these studies were considered by the GBRMPA and MSQ in developing the new regulations but excluded seasonal (eg episodic rainfall events) and specific locality factors (eg proximity of an anchorage to a sensitive area) as this would have introduced too much complexity into the regulations.

\subsection*{7.5.3. Discharges from ‘nearest land’}

As noted in Chapter 4, the designation of ‘nearest land’ off the outer reef complex under the POTS Act\textsuperscript{220} provides the Marine Park with a degree of protection similar to that under the special area provisions of MARPOL\textsuperscript{221} (see Figure 4.2 of the Appendix to this thesis). The practical effect of the proclamation of nearest land outside the majority of the Reef complex is to prohibit most, but not all, forms of ship and vessel-sourced discharges within the vicinity of the outer (generally shallower) coral reef systems that make up the Reef but not the entire Marine Park, which is within 54 nautical miles of the seaward boundary in the northern sector of the Marine Park. Thus, the discharge of unprocessed oil within 50 nautical miles of nearest land may be permitted a few nautical miles of the boundary of the northern sector of the Marine Park.

\textsuperscript{217} These figures are based on average conditions in the waterways of southern Queensland. The parameters of the model estimated that the range of current speeds would vary between 0.1 m/s - 0.5 m/s. However, currents in excess of 2 knots would not be uncommon in some of the passages of the Whitsunday Islands.


\textsuperscript{220} POTS Act ss 9(4)(a)(1), 21(4)(f), 26B(3), 26BC(4)(c), 26D(6)(a) and 26F(6)(b).

\textsuperscript{221} See Resolution A.720(17), \textit{Guidelines for the designation of Special Areas and the identification of Particularly Sensitive Sea Areas}, adopted 6 November 1991, Appendix C.
Further south, the geographic coordinates of the nearest land line intersect a large section of coral reefs in the vicinity of Cape Flattery and Hilder Reef in the Far Northern Section of the Marine Park, potentially exposing those areas to discharges of untreated sewage (and other pollutants) in the case where a ship does not have a sewage treatment plant on board and has to hold on to their waste until it is 12 nautical miles from nearest land, or further process (comminute or disinfect) that waste before discharging at least three nautical miles from nearest land.222 These areas of the Marine Park host many different types of ecosystems223 that sustain important habitat types and marine life susceptible to waste.224 Similarly, the discharges of unprocessed garbage at a distance of 25 nautical miles from nearest land under the POTS Act225 could have similar but less harmful effects on those areas.

7.5.4. Effectiveness of on board sewage treatment plants

The main limitation with the waste discharge regulations in the Marine Park in all three jurisdictions, from an environmental perspective, is that it maintains the status quo and represents a minimum standard for the majority of ships and vessels. For example ‘Grade A’ treated sewage, the highest standard of vessel sewage treatment in the GBRMP Act and TOMPA, mirrors the MEPC standard contained in Annex IV MARPOL226 but is well below that of the GBRMPA’s tertiary treated sewage standard recommended in a former sewage management proposal.227 These types of systems disinfect and dilute the effluent on a continual basis and are capable of almost eliminating, nitrogen and other nutrients228 from sewage stored on the ship whilst it is

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222 See POTS Act s 26D(6).


225 POTS Act s 26F(7).


227 Great Barrier Reef Marine Park Regulations 1983 s 135 (3).

228 Up to 2mg/l (40%) of the nitrogen in effluent is non-degradable organic nitrogen and will therefore not
under-way. Treatment to this standard is difficult to achieve on vessels as the system requires sufficient space and a generally stable platform to house the expensive biological ‘activated sludge’ or membrane bioreactors that are integral to such systems, compounded by the variability of the waste composition.

Although nearly all of the Australian flagged ships and many vessels in the fleet of Australia’s Defence Force have treatment systems on board that are capable of treating effluent to the Grade A standard, increasing the discharge distances of treated sewage in proximity to sensitive areas of the Marine Park to improve environmental protection of the Reef is not feasible due to the narrow width of many of the shipping routes through the Region. For example, there are approximately 76 locations within the ‘recommended track’ of the northern sector of the Marine Park where a ship could be in breach of a requirement to discharge its treated sewage at least 1000 metres from the nearest reef or other sensitive ecosystem. In addition, it would not be feasible to activate or deactivate a treatment system in the vicinity of each reef without affecting the mechanical operation of the treatment system.

As a precautionary measure, however, it would be desirable to set the treatment benchmark of sewage treatment systems to a high performance level at various stages in the future (as MSQ have done) to encourage both the technical development and adoption of best practice technologies. On the other hand, it may be too difficult to predict how marine sewage technologies might change into the future. Typically, sewage treatment systems vary in performance and may not consistently reduce nutrients, for example, where the variability of loading exceeds the capacity of the

be decomposed in biological treatment processes; J Doyle & P Griffith [Defence], pers. comm., 2004.


233 Information sources derived from the Great Barrier Reef Marine Park Authority’s GIS spatial database.

system or where the systems are not properly maintained, due to poor operator proficiency. For example, the Royal Australian Navy conduct regular tests of their sewage treatment plants both at sea and on shore and have found that most parameter levels typically fluctuate in a large range around a mean value and that absolute values of any one parameter may be exceeded depending on operational conditions.\textsuperscript{235} This may account for the relatively small percentage of the fleet of recreational craft operating in Queensland coastal waters that have chosen only to install Grade B and Grade C sewage treatment systems.\textsuperscript{236} A further concern is that existing treatment technologies have the potential to release chemical by-products into the water column as part of the ‘dosing’ of their tanks to disinfectant the effluent, the residual of which can be toxic to marine biota and cannot be discharged back in the waters of the Marine Park under the GBRMP Act.\textsuperscript{237} While in theory, any sewage treatment system is required to dechlorinate all waste prior to its discharge to aquatic ecosystems, in practice this varies with the quality of the unit, variability in loading and other performance variables.\textsuperscript{238}

Currently, there is no clear requirement for the ongoing testing of actual treated sewage discharges from any treatment system.\textsuperscript{239} Testing under Annex IV of MARPOL applies to onshore testing of ‘type approved’ systems\textsuperscript{240} and testing of systems at sea, but most systems are generally not tested, except on request by a Recognised Organisation (classification society)\textsuperscript{241} and occasionally as part of Australia’s PSC inspection regime.\textsuperscript{242} Under these circumstances, it will be difficult to determine whether there is an unlawful discharge because of inadequate maintenance of the treatment system or

\textsuperscript{235} Owen Parker [Royal Australian Navy] pers. comm., 3 August 2004.
\textsuperscript{236} Troy Cameron [AMI Pty Ltd] pers. comm., 1 September 2004.
\textsuperscript{237} GBRMP Act s 38J(7). Refers to Annex II of MARPOL.
\textsuperscript{238} Personal knowledge.
\textsuperscript{240} For example, for certification of treatment systems, the testing body performing the test should have implemented appropriate quality control measures in accordance with recognized international standards acceptable to AMSA as the ‘Administration’ recognized by the International Maritime Organization.
\textsuperscript{242} A Caston [AMSA] pers. comm., 14 August 2006.
any one of the exceptional events under the POTS Act\textsuperscript{243} (implementing Annex IV of MARPOL)\textsuperscript{244} and also TOMPA.\textsuperscript{245} Clearly choices have to be made about the types of chemicals, the types of formulas and the types of tests specified in the performance standards. On the one hand, a greater range of treatment standards for chemicals, viruses and other nutrients would lead to better environmental outcomes as a wider variety of potential pollutants are considered in the legislation. On the other hand, it is difficult to reliably test for an extensive range of parameters as this may necessitate increased compliance costs and uncertainties in verifying whether or not a set of standards has been met or exceeded. Many of these issues were recently addressed in a report (submitted by Australia) of the correspondence group to the IMO Sub Committee on Bulk Liquid and Gases\textsuperscript{246} but were not supported.

7.5.5. Availability of waste reception facilities for sewage

In view of the inconclusive research on the effects of untreated sewage on tropical marine environments referred to earlier in this Chapter, a prudent risk reduction regulatory measure might be to apply the precautionary principle\textsuperscript{247} to either completely prohibit the discharge of sewage waste into the Marine Park or require the owner or master of a ship to discharge the effluent to a reception facility using the powers invested in a ‘prescribed officer’ under the POTS Act\textsuperscript{248} and TOMPA.\textsuperscript{249} While the complete prohibition of the discharge of wastes in the Marine Park is impractical given the large area covered by the Marine Park, legislating for the provision and mandatory use of waste reception facilities reveals four main issues.

First, there are few vessel sewage waste reception facilities within the ports and marinas

\textsuperscript{243} POTS Act s 26D(5)(d).
\textsuperscript{244} This event includes where ‘the discharge of sewage resulting from damage to a ship or its equipment if all reasonable precautions have been taken before and after the occurrence of the damage, for the purpose of preventing or minimizing the discharge’; MARPOL Annex IV, reg 3(1)(2).
\textsuperscript{245} TOMPA s 51A(b).
\textsuperscript{247} GBRMP Act s 39Z.
\textsuperscript{248} POTS Act s 14A, 26AA, 26DAA and 26FE.
\textsuperscript{249} TOMPA pt 10.
of Queensland, particularly outside of the regional townships, despite the fact that MARPOL places an obligation on coastal States to provide waste reception facilities at ports for oily waste,\(^{250}\) noxious liquid substances,\(^{251}\) sewage\(^{252}\) and garbage\(^{253}\) at reasonable cost. Currently, waste contractors with vacuum trucks are available at Cairns, Townsville and Gladstone, however at ports such as Cape Flattery, Lucinda, Abbott Point and Hay Point, which together handle a significant portion of ships visiting Queensland ports adjacent to the Marine Park, there are no reception facilities.\(^{254}\) The legislative requirement for the provision of waste reception facilities in Queensland ports and marinas is governed by the *Environment Protection Act 1994* (Qld).\(^{255}\) While the installation of waste reception facilities under this Act may be stipulated as a condition of licence for new marinas, the installation and maintenance of pump out stations can be expensive\(^{256}\) and may not be utilised unless they are provided free of charge.\(^{257}\)

Second, facilities have to be conveniently located and cost effective to use. Up to 64 per cent of vessel owners surveyed in Queensland have indicated that they would not use a pump out facility even if they were available.\(^{258}\) Sewage pump-out services have been

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\(^{250}\) MARPOL Annex I, r 10(7)(8) and 12.

\(^{251}\) MARPOL Annex II, r 7.

\(^{252}\) MARPOL Annex IV, r 10.

\(^{253}\) MARPOL Annex V, r 5(4).


\(^{256}\) NSW Waterways (now NSW Maritime) have suggested that the capital cost of small shore based pump out facilities is between $30 000 and $50 000 while larger shore based pump out facilities cost from $200 000 to $250 000. Operational costs of shore based facilities range from $8000 to $10 000 per annum while operational costs of mobile facilities range from $70 000 to $80 000 per annum.

\(^{257}\) The experience of NSW Maritime, who introduced a broad range of changes in 2002 including mandatory requirements of blanket ‘no discharge’ areas and holding tanks to be fitted to vessels built after 1 July 1992, is that pump out facilities are not used by the general boating community unless they are provided free of charge.

used on occasion by some of the cruise ships and larger tour operators but large
numbers of smaller vessels are unlikely to want to queue up to use a pump out facility at
peak times. Ships could also be unduly delayed if the facilities are not stationed in close
proximity to the ship and available at all hours\textsuperscript{259} or it may become uneconomical for
ports to offer the facilities on a permanent basis, particularly if only a few ships use
them.

Third, municipal sewage treatment systems are generally unable to receive large
volumes of saltwater infused sewage, although the technology is improving.\textsuperscript{260} The
Douglas Shire is currently the only township adjacent to the Marine Park that has
constructed a saltwater treatment plant to treat effluent from the marine tourism industry
to a tertiary standard, but there are currently no incentives to encourage its use. Use of
alternative facilities such as those situated on island national parks has the potential to
put a strain on existing facilities and resources, particularly in peak season and in the
remote areas of the Marine Park. Also, there are often problems with the availability of
waste contractors and facilities in strategic and or remote locations.

Fourth, many smaller and older vessels cannot be safely or economically refitted with
appropriate sized holding tanks. There is concern from the boating community that a
build up of explosive or toxic gases may become a safety or amenity issue, depending
on the type of operation and numbers of passengers carried. In practical terms, the level
of environmental risk associated with the need for holding tanks to be fitted on vessels
and provision of pump out facilities is proportionate to the rate and place of discharge.
In low use areas of strong tidal flushing or wide-open embayments, there is probably
little need for pump out facilities. Conversely, in semi enclosed, high use and high value
conservation areas, permit conditions and best practices could be used to stipulate
requirements for vessels to hold and pump the sewage to an onshore treatment facility.

\textsuperscript{259} See, eg, RGS Johnston, ‘Port waste facilities’, \textit{Shipping and the environment - Is compromise

\textsuperscript{260} For example, on shore holding tanks facilities with direct connections to the sewer system can be fitted
with trickle feed sewerage systems to reduce the impact of ‘shock loads’ on the system.
7.6. Conclusions

Waste discharges from all vessels and ships are comprehensively regulated in the Marine Park by directly referencing, and consistently giving effect to, the core provisions of the relevant annexes of MARPOL relating to discharges of oil (and oily mixtures), discharges of noxious liquid substances, jettisoning harmful substances in packaged form, discharging of sewage and disposal of garbage. The experiences in implementing vessel-sourced sewage regulations in the Reef would not be dissimilar to the implementation of other waste discharge laws. For example, during the drafting of the vessel-sourced sewage legislation, key considerations included the capabilities of treatment systems, the utility of ‘nearest land’ under MARPOL, cost effectiveness and the availability of waste reception facilities in the Region. That experience also shows that while there are some minor gaps, overlaps and duplication in the regulatory scheme amongst the different agencies, from an environmental perspective, the main limitation with the amended regulations is the lack of consideration of the impact of nutrients in vessel-sourced sewage on coral reef habitats and the lack of incentives and means of ensuring the economical use of waste reception facilities by ships and vessels within and adjacent to the Marine Park.

As an issue that affects many different types of domestic and foreign vessels and ships that operate within the Region, the development of waste discharge standards for the Marine Park should take account of the construction, design, equipment and manning standards for each type of vessel, its passenger capacity and the types of activities the vessel is engaged in. Account should also be taken of the generally accepted international rules and standards, particularly those of MARPOL. There is, however, a trade off between setting very stringent standards that challenge technological improvement and setting standards that are immediately achievable. It is therefore important for the ship regulatory authorities to address real environmental problems caused by vessel-source waste discharges such as those from cruise ships, rather than simply reflect the current practice and state of international law on this issue, which could fail to safeguard the high environmental values of the Reef. There may also be a need for the ship regulatory authorities to apply other non-regulatory instruments or other means available to them to implement more stringent measures in particularly sensitive sea areas such as GBRMPA has done through their plans of management, the permit system (in the case of commercial non trading vessels) and environmental best
practice guidelines.
8. INTERVENTION IN, AND RESPONSE TO, A MARITIME CASUALTY OR MARINE POLLUTION EVENT IN THE MARINE PARK

8.1. Introduction

A shipping incident or emergency is one where a ship, its crew or its cargo is in peril, or faces a prospective threat that constitutes an environmental or navigational hazard to the waters of the Reef.1 The incident may arise from a breakdown, grounding, collision, stranding, foundering, hull damage, engine or equipment failure rendering the ship unstable or without a method of control or propulsion. An incident involving a ship in need of assistance may deteriorate and become a ship or maritime casualty,2 resulting in a major fuel, oil or chemical spill.3

The ever-present threat of a large oil or chemical spill in the Marine Park is of considerable concern to the Australian public and particularly to the Indigenous communities who live adjacent to the Reef.4 As established in Chapter 3, a major spill of fuel, oil or chemicals containing noxious and harmful substances on the Reef has the potential to severely degrade or disrupt the ecology and utility of large areas of the Marine Park and Great Barrier Reef World Heritage Area (GBRWHA). The clean up and restoration of those areas can also immobilise or divert government, community and industry resources away from other, more productive, endeavours.5 Within Australia,

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1 Derived from Resolution A.949(23), Guidelines on places of refuge for ships in need of assistance, adopted 5 December 2003.
2 As discussed in Chapter 4, a ‘maritime casualty’ may arise following a collision of ships, stranding or other incident of navigation, or other occurrence on board a ship or external to it resulting in material damage or imminent threat of material damage to the ship or its cargo; see section 1.3.6 of the Australian Maritime Safety Authority, National Maritime Place of Refuge Risk Assessment Guidelines, National Plan Management Committee, Canberra, November 2002.
3 For convenience, a chemical is also referred to here as a hazardous and noxious substance.
5 For example, the 72 000 tonnes of crude oil spilt as a result of the Sea Empress grounding on 15 February 1996 affected several high conservation value nature reserves of the United Kingdom, beseeching the Wales Countryside Commission to allocate 70 per cent of its staff for 9 months during the first phase of the response; see R Edwards & I White, ‘The Sea Empress oil spill: environmental impact and recovery’, Proceedings of the 1999 International Oil Spill Conference
there is also a comprehensive system of contingency plans in place to facilitate a rapid response\(^6\) to a potential or actual marine pollution event, including within the GBRWHA.\(^7\) However, the unique characteristics of the Reef, particularly the remoteness of large areas of the southeast and northern areas of the Marine Park, pose particular challenges for responding to a maritime emergency.\(^8\)

This chapter describes the powers of intervention available to the ship regulatory authorities to direct a ship ‘in need of assistance’\(^9\) to a ‘place of refuge’\(^10\) or respond to an oil or chemical spill in the Marine Park and the GBRWHA. The Chapter’s initial focus is upon the political, technical, operational and administrative issues for the ship management authorities in responding to ships in need of assistance requiring a place of refuge, emergency towage\(^11\) or salvage\(^12\) of the ship, its crew and cargo and the preventative measures directed toward the prevention of further pollution damage. It then describes the marine pollution contingency planning and response arrangements for responding to an oil or chemical spill in the GBRWHA that could occur in conjunction or independently of an incident involving a ship in need of assistance. The chapter is concluded by examining the issues that affect the efficacy of the statutory and non statutory instruments and arrangements for dealing with maritime emergencies in

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\(^6\) Response in this context refers to the deployment of pollution equipment and personnel, clean up and disposal of ship-sourced pollutants, and in some cases, restoration of an area.


\(^9\) The concept of a ship ‘in need of assistance’ has been discussed Chapter 4 but is used interchangeably here as a general term to describe ‘maritime incident,’ ‘maritime casualty,’ ‘leper ship’ and ‘ship in distress’.

\(^10\) A ‘place of refuge’ is a place where a ship in need of assistance can find favourable conditions enabling it to take action to stabilize its condition, protect human life and reduce the hazards to navigation and to the environment; Resolution A.949(23), *Guidelines on places of refuge for ships in need of assistance*, adopted 5 December 2003, p. 6.

\(^11\) Emergency towage comprises the initial response to a shipping incident, as distinct from salvage arrangements involving recovery of property. Towage is where one vessel expedites the voyage of another vessel when nothing more is required than the acceleration of its progress; see *The Princess Alice 1849* 3 Wm. Rob. 138 at 139-40 cited in C Hill, *Maritime Law*, 6\(^{th}\) edn, Lloyds Practical Shipping Guide, Legal Books, United Kingdom, 2003, p. 248

\(^12\) Towage services do not become salvage services unless the tow is in danger by reason of circumstances which could not reasonably have been contemplated by the parties and the risks are incurred or duties performed by the tug which could not reasonably be incurred within the scope of the contract; *The Ship Texaco Southampton v Burley* (1982), 2 NSWLR 336.
8.2. Origins of maritime emergency response in Australia

Australia’s first recorded major oil spill occurred on 28 November 1903 as a result of a grounding of a 1821 gross tonnage steamer, the *Petriana*, causing it to release 1300 tons of oil into the sea at Port Phillip Bay.\(^{13}\) Although the development of a National Contingency Plan had been the subject of preliminary discussions by the then Department of Transport during 1969, it was not after the second major spill occurred in the Torres Strait from the *Oceanic Grandeur* in 1970 when the lack of preparedness to deal with a major oil spill in the marine environment oil in Australia was highlighted, providing the catalyst for the inception of the *National Plan to Combat Pollution of the Sea by Oil and Other Noxious and Hazardous Substances* (National Plan).\(^{14}\) The incident highlighted the potential inadequacies in Australia’s oil spill response capability particularly the need for pre-positioned stockpiles of equipment and dispersant stocks; legislation that placed responsibility on the ship to meet any response costs; understanding of environmental effects of oils; and appropriate regulation of navigation standards.\(^{15}\)

Australia interest in developing procedures for places of refuge began in earnest in 1975 after it had experienced its first casualty that required a place of refuge.\(^{16}\) Although the

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\(^{13}\) The spill occurred from the *Petriana*, a 1821 gross tonnage screw steamer as it was bound for Melbourne, Victoria, from Borneo. Although the vessel was piloted, it went aground in Port Phillip Bay in heavy fog, flooding the engine room and stokehold. The vessel was laden with 1300 tons of bulk oil as well as an unrecorded quantity of naptha and benzene. Attempts made to refloat the *Petriana* throughout the day using the steam tug *James Patterson* including lightening the vessel by releasing the cargo of 1300 tons of oil into the sea, were unsuccessful. The foul-smelling oil contaminated the beaches for months afterwards; see Australian Maritime Safety Authority, ‘Major oil spills in Australia: Petriana, Port Phillip Bay, November 1903’, <http://www.amsa.gov.au/MarineEnvironmentProtection/MajorOilSpillsinAustralia/Petriana/index.asp> 9 December 2007.


\(^{16}\) This was the *Princess Anne-Marie*, a 66 851 dead weight tonnage Greek flagged tanker carrying a cargo of crude oil that developed extensive damage to its starboard wing tanks off the coast of Freemantle.
Australian Maritime Safety Authority (AMSA) had developed a capability to respond to these incidents under the National Plan, management issues specifically concerning ships in need of assistance were only comprehensively addressed in Australia during the 1993 review of the National Plan. Discussions at the National Plan Advisory Committee continued over several sessions, resulting in Queensland developing a policy on safe havens, which has since been superseded by the current *National Place of Refuge Guidelines*.

### 8.3. Response to a maritime casualty in the Marine Park

The powers pertaining to a maritime casualty can be found in a range of Commonwealth and Queensland legislation, guidelines and administrative arrangements. However, as noted in Chapter 4, any decision to allow a casualty into a port needs to be weighed up against Australia’s international legal obligations, future trade implications for Australia and the impact of competitiveness of other ports within the vicinity of the trading sphere of the ship. This section reviews the intervention powers under the Commonwealth, including those relating to the use and entry of the Marine Park, the scuttling of a ship casualty, wreck removal issues, vessel seizure powers and the overall administrative arrangements for preparedness and response to an emergency.

#### 8.3.1. Intervention

The *Protection of the Sea (Powers of Intervention) Act 1981 (Cth)* (POI Act) is the most relevant piece of legislation for dealing with maritime casualties under Commonwealth

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This Act implements the International Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, 1969 (Intervention Convention) and was recently amended\(^\text{21}\) to allow the AMSA to take a range of measures to prevent, mitigate or eliminate a grave and imminent threat of pollution to the coastline of Australia or to the related interests of Australia from all ships both within and outside every external Territory of Australia\(^\text{22}\) out to the high seas.\(^\text{23}\) The powers of intervention under the POI Act cover a broad range of incidents such as collision, stranding, incidents of navigation or occurrences on board which could result in material damage or imminent threat of damage to ship, cargo, the environment, livelihoods and public health.\(^\text{24}\) The response measures available under the POI Act include moving a ship; removal of cargo; taking salvage measures; sinking or destroying a ship or cargo; and taking control of a ship,\(^\text{25}\) including an historic ship.\(^\text{26}\) Such measures must be proportionate to the scale of pollution that occurs or is threatening to occur otherwise Australia is liable to pay compensation for any additional damage to others thereby caused.\(^\text{27}\) Except in extreme emergencies, the right to intervene in a maritime casualty must be preceded by due consultation with States or persons whose interests are affected by the casualty.\(^\text{28}\) However, the POI Act does not authorise the taking of measures against a warship or other ship owned or operated by a foreign country and used only on government, non-commercial service.\(^\text{29}\) For Australian ships, however, AMSA continue to retain the right

\(^{20}\) The *Navigation Act 1912* schedule 9 also sets out some obligations under the International Convention on Salvage, 1989 relating to the need for cooperation between salvors.

\(^{21}\) Through the Protection of the Sea (Shipping Levy) Amendment Bill 2005.

\(^{22}\) POI Act s 6.

\(^{23}\) POI Act s 8(1).


\(^{25}\) POI Act s 8(2).

\(^{26}\) POI Act s 5(2).

\(^{27}\) International Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, 1969 art VI.

\(^{28}\) In that case other Commonwealth legislation may be triggered. For example, section 185B (1)–(4) of the *Customs Act 1901* (Cth) can be used to direct a person to move, destroy or cause such things to be done to a ship if it is in contravention or attempted contravention of the *Customs Act 1901* or other prescribed Act. Section 185B(3) requires that such actions can only be taken if there are reasonable grounds to believe a ship is unseaworthy, poses a risk to navigation, quarantine or safety or public heath or damage to property of the environment.

\(^{29}\) POI Act s 8(3).
to issue directions anywhere that ship is located.

The most relevant powers administered by the GBRMPA for dealing with a maritime casualty are the ‘Additional purposes for use or entry’ provisions provided for under Part 5 of the *Great Barrier Reef Marine Park Zoning Plan 2003* (Zoning Plan 2003).\(^{30}\) These powers expressly facilitate decision-making during a maritime incident by allowing a zone to be entered without permission in an emergency to perform functions relating to securing the safety of life or a vessel or exercise a power under another Commonwealth law.\(^{31}\) In addition, Special Management Areas can be declared in specific areas of the Marine Park without public consultation for the purpose of dealing with a situation requiring immediate management action.\(^{32}\) Special Management Areas can be designated by way of notice published in the Australian Government Gazette and a local newspaper or the GBRMPA’s web site and may remain in force for a period of not more than 120 days (extendable for a further 60 days)\(^{33}\) to exclude the navigation of a ship in those areas without permission from the GBRMPA until a plan of management is prepared and implemented under the regulation-making powers of the *Great Barrier Reef Marine Park Act 1975* (GBRMP Act).\(^{34}\) Where it is considered necessary (eg to prevent the Media flying over a casualty site, the powers of the GBRMPA to designate such areas may be used to declare an air and water exclusion zone over a maritime casualty. The Australian Safety Transport Bureau, through the *Transport Safety Investigation Act 2003* (Cth),\(^{35}\) is also permitted to secure an accident site and exclude potentially interested parties. However, this would only be for the purpose of conducting an investigation, not to assist the pollution clean up or salvage response.

The GBRMP Act also contains some extraterritorial powers that have the potential to address activities that may also co-incidentally protect parts of the GBRWHA that are

\(^{30}\) Zoning Plan 2003 pt 5.

\(^{31}\) Zoning Plan 2003 s 5.1(a).

\(^{32}\) Special Management Areas can be declared *inter alia* to deal with site or activity issues involving emergency action; carry out environmental restoration; conservation of a species or natural resources; respond to a pest or exotic species outbreak; and for public safety and use of areas that are prohibited under a law of Queensland or the Commonwealth; Zoning Plan s 4.2.2.

\(^{33}\) Zoning Plan 2003 s 4.2.1.

\(^{34}\) GBRMP Act s 66.

\(^{35}\) The *Transport Safety Investigation Act 2003* became operative on 11 October 2003.
outside of the Marine Park from environmental damage. As discussed in more detail below, section 66 of the GBRMP Act\(^{36}\) is a unique provision that allows the Governor General of Australia to make Regulations ‘regulating or prohibiting acts (whether in the Marine Park or elsewhere) that may pollute water in a harmful manner to animals and plants in the Marine Park’. Although intended as a safeguard against dredging operations in ports adjacent to the Marine Park,\(^{37}\) this provision could theoretically be implemented to protect the Marine Park from the effects of a maritime casualty.

Within Queensland, maritime casualties may be dealt with under the *Transport Operations Marine Pollution Act 1995* (Qld) (TOMPA), the *Transport Operations (Marine Safety) Act 1994* (Qld) (TOMSA) and the *Marine Parks (Great Barrier Reef Coast) Zoning Plan 2004* (Qld). The TOMSA\(^{38}\) provides the powers to direct ships\(^{39}\) and persons\(^{40}\) to certain places or take other action that is necessary,\(^{41}\) to protect the marine environment from ship-sourced pollution, providing the General Manager of MSQ is satisfied that the casualty is a serious danger to Queensland interests.\(^{42}\) These powers may also be used to detain a ship providing there are clear grounds for believing a discharge offence has occurred ‘because of acts or omissions in relation to a ship in coastal waters’\(^{43}\) such as where a ship is operated unsafely,\(^{44}\) or in respect of non-payment of penalties by the owner or master of the vessel.\(^{45}\) Within the approaches to ports and the ports themselves, and for vessels and ships registered in Queensland, Regional Harbour Masters are vested with powers to control, restrict or prohibit, or

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\(^{36}\) GBRMP Act s 66(2)(e).


\(^{38}\) TOMSA s 123(1).

\(^{39}\) Excludes war ships or other ships owned by foreign States on non-commercial government service.

\(^{40}\) TOMPA s 95.

\(^{41}\) These actions include: to move a ship or part of the ship to another place; remove cargo from the ship; salvage the ship, part of the ship or its cargo; sink or destroy a ship or part of the ship; or take control of the ship or part of the ship; TOMPA s 98(2)(a).

\(^{42}\) TOMPA s 98.

\(^{43}\) TOMPA s 84.

\(^{44}\) TOMPA s 3.

\(^{45}\) TOMPA s 216(1)(b).
direct the movements of vessels into ports.\textsuperscript{46} Outside of ports but within state waters, the
state Marine Pollution Controller (a position normally occupied by MSQ’s General
Manager) may direct and coordinate the response to a discharge or probable discharge
of pollutant into coastal waters.\textsuperscript{47} The \textit{Marine Parks (Great Barrier Reef Coast) Zoning
Plan 2004} (Qld) provides for entry into any zone of a Queensland State Marine Park for
the purposes of dealing with an emergency involving a serious threat to the environment
for similar purposes and under similar conditions to those specified in section 5.2 of the
Zoning Plan 2003 relating to ‘Additional Purposes for Use and Entry’.\textsuperscript{48}

\subsection*{8.3.2. Detention}

As noted in Chapter 4, both the \textit{Protection of the Sea (Prevention of Pollution from
Ships) Act 1983} (Cth) (POTS Act) and \textit{Navigation Act 1912} provide for the detention of
foreign flagged ships for a wide range of pollution and ship safety breaches.\textsuperscript{49} The
powers under the \textit{Navigation Act 1912} are relevant for the purposes of detaining
unseaworthy and substandard ships that are involved in a maritime casualty.\textsuperscript{50} Within
Queensland coastal waters, the power to detain a ship is specified in TOMPA. In that
case, an authorised officer may detain a ship if the officer has clear grounds for
believing a discharge offence has happened because of acts or omissions in relation to
the ship in coastal waters. Similar powers are provided under TOMSA.\textsuperscript{51} The GBRMP
Act does not provide for detention of a vessel although it does provide for seizure of a
vessel. If it is suspected that a ship or vessel has committed an offence within the
Marine Park, an inspector appointed by the Chair of the GBRMPA has the power to
seize and retain that ship or vessel for up to 60 days or longer, until a prosecution for
that offence is terminated.\textsuperscript{52} However, it is to be expected that the GBRMPA would be
reluctant to seize a vessel or ship for more than seven days because of the

\textsuperscript{46} TOMSA s 86-97.

\textsuperscript{47} TOMPA s 92.

\textsuperscript{48} A zone may be used to locate, or to secure the safety of, an aircraft, vessel or structure to prevent or
minimise damage to the environment or to the aircraft, vessel or structure; see \textit{Marine Parks (Great
Barrier Reef Coast) Zoning Plan 2004} (Qld) s 67.

\textsuperscript{49} See, eg, POTS Act s 27A and \textit{Navigation Act 1912} s 192A.

\textsuperscript{50} \textit{Navigation Act 1912} s 210(1).

\textsuperscript{51} TOMSA s 168.

\textsuperscript{52} GBRMP Act s 47(2).
Commonwealth’s potential liability for compensation if that prosecution is unsuccessful. In practice, it is likely that an emergency towage or salvage operation pertaining to a casualty would be conducted under a permit and Deed issued by the GBRMPA. The deed sets out the terms and conditions pertaining to the permit, as well as any indemnities, bonds and insurance requirements to cover the costs of clean up or restitution of the environment, where that environment has been damaged by the casualty. Failure to comply with the conditions set out in the permit or deed could result in a fine or imprisonment of the master, crew or owner of the vessel or ship. Further, where a court convicts the person for an offence under the GBRMP Act, the vessel or ship that is used or otherwise involved in the commission of the offence may be forfeited by the Commonwealth and may be sold or otherwise disposed of as the GBRMPA sees fit.

### 8.3.3. Scuttling of a casualty

In some casualty situations, such as where the ship or vessel is in endangering the safety of life of the crew or salvors, the only option may be to scuttle the ship or vessel. A decision to scuttle a ship within Australian waters would normally need the approval of the Minister for the Department of Infrastructure, Transport, Regional Development and Local Government (Infrastructure Department). Those directions to the ship should be ‘reasonable and proportionate’ to the circumstances in accordance with the POI Act and the National Place of Refuge Guidelines and should have been scrutinised by all of the parties to the decision making process.

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53 GBRMP Act s 47(3).
54 GBRMP Act s 47(4).
55 Personal knowledge.
57 Personal knowledge.
58 GBRMP Act s 47A(1).
59 See GBRMP Act s 47(1) and (5).
Within the Marine Park, the scuttling of a ship or vessel normally requires a sea dumping permit under the *Environment Protection (Sea Dumping) Act 1981* (Cth), except in the special circumstances of an emergency.\(^{60}\) The *Environment Protection (Sea Dumping) Act 1981* is administered by the Commonwealth Department of the Environment, Water, Heritage and the Arts (Environment Department) and, within the Marine Park, jointly by the GBRMPA.\(^{61}\) The Act permits a range of materials and all ships, regardless of flag, to be disposed of in an emergency. It also requires that a full report of a maritime incident is to be completed by the responsible person (e.g., salvor) and submitted to the Commonwealth Environment Minister.\(^{62}\) The Commonwealth Environment Minister, within 30 days after receiving the report, may require an environmental assessment of the scuttling of the ship and its impact on the environment under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).\(^{63}\)

Regardless of the type of emergency (safety of life, stress of weather etc), specific notification or reporting obligations may also apply under the GBRMP Act. For example, the GBRMPA’s powers under part 5 of the Zoning Plan 2003 relating to ‘Additional Purposes for Use and Entry’ could extend to giving a direction prescribing actions to minimise damage to the benthos and other marine life during the salvage operation. Where there is sufficient time, and depending on the type of vessel or ship, the scuttling of a vessel or ship within the Marine Park would probably involve assessment of several sites and the social and environmental impacts of the vessel upon those sites.\(^{64}\) In preparing the vessel for sinking, all pollutants and other occupational


\(^{63}\) EPBC Act s 163.

health and safety hazards would be removed to minimise damage to the environment and any liability that may arise, for example, should a person be injured or property damaged *inter alia* as a result of diving on the wreck, or from another vessel running into, or getting caught up on the wreck. The information can also be used as a benchmark to ensure that the salvage has been conducted in accordance with the principles of the International Convention on Salvage 1989 and *Lloyd’s Open Form*, which puts the onus on salvors to conduct salvage operations ‘to their best endeavours’ and with due care to environmental interests.

If possible, the casualty should be located outside of high conservation zones, in areas of low relief with minimal natural coral, and in sufficient water depth to minimise the possibility of translocating a marine pest. Sites that should be avoided for the dumping or scuttling of wrecked ships or vessels include navigation routes; areas that are used for recreational or commercial fishing; areas that could result in conflicts with other uses of a site such as research, tourism and recreation; areas used for the activities of Indigenous Australians; or areas subject to (or potentially subject to) Native Title claims. Future management of the site may also involve regular audit; and where environmental performance or compliance does not meet the required standards, then penalties or remediation may be instigated.

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65 Personal knowledge.
67 Previously, Article 2 of the Brussels Convention 1910 (i.e. Convention for the Unification of Certain Rules of Law Relating to Assistance and Salvage at Sea’ signed at Brussels in 1910) provided that a salvor would not be renumerated unless the services had a beneficial result to the environment; see C Redgwell, ‘The greening of salvage law’, *Marine Policy*, vol. 14, no. 2, 1990, p. 143.
68 The wreck should be located in an area that is consistent with the objectives of the ‘Great Barrier Reef Marine Park Zoning Plan 2003’ but outside of a Buffer Zone, Scientific Research Zone, Marine National Park Zone or Preservation Zone.
69 For example, Asian Green Mussel (*Perna viridis*) is a pest of concern to Australia that is known to inhabit inter-tidal and sub-tidal habitats to a depth of 20 m but has been found at greater depths; KE Carpenter & VH Niem (eds), ‘Batoid fishes and chimaeras’ in *The Living Marine Resources of the Western Central Pacific*, FAO vol. 3, 1998, pp. 1398-1537.
8.3.4. Wreck removal

After the casualty situation or event has stabilised, the GBRMPA may consider invoking its property removal powers under the authority of section 38H of the GBRMP Act.\(^\text{72}\) Under these powers, the threat of a wreck or ‘any other thing’ upon the values of the Reef is assessed and the GBRMPA may require the responsible person to secure, clean up or remove the wreck from the Marine Park to the satisfaction of the GBRMPA or the Queensland Environment Protection Agency (EPA).\(^\text{73}\) Costs can be recovered for the removal of the vessel from the individual to whom the Order has been issued.\(^\text{74}\) If the wreck was occasioned due to an offence under the GBRMP Act (eg where that vessel is sunk, dumped or disposed of outside of an emergency), and a person is arrested and convicted for that offence, that person is liable to pay an amount equal to the total amount of those expenses and liabilities of the Commonwealth or the GBRMPA.\(^\text{75}\) Similar powers are available under the Environment Protection Sea Dumping Act 1981. For example, if the Commonwealth Minister for the Environment believes that the dumping or incineration of a vessel will cause an obstruction, or constitute a danger to vessels, result in harm to human or marine life; or result in an interference with the exercise of the sovereign rights of Australia as a coastal State, then the Minister may direct the responsible party to repair or remedy any condition, or to mitigate any damage, arising from that action.\(^\text{76}\)

The Zoning Plan 2003 can also be used to facilitate the removal or salvage of a wreck in the Marine Park without notification or direction to the GBRMPA if those operations are carried out under Commonwealth law.\(^\text{77}\) The ability to undertake geodetic surveys to help determine legislative jurisdiction or provide accurate information on the state of tides and topographic profile of a casualty site is also provided for under the Zoning

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72 GBRMP Act s 38H.
73 Great Barrier Reef Marine Park Regulations 1983 r 94.
74 GBRMP Act s 61(B).
75 GBRMP Act s 61(B)(1).
76 Environment Protection Sea Dumping Act 1981, s 16.
77 Zoning Plan 2003 s 5.1(a)(vi).
Plan 2003 but requires the notification of the GBRMPA.78 Once a notification is received by the GBRMPA, the removal or salvage of a wreck can be made subject to any directions given by the GBRMPA.79 Outside of an emergency, the removal or salvage of a vessel that is wrecked, stranded, sunk or abandoned requires notification to the GBRMPA and may be subject to any directions given by the GBRMPA.80 However, by virtue of section 1.7 of the Zoning Plan 2003, any provision in the Zoning Plan 2003 would need to be read and applied so as not to authorise the giving of a direction by the GBRMPA that could restrain or obstruct another agency in the way it carries out or exercises its statutory functions.81

It some situations, it may be prudent to use the powers under the Zoning Plan 2003 to declare a Special Management Area over the site of a sunken vessel or ship to exclude other users from the site while authorities or salvage operators attend to the vessel.82 For example, if the vessel were to leak oil or other contaminants, the Special Management Area could be declared for that site for the purposes of environmental restoration. Similar provisions are available under the part 6 of the Marine Parks Act 2004 (Qld) to declare temporary restricted areas in Queensland State waters and undertake restorative work.83

The Navigation Act 191284 also sets up a procedure for dealing with wrecks outside of the coastal waters of the Marine Park. In this context, wrecks are defined to include flotsam,85 jetsam,86 lagan87 and derelict88 vessels.89 Section 314A(3) of the Navigation

78 Zoning Plan 2003 s 5.2(e).
79 Zoning Plan 2003 s 5.2(e).
80 Zoning Plan 2003 s 5.2(a).
81 Section 1.7 under the Zoning Plan 2003 does not authorise an act or omission that would contravene the GBRMP Act, the Great Barrier Reef Marine Park Regulations 1983 or a plan of management; any other law of the Commonwealth or Queensland in force in the amalgamated Great Barrier Reef Section; or an obligation under international law.
82 Zoning Plan s 4.2.2.
83 Marine Parks Act 2004 (Qld) pt 6.
84 Navigation Act 1912 pt VII.
85 Goods afloat after a ship has sunk; N West, Marine affairs dictionary: terms, concepts, laws, court cases and international conventions and agreements, Praeger Publishers, United States, 2004.
86 Goods cast overboard to lighten a ship; N West, 2004.
87 Goods cast overboard but marked to enable recovery; N West, 2004.
Chapter 8

Act 1912 gives AMSA the power to cause removal of an historic wreck where it is necessary for the purposes of saving human life, securing the navigation of a ship or dealing with a serious threat to the marine environment. These powers extend to the removal of hazardous historic shipwrecks declared under the *Historic Shipwrecks Act 1976 (Cth)* in certain circumstances. Costs may be recovered from the owner for failing to undertake the necessary actions.

8.3.5. **Administrative arrangements**

First developed in 2002, the *National Place of Refuge Guidelines* give effect to the International Maritime Organization (IMO) *Guidelines on places of refuge for ships in need of assistance* for dealing with a response to a maritime casualty in Australia (and the Marine Park). These guidelines aim to help ship regulatory authorities, ships’ masters and the maritime industry identify a place of refuge in circumstances where an emergency cannot be dealt with at sea, as well as the appropriate procedures to assess a maritime casualty. The *National Place of Refuge Guidelines* procedures outline the decision making processes in deciding whether to grant a request for a place of refuge, when and how casualty coordination is handed over to other jurisdictions, and the operational environmental, cultural and socio-economic criteria that must be taken into account into selecting a place of refuge. Exercises are conducted on an annual or biannual basis to test the arrangements for the management of a ship in need of assistance.

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88 Vessels and cargo abandoned at sea without hope of recovery; N West, 2004.
89 *Navigation Act 1912* s 294.
90 *Navigation Act 1912* s 314A(3)
91 These circumstances relate to the saving of human life, securing the safe navigation of ships, and dealing with an emergency involving a serious threat to the environment; *Navigation Act 1912* s 314A(3).
92 *Navigation Act 1912* s 314A(1)(d).
95 For example, ‘Exercise Safe Passage’ was conducted in Brisbane on 14 December 2005 to rehearse critical decision making on places of refuge issues; simulate discussion on the various political, technical, operational and administrative aspects of dealing with requests for places of refuge; and evaluate potential impacts associated with the International Shipping and Port Facility Security Code on marine incident response in Queensland ports; see Maritime Safety Queensland, ‘Report on Exercise Safe Passage,’ unpublished report, April 2006.
The decision-making processes involved in assessing a maritime casualty were significantly boosted by the establishment of the ‘National Maritime Emergency Response Arrangements’ in late 2005. The newly designated national ‘Marine Emergency Response Commander’ has responsibility for implementing the National Maritime Emergency Response Arrangements in accordance with the POI Act and the National Place of Refuge Risk Assessment Guidelines. The Marine Emergency Response Commander assumes overall decision-making responsibility in situations where a casualty presents a ‘grave and imminent danger’ or directly threatens to pollute Australia’s waterways. The powers vested in the Marine Emergency Response Commander include the power to direct maritime assets to assist in the incident response. To that end, the Marine Emergency Response Commander may direct a tug to attend a casualty, designate a place of refuge or order a facility to perform repairs on a damaged ship. To ensure compliance with any directions given, penalties for not acting in accordance with directions made under the POI Act are set at a maximum fine of 2000 penalty units ($220 000) or a maximum term of imprisonment for five years, or both, for an individual.

Due to the decline in the level of private sector provision of emergency towage services, the National Maritime Emergency Response Arrangements also provide for a dedicated 65 metre tug for the northern sector of the Reef. For other areas of the Region (and indeed Australia), a second tier of emergency towage capacity is provided through contractual arrangements with a network of tugs located at other Queensland ports. These arrangements are funded by a single national levy imposed on the commercial shipping industry.


100 W Truss, ‘Better protection for North Queensland’s marine environment’, Media release, 19 August 2005, DOTARS 05/015WT.
8.4. Issues affecting the efficacy of intervention and response arrangements for dealing with a ship casualty in the Marine Park

The primary concern in responding to situations involving disabled ships in the Marine Park is to initiate preventative measures involving the coordination of a request for a place of refuge; deciding whether to grant a place of refuge; the ongoing management of the casualty; and any post incident actions that relate to salvage and wreck removal. In addition to operational considerations, the effectiveness of the operation of the laws and plans to deal with a maritime casualty can be affected or influenced by the delegation and use of powers of the various ship regulatory agencies. A rapid response to a maritime casualty could prevent, halt or reduce the level of pollution or collateral damage to specific localities of the Marine Park, while a prolonged or delayed response could lead to impacts that are more substantial. This section examines the critical issues that could impact on the efficacy of casualty response arrangements and laws in the Marine Park.

8.4.1. Concept of casualty

The rights of Australia to take and enforce measures to deal with a ship casualty are dependent on the condition and location of the ship, and the likelihood of that ship causing damage to the marine environment. The concept of ‘casualty’ recognises a threat to the ship and crew as well as to the coastal State but can only be decided at the time of the event.\(^{101}\) This is distinct from a situation where the ship seeks shelter to ride out a storm and undertake temporary repairs and rest the crew before continuing a voyage.\(^{102}\) However the conditions that could give rise to that damage reflect graduated levels of risk and are open to interpretation,\(^{103}\) and involve questions of degree,\(^{104}\) making it difficult for the ship regulatory authorities to gauge the appropriate level of

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\(^{102}\) ibid.


enforcement actions, especially outside of Australia’s territorial sea. Given much of the Marine Park extends to the EEZ, it is important to understand at what point intervention is justified and to what extent ships may be given exceptional rights in such circumstances.

Commentators attempting to identify the circumstances for intervention have referred to the need for a ‘test of distress’ that qualifies a ship as a ‘casualty’ which may be useful in the context of responding to a maritime casualty in the Marine Park. Those circumstances arise from the ‘stress of weather’ or ‘force majeure’ clauses under international law, as well ship and crew safety, piracy, mutiny and other situations of necessity and belligerency. Of particular interest to the strength of a claim for a disabled ship to take refuge in the Marine Park is the notion of when the test of distress should be applied, and whether the condition of the ship is self inflicted, for example due to the machinery not being properly maintained. To that end, the IMO manual on Salvage provides that it is incumbent on response agencies to assess each situation independently through taking into account the type and quantity of pollutant, weather, tides, availability of salvage equipment and expertise. While the National Place of Refuge Guidelines obligates the master to supply this information to the Rescue

105 For example, Article 221 of the LOSC assumes a right of intervention outside of a coastal State’s territorial sea when there is merely ‘actual or threatened damage’ which may reasonably be expected to result in ‘major harmful consequences’ to a coastal States’ interests; PW Birnie & AE Boyle, *International law and the environment*, 2nd edn, Oxford University Press, New York, 2002, p. 380.


109 C Hill, for example, notes that the test of distress starts at the moment a ship is in imminent danger and there is a well-grounded belief that the ship could be lost with its cargo and crew. In evaluating elements of distress, there must be a reasonable apprehension of real danger of the ship or the conduct of those on board a ship; C Hill, *Maritime Law*, 6th edn, Lloyds Practical Shipping Guide, Legal Books, United Kingdom, 2003, pp. 245-246.


Coordination Centre\textsuperscript{112} together with information regarding the ship’s identity and the causes, nature and extent of any damage to the ship,\textsuperscript{113} the polyglot nature of the crews, the standards of crew competency and language barriers can make the task of communicating and receiving instructions related to management of the casualty very difficult.\textsuperscript{114} Further, a thorough assessment of the situation may not always be possible due to the lack of available information on the nature of the cargo and sensitivity of the particular area of the Reef intended as a place of refuge.

If there is a gradual deterioration of the vessel, it may not be clear where the ‘trigger point’ for intervention is, as this is a matter for the judgement of the ship regulatory authorities managing the incident. The court case following the grounding of the Oceanic Grandeur in Torres Strait in 1970 put to the test the concept of the casualty and the circumstances constituting the elements of ‘danger’ for the purposes of salvage.\textsuperscript{115} It was held that while the ship was considered presently ‘safe’ [as it had grounded on a reef], the combination of the risk of fire from spillage and the risk of structural damage was such that there was the necessary degree of danger [to mount a response], even though the ship was in shallow water and calm seas at the time of the grounding.\textsuperscript{116} A failure to promptly attend to a ship that needs assistance, even where the risk of damage is not imminent, could have catastrophic consequences to the Marine Park due to the relatively high toxicity of oils and chemicals to the flora and fauna of the Reef. It is important therefore that the definition of ‘maritime casualty’ is sufficiently broad to encompass any ship that is not able to operate in a normal manner. For example, given that most merchant ships carry several tonnes of bunker oil, intervention actions adjacent to the Marine Park (but within Australia’s EEZ) could be justified purely on the threat that the pollution from bunkers alone poses to the marine environment. Under these circumstances, the Casualty Coordinator\textsuperscript{117} could ‘request’ or ‘authorise’ certain actions to be taken by the master of the stricken ship or, alternatively, issue the ship

\begin{itemize}
\item \textsuperscript{112} \textit{National Place of Refuge Guidelines} s 2.2.2.
\item \textsuperscript{113} See \textit{National Place of Refuge Guidelines} Appendix B.
\item \textsuperscript{114} See also J Chapman, ‘Ships of shame’, \textit{Maritime Studies}, vol. 71, July-August 1993, p. 6.
\item \textsuperscript{115} \textit{Fisher v The Ship Oceanic Grandeur} (1972), 127 CLR 312 at 326.
\item \textsuperscript{116} ibid.
\item \textsuperscript{117} A ‘Casualty Coordinator’ is the person responsible for managing a maritime casualty under state or national marine emergency response arrangements.
\end{itemize}
with a general ‘notice’ or direction requiring certain actions to be undertaken.\footnote{118} Thus, a high level of trust tends to be placed in the master of a ship by the ship regulatory authorities to know precisely what condition a ship is in at any particular point in time.\footnote{119} In some cases, condition of a ship may not trigger the POI Act or even the \textit{National Place of Refuge Guidelines} but could include other management actions such as heightened monitoring by REEFCENTRE or tasking of government owned aircraft or vessels in the vicinity to undertake surveillance of the situation.\footnote{120}

### 8.4.2. Case-by-case assessment of a place of refuge

Given the length of the outer barrier reefs extends up to 2300 kilometres, it may not be possible to prevent a casualty sailing the Outer Route in a deplorable or rapidly deteriorating condition from taking refuge inside of the Marine Park. The conditions landward of the outer barrier reefs would be calmer than in the open sea; however once the ship is within the Marine Park, the number of areas within the Region that could be considered favourable for a place of refuge is relatively limited. While the GBRMPA would be more concerned with the sensitivity of the marine ecosystems in a place of refuge to the potential for spillage of oils and chemicals, a salvor, or master of a ship will consider a place of refuge in terms of the protection it provides from the sea and weather as well as a place to anchor and undertake repairs. A key concern of a ‘combat agency’\footnote{121} in identifying a place of refuge would be its proximity to response resources.\footnote{122}

Some commentators have argued that the risk assessment process should be more concerned with the ship itself and would be more efficiently undertaken if there were at least some pre-designated place of refuges within the Marine Park.\footnote{123} The \textit{National

\footnote{118}{Personal knowledge.}
\footnote{120}{Personal knowledge.}
\footnote{121}{The combat agency for incidents in the Marine Park is normally Maritime Safety Queensland.}
Place of Refuge Guidelines provide that a place of refuge should not be predesignated but that the assessment of each incident should be conducted on a case-by-case basis, taking into consideration the type of environment the casualty is directed to.124 In this way, the National Place of Refuge Guidelines avoid establishing an ‘automatic right of access’ in which the states or territories of Australia could lose their ability to refuse the right of entry into territorial or internal waters.125 Instead, the National Place of Refuge Guidelines provide for the risk of the casualty to be assessed through variables such as the volume and type of pollutants onboard; risk of escape of pollutants; extent and type of damage sustained by the vessel; ability of the vessel to manoeuvre; weather conditions; and time of entry.126 Assessments of this nature would further assist salvors or the master find a place of refuge that is most proximate to the vessel, helping to salve life and property and minimise the safety risk of the salvage crew.127

Nonetheless, a decision to grant a place of refuge that is based on too broad a range of operational, environmental, cultural and socio economic criteria may well result in the identification of a number of alternative sites. Assessment of those sites may require information to be sourced from experts and geographic information held by AMSA, GBRMPA and other state government agencies. Such an assessment could include an interdisciplinary analysis of the costs and benefits of alternative routes or other measures128 and require the GBRMPA to liaise with, and take advice from, other government and non-government environmental interests such as the Queensland Parks and Wildlife Service and the GBRMPA’s local marine advisory committees.129 However, this has potential to extend the decision making process, particularly where an agency is required to make a decision that requires an approval or permission to

124 National Place of Refuge Guidelines s 3.1.1.
126 ibid.
127 ibid.
undertake certain activities in connection with the casualty. ‘Net environmental benefit’ is clearly an overarching consideration for a place of refuge assessment in terms of finding the best environmental outcome in the circumstances.

8.4.3. Process and timing of statutory approvals from GBRMPA

To facilitate actions that can be taken under the POI Act,\textsuperscript{130} the *National Place of Refuge Guidelines* require the concurrence or approvals of the ship regulatory authorities when identifying and directing a casualty to a place of refuge within the Marine Park.\textsuperscript{131} As a vessel or ship endangered by stress of weather or operational hazards can lawfully transit any zone within the Marine Park under the ‘Additional Purposes for Use and Entry’ provisions of part 5 of the Zoning Plan 2003,\textsuperscript{132} interference by the GBRMPA in an emergency towage or salvage operation would, in practice, be negligible. For the most part, the ship would not require permission to transit the Marine Park, as ships are able to ‘freely’ navigate within the main shipping routes covered by ‘Shipping Areas’ and the General Use Zones.\textsuperscript{133} There are, however, at least three situations where the statutory approvals of the GBRMPA for a disabled ship may be required. The first is where the disabled ship is a ‘regulated ship’ over 70 metres in length and needs to traverse a compulsory pilotage area; the second concerns a situation where the GBRMPA wishes to impose its own directions on the stricken ship; and the third concerns the assessment of a sunken or wrecked vessel.

In the first instance, a ship traversing or directed through a compulsory pilotage area would need to satisfy the requirements under part VIIA of the GBRMP Act relating to the compulsory pilotage.\textsuperscript{134} In that case, the options available to the master to satisfy those requirements are to request the services of a licensed pilot on board when transiting the area (option 1); apply for an exemption from carrying a pilot after being technically assessed as competent to do so by the AMSA (option 2); or apply for an

\textsuperscript{130} The POI Act is intended to run concurrently with other Commonwealth and state laws: POI Act 5(1).
\textsuperscript{132} Zoning Plan 2003 s 5.
\textsuperscript{133} Discussed at Chapter 6.
\textsuperscript{134} GBRMP Act pt VIIA.
exemption from carrying a pilot due to stress of weather or other unavoidable cause (option 3).\textsuperscript{135} The first option would depend on whether it was safe to land a pilot on board the ship in the (generally) inclement weather conditions, while the second option is probably impractical because it is unlikely that a satisfactory assessment could be conducted by AMSA in the time available. It is more likely that the master or owner of the stricken vessel in any proceedings for an offence against the compulsory pilotage provisions\textsuperscript{136} of the GBRMP Act would try to prove that his or her ship navigated in the compulsory pilotage area because of stress of weather or other unavoidable cause.\textsuperscript{137} In that case, the most practical solution could be to engage a licensed pilot to ‘talk the master through’ the area.\textsuperscript{138} Once through the compulsory pilotage area, the stricken vessel would continue to transit the Marine Park to seek shelter within the Reef’s lagoon.

In the unlikely event that the GBRMPA was not satisfied with the directions given by Casualty Coordinator, the GBRMPA could impose its own directions on the stricken ship under section 66 of the GBRMP Act. These directions relate to the giving of directions to activities that may affect the Marine Park, within and outside the Marine Park.\textsuperscript{139} Given that the object of the GBRMP Act is to ‘make provision for, and in relation to, the establishment, control, care and development of a marine park in the Great Barrier Reef Region…’,\textsuperscript{140} that the Act applies to all persons and vessels including foreign vessels but is subject to obligations under international law,\textsuperscript{141} it seems reasonable that the GBRMPA should be able to leverage significant influence in decisions relating to a place of refuge with the object of protecting the Marine Park from any damages arising to it from a maritime casualty.

Under section 38N of the GBRMP Act, the GBRMPA or persons whose interests are

\textsuperscript{135} GBRMP Act s 59F.

\textsuperscript{136} See GBRMP Act s 59B, 59C or 59D.

\textsuperscript{137} GBRMP Act s 59H.


\textsuperscript{139} GBRMP Act s 66(2)(c).

\textsuperscript{140} GBRMP Act s 5(1).

\textsuperscript{141} GBRMP Act s 65.
affected (or would be affected) by an action involving the discharge of waste from a
delivered or damage to the Marine Park arising from a casualty constituting a contravention
of the GBRMP Act could apply to the Supreme Court of Queensland to grant an
injunction in such terms as the court determines to be appropriate.\footnote{142} The power of the
court to grant an injunction restraining a person from engaging in conduct may be
exercised whether or not there is an imminent danger of substantial damage to the
Marine Park.\footnote{143} However, if the polluting activity has not occurred or is unlikely to
affect the Marine Park to a significant extent, it may be difficult to justify action that in
reality is designed to protect those areas adjacent to the Marine Park rather than the
Marine Park itself.\footnote{144} Nonetheless, the real value of section 38N of the GBRMP Act is
that it strengthens the position of MSQ in arguing for, and taking actions to meet the
highest possible standards for the protection of the Marine Park and GBRWHA. It also
discourages ministerial interference in an incident such as through the granting of
exemptions of particular actions.\footnote{145} However, this provision has not yet been invoked
for dealing with a casualty or other activities involving shipping, presumably because
thus far it has not been necessary due to the good working relationships established at
the working officer level among the Commonwealth and Queensland state ship
regulatory authorities.\footnote{146}

\subsection{8.4.4. Limitations on liability}

Intervention and response to a casualty raises two main issues of concern to the ship
regulatory authorities. The first issue concerns the threat of personal litigation for
officers of the ship regulatory agencies for failing to properly carry out their duties. The
second issue concerns who and how the intervention or response actions can be cost

\footnote{142} See GBRMP Act s 38N(1).
\footnote{143} GBRMP Act s 38N(5)(c).
\footnote{144} S Sparkes, ‘Legislation protecting the Great Barrier Reef World Heritage property?’ in State of the
Great Barrier Reef World Heritage Area Workshop: proceedings of a technical workshop held in
Townsville, Queensland, Australia, 27-29 November 1995, Great Barrier Reef Marine Park Authority,
\footnote{145} For example, under the powers of section 94 of TOMPA, the Queensland Transport Minister may, by
emergency declaration, overrule a local rule.
\footnote{146} See also LK Kriwoken, ‘Great Barrier Reef Marine Park: intergovernmental relations’, Marine Policy,
recovered where an incident involving a casualty does not result in the spillage of oil.  

For the ship regulatory authorities, Casualty Coordinators and salvors, a common law duty exists to exercise reasonable care in taking action to deal with a casualty that may affect the users of the Marine Park. Any breach of this duty of care could give rise to claims against the ship regulatory authorities for physical loss. While a public authority which is under no statutory obligation to exercise a power owes no common law duty of care to do so, an authority may, by its conduct, attract a duty of care that requires the exercise of its power. For example, a public authority may attract a duty of care where in the exercise of its functions has created a danger or where a public authority acts so that others rely on it to take care for their safety. As the single national decision maker for deciding a place of refuge under the National Place of Refuge Guidelines, it would be expected that this common law duty would fall primarily on the Marine Emergency Response Commander, an officer appointed and employed by AMSA. The immunity conferred on the Marine Emergency Response Commander under the POI Act is limited to those actions taken under the POI Act to deal with the maritime casualty, provided that the Marine Emergency Response Commander has acted reasonably and proportionately in taking those actions when dealing with the casualty. This immunity extends to those people that are in a position to prevent, mitigate or eliminate the threat of pollution and who have been directed to take certain actions by the Marine Emergency Response Commander; eliminating any disincentives that would prevent or disadvantage any persons from making available their expertise

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147 Compensation for incidents involving oil spills is discussed later in the chapter.


151 ibid.

152 POI Act s 5(1).

153 These include vessels owners and operators, crews, terminal owners, stevedores, suppliers of port services, recreational owners and occupiers of adjoining properties and businesses; see generally T Elsworth, ‘Legal implications of granting safe haven’, paper presented to Safe Havens and Salvage, workshop, Port Melbourne, 19-20 February 2002.
or facilities, due to the threat of litigation against them.\textsuperscript{154} Thus, decisions can be taken from a national perspective, rather than from a local and regional perspective, to ensure maximum benefit for pollution prevention.\textsuperscript{155}

The immunity provided to government officers acting under the directions of the Marine Emergency Response Commander is further strengthened under the POI Act. Nothing in the POI Act renders the Commonwealth or the Queensland Government liable to be prosecuted for an offence\textsuperscript{156} and no criminal or civil proceedings may be taken against the Minister for the Department of Infrastructure, Transport, Regional Development and Local Government (Infrastructure Department)\textsuperscript{157} a delegate of the Minister, AMSA or its delegates, as well as persons directed by the AMSA because of an act done or omitted to be done in the exercise of any power conferred on the AMSA by or under the Act.\textsuperscript{158} Therefore, in the absence of proof of negligence by an officer of the Australian or state government giving directions to a stricken ship, it is unlikely that a liability for those officers would exist. However, the same limitation of liability may not be available to ship regulatory authorities in situations where, for example, a ship in need of assistance had not yet been fully appraised and did not meet the test of distress that would make that ship a casualty for the purposes of the POI Act. In that case, the management of the incident may be undertaken by the Casualty Coordinator from the relevant jurisdiction, not necessarily the Marine Emergency Response Commander. That Casualty Coordinator would not be acting under the POI Act and could be reluctant to take all of the measures available to them without the immunity afforded to them by the POI Act.

If a ship or vessel becomes a wreck, the potential for accidents resulting in personal injury or property damage raises the issue of who should be held liable if such incidents occur. One question concerns whether a person, other than the Marine Emergency Response Commander, is capable of withstanding a liability suit if that person grants


\textsuperscript{155} ibid.

\textsuperscript{156} POI Act s 4(2).

\textsuperscript{157} This minister is also responsible for the Australian Maritime Safety Authority.

\textsuperscript{158} POI Act s 17A.
permission to sink a vessel as part of saving lives or other exclusions under the POI Act or the GBRMP Act. Changes to the *Environment Protection Sea Dumping Act 1981* afforded by the Environment and Heritage Legislation Amendment Bill 1999 protect the Commonwealth from any liability charges relating to the unauthorised dumping of controlled material and artificial reefs and allow expenses incurred by the Commonwealth in repairing or remedying any condition, or mitigating any damage, arising from the wreck to be recovered from the liable party. However, a foreign vessel cannot be detained outside of Australian waters and made to pay those costs and the offences incurred by a vessel that has been detained for offences under the *Environment Protection Sea Dumping Act 1981* are low, negating any incentive to remain in Australian waters.

### 8.5. Response to an oil and chemical spill in the Marine Park

The main objective of any response effort dealing with the impending or actual release of oils or chemicals into the water column will be to minimise the impacts on the environment through prompt and effective actions utilising dedicated and competent resources. As the timeframes for conducting clean up operations do not lend themselves to iterative negotiations with different jurisdictions, a system of contingency plans have been developed that prescribe the cooperative arrangements and jurisdictional responsibilities across the different government agencies and, in some cases, private organisations, for responding to an oil or chemical spill in the GBRWHA. This section outlines those arrangements and highlights the range of environmental, logistical, cultural and political decisions that need to be taken into account in

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161 *Environment Protection Sea Dumping Act 1981*, s 17(1).

162 *Environment Protection Sea Dumping Act 1981*, s 17(5).

163 Where the owner of a vessel, aircraft or platform has been convicted of an offence involving the dumping of controlled material and fails to reimburse the Australian Government, that person may be punishable, on conviction, by imprisonment for up to 2 years or a fine up to 120 penalty units, or both; *Environment Protection Sea Dumping Act 1981*, s 17(5).

responding to a spill in some areas of the Marine Park. However, the roles of private firms and individuals such as the ship owner, master, salvor, the ship’s Protection and Indemnity Club (P&I Club), oil spill management companies and other advisors are largely beyond the scope of the analysis.

8.5.1. Regulatory framework

With the exception of the International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea 1996 (HNS Convention) and the International Convention on Civil Liability for Bunker Oil Pollution Damage 2001 (Bunkers Convention),165 Australia has faithfully implemented the key international conventions relating to oil and chemical spill preparedness and response, primarily under the Commonwealth statute of the POTS Act and, in Queensland, under the TOMPA. Under the POTS Act and GBRMP Act, the discharge of oil or an oily mixture from a ship or vessel into the sea is a punishable offence attracting up to 2000 penalty units ($220 000) for an individual and 10 000 penalty units ($1.1 million) for a body corporate.166

TOMPA states that Queensland has the principal responsibility for directing and coordinating the response to a discharge or probable discharge of a pollutant into coastal waters.167 To that extent, TOMPA prohibits the discharge of oil and other pollutants from all ships and vessels and obligates Queensland to remove a pollutant discharged into coastal waters or mitigate its effects on Queensland’s marine and coastal environment.168 Such actions include directing a person to remove, destroy or disperse a discharged pollutant to prevent the pollutant from reaching land or water or mitigate damage or injury caused by the pollutant.169 These functions are reinforced under the Maritime Safety Queensland Act 2002 (Qld), which aims to ‘develop strategies to prevent the deliberate, negligent or accidental discharge of ship-sourced pollutants into

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165 However, Australia is currently in the process of acceding to these conventions.
166 See, eg, the GBRMP Act s 38J(1) and POTS Act s 9(1).
167 TOMPA s 93(2).
168 See, eg, TOMPA s 9, 12 and 14.
169 TOMPA s 95(3).
coastal waters and to deal with discharges whenever they occur.170

As discussed in more detail below, there are also provisions in the Commonwealth and Queensland legislation that require ship owners to provide for the recovery of costs and rehabilitation expenses in the case of actual pollution, and to cover costs and expenses incurred in preventing or mitigating pollution. Ships of 400 or more gross registered tonnage entering or leaving Australian ports are required to carry specific insurance to cover the cost of clean up of a spillage of bunker fuel or other oil.171 The majority of merchant ships also carry general insurance through their P&I Club.

As noted in Chapter 4, liability matters under the International Convention on Civil Liability for Oil Pollution Damage and the 1992 Protocol (CLC 92) are implemented by the Protection of the Sea (Civil Liability) Act 1981 (Cth) while a range of statutes implement matters relating to compensation under the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage and the 1992 Protocol (Fund 92).172 In the event of non-pollution damage, the state or Commonwealth authorities may be able to take civil action to recover such costs. Penalties may also be applied as fines for specified offences, but not as a consequence of the cost recovery of clean up expenses.

In general, the costs of clean up of a marine sourced oil spill can be recovered directly from the P&I Club where the polluter is a trading ship and can be identified.173 Recent amendments to the TOMPA174 have supplemented the P&I Club insurance arrangements. These amendments require all commercial vessels over 15 metres in length (previously 35 metres in length) to have insurance to a limit of $10 million to cover the cost of cleanup of a discharge of a pollutant. In addition, approximately 200

172 These include the Protection of the Sea (Oil Pollution Compensation Fund) Act 1993 (Cth), the Protection of the Sea (Oil Pollution Compensation Fund - Customs) Act 1993 (Cth), the Protection of the Sea (Oil Pollution Compensation Fund - Excise) Act 1993 (Cth) and the Protection of the Sea (Oil Pollution Compensation Fund - General) Act 1993 (Cth).
174 TOMPA s 67a.
ships are required to have insurance under Commonwealth legislation.\textsuperscript{175}

Using section 38MC of the GBRMP Act, the GBRMPA may also choose to recover the costs of damages to any part of the Marine Park affected or injured by an oil or chemical spill. The GBRMP Act also retains powers to restore, repair or remedy any part of the Marine Park that has been damaged by the negligent operation of a vessel or other act.\textsuperscript{176} If the Commonwealth Environment Minister has reasonable grounds to believe that an act or omission constitutes an offence against the GBRMP Act, the Minister may cause to be taken such steps as the Minister thinks proper to prevent any damage likely to arise from that act or omission\textsuperscript{177} including taking action to restore the environment.\textsuperscript{178} Those powers may be delegated to the Chair of the GBRMPA.\textsuperscript{179} The ability of the Minister or the GBRMPA Chair to use these powers may also apply outside the Marine Park but only if ‘the doing of the act or thing affects the Marine Park.’\textsuperscript{180}

\section*{8.5.2. National Oil Spill Plan}

The National Plan, administered by AMSA, is a nationally integrated organisational framework for combating oil and chemical spills in the GBRWHA.\textsuperscript{181} Strategic management of the National Plan, including the setting of broad policy directions, recommendations to Ministers on funding arrangements, and monitoring the provision of agreed services is the function of the National Plan Management Committee.\textsuperscript{182} Membership of the Committee comprises representatives of the GBRMPA,

\begin{footnotesize}
\begin{itemize}
  \item\textsuperscript{176} GBRMP Act s 61A(1).
  \item\textsuperscript{177} GBRMP Act s 61A(1)(c).
  \item\textsuperscript{178} GBRMP Act s 61A.
  \item\textsuperscript{179} GBRMP Act s 61A(3).
  \item\textsuperscript{180} GBRMP Act s 61A(6).
\end{itemize}
\end{footnotesize}
State/Northern Territory governments, as well as the shipping, oil, exploration and chemical industries, and emergency services agencies. The Operational functions of the National Plan are handled by the National Plan Operations Group.

The National Plan is underpinned by an Intergovernmental Agreement that was signed on 24 May 2002 by other Commonwealth, state and Northern Territory governments. The Intergovernmental Agreement details such matters as divisions of responsibilities among constituent parties, contingency planning arrangements, access to Commonwealth equipment, and the management and control of financial affairs. Under these arrangements, owners and operators of ports are required to ensure a ‘first strike’ (prompt initial response) capacity, up to 10 tonnes (Tier 1 response) within their boundaries or resulting directly from their activities. Within the GBRWHA and Queensland, this responsibility falls to MSQ.

Based on the ‘polluter pays’ principle, the Intergovernmental Agreement of the National Plan also puts into effect Australia’s obligations of the International Convention on Oil Pollution, Response and Co-operation 1990 (OPRC) by funding stockpiles of response equipment at ports adjacent to the Reef and a comprehensive national training program to familiarise personnel with the requirements of planning for, and responding to, oil spills. The revenue to fund the National Plan is raised in the

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183 ibid.
184 The functions of the National Plan Operations Group are to develop and implement programs for training; national response team; equipment acquisition, monitoring, maintenance; exercising contingency plans; support systems including dispersant spraying, maintaining the response atlas and oil spill trajectory modelling; research, development and technology; environmental issues including the environmental scientific coordination network; maintain international and regional co-operative arrangements; community awareness; and incident control system implementation; see Australian Maritime Safety Authority, ‘National Plan Operations Group’, <http://www.amsa.gov.au/Marine_Environment_Protection/National_Plan/Contingency_Plans_and_Management/National_Plan_Operations_Group.asp> viewed 12 December 2007.
187 This principle was first expressed in the Rio Declaration on Environment and Development, as Principle 16.
188 The range of courses and workshops offered under the National Plan arrangements include equipment operator courses, contingency planning workshops, ‘on scene’ coordinator workshops, scientific support coordinator workshops, senior management courses, oil spill familiarisation courses, as well as tabletop
form of a levy on vessels greater than 24 metres in length having at least 10 tonnes of oil on board as fuel or cargo under the Protection of the Sea (Shipping Levy) Act 1981 (Cth).

Under the National Plan, the AMSA will replace consumable materials used, and reimburse the ‘reasonable costs’ and expenditure incurred by a Statutory or Combat Agency and any assisting agency in the prevention and clean up of marine pollution from ships, including in situations where the polluter cannot be identified (mystery spills), providing the value of the materials and total reasonable costs and expenditure incurred in responding to an oil spill during a financial year exceeds $5000 up to a maximum of $10 million. The recovery of the costs of measures that can be ‘reasonably’ undertaken to avoid or minimise pollution are those that relate to the costs of clean up, reasonable measures to prevent and minimise pollution damage, and loss of earnings from commercial enterprises such as fishing and tourism. However, as discussed in detail below, the National Plan does not generally allow for the recovery of costs related to compliance, enforcement or similar legal actions, community consultation and environmental monitoring.

The measures taken under the National Plan should be within close proximity to the incident and should ‘not be disproportionate to the further damage or loss which they are intended to mitigate’. Actions that are done merely ‘to be seen to be doing something’ are generally not considered for compensation. To that extent, most of the actions taken during the response to the more significant incidents are done with the

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189 National Plan Appendix 1, para 23.

190 Reasonable costs are similar to those specified under the International Oil Pollution Compensation Funds (IOPC Funds) Claims Manual established under the CLC 92, Fund 92 and the Protocol establishing an International Oil Pollution Compensation Supplementary Fund.

191 Other exceptions include: workers compensation claims; compensation or damages for the death or injury to a person or the loss of or damage to property; and legal costs associated with action other than recovery of clean up costs.


consent of the representative from the P&I Club, who may be present at the incident control room, or at least in constant contact with the Incident Controller.194

Statutory Agencies are also obligated to ‘take such steps as are available to them, including the institution of criminal or civil proceedings, for recovery from the owner or the master of the ship which caused the oil and/or chemical pollution of the costs and expenses incurred in the preventative and clean up measures...’195 To this end, recovery of clean up expenses may also be recovered under TOMPA on all prosecutions.196 Typically, the recovery costs for mobilising equipment during a significant marine pollution event has exceeded $700 000.197 However, the majority of spills in the Marine Park are small and may only cost up to $3000 per spill.198

8.5.3. National Chemical Spill Plan

Developed in response to the obligations set out in Article 4 of the Protocol on Preparedness, Response, and Cooperation to Pollution Incidents by Hazardous & Noxious Substances 2000 (OPRC-HNS Protocol),199 the National Marine Chemical Spill Contingency Plan200 was developed in 1998 as an adjunct of the National Plan. It has similar administrative and operational arrangements to the National Plan and outlines how the combined resources of the Commonwealth and state and Northern Territory governments, the chemical, plastics, petroleum, and shipping industries may be activated to respond to the threat posed to Australia, its people and its marine environment, by spillages of bulk or packaged dangerous goods and chemical spills from vessels.201

194 The ‘Incident Controller’ is responsible for coordinating the Incident Management Team charged with dealing with a marine pollution event.
195 National Plan Appendix 1, para 39.
196 TOMPA s 127.
198 Personal knowledge.
199 Australia acceded to the OPRC-HNS Protocol in March 2005.
201 Australian Maritime Safety Authority, National Marine Oil Spill Contingency Plan –Australia’s
8.5.4. Queensland Coastal Contingency Action Plan

The National Plan is given operational effect in Queensland through the *Queensland Coastal Contingency Action Plan*. The *Queensland Coastal Contingency Action Plan* is a recognised sub-component of the National Plan and sets out the oil spill combat and statutory arrangements for Queensland including all waters of the GBRWHA. Two key roles under the plan are that of ‘Statutory Agency’ and ‘Combat Agency.’ A Statutory Agency has legislative responsibility for ensuring the Combat Agency responds appropriately to an incident.

Consistent with the TOMPA, the *Queensland Coastal Contingency Action Plan* designates MSQ as the Statutory Agency responsible for responding to a discharge or probable discharge of a pollutant in all areas of Queensland coastal waters, including within port limits, except those waters contained within the Marine Park, that are within the scope of *Queensland Coastal Contingency Action Plan*. Within the (entire) Marine Park, the MSQ takes on the role of ‘Combat Agency’ and the role of Statutory Agency is assigned to the GBRMPA. These arrangements ensure that a response to an oil spill can occur immediately, even where the location of the spill and hence jurisdiction is unclear, such as occurred during the *Bunga Teratai Satu* that grounded on Sudbury Reef (22 nautical miles east of Cairns) on 2 November 2000. Because Sudbury Reef is an ephemeral coral cay, it has no firmly established jurisdictional baseline from which to determine whether or not it is in Queensland coastal waters or Commonwealth territorial waters.

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203 TOMPA s 92-100.

204 TOMPA s 93.

205 For example, the seaward limits of Australia’s maritime zones depend *inter alia* on the shape of the coastline of Australia, including the coasts of islands. A normal baseline can be drawn around low tide elevations which are defined as naturally formed areas of land surrounded by and above water at low tide; see Geoscience Australia, ‘Maritime Boundary Definitions’, <http://www.ga.gov.au/nmd/mapping/marbound/bndrs.jspd/bndrs.jsp> viewed 23 February 2007.
The *Queensland Coastal Contingency Action Plan* incorporates the Oil Spill Response Incident Control System (OSRICS) style of incident management that provides for a tiered response to incidents and may be expanded or scaled down depending on the size of the incident (see Figure 8.1 of the Appendix to this thesis). OSRICS identifies specified roles for industry and government personnel to be undertaken during an emergency. Within the OSRICS command structure, the role of the Incident Controller is generally fulfilled by the Regional Harbour Masters located within each of the regional centres of Queensland, three of which have responsibility for the GBRWHA. Unless the spill occurs in the jurisdiction of an oil terminal or on land, MSQ will lead and fund the response effort with support from industry, AMSA and other experts as required. To ensure an effective first-strike oil spill response in ports, the Queensland Government has entered into deeds of agreement with all Queensland port authorities.

### 8.5.5. ReefPlan

The *Oil spill contingency policy document for the Great Barrier Reef World Heritage Area* (ReefPlan) sets out the policy and strategic response arrangements for incidents occurring anywhere in the GBRWHA. ReefPlan was first drawn up in 1987 by the then Commonwealth Department of Transport and Communications as a component of the National Plan following the oil spill from the *Oceanic Grandeur* in the Torres Strait. While the focus is on dealing with oil spills, ReefPlan establishes the

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206 OSRICS has particular utility in the collection and analysis of critical information required on the location of the spill or incident; the type and quantity of the spill; the likelihood of impacts on sensitive resources; the rapid deployment of appropriate equipment; and communication with affected parties and the media; see, eg, BE Ornitz & MA Champ, *Oil spills first principles: prevention and best response*, Elsevier, United Kingdom, 2002.

207 Land sourced spills generally fall within the jurisdiction of the EPA.

208 Oil Pollution First-Strike Response Deed between MSQ and port authorities have been signed for 16 of the State’s 19 trading, non-trading and community ports. Under the terms of the deeds, MSQ is responsible for oil spill contingency planning in ports, for delivering competency based training to port authority personnel and for the overall management of ship-sourced oil spills in all coastal waters; see Australian Maritime Safety Authority, ‘National Plan Annual Report 2003-2004’, <http://www.amsa.gov.au/MarineEnvironmentProtection/NationalPlan/AnnualReports/AR_2003-2004/activities.asp > viewed 5 August 2005.


GBRMPA as the agency responsible for providing environmental advice to the Incident Controller during an oil pollution incident. More detail regarding the roles and responsibilities for providing environmental advice to the Incident Controller are included in the *Great Barrier Reef Marine Park Authority and the Environment Protection Agency (Queensland) Marine Pollution Response Plan*.211

### 8.5.6. Great Barrier Reef Marine Park Authority and the Queensland Environment Protection Agency Marine Pollution Response Plan

Although not formally recognised under the National Plan, the *Great Barrier Reef Marine Park Authority and the Environment Protection Agency (Queensland) Marine Pollution Response Plan* sets out the organisational relationships and communication arrangements for the Environmental and Scientific Coordinators under the OSRICS command structure (see Table 8.1).

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### Table 8.1: Overview of roles of the Great Barrier Reef Marine Park Authority and Queensland Environment Protection Authority in oil spill response

<table>
<thead>
<tr>
<th>Great Barrier Reef Marine Park Authority</th>
<th>Environmental Protection Agency</th>
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</thead>
<tbody>
<tr>
<td>State Committee representation</td>
<td>State Committee representation</td>
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<tr>
<td>Environmental and scientific coordination/advice</td>
<td>Environmental coordination/advice</td>
</tr>
<tr>
<td>Resource advice</td>
<td>Investigation</td>
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<tr>
<td>Investigation</td>
<td>Legal advice</td>
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<td>Legal advice</td>
<td>Ministerial briefings</td>
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<td>Ministerial briefings</td>
<td>Media liaison</td>
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<td>Media liaison</td>
<td>Stakeholder liaison</td>
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<tr>
<td>Stakeholder liaison</td>
<td>Wildlife response</td>
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<tr>
<td>Damage assessment</td>
<td>Shoreline clean up</td>
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<tr>
<td>Monitoring</td>
<td>Waste management advice</td>
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<td></td>
<td>Logistical support</td>
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<td></td>
<td>Damage assessment</td>
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<td></td>
<td>Monitoring</td>
</tr>
</tbody>
</table>

An Environmental and Scientific Coordinator has been appointed from the GBRMPA as well as from each of the regional EPA offices to coordinate and provide practical and objective environmental advice to the incident response team for the purposes of response planning and decision-making. In addition, oiled wildlife response plans have been developed for the marine districts of the Queensland Parks and Wildlife Service responsible for the GBRWHA and other areas of Queensland. The scope of the environmental advice is wide ranging and includes matters relating to ecological resource and protection priorities, wildlife rescue and rehabilitation, slick trajectories, shoreline assessment, dispersant use, waste disposal, sampling and environmental damage assessment. To ensure the Environmental and Scientific Coordinators are properly prepared for an oil spill, workshops are held annually to bring together Australian and other environmental scientists to exchange experiences and gain an appreciation of the on ground management of an oil spill.\(^{212}\)

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\(^{212}\) Australian Maritime Safety Authority, *ReefPlan: An oil spill contingency policy document for the*
8.5.7. Prosecution of oil and chemical spill offences

The maximum fine imposed by Australian courts to-date for oil and chemical spill offences in Australia has been in the vicinity of $620,000, with the level of fine depending on the facts of the case and any mitigating circumstances. However, the level of fines in Australia is much lower than penalties incurred for similar spills overseas. Other types of penalties for oil spills have included a negotiated or court imposed civil penalty such as jail terms or orders for offenders to undertake restoration projects and environmental audits. The fines for discharging oil in the Reef have been in the order of $100,000 but the amounts discharged have been relatively minor. For example, the POTS Act was used to successfully prosecute a 50,000 tonne bulk carrier, the Pax Phoenix for discharging oily waste near Holbourne Island, near the Whitsunday Islands on 2 September 2001. In that case, charges against the master of the vessel were not pursued because of the unauthorised actions of junior crew members and other circumstances, however, the ship’s owners were fined $85,000. Under Queensland legislation, individuals and corporations are liable for fines of more than $262,500 and $1.3 million respectively. These limits are rarely reached under TOMPA as oil spills do not hold a high priority in relation to the court’s workload. However, this may change now that ‘comparison tables’ have been provided to Magistrates of Queensland courts as a guide to the process of setting and awarding fines.

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214 For example, within the European Union, the discharge of pollution from a ship can attract fines of up to US$1.8 million for offences committed in coastal waters or the high seas; ‘Europe unites against marine polluters,’ Environmental News Service, July 2005, <http://findarticles.com/p/articles/mi_kmens/is_200507/ai_n14777732>, viewed 2 August 2005.

215 ibid.


217 See, eg, TOMPA s 26.


219 Personal knowledge.
8.6. **Issues affecting the efficacy of oil and chemical spill response arrangements in the Marine Park and GBRWHA**

The nationally integrated Government/industry oil and chemical spill organisational framework described above has been the key to responding efficiently and effectively to oil or chemical pollution spills in the Marine Park and GBRWHA.\(^{220}\) That National Plan personnel are often called upon to assist in the response to oil spill incidents overseas highlights that Australia's marine pollution response capability may well represent world's best practice.\(^{221}\) However, while the continuing number of smaller marine pollution incidents in the Marine Park will continue to test the effectiveness of contingency planning arrangements,\(^{222}\) the declining number of serious maritime incidents has the potential to undermine the ability of government and industry to prepare and respond to a marine pollution event. This section exposes some of the issues that may affect the level of preparedness and effectiveness of oil and chemical spill response in the GBRWHA. Post response issues relating to the recovery of costs of the clean up and monitoring are also examined.

8.6.1. **Spill response preparedness**

In common with other high value marine environments around the world,\(^ {223}\) the availability and proximity of equipment and trained staff can be critical to the response effort. Three issues of concern for the response to oil and chemical spills in the Marine Park relate to the overall value of training and exercising arrangements, the priorities for the use of response resources in the more remote ports adjacent to the Marine Park and the lack of information about the types and effects of certain chemicals on the Reef.


\(^{222}\) Every year roughly 40 small oil spills have been reported to the GBRMPA, at least half of which are unconfirmed; personal knowledge.

A large or prolonged response to an oil or chemical spill, particularly occurring in remote areas, may lead to a shortage of appropriately skilled and qualified personnel and equipment, which could make it difficult to satisfy basic occupational health and safety requirements. Training of personnel and exercises are regularly conducted to simulate actual incidents in a controlled environment. However, these exercises are unable to test all of the decision-making that would normally occur during an incident because they are generally only run over half a day or a couple of days, a far shorter period than may be required in a major pollution event. Nevertheless, the exercises provide the opportunity to establish or maintain interpersonal networks that are critical for decision making in an incident and have produced a cadre of experts from MSQ, EPA and GBRMPA in the regional centres adjacent to the Marine Park, as well as from industry and Indigenous communities. The involvement of Indigenous people in particular has proved invaluable because of their in-depth understanding of important marine resources as well as those spiritual, traditional and Native Title values of sites that need to be protected in the Marine Park, many of which are remote from the regional townships and centres. Nevertheless, a key challenge is to keep this training current.

Another concern relates to the maintenance schedule for equipment located in some of the smaller ports adjacent to the Reef and priorities for use of that equipment in the Marine Park once an oil spill occurs. While the major ports adjacent to the Reef have some of the largest stockpiles of oil spill response equipment in Australia, there is a prospect that equipment owned by individual oil and chemical companies and other

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224 At all times response managers should be aware of the limitations and safe operating procedures for all equipment used throughout the phases of the cleanup operation; National Plan s 3.7.

225 These are usually run as a ‘desktop’ exercises and may involve the deployment of equipment; see, eg, M Short, ‘Contingency planning exercises: getting the planning right’, paper presented to the 13th National Plan Environmental and Scientific Coordinators Workshop, Darwin, Northern Territory, 6-8 June 2006.


private entities located in the more remote and smaller ports of the Reef, but not funded by the National Plan industry levy, will be left in disrepair. Further, despite the Deed of Agreement between MSQ and the ports conferring MSQ with powers to direct ports to take certain actions under a ‘first strike’ contingency plan (mentioned earlier), it is possible that those ports could give preference to contractual obligations of their own port services and to shipping clients, rather than pollution prevention outside of the port limits, areas that extend into the Marine Park. This is not the case for the ports adjacent to the major towns of Queensland where the storage and maintenance of that equipment is subject to loan agreements between the AMSA and the Queensland Government.228

The third issue concerns the requirement for adequate information about the nature of the substance spilt that is used to guide the response operation. Following notification of a chemical spill, one of the first tasks of the responders is to obtain information about the identity of the chemical, its behaviour, hazards and location. Because of the wide variance in behaviours of chemicals in the water, it is difficult to determine the most appropriate means of responding to that spill when the chemical cannot be identified.229

In the early stages of a spill, the only information a responder would have about a chemical is that contained in the Material Safety Data Sheets accompanying the manifest of the ship. These sheets are designed for shore based responses and do not provide information about the eco-toxicity of the chemicals once they enter the marine environment. In addition, only a few material safety data sheets have been prepared for the 6000 chemicals that have been listed under International Bulk Chemical Code.230 The work done by the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) to evaluate the environmental hazards of chemicals on ships is far from complete, posing severe operational constraints for responding to a pollution event of this nature.231


229 See IMO Resolution 10; the scope of the International Convention on Oil Pollution Preparedness, Response and Co-operation 1990 is to be expanded to include hazardous and noxious substances.


chemical toxicity[^232] can assist with such analyses, many of the commodities carried through the Reef including coal, iron ore, grain, bauxite, alumina, phosphate rock, cement and some fertilisers either do not possess chemical hazards are a complex of compounds and cannot be easily identified for analysis.[^233] Further, while there is a requirement for ship’s masters and operators entering the REEFREP area to report the presence or absence of dangerous goods, harmful substances and marine pollutants onboard their ship to REEFCENTRE,[^234] this requirement may not be enforced due to the difficulties of inspecting goods carried on containers on-board a ship. Spot checks by Australian Customs officials in 2005 revealed that 30 to 40 per cent of dangerous goods coming into Australia are not declared, and of those that are declared, may not be appropriately labelled.[^235] 

Australia could violate the right of innocent passage of foreign vessels seeking entry into the territorial sea if those vessels were required to provide the details of chemicals or hazardous waste being carried as cargo.[^236] Some commentators have argued that this could be a legitimate exercise of prescriptive jurisdiction under the LOSC given that the burden on navigation of reporting dangerous chemicals would be insignificant compared to the magnitude of damage a ship casualty could cause to the marine environment.[^237] However, even if it were possible under the LOSC to enforce reporting of dangerous goods and chemicals, it may be difficult for a ship’s master to comply with the detailed reporting requirements of IMO Resolution A.851(20)[^238] under MARPOL for dangerous goods and harmful substances since much of the information


[^236]: See LOSC art 19.


required for the report may not be readily available or recognisable from the ship’s cargo manifest.

8.6.2. **Initiation and termination of a response to an oil and chemical spill**

While the ship regulatory authorities have developed various tools, models and information to assist in the collection and evaluation of critical information, there remain important but potentially contentious decisions to be made when to mobilise resources and when to terminate the response effort, decisions which are influenced by the perceptions held by the various members of the OSRCS response team. These perceptions relate to the application of the precautionary principle in deciding what constitutes serious environmental damage, what is reversible and what preventative measures may be appropriate in the circumstances.

Some commentators view the precautionary principle as a duty, or even a licence, to take preventive and abatement actions in the face of environmental hazards, depending on the severity of the potential harm, the likelihood or evidence of that harm, and the source of the harm. In practical terms, the application of the precautionary principle during an oil or chemical spill should involve a thorough assessment of risk identification, management, evaluation and treatment options using an approved risk management process. While section 39Z of the GBRMP Act provides that the

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239 Key tools include OSRA, a geographic information system that identifies marine habitats, foreshore types and biological resources for the determination of protection priorities during an oil spill; OSTM, an oil spill trajectory model that identifies speed of movement, weathering and spreading characteristics of the oil under the influence of prevailing weather conditions; and ADIOS, an automated oil weathering data inquiry model that incorporates an extensive database of crude oils and refined products, and provides quick estimates of the expected changes in oil's properties once in the environment; see generally Australian Maritime Safety Authority, ‘Tools for marine pollution response’, <http://www.amsa.gov.au/Publications/Marine_Environment_Protection/Geographic_Information_Systems.pdf> viewed 8 January 2005.

240 The precautionary principle is based on the premise that lack of full scientific certainty should not be used as a reason for postponing a measure to prevent degradation of the environment where there are threats of serious or irreversible environmental damage; see EPBC Act s 391.


244 GBRMP Act s 39Z.
GBRMPA’s actions are to be informed by the precautionary principle in preparing management plans and protecting world heritage values, it is not clear if the management plans being referred to include plans developed under the various contingency plans and to what extent the precautionary approach may be applied. For example, experience with oil spill response in the Marine Park illustrate that it is not always possible to deal effectively with all of the different types of oil and chemical spills due to the costs and logistics of deploying equipment or because of the volatile behaviour and properties of the spilt substances, particularly in the remote areas of the Marine Park or in the large expanses of sea areas within the Marine Park, at some distance from the mainland. Thus, some spill events may be reported but may not warrant the mobilisation of equipment, despite their potential environmental impacts, or may not be considered a priority for the statutory agency responsible for initiating a response to the spill.245

The decision to terminate the response effort is also a potentially contentious issue that can affect the environmental outcomes of pollution clean up, particularly since the effects of a pollution event can persist for years or decades.246 Although the goal of the response effort is to clean up the environment to its pre-spill condition, this is not always possible in situations where oil spill recovery will cause more harm to the environment than if the oil or chemical was left in-situ. Depending on the types of clean up equipment available for deployment, it may also not be feasible to clean and remove oil from certain habitats types (eg within the cavities, crevices and fissures of certain species of coral) without further damaging the biota and benthos comprising that habitat. There may also be considerable pressure to terminate the response to reduce expenditure once the public has lost interest in the event or when the equipment is needed for spills in other higher profile localities (such as in marinas or adjacent to high value real estate). The experience of managing the smaller spills in the GBRWHA

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245 The response to the sinking of a trawler, Moreton Miss in the remote Home Islands group of the Marine Park (Far Northern Section) on 27 July 2005 illustrates this point. Although the vessel was refloated, the loss of 3500 litres of marine diesel and 50 litres of heavy oil from the vessel onto the surrounding islands, assisted by strong winds, was a significant concern for the local community and GBRMPA due to the very high conservation and traditional use values of the area and proximity to the Lockhardt community. No equipment was deployed due to strong winds, the remoteness of the incident and highly volatile nature of the fuels and oils that escaped from the sunken vessel. In the absence of the presence of any visible ‘at sea’ response effort, members of the Lockhardt community contacted the GBRMPA to express their disappointment that no action was taken to respond to the spill.

246 Discussed at Chapter 3.
suggests that this has not been a problem to-date; however, it may well become an issue during a protracted response to a more significant marine pollution event.

Best practice assessment of the end point for the clean up operation should involve iterative inspection and monitoring of foreshores by the Combat Agency, as well as other responsible agencies and stakeholders. It is the role of the Environmental and Scientific Coordinator to advise the Incident Controller when the ‘net environmental benefit’ of the recovery effort has been reached. However, this role needs to be carefully balanced with the role of the GBRMPA as the primary custodian of the Marine Park in fulfilling the obligations of the object of the GBRMP Act, i.e. ‘to make provision for … the control, care and development of a marine park within the Great Barrier Reef region’. To that end, there may be merit in surveying areas at risk of oil spills as a means of establishing objective criteria for terminating the clean up well in advance of an incident. Such studies could be used in conjunction with the bio-regionalisation conducted for the rezoning of the Marine Park to assess and rank species and habitat vulnerability. In this way, the most vulnerable and high use locations could be studied in more detail to better understand the factors affecting the recovery of an ecosystem affected by an incident as well as identify areas that require remediation and long term monitoring.

8.6.3. Deployment and containment of spills

To ensure that the most appropriate equipment, logistics and personnel is available where they are needed, the Queensland Coastal Contingency Action Plan has defined, at a broad scale, the environmental risks for spills in coastal waters of Queensland. However, in some areas of the Reef, particularly the reef fronts exposed to the ocean, the deployment of booms is impractical due to the conditions at those sites, the nature

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247 GBRMP Act s 5.
and morphology of coral formations, and the difficulties of accessing such areas. In these situations, or within remote or inaccessible areas of the Reef or outside of sheltered harbours or ports, the use of dispersant is often the first and only line of defence in preventing spilled oil from reaching the shoreline.\textsuperscript{251} Approved dispersants are listed in the National Plan\textsuperscript{252} which can be deployed from either a vessel or aircraft\textsuperscript{253} in any sea state to break up the oil, greatly enhancing the degree of natural dispersion. While the use of dispersant can be less costly than other control and containment methods, dispersants applied to the water column (particularly the older dispersants) can be toxic to some marine life, particularly corals, crustaceans and shellfish.\textsuperscript{254}

The \textit{Great Barrier Reef Marine Park Regulations 1983}\textsuperscript{255} identify several ‘prescribed officers’ from Commonwealth and state agencies that have the authority to approve the use of dispersants and other chemicals to combat a pollution event in the Marine Park in order to minimise the damage from the pollution.\textsuperscript{256} The policy and guidelines underpinning regulation 5A of the \textit{Great Barrier Reef Marine Park Regulations 1983} on the appropriate use of dispersant require that prescribed officers using dispersant should consult with the GBRMPA or other environmental agency representatives on the Queensland State Oil Pollution Committee. Since most jurisdictions have now been conferred with powers to use dispersant, either under the GBRMP Act or through their own legislation, a prescribed officer may be tempted to simply apply dispersant to improve the visual amenity of the oil to quell public reactions, without regard for the

\begin{itemize}
\item \textsuperscript{253} Suitable (fixed wing aerial dispersant capability) aircraft are located in strategic locations around Australia for dispersant spraying off shore. Closer to shore, application by spray booms fitted to boats offers a more rapid but limited response.
\item \textsuperscript{255} \textit{Great Barrier Reef Marine Park Regulations 1983} s 5A.
\item \textsuperscript{256} GBRMP Act s 38J(5).
\end{itemize}
potentially toxic effects on susceptible marine species.

8.6.4. Interference in the response effort

Despite the National Plan being underpinned by an Intergovernmental Agreement, there is a risk that important decisions relating to the protection of critical resources during a response to an oil or chemical spill will be subject to the influence or interference by parties not directly engaged in the response effort, either at the ministerial level or as a result of other actions that need to occur outside of the OSRICS process. For example, during the response to a significant spill in the Marine Park it is possible that the Commonwealth Minister for the Environment, with statutory responsibilities for the Marine Park, will have a strong interest in the response effort. Although the Minister for the Environment is represented by ‘the Commonwealth’ under the Intergovernmental Agreement, the Minister for the Environment is not a signatory to the National Plan per se and does not have a defined role under the National Plan.257

Previously, the Commonwealth Minister responsible for the Environment Portfolio issued a ‘Notice of Exemption’ for bona fide National Plan activities that come within all of the provisions of Part 3 of the EPBC Act that deal with the requirements for environmental approval of national significance and protection of the environment from proposals involving the Commonwealth.258 Exemptions may apply in respect of approvals for actions that could injure or kill cetaceans, threatened species, migratory species, listed marine species and ecological communities that were ‘taken in an emergency situation resulting from unavoidable accident’ or were ‘reasonably necessary to deal with an emergency involving a serious threat to human life or property’.259 Nonetheless, in circumstances where that action is not subject to a direction of the Marine Emergency Response Commander,260 or where that action is not taken in

257 See National Plan, Appendix 1, p. 8.

258 This decision was taken on the basis that the National Plan had already been endorsed and approved under a state and Commonwealth Intergovernmental Agreement prior to the commencement of the Act on 16 July 2000 and because environmental advice is fundamental to the decisions taken during a response to an incident; see EPBC Act s 43A.

259 See EPBC Act pts 4, 6 and 7.

260 Directions issued by the Marine Emergency Response Commander prevail over a direction issued under another state and Commonwealth Act to the extent of any inconsistency; POTS Act s 5(1)(A) and 5(1)(C).
accordance with GBRMP Act,\textsuperscript{261} or is not authorised under the various instruments under the GBRMP Act,\textsuperscript{262} the Commonwealth Environment Minister retains the right to intervene in pollution clean up operations that are taken contrary to the National Plan.\textsuperscript{263} Matters contrary to the plan are those actions that could endanger particular species, severely degrade the environmental values of a site, or where ordinary statutory processes are unsatisfactory to resolve matters of national importance.\textsuperscript{264} The Minister also retains powers under the EPBC Act in respect of post incident reporting obligations in the case of injury or mortality of any of these species. It is conceivable that such activities, conducted as part of the response effort, could relate to certain aspects of salvage or ship-to-ship lightering operations that have the potential to destroy large patches of a coral reef.

Despite concerns from the salvage industry about the extent of the (perceived) powers of the Commonwealth Environment Minister to intervene in a shipping incident,\textsuperscript{265} it has to-date not been necessary to invoke the EPBC Act to deal with a marine pollution event in the Marine Park. Nonetheless, the use of powers under the EPBC Act were considered (prior to the recent POI Act amendments) during the grounding of the 21 642 dwt container ship \textit{Bunga Teratai Satu} on Sudbury Reef when the actions taken by salvors to refloat the vessel involved blasting a section of the coral reef.\textsuperscript{266} While this operation was coordinated by the OSCRICS team under the \textit{Queensland Coastal Contingency Action Plan}, appropriate approvals were sought from the GBRMPA and the Commonwealth Minister for the Environment to ensure that the operation was conducted under a permit issued in accordance with the GBRMP Act (but not the EPBC Act) to minimise any damages to the environmental values of the site.\textsuperscript{267}

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\item\textsuperscript{261} EPBC Act s 43(a).
\item\textsuperscript{262} These instruments include a zoning plan, a plan of management, a permission, an authority, an approval, or a permit; see EPBC Act s 43(b).
\item\textsuperscript{263} EPBC Act s 22.
\item\textsuperscript{264} See EPBC Act pt 4, 6 and 7.
\item\textsuperscript{265} Department of Transport and Regional Services, \textit{Review of the Navigation Act 1912}, Final Report, Canberra, June 2000, p. 155.
\end{thebibliography}
determination of whether it is necessary to intervene in a shipping incident is a function of the perceived threat to the Reef and values of the GBRWHA, a matter that is ultimately for the Commonwealth Minister for the Environment to decide, regardless of the advice provided by officers of the GBRMPA (but not where a direction was issued by the Marine Emergency Response Commander). If a shipping accident were widely publicised, the interest (or hysteria) and pressures created by public interest among both conservation groups and Indigenous Australian communities could have a strong bearing on that decision.

Unrelated to the possibility of ministerial involvement but nonetheless a potential impediment to the response effort is the actions taken to investigate a spill. While such actions are separate to the arrangements agreed to under the National Plan and the command structure of OSRICS, having an inspector or investigator board a ship during a shipping or marine pollution incident can cause problems if the Incident Controller has to spend valuable time interpreting and approving ancillary actions that are not part of the efficiency and safety of the response to a shipping incident. For example, during the response to the *Doric Chariot* grounding on Piper Reef in July 2002, the Australian Federal Police conducted an investigation into the incident concurrently, but independently of the response operation. During the early phases of the investigation, the investigating officer from the Australian Federal Police required access to resources such as aircraft and vessels that were also used during the response effort.268 As an member of the Australian Federal Police, the investigating officer also had the powers to seize charts and documents, with the potential to prevent the ship from sailing and compound any liability claims relating to the response operation, a situation that highlights the need for better integration of investigative actions into the OSRICS.

**8.6.5. Recovery of costs**

Currently, there are two situations relevant to the recovery of costs. The first situation concerns the recovery of costs and rehabilitation expenses in the case of actual pollution of the marine environment by hydrocarbon derived substances (oils) and expenses incurred in preventing or mitigating the pollution event. The second situation arises

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268 Personal knowledge.
where the casualty results in a range of damages to people, their businesses and the marine environment, but those damages are not due to the spillage of oils.

As discussed in Chapter 4, the provisions in the Commonwealth and Queensland legislation are generally adequate to recover the costs of expenses in the case of actual or threatened pollution events, including any reasonable measures taken to prevent or mitigate that pollution event. Most of these costs would be recoverable under the National Plan and the ship’s insurance provided by the P&I Club in the case of oils and fuels spilt regardless of the type of vessel or ship; and in the case of oils and fuels spilt by a tanker the CLC 92, Fund 92 and the supplementary fund liability and compensatory conventions. However, in situations where a ship can be identified as the polluter but that ship is not a tanker and is not responsible for spilling a persistent hydrocarbon mineral oil, a limitation of liability would apply under the International Convention on the Limitation of Liability for Maritime Claims 1976 (LLMC), depending on the type of the claim and size of the ship.269 That claim could fall short of the tens of millions of dollars required to compensate persons, businesses and governments for losses sustained from a spill arising from a cargo or bulk carrier that typically transit the Reef. Further, there is no direct correlation between the quantity of material spilt and the costs of clean up; the amount of compensation that can be claimed varies with the types of materials spilt and the types of vessels involved in an incident, creating uncertainties and anxieties for those affected by the spill and conducting the response operation.

The second situation concerns the options for the recovery of costs for offences where there is no actual or threatened spill of oil but there is the potential for the incident to cause damage to the marine environment. The POI Act provides for reimbursement on just terms for the use of requisitioned property including compensation for damage or loss occurring while the property is under requisition.270 Parties incurring costs as a


result of complying with directions issued under the Act may also recover their costs from the shipowner, consistent with the rights of shipowners to limit their liabilities under common and international law. It is conceivable, for example, that a port authority could, in deciding to grant refuge to a ship casualty, expose itself to liability to a large number of plaintiffs for causing a public nuisance, such as where a ship blocks a channel causing delay and inconvenience to other users of the port. In the case of a ship of relatively small tonnage, the liability cover under the LLMC would be capped at a few million dollars which could be inadequate to cover all of the claims that relate to the costs of wreck removal, port blockage and other economic and environmental losses. Further, the process of decommissioning a wreck alone can be time, labour and cost intensive, requiring site surveys and consultations to be conducted with interested community groups. Funding for the on-going maintenance costs will also have to be sourced, which could also be significant.

Since Australia is a signatory to the LLMC, it would not be lawful for the ship regulatory authorities or a port authority to require an unlimited indemnity to recover losses not sufficiently covered by the LLMC and impose a bond or guarantee on the casualty to cover the costs of any pollution, or other damage, or expenses incurred in taking precautions as a condition of release of a ship or crew from detention. Where a ship requests entry into a seaport or harbour for the purposes of inspecting the extent of damage to the ship’s hull, an unlimited ‘letter of indemnity’ may also be required by the relevant Port Authority before the ship would be permitted to enter port limits. The

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271 Losses caused by pollution are covered by the compulsory insurance conventions as discussed in Chapter 4.


274 For example, the ongoing costs associated with maintaining the recently-scuttled HMAS Brisbane in south Queensland waters will be on the order of $200,000 per annum over ten years funds. The funding will be raised through a $10 per diver per visit fee for private and club divers, and through permitting fees charged to commercial dive companies who use the reef; Queensland Environment Protection Agency, ‘Sink the Brisbane,’ 2005, <http://www.epa.qld.gov.au/about_the_epa/coming_events/sink_the_brisbane>, viewed 20 June 2005.


276 A detained ship must be released if a security or guarantee is given to cover the state’s discharge
purpose of the letter of indemnity would be to guarantee payment of all expenses which may be incurred in connection with its operations, such as measures to safeguard the operation, port dues, pilotage, towage, mooring operations and expenses of a similar nature.\textsuperscript{277} However, the issuance of a letter of guarantee would be subject to the reservation of the right of the owners or bareboat charterers of the ship concerned to limit their liability in accordance with any applicable law.\textsuperscript{278}

It could be argued that the protection of the GBRWHA means that a higher risk to the ship itself is acceptable when considering a place of refuge within the Region. If, for example, the denial of entry of a casualty into the Marine Park leads to the cargo itself being destroyed, then it may be better to have this loss adjusted under the ship’s insurance than risk a catastrophic pollution event that could have long term effects on the values of the Marine Park or GBRWHA. In addition, the shipowner who is responsible for their ship becoming a casualty should bear the liabilities of those consequences and actions arising from the casualty, rather than the Australian public. This would not be in the spirit of the polluter pays principle under the Rio Declaration on Environment and Development\textsuperscript{279} in which any entity should internalise the environmental costs and accept responsibility for damage or injury to the ocean or another country even if the loss is not caused by negligence.\textsuperscript{280}

8.6.6. Compensation for environmental damages

Compensation for environmental damage from maritime incidents has long been contentious. At one end of the spectrum are those that believe compensation for pollution damage should be provided for the loss of biodiversity\textsuperscript{281} and values that relate

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\textsuperscript{277} See IMO Resolution A949(23), \textit{Guidelines on places of refuge for ships in need of assistance}, adopted 5 December 2003, para 3.1.4.


\textsuperscript{280} Rio principle 16; see also JM Van Dyke, ‘The Rio principles and our responsibilities of ocean stewardship’, \textit{Ocean and Coastal Management}, vol. 31, no. 1, pp. 1-23.

\textsuperscript{281} Includes coral reefs, species, bioregions, marine protected areas, direct non-use values, ecosystem
to an area’s non-use, indirect,\textsuperscript{282} option,\textsuperscript{283} existence,\textsuperscript{284} bequest,\textsuperscript{285} heritage or its scarcity.\textsuperscript{286} At the other end of the spectrum are those that contend that the component parts of the marine environment have no economic value unless they are capable of exchange within the market place.\textsuperscript{287} Yet others view claims of a purely environmental nature as of a punitive rather than compensatory character that merely constitutes a financial windfall to public treasuries.\textsuperscript{288}

Since most claims for environmental marine pollution damages are settled directly with the P&I Clubs and are not publicised, there is lack of uniformity in applying the principles of the cost recovery of claims, particularly for non-use environmental values, both domestically and internationally. This is unfortunate since knowledge of the damages caused by a shipping casualty or marine pollution event to a coral reef is essential to inform and underpin actions to meaningfully respond to the ongoing and future management of that event. Experience to-date with investigating the impacts of maritime incidents in the Marine Park implies that it is generally not possible to demonstrate a causal link between a specific area of oil contamination and the alleged damage, or to define damage by the amount of pollution that has entered the marine environment. Attempts to define damage through direct calculations of loss are equally misrepresentative because the true value of an ecosystem is more than the number of species that have perished; other species not necessarily of interest to humans also play

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\textsuperscript{282} These relate to values humans derive from the ecological functions and processes of the Park's environment.
\textsuperscript{283} These relate to values humans derive from the potential future use or benefit.
\textsuperscript{284} These relate to values humans derive from the mere existence of the Park's natural and cultural resources.
\textsuperscript{285} These relate to values humans derive from the use or non-use of the Park's natural and cultural resources for future generations.
\end{flushleft}
a critical role in the ecological integrity of an ecosystem.289

With the exception of the *Oil Pollution Act 1990* (US)290 which provides that in recovering damages for harm to the environment, account should be taken of ‘all reliably calculated use values’, the international compensatory regimes have limited the claimant’s responsibility for environmental harm by narrowly defining ‘damage’ to mean actual damage to the marine environment.291 However, although unquantifiable or abstract costs of environmental harm are not admissible, the *Protection of the Sea (Civil Liability) Act 1981* and the *Protection of the Sea (Oil Pollution Compensation Fund) Act 1993* implementing the CLC 92 and Fund 92 conventions in Australia allow for costs to be recovered for the conduct of restoration activities in marine environments damaged by oil pollution, but not to the extent of ‘replacing’ organisms within that environment.

While these limitations in the compensatory regime are likely to be exposed in event of a large oil or chemical spill within the high value areas of the Marine Park, the trend toward escalation of claimant costs demanded by parties affected by casualties the likes of the *Prestige*292 is changing the perceptions of reasonable costs for compensating damage to the environment *per se*.293 These developments could lead to an increase in the amount of compensation required to assess, monitor, reinstate or rehabilitate a much wider range of environmental resources and values injured, damaged, contaminated or otherwise affected by a significant marine pollution event. With the expansion of the network of Marine Protected Areas around the world and research exposing the specific components of the toxicity of oil and chemicals to corals,294 the International Oil

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290 *Oil Pollution Act of 1990* (US), 33 USC 2706.


Pollution Compensation Funds may be compelled to take a more generous view of ‘reasonableness’ in order to meet these more stringent environmental reinstatement costs.\footnote{M Mason, ‘Civil liability for oil pollution damage: examining the evolving scope for environmental compensation in the international regime’, \textit{Marine Policy}, vol. 27, no. 1, 2003. pp. 1-12.}

While the National Plan will not refund the costs of monitoring affected environments post the marine pollution event, there is provision to fund monitoring that is designed to assess the extent and quantity of contamination and effectiveness of clean-up for the purposes of aiding decision making \textit{during} shoreline clean-up and on-water operations.\footnote{Types of claims that may be accepted under the international conventions that are outside of the National Plan arrangements include consequential loss earnings suffered by the owners or users of property contaminated as a result of a spill; pure economic loss sustained by persons whose property has not been polluted; damage to property and environmental damage; see Australian Maritime Safety Authority, ‘Pollution cost recovery procedures’, <http://www.amsa.gov.au/Marine Environment Protection/National Plan/Supporting Documents/Claims_for_Reimbursement.asp> viewed 12 December 2007.} However, identifying the incremental costs and benefits of the response effort and clean up operation can be problematic due to the inherent spatial and temporal variability in coral reef ecosystems, particularly when an incident occurs in a remote location.\footnote{See generally BD Mapstone, AM AYling & JH Choat, ‘Scales and magnitudes of variation in population densities of some coral reef organisms implications for the design of sampling and monitoring procedures’ GBRMPA Research Publication no. 49, 1998.} While it would be unrealistic to expect a monitoring programme of an impacted coral reef habitat to predict real time changes to assist with the general assessment and clean up strategies employed during an oil spill, experience of oil spills in non-reefal environments has demonstrated that this is not always the case. For example, during the response to the oil spill from the 96 000 deadweight tonnage Italian registered oil tanker, \textit{Laura D’Amato} in Sydney harbour on 3 August 1999, several methods of oil spill recovery were trialled and evaluated during the active phase of the response operation which demonstrated that the recovery of the infauna of rocky foreshore areas affected by the spill was greatest using low pressure cleaning techniques, assisted by natural wave action.\footnote{See P Scanes, ‘Case Study: Laura ‘D’Amato’, presentation to the 13\textsuperscript{th} National Plan Environmental and Scientific Coordinators Workshop, Darwin, Northern Territory, 6-8 June 2006; Australian Maritime Safety Authority, ‘The response to the \textit{Laura D’Amato} oil spill,’ Report of the Incident Analysis Team, Australian Maritime Safety Authority, Canberra, April, 2000.}
Currently, the onus is on individual jurisdictions within Australia to recover the assessment, monitoring and reinstatement expenses of areas damaged by vessel or ship groundings through their own legislation or through other avenues. For example, the GBRMPA has funded the monitoring of several sites impacted by vessels that have grounded on reefs within the Marine Park. These studies have sought to characterise and document the damage to the coral reef community and reef substrate caused by a grounding and related salvage activities, as well as predict recovery processes and timing. An exception occurred following the grounding of the bulk carrier *Doric Chariot* on Piper Reef in July 2002. In that case, the GBRMPA negotiated with the P&I Club to fund a proportion of the costs of a monitoring program to assess the effectiveness of the restoration activities at the grounding site, however they were under no legal obligation to do so.

8.7. **Conclusions**

As a precious World Heritage Area, the ability to respond quickly and decisively in an emergency situation at any locality within the Marine Park, particularly where there is a risk of a serious pollution, is paramount. The provisions under the POI Act, TOMPA and the Zoning Plan 2003, as ‘operationalised’ in the *National Place of Refuge Guidelines*, provide a range of powers to deal with maritime casualty involving a serious threat to human life or the environment within the Marine Park and GBRWHA. One of the difficulties in establishing a place of refuge is the identification of the degree of distress of the ship. The adjectives ‘imminent’ and ‘material’ involve questions of degree, giving rise to differing notions of what is a grave or imminent threat and where the appropriate point of intervention in a casualty should be, which dictate the types of action that may be lawfully undertaken in the particular circumstances of the situation. Delays in initiating a response effort, or conversely prematurely terminating the response effort has the potential to lead to decisions surrounding the fate of a casualty.

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being undermined by parties trading off environmental interests with trade and other commercial interests.

Similarly, the marine pollution response measures to prepare for, and respond to, a marine pollution incident have been enhanced by a nested system of contingency plans, risk assessments, the networks in place of trained personnel, the regular exercising of contingency plans and the strong commitment of the Australian and Queensland governments in maintaining the profile of oil, and to a lesser extent chemical, spill response capacity throughout the Region. Experiences in dealing with the small numbers of casualties in the Marine Park indicate that the legislation and contingency plans have been facilitated by the partnerships amongst ship regulatory authorities as well as industry, helping to ensure that the threats to the Marine Park can be assessed from both the maritime and environment sector perspective. Without these relationships, and because of the infrequency of incidents, there is a danger that an effective response to a marine pollution incident will be undermined.

The geomorphic and spatial characteristics of the Reef, however, continue to pose unique challenges for oil and chemical spill response. In many cases, due to the behaviour of oil and chemicals in the water and the physical limitations of the equipment, the focus on response operations is largely aimed at preventing more contaminants from entering the water, cleaning up contaminants that impact on the ecology of an area and monitoring the effects of a spill, but only for the duration of the response operation.

A major weakness with both the place of refuge arrangements and preparedness and response arrangements for marine pollution events is the limitations in the liability and compensatory regimes for recovering ancillary (but important) costs of the response effort and damages caused by the casualty or offending vessel or ship, particularly in relation to post spill monitoring and compensation for the diminishment of non-use values. There is also a significant gap in the liability and compensation regime for the recovery of costs involving hazardous and noxious chemicals, non petroleum based contaminants spills and, to a lesser extent, bunker fuels. Thus, in the event of a large oil or chemical spill within the high value areas of the Marine Park, the current limitations in the compensatory regime are likely to be exposed.
9. CONCLUSIONS

9.1. Introduction

The main objective of this research was to describe the origins, implementation and application of international ship safety and marine pollution prevention measures in the Great Barrier Reef, from both an environmental and maritime law perspective. The analysis is viewed through the lens of the Great Barrier Reef Marine Park Authority (GBRMPA), a Commonwealth statutory authority with a mandate to protect the Reef from all activities, in partnership with other Commonwealth and state authorities with overlapping jurisdiction over the management of shipping activities and events in the Region. The research, as summarised in the conclusions of the preceding chapters, affirms that shipping and other vessel based activities in the Reef are generally conducted to a very high standard. This indicates Australia has judiciously implemented the majority of special maritime and environmental ship safety and marine pollution prevention measures available under international law. However, the analysis of the interaction of international and domestic laws, policies and practices governing the management of shipping and other vessel based activities in the Reef exposes several (generally minor) issues that could detract from GBRMPA’s fundamental obligation to protect the Marine Park and the World Heritage Area. This chapter highlights some broader issues affecting the efficacy of ship safety and marine pollution prevention measures in the Reef, emerging issues of interest to the management of shipping in a marine protected area (MPA) and offers some suggestions that warrant further examination in shaping environmental maritime policy into the future.

9.2. Implications of the research findings

The analysis has revealed that the administrative arrangements for shipping in the Region represent an excellent working example of cooperative federalism where the capacity of the Commonwealth and the states have exercised complementary legislative powers to produce a result that would have gone beyond the authority of any one of them acting alone. That several government agencies have jurisdiction over shipping in the Reef, each of whom have specific mandates but who also have in common the goal
of preventing shipping accidents from occurring as a first priority rather than dealing with the environmental impacts of an accident, provides a system of checks and balances that a single administrative authority may not deliver as effectively. That said, the duplication of administrative costs and the potential differences in interpreting and applying international measures relating to the same subject matter in a timely manner particularly as a ship or vessel as it moves into or out of the jurisdiction of either the Commonwealth or Queensland governments can be problematic. The ongoing formal and informal relationships that currently exist amongst the ship regulatory authorities can also introduce uncertainties into the decision making processes. For example, there is a danger that those authorities with strong ties to the maritime industry or an exclusive mandate to manage maritime activities, may not be compelled to apply the precautionary principle or principles of ecologically sustainable development in decision making in guiding the management and regulation of shipping and vessel based activities within the Region to the extent intended under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).\(^1\) Nonetheless, without the restraints that cooperative federalism delivers, the ship regulatory authorities run the risk of making decisions which are inconsistent with international law.

In responding to the calls from the shipping industry to rationalise and simplify the complex jurisdictional and legislative arrangements for the regulating shipping in the Great Barrier Reef Region (Region),\(^2\) one option could be to introduce a provision in the *Great Barrier Reef Marine Park Act 1975* (GBRMP Act) that allows it to ‘roll-back’ when the equivalent provision is implemented in Queensland legislation, in a similar manner to section 5 of the *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (POTS Act). Although clearly only a partial solution, this would free up the GBRMPA to use the GBRMP Act to concentrate on regulating other aspects of use of the Marine Park and avoid the situation where a provision under the Queensland *Transport Operations (Marine Pollution) Act 1995* (TOMPA) that is used to respond to

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1 See especially EPBC Act s 3A.

a marine pollution event occurring in coastal waters has to be examined to ensure that it is not inconsistent with the relevant Commonwealth Acts (i.e. the GBRMP Act or the POTS Act) and thus be invalid by virtue of section 109 of the Constitution.

Alternatively, further analysis of the POTS Act, TOMPA and the GBRMP Act could be undertaken to identify any inconsistencies among the statues and amendments needed to rectify those inconsistencies. While laudable, the challenges posed by the modification of existing laws or creation of new laws covering shipping and vessel based operations in the Marine Park are considerable. Those challenges relate to the lengthy process of, and time required for, industry and government consultations; drafting and adoption by Parliament of appropriate domestic legislation to give effect to the obligations of a Convention; ensuring coherence between new and existing legislation; the establishment of effective institutional arrangements and the provision of the necessary resources and infrastructure.³

Arrangements for domestic shipping that are separate to those under international law are also likely to create market distortions, inconsistencies, loopholes and confusion, potentially leading to evasion and avoidance of those laws. However, it is difficult for the regulatory regime in the Marine Park to be entirely consistent with international law given the Marine Park itself was declared by the GBRMP Act in 1975, many years before Australia ratified the United Nations Convention on the Law of the Sea 1982 (LOSC), the International Convention for the Prevention of Pollution from Ships 1973, as modified by the Protocol of 1978 (MARPOL)⁴ and the International Convention for the Safety of Life at Sea 1974, as amended (SOLAS)⁵. The findings of this research indicate that small inconsistencies within the regulatory regime have not eroded the overall principles and intent of the higher order international laws. Overall, Australia has benefited by being consistent with international law, as it has not only provided the


⁵ Ratified by Australia on 17 August 1983, followed by the Protocol of 1978 on 17 August 1983.
opportunity to amend or ratify new or existing conventions that address particular issues with a stronger environmental focus than was previously possible, it also encourages other countries (flag States) trading with Australia to develop, adopt and implement an increasing number of the provisions of the environmental and maritime treaties.

Australia has been proactive at the International Maritime Organization (IMO) in raising awareness of environmental maritime issues and developing the LOSC regulatory framework for the Marine Park to full advantage. However, the development of new shipping laws is constrained by the fact that the LOSC is in excess of 25 years old and the supporting administrative infrastructure (i.e. the ancillary committees and membership of the IMO) has struggled to take account of the rapidly changing profile of the shipping industry, particularly the trend toward increasing ship sizes, the diversification of ship ownership, improvements in the technologies employed by ships and the implications of those changes on Particularly Sensitive Sea Areas (PSSAs). This is exemplified by the shortfall in the liability and compensation regime for hazardous and noxious substances and bunker fuels, providing a compelling reason why Australia should continue to proceed with the ratification of the International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea 1996 (HNS Convention) and the International Convention on Civil Liability for Bunker Oil Pollution Damage 2001 (Bunkers Convention) and keep under review the risks to the GBRWHA of spills of hazardous and noxious substances, bunkers and non petroleum contaminants.

9.3. Emerging issues

The main emerging issues expected to affect the management of shipping in the Marine Park concern the internal management of the ship or vessel, changes to the nature of the shipping trade and the concomitant increase in risk of such activities on the integrity of the marine ecosystems of the Reef. Despite preventative measures implemented in the Region such as the progressive technological improvements to the Great Barrier Reef and Torres Strait Vessel Traffic System (REEFVTS) and the active enforcement of waste discharge and safety of navigation legislation by the ship regulatory authorities, these issues are largely outside the control and mandate of Australia, coming instead under the purview of the IMO and the flag States. What should be of concern to the ship
regulatory authorities is how best to manage the environmental consequences of these developments, some of which are poorly understood and outside the ‘traditional’ sources of shipboard waste that have been curtailed with the enactment of MARPOL and similar international instruments in domestic legislation. While space does not permit an in-depth assessment of these issues, recent experiences with the management of shipping in the GBRWHA would indicate that the primary foreseeable environmental management challenges for the ship regulatory authorities include, but are not limited to: the most appropriate means of preventing, and responding to, a marine pest outbreak; how to deal with the escalating problem of marine debris; how to restore a coral reef ecosystem following a shipping accident or major marine pollution event; dealing with wrecked, stranded or abandoned ships and liability arising thereof; and how to respond to the rapid growth in cruise ships seeking to access to the Marine Park.

9.4. Future policy directions

In the future, Australia must continue to balance its dependence on sea transport with policy measures that reduce the incidence of accidents and improve the operations of shipping and other vessel based activities, thus ensuring the protection and integrity of the World Heritage values of the Reef. A ship that fails to fulfil its international ship safety and marine pollution prevention obligations should not be allowed to navigate within the GBRWHA with impunity simply as part of the cost of doing international trade with Australia.6

As industry have continued to call on successive Australian governments to reduce the size and impact of the public sector on private sector activities, there is a need to carefully monitor the mix of regulatory approaches to the management of shipping and other vessel based activities in the Region.7 On the one hand, a rule-based regulatory system provides the Australian and state governments with a strong defence against litigation and an effective and cost efficient mechanism from which to administer


shipping and related activities\textsuperscript{8} by encouraging a greater assumption of responsibility by all of the parties connected with ship and vessel based operations in the Marine Park. On the other hand, alternatives to regulation should also be pursued, whereby the private sector or non-government organisations would be encouraged to take more ownership of the consequences of their activities and take a greater role in developing a culture of safety throughout all of its activities to avoid or mitigate the environmental impacts and costs resulting from those activities. Five suggestions to minimise or mitigate the risk of shipping and vessel based activities upon the values of the GBRWHA are discussed briefly below.

First, as shipping is potentially a matter of environmental significance under the EPBC Act,\textsuperscript{9} and to allow for the early assessment of cumulative impacts that have not been addressed by the GBRMP Act or other state legislation, the burden of proof is upon the shipping industry to fund and independently demonstrate that their operations represent a minimal risk to the marine ecosystems of the Reef. Consistent with the user pays concept, and notwithstanding the difficulties of identifying a single representative body from the international shipping sector, the shipping industry should contribute to the costs of developing a strategic environmental assessment and any new regulatory (and non-regulatory) proposals that arise from that assessment, as other proponents seeking to utilise the Marine Park are required to do. This would represent a better application of the precautionary principle as it was first envisaged\textsuperscript{10} and fulfil some of the responsibilities in the Convention on Biological Diversity 1992 (CBD) by incorporating impact assessment into national decision making,\textsuperscript{11} as well as ensuring that those shipping impacts with the potential to ‘disturb nature’ or which are ‘likely to pose a significant risk’ to the marine environment are properly understood and mediated. Regular monitoring and review of the factors underpinning the assessment could be used to inform decision making as part of an adaptive (rather than reactive)

\textsuperscript{8} See also MK Sparrow, \textit{The regulatory craft: controlling risks, solving problems, and managing compliance}, The Brookings Institution, Washington DC, 2000, p 37.

\textsuperscript{9} See EPBC Act s 146.


\textsuperscript{11} CBD arts 10 and 14.
management approach.

Second, the solutions to ship sourced pollution lie with creating incentives among a wider range of shipping industry interests including classification societies, charterers and cargo owners (not just the ship’s master, operator or owner) to embrace or promote measures to ‘green’ the shipping industry.12 Although considerable efforts have been made to enforce the implementation of the International Safety Management Code in Australia and improve the safety of ships generally, the systematic adoption of environmental management systems and environmental auditing and certification schemes by the shipping industry and its service providers as well as other vessel based operations would ensure all of the participants in the shipping industry progressively aim for the highest standards achievable with current technologies. Nonetheless, these types of initiatives would have to be phased into current ship building plans and developed by the IMO as they could result in changes to construction, design, equipment and manning standards.

Third, the regulatory regime is drawn from a variety of sources of law, often building upon or cross referencing other laws and policies. The aggregate of statutes, regulations and court precedents, the behaviour of public officials charged with making, implementing and enforcing the laws within the Region all have a bearing on decisions to protect the environmental qualities of the Reef.13 Such laws are generally a result of consultation and negotiations with many different stakeholders over different periods, and may not reflect current best practice. Instead, a simplified, risk orientated, performance-based regulatory framework is required to maintain a focus on the achievement of ship safety, environment and trade outcomes.14 Performance based legislation would more comfortably fit in statute while prescriptive based regulations,

such as those relating to equipment standards, should be confined to subordinate regulations. At the same time, to minimise the burden of regulation on shipping and other industries that operate in the Region, a high standard of proof should be required to show that any additional controls are essential to conserving particular areas of the Marine Park that are endangered by shipping and other vessel based activities.

Fourth, despite the implementation of the new zoning scheme protecting the Marine Park, in the future, some sites within the Marine Park may be identified as being particularly susceptible to the impacts arising from the activities of ships and vessels and may warrant higher protection than that available through the generally accepted international rules and standards or construction, design, equipment and manning standards. Under the LOSC, Australia is obliged to act through the IMO\(^\text{15}\) to ‘give effect to generally accepted international rules and standards’\(^\text{16}\) which should ‘be re-examined from time to time as necessary’\(^\text{17}\) so that they do not fall below international criteria.\(^\text{18}\)

This is backed up by Chapter 17 or Agenda 21 which recommended *inter alia* the wider verification and implementation of relevant shipping conventions, cooperation in monitoring of marine pollution from ships and the protection of particularly sensitive seas.\(^\text{19}\) In this context, the declaration of the Reef as a PSSA should not simply be the basis for associated protective measures, but as a framework for the uniform application of laws across the GBRWHA (as originally intended), thus providing a more seamless management regime across different jurisdictions. On this basis, there may be merit in applying the same standards under the LOSC\(^\text{20}\) as those that pertain to the exclusive economic zone (EEZ) of ice covered areas - out to the EEZ limits of the Marine Park.

Provided such measures have due regard for navigation, this would give the ship regulatory authorities and particularly the GBRMPA, broader discretion to expediently

\(^{15}\) LOSC art 211(1).

\(^{16}\) LOSC art 211(2).

\(^{17}\) LOSC art 211(1).

\(^{18}\) See, eg, LOSC arts 194(1), 197, 200, 207(1)(3), 208(4), 210(6) and 211(2).


\(^{20}\) LOSC art 234.
adopt national rules for pollution control without IMO endorsement.\textsuperscript{21}

Fifth, a significant shipping accident is likely to see strong calls from the public to implement additional regulations and measures to safeguard the Reef, which could lead to a loss of confidence in the ship regulatory authorities and may well see a contraction of the freedom of sea to a mere privilege.\textsuperscript{22} Faced with that situation, Australia will need to choose whether it acts in the broader international interest by strictly interpreting, translating, transforming\textsuperscript{23} or applying the provisions of international law\textsuperscript{24} in the Reef or pursue its own agenda.\textsuperscript{25} This will test the dichotomy between the freedom of navigation enjoyed by ships to conduct trade with Australia and its neighbours and the sovereignty Australia has over the Reef and its obligations to protect it. The manner in which Australia chooses to negotiate with other States to ensure that any new measures are endorsed by the IMO could have far reaching consequences for Australia’s reputation, where, for example, another State chooses to contest those measures in an international arbitration tribunal. In that regard, Australia will need to weigh up the interests it has as a major exporter of goods and its reliance on trade with the protection of its marine environment.

In the case where navigational freedoms are severely hindered, it is incumbent on Australia to properly justify such action.\textsuperscript{26} Indeed, the cumulative development of regulatory measures puts pressure on the IMO to revisit the fundamental rights of the freedom of navigation, or at the very least, act as a catalyst for new measures at the


international level. Given that there is strong scientific evidence that the water quality and overall health of the Reef continues to be under threat from a combination of natural and anthropogenic activities, management measures must go as far as possible in applying the polluter pays principle, the precautionary principle and the principle of controlled access to its most sensitive sea area, the Great Barrier Reef, to ensure it remains a national and international icon.

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Figure 2.1: Great Barrier Reef Region General Reference Map

Please see print copy for Figure 2.1
Figure 3.1: Shipping routes relating to the Great Barrier Reef Marine Park

Please see print copy for Figure 3.1
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Please see print copy for Figure 4.2
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Please see print copy for Figure 6.5
Figure 6.6: Australia Pilot Recommended Anchorages and Great Barrier Reef Marine Park Authority Cruise Ship Anchorages relating to the Great Barrier Reef Marine Park

Please see print copy for Figure 6.6
Table 6.2: Shipping management provisions under previous zoning plans

<table>
<thead>
<tr>
<th>Activity</th>
<th>Far Northern Section Zoning Plan</th>
<th>Cairns Section Zoning Plan</th>
<th>Central Section Zoning Plan</th>
<th>Mackay Capricorn Section Zoning Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition of a ‘ship’</td>
<td>Means a vessel in excess of 70 metres in overall length.</td>
<td>Means a vessel with a gross tonnage in excess of 1500.</td>
<td>Means a vessel with a gross tonnage in excess of 1500.</td>
<td>Means a vessel with a gross tonnage in excess of 1500.</td>
</tr>
<tr>
<td>Designated Shipping Areas</td>
<td>Orford Ness to Shelburne Bay Ogilvie Reef to Sand Banks Nos 7 and 8 Howick Island Reef Flinders Group</td>
<td>None designated</td>
<td>Hinchinbrook Channel Whitsunday Passage Whitsunday Island to Hook Reef Hydrographers Passage</td>
<td>None designated</td>
</tr>
<tr>
<td>Dealing with an emergency involving a serious threat to the environment.</td>
<td>Allowed in a zone or designated area without permission or notification.</td>
<td>Allowed in a zone or designated area without permission or notification.</td>
<td>Allowed in a zone or designated area without permission or notification.</td>
<td>Allowed in a zone or designated area without permission or notification.</td>
</tr>
</tbody>
</table>

1 Excludes the Gumoo Woojabuddee Section Zoning Plan and the 28 new coastal areas that were added to the Marine Park between August 2000 and July 2001. No designated Shipping Areas were declared for the Gumoo Woojabuddee Section Zoning Plan or 28 new coastal areas.
<table>
<thead>
<tr>
<th>Activity</th>
<th>Far Northern Section Zoning Plan</th>
<th>Cairns Section Zoning Plan</th>
<th>Central Section Zoning Plan</th>
<th>Mackay Capricorn Section Zoning Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Save human life, avoid the risk of injury to a person, and secure the safety of a vessel, aircraft or structure endangered by stress of weather, navigational or operational hazards.</td>
<td>Use or entry into a zone, Remote Natural Area or a Designated Area without permission or notification.</td>
<td>Allowed in addition to requirements of Zoning, Subzoning and Designated Area provisions without permission or notification.</td>
<td>Use or entry allowed in a zone or designated area without permission.</td>
<td>Use or entry allowed in a zone or designated area without permission.</td>
</tr>
<tr>
<td>Remove a vessel except an 'historic' wreck 2.</td>
<td>Use or entry without permission, after notification to the GBRMPA, and subject to any directions given by the GBRMPA.</td>
<td>Allowed in addition to other zone requirements without permission, after notification to the GBRMPA, and subject to any directions given by the GBRMPA.</td>
<td>Use or entry allowed in a zone or designated area without permission, after notification to the GBRMPA, and subject to any directions given by the GBRMPA.</td>
<td>Use or entry allowed in a zone or designated area without permission, after notification to the GBRMPA, and subject to any directions given by the GBRMPA.</td>
</tr>
<tr>
<td>Construction and servicing of Navigation aids and their ancillary works</td>
<td>Use or entry without permission, after notification to the GBRMPA, and subject to any directions given by the GBRMPA.</td>
<td>Allowed in addition to other zone requirements without permission, after notification to the GBRMPA, and subject to any directions given by the GBRMPA.</td>
<td>Use or entry allowed in a zone or designated area without permission, after notification to the GBRMPA, and subject to any directions given by the GBRMPA.</td>
<td>Use or entry allowed in a zone or designated area without permission, after notification to the GBRMPA, and subject to any directions given by the GBRMPA.</td>
</tr>
<tr>
<td>Undertake government geodetic or bathymetric surveys</td>
<td>Use or entry without permission, after notification to the GBRMPA, and subject to any directions given by the GBRMPA.</td>
<td>Allowed in addition to other zone requirements without permission, after notification to the GBRMPA, and subject to any directions given by the GBRMPA.</td>
<td>Use or entry allowed in a zone or designated area without permission, after notification to the GBRMPA, and subject to any directions given by the GBRMPA.</td>
<td>Use or entry allowed in a zone or designated area without permission, after notification to the GBRMPA, and subject to any directions given by the GBRMPA.</td>
</tr>
</tbody>
</table>

2 As per the *Historic Shipwrecks Act 1976* (Cth)
Table 6.3: Shipping Areas under previous zoning plans

<table>
<thead>
<tr>
<th>Previous Zoning plans</th>
<th>Shipping Areas</th>
<th>Area (km²)</th>
<th>% (Marine Park)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Far Northern Zoning Plan</td>
<td>Orford Ness to Shelburne Bay</td>
<td>413</td>
<td>0.12</td>
</tr>
<tr>
<td></td>
<td>Ogilvie Reef to Sand Banks Nos 7 and 8</td>
<td>74</td>
<td>0.02</td>
</tr>
<tr>
<td></td>
<td>Howick Island Reef</td>
<td>3</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>Flinders Group</td>
<td>98</td>
<td>0.03</td>
</tr>
<tr>
<td>Cairn Section Zoning Plan</td>
<td>None designated</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mackay /Capricorn Section Zoning Plan</td>
<td>None designated</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Central Section Zoning Plan</td>
<td>Hinchinbrook Channel</td>
<td>155</td>
<td>0.06</td>
</tr>
<tr>
<td></td>
<td>Whitsunday Passage</td>
<td>338</td>
<td>0.10</td>
</tr>
<tr>
<td></td>
<td>Whitsunday Island to Hook Reef</td>
<td>1 222</td>
<td>0.35</td>
</tr>
<tr>
<td></td>
<td>Hydrographers Passage</td>
<td>100</td>
<td>0.03</td>
</tr>
<tr>
<td>Gumoo Woojabuddee Section</td>
<td>None designated</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>28 new Sections</td>
<td>None designated</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>2 248</td>
<td>0.65</td>
</tr>
</tbody>
</table>
Table 6.4: Ship management provisions under the amalgamated Zoning Plan 2003

<table>
<thead>
<tr>
<th>Activity</th>
<th>Great Barrier Reef Marine Park Zoning Plan 2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition of a ‘ship’</td>
<td>1). Any vessel that is: (a) 50 metres or longer in overall length; or (b) an oil tanker, liquefied gas carriers, chemical tankers or ships coming within the International Nuclear Fuel Code, regardless of length; or c) vessels adapted to carry oil and chemicals in bulk in cargo spaces and vessels other than oil tankers (that is ‘ships fitted with cargo spaces which are constructed and utilised to carry oil in bulk of an aggregate capacity of 200 cubic metres or more’); or (d) vessels engaged in towing or pushing where the towing or pushing vessel is a vessel described within the categories shown above or where the length of the tow, measured from the stern of the towing vessel to the after end of the tow, exceeds 150 metres; 2). other than: (e) a vessel belonging to the Defence Force of Australia or the Defence Force of another country that is in Australia with the approval of the Commonwealth of Australia; or (b) a super-yacht.; (that is, a vessel of 50 metres in overall length that is used for private recreational activities).</td>
</tr>
<tr>
<td>Navigation and operation of a’ ship’</td>
<td>Permitted in General Use Zones and Shipping Areas.</td>
</tr>
<tr>
<td>Designated Areas</td>
<td>Shipping Areas</td>
</tr>
<tr>
<td></td>
<td>Special Management Areas</td>
</tr>
<tr>
<td></td>
<td>Fisheries Experimental Areas</td>
</tr>
<tr>
<td>Dealing with an emergency involving a serious threat to the environment.</td>
<td>Use or entry allowed in a zone or designated area without permission only after notification to the GBRMPA and subject to any directions given by the GBRMPA.</td>
</tr>
<tr>
<td>Save human life, avoid the risk of injury to a person, and secure the safety of a vessel, aircraft or structure endangered by stress of weather or by navigational or operational hazards.</td>
<td>Use or entry allowed in a zone or designated area without permission or notification.</td>
</tr>
<tr>
<td>Remove or salvage a vessel or other wreck that is wrecked, stranded, sunk or abandoned and poses a threat to the marine environment or safety.</td>
<td>Use or entry allowed in a zone or designated area without permission or notification only if authorised under Commonwealth law.</td>
</tr>
<tr>
<td>Remove or salvage a vessel or other wreck that is wrecked, stranded, sunk or abandoned.</td>
<td>Use or entry allowed in a zone or designated area without permission only after notification to the GBRMPA and subject to any directions given by the GBRMPA.</td>
</tr>
<tr>
<td>Activity</td>
<td>Great Barrier Reef Marine Park Zoning Plan 2003</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Construction and servicing of navigation aids and their ancillary works</td>
<td>Use or entry allowed in a zone or designated area without permission only after notification to the GBRMPA and subject to any directions given by the GBRMPA.</td>
</tr>
<tr>
<td>Carry out emergency repairs to a navigation aid.</td>
<td>Use or entry allowed in a zone or designated area without permission or notification.</td>
</tr>
<tr>
<td>Undertake government geodetic or similar bathymetric surveys</td>
<td>Use or entry allowed in a zone or designated area without permission only after notification to the GBRMPA and subject to any directions given by the GBRMPA.</td>
</tr>
<tr>
<td>Deal with the threat of pollution to the marine environment under Commonwealth law or a national emergency response arrangement in which the GBRMPA participates.</td>
<td>Use or entry allowed in a zone or designated area without permission or notification.</td>
</tr>
<tr>
<td>To enforce a law of the Commonwealth or Queensland by a person under that law, or another law of that kind, to enforce the law</td>
<td>Use or entry allowed in a zone or designated area without permission or notification.</td>
</tr>
<tr>
<td>To carry out reconnaissance or surveillance for the Commonwealth or Queensland.</td>
<td>Use or entry allowed in a zone or designated area without permission or notification.</td>
</tr>
</tbody>
</table>
Table 7.1: Details of vessel source sewage legislation under Queensland and Commonwealth jurisdiction.

<table>
<thead>
<tr>
<th>Vessel type and people on board</th>
<th>Great Barrier Reef Marine Park (GBRMPA)</th>
<th>Queensland Coastal Waters (MSQ)</th>
<th>Commonwealth Waters (AMSA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>From 1 July 2004 - 31 December 2009</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any vessel carrying less than 15 persons on board with untreated sewage</td>
<td>No discharge of untreated sewage allowed in a boat harbour, a marina or within 1852 metres of an aquaculture facility that is within the Marine Park. Untreated macerated sewage discharge allowed near a reef or an island within the Marine Park. Ships on an international voyage within the Marine Park are referred to the Commonwealth Protection of the Sea (Prevention of Pollution) Act 1983.</td>
<td>No discharge allowed in a canal, a boat harbour, marina, some highly protected areas of state Marine Parks or within 1852 metres of an aquaculture fisheries resource. Untreated macerated sewage discharge allowed near a reef, an island or the mainland.</td>
<td>Ships on a domestic voyage need to comply with MSQ and GBRMPA requirements. Generally no requirements for ships on an international voyage.</td>
</tr>
<tr>
<td>Any vessel carrying 16 or more persons on board with untreated sewage</td>
<td>No discharge of untreated sewage allowed in a boat harbour, a marina or within 1852 metres of an aquaculture fisheries resource, a reef or the low water mark of the mainland or the nearest island within the Marine Park. Ships on an international voyage are referred to the Commonwealth Protection of the Sea (Prevention of Pollution) Act 1983.</td>
<td>No discharge allowed in a canal, a boat harbour, marina, some highly protected areas of state Marine Parks, within 1852 metres of an aquaculture fisheries resource, a reef, the nearest island or the mean low water mark of the mainland.</td>
<td>No requirements for Australian vessels on domestic voyages. No untreated sewage effluent from new ships on international voyages.</td>
</tr>
<tr>
<td>Any vessel fitted with a toilet with treated sewage (regardless of the</td>
<td>Sewage effluent treated to Grade A standard or GBRMPA tertiary standard can be discharged anywhere</td>
<td>Sewage effluent treated to Grade A standard can be discharged anywhere</td>
<td>Sewage treated to an IMO approved sewage treatment plant may be discharged at any</td>
</tr>
<tr>
<td>from the</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vessel type and people on board</td>
<td>Great Barrier Reef Marine Park (GBRMPA)</td>
<td>Queensland Coastal Waters (MSQ)</td>
<td>Commonwealth Waters (AMSA)</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>----------------------------------------</td>
<td>---------------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>number of people carried)</td>
<td>discharged anywhere in the Marine Park.</td>
<td>outside of a boat harbour, a canal or marina, a person in the water or highly protected areas of state Marine Parks.</td>
<td>location.</td>
</tr>
<tr>
<td></td>
<td>Sewage effluent treated to Grade B standard not to be discharged in a boat harbour, marina or within 700 metres of an aquaculture facility, a person in the water or a reef that is within the Marine Park.</td>
<td>Sewage effluent treated to Grade B standard not to be discharged in a canal, boat harbour, marina, some highly protected areas of state Marine Park or within 926 metres of an aquaculture facility, a person in the water or reef.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sewage effluent treated to Grade C standard not to be discharged in a boat harbour, marina or within 926 metres of an aquaculture facility, a person in the water or a reef that is within the Marine Park.</td>
<td>Sewage effluent treated to Grade B standard not to be discharged in a canal, a boat harbour, a marina, some highly protected areas of state Marine Park or within 700 metres of an aquaculture facility, a person in the water or reef.</td>
<td></td>
</tr>
<tr>
<td>From 1 January 2010</td>
<td>No discharge of untreated sewage allowed in a boat harbour, a marina or within 1852 metres of an aquaculture facility that is within the Marine Park.</td>
<td>No discharge allowed in a canal, a boat harbour, aquaculture resource, a marina or some highly protected areas of state Marine Parks.</td>
<td>Ships on a domestic voyage need to comply with MSQ and GBRMPA requirements.</td>
</tr>
<tr>
<td>Any vessel carrying less than 7 persons on board with untreated sewage.</td>
<td>Untreated macerated sewage discharge allowed near a reef, the mainland or an island that is within the Marine Park.</td>
<td>No untreated sewage effluent from ships on an international voyage if the ship is of 400 gross tonnage or more.</td>
<td></td>
</tr>
<tr>
<td>Any vessel carrying 7 to 15 persons on board with untreated sewage.</td>
<td>No discharge of untreated sewage allowed within 1852 metres of a reef.</td>
<td>No discharge of untreated sewage allowed within 1852 metres of a reef or the</td>
<td>Ships on a domestic voyage need to comply with MSQ and GBRMPA requirements.</td>
</tr>
<tr>
<td>Vessel type and people on board</td>
<td>Great Barrier Reef Marine Park (GBRMPA)</td>
<td>Queensland Coastal Waters (MSQ)</td>
<td>Commonwealth Waters (AMSA)</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-----------------------------------------</td>
<td>--------------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>Any vessel carrying 16 or more persons on board.</td>
<td>No discharge of untreated sewage allowed anywhere in the Marine Park.</td>
<td>No discharge of untreated sewage allowed anywhere</td>
<td>Ships on a domestic voyage need to comply with MSQ and GBRMPA requirements. No untreated sewage effluent from ships on an international voyage if the ship is of 400 gross tonnage or more.</td>
</tr>
<tr>
<td>Any vessel fitted with a toilet with treated sewage (regardless of the number of people carried).</td>
<td>Sewage effluent treated to Grade A standard or <em>GBRMPA tertiary standard</em> can be discharged anywhere in the Marine Park.</td>
<td>Sewage effluent treated to Grade A standard can be discharged anywhere outside of a boat harbour, a canal or marina, a person in the water or highly protected areas of state Marine Parks.</td>
<td>Sewage treated to an IMO approved sewage treatment plant may be discharged at any location.</td>
</tr>
</tbody>
</table>

- Sewage effluent treated to Grade A standard or *GBRMPA tertiary standard* can be discharged anywhere in the Marine Park.
- Sewage effluent treated to Grade B standard not to be discharged in a boat harbour, a marina or within 700 metres of an aquaculture facility, a person in the water or a reef that is within the Marine Park.
- Sewage effluent treated to Grade C standard not to be discharged in a boat harbour, a marina or within 926 metres of an aquaculture facility, a person in the water or a reef that is within the Marine Park.
Figure 8.1: OSRICS Organisational Response Framework