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Protecting the Antarctic marine environment from the impacts of shipping

Enhancing compliance with regulations for environmental protection and maritime safety

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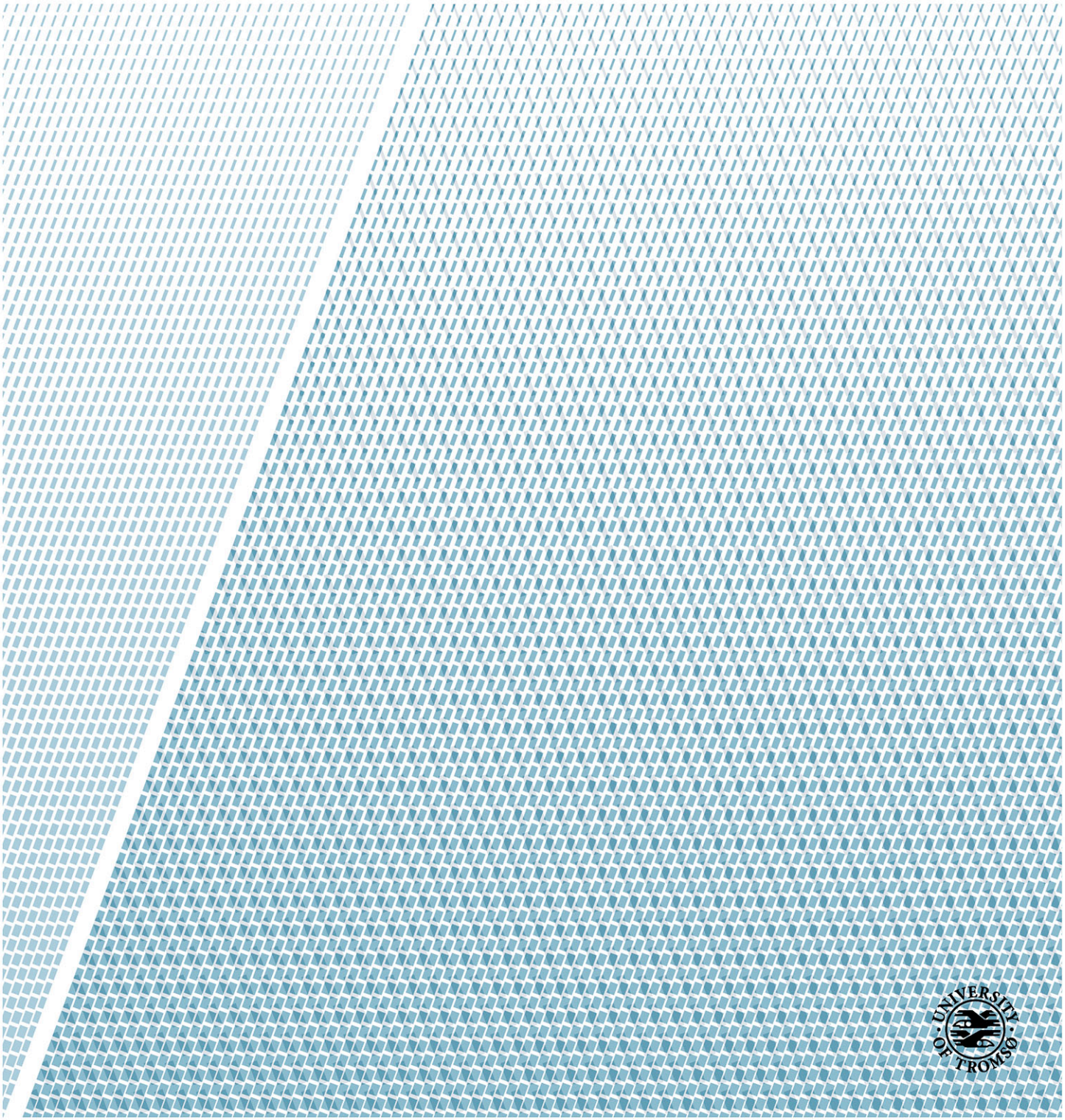

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Abbreviations

ASMA	Antarctic Specially Managed Area
ASOC	Antarctic and Southern Ocean Coalition
ASPA	Antarctic Specially Protected Area
AT	Antarctic Treaty
ATCM	Antarctic Treaty Consultative Meeting
ATCP	Antarctic Treaty Consultative Party
ATME	Antarctic Treaty Meeting of Experts
ATS	Antarctic Treaty System
CAMLR Convention	Convention on the Conservation of Antarctic Marine Living Resources
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CCAS	Convention on the Conservation of Antarctic Seals
CDEM	Construction, Design, Equipment and Manning
COMNAP	Council of Managers of National Antarctic Programs
CRAMRA	Convention on the Regulation of Antarctic Mineral Resource Activities
EEZ	Exclusive Economic Zone
GAIRAS	Generally Accepted International Rules and Standards
IAATO	International Association of Antarctica Tour Operators
IGY	International Geophysical Year
IMO	International Maritime Organisation
ITLOS	International Tribunal for the Law of the Sea
LOSC	United Nations Convention on the Law of the Sea
MEPC	Marine Environmental Protection Committee (IMO)
MSC	Maritime Safety Committee (IMO)
MoU	Memorandum of Understanding
PSC	Port State Control
RFMO	Regional Fisheries Management Organisation
UNEP	United Nations Environment Programme

1. Chapter 1 - Introduction

1.1 Introduction

The marine Antarctic is known for its fragility, but also for the harshness of its environmental and climatic conditions. This situation means that even though shipping traffic through the Southern Ocean is not of a scale comparable to other oceans, the risks of shipping are higher than in most other marine areas. Climate change, melting sea ice, and the enhanced possibilities for economic activity in the polar oceans have led to considerable attention in recent years, and to the implementation of new rules and regulations to protect human life and the marine environment. Most prominent amongst these is the International Maritime Organisation (IMO)'s newly adopted International Code for Ships Operating in Polar Waters (the Polar Code).[1] The Polar Code will become legally binding through the adoption of amendments to MARPOL[2] and SOLAS.[3] The Polar Code's provisions will eventually be directly or indirectly binding on most ships, and will thus contribute to the growing number of regulations and instruments that apply to shipping in Antarctica.

In addition to the general law of the sea, the Southern Ocean is subject to a unique regional regime, the Antarctic Treaty System (ATS). The sum of the instruments that apply to Antarctica is one of the strictest legal regimes for environmental protection in the world. Despite this, the governance system established by the ATS proceeds from the acknowledgment that no state has undisputed territorial sovereignty in Antarctica. Therefore there are significant jurisdictional gaps in the framework to ensure compliance and enforcement with the applicable regulations. As no state exercises undisputed coastal state jurisdiction, it is above all up to flag states to ensure that their vessels comply with the applicable international rules and standards for environmental protection and maritime

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[1] Doc. MEPC Res. 264(68), International Code for Ships Operating in Polar Waters (Polar Code), adopted 15 May 2015.
[2] MARPOL (1973/78). See List of References for full citations of international instruments.
[3] SOLAS (1974).

safety. In light of the growing and highly publicised issue of substandard flag state compliance, it is not appropriate to rely solely on flag state jurisdiction. The numerous maritime incidents that have occurred over the past decade in the Southern Ocean illustrate the dangers of shipping in the area. Considering the recognised value of the Antarctic marine environment, and its sensitivity to human activity, it is important to take all measures possible to prevent harm.

1.2 Objective

This thesis seeks to investigate the level of compliance and enforcement with respect to shipping regulations for environmental protection and maritime safety in Antarctica, and to suggest ways to enhance this level. The status and trends of shipping in Antarctica today will be studied, as well as the jurisdictional bases for compliance and enforcement with regulations for environmental protection and maritime safety. The interplay between the Antarctic and global governance regimes will be analysed to gain a fuller picture of the applicable compliance and enforcement mechanisms. In light of recognised threats to the marine environment, and recent harmful maritime incidents, further enforcement mechanisms both on the regional and global level will be explored in order to suggest possible measures that may contribute to safe and environmentally sound shipping in Antarctica.

1.3 Sources and methodology

1.3.1 Sources

This thesis uses primary legal sources within the meaning of article 38 of the Statute of the International Court of Justice,[4] as well as legal scholarly articles, chapters and books. Two different legal regimes and their application to one area are explored, and therefore primary legal sources are studied from both the Antarctic and the international law of the sea framework. Reports and documents submitted to the Antarctic Treaty Consultative Meetings (ATCMs) are used, as well as IMO instruments and documents. The Vienna Convention on the Law of Treaties (VCLT)[5] is employed in this thesis to direct the interpretation of conventions, as well as to analyse the relationship between the Antarctic

[4] Statute of the International Court of Justice (1945).
[5] VCLT (1969).

and the global legal framework for shipping. The writings of legal scholars are used to inform and support the interpretations, arguments and proposals made by the author. Much of this legal writing comes from the period of the establishment and entry into force of the ATS instruments, in the 1980s and 1990s. However with climate change and the increased attention directed at the polar regions, some relevant works have been published recently that contribute a contemporary viewpoint.

1.3.2 Methodology

This thesis employs the traditional legal dogmatic method. It describes and discusses the existing Antarctic and global legal framework for Antarctic shipping, the *lex lata*. After establishing the regulatory framework, the thesis then analyses the relationship between the global and Antarctic regimes. Subsequently, proposals for *lex ferenda* are made, that is, potential legal solutions to resolve the identified problems and gaps in the law.

1.4 Defining the spatial scope of the Antarctic marine environment

Discrepancies and difficulties in definition exist with respect to defining the marine areas of 'Antarctica'.[6] The Antarctic Treaty (AT)[7] applies to the area south of 60° South,[8] whereas the Convention on the Conservation of Antarctic Marine Living Resources (the CAMLR Convention)[9] operates within the area south of the approximated Antarctic Convergence,[10] the point which divides the cold Antarctic waters and the warmer sub-Antarctic waters. The Antarctic Convergence lies in some areas north of 60° South and therefore the CAMLR Convention's area of operation is greater than that of the AT. For the purposes of this thesis, the Antarctic marine environment and Southern Ocean shall be used interchangeably and taken to mean the marine component of the AT area.

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[6] Hall and Saarinen (2010), 449-450. See List of References for full citations of scholarly works.
[7] Antarctic Treaty (1959).
[8] Art VI.
[9] CAMLR Convention (1980).
[10] Art 1.

1.5 General Antarctic legal framework

1.5.1 Introduction

Antarctica is the only continent not subject to the undisputed sovereignty of any state, which presents a challenge to international law. In addition to the Antarctic regional legal regime, the law of the sea applies to the Antarctic marine environment just as it does to the rest of the world's oceans. The 1982 United Nations Convention on the Law of the Sea (LOSC)[11] contains a broad framework for international oceans governance. It enjoys near-universal participation, and many of its provisions are widely recognised as customary international law.

1.5.2 History of Antarctic governance

During the first half of the 20th century, Great Britain, Australia, New Zealand, France, Norway, Chile and Argentina made claims to sovereignty over parts of the Antarctic continent. The International Geophysical Year (IGY) of 1957-1958 marked the culmination of this period of exploration, with Argentina, Australia, Belgium, Chile, France, Great Britain, Japan, New Zealand, Norway, the USSR, South Africa and the USA participating in research and exploratory activities in Antarctica.[12] It was these twelve states that concluded the AT the next year in Washington, borne by the 'climate of political cooperation' that resulted from the IGY.[13]

1.5.3 The ATS

The ATS is defined as 'the Antarctic Treaty, the measures in effect under that Treaty, its associated separate international instruments in force and the measures in effect under those instruments'.[14] The associated separate international instruments in force are the Convention on the Conservation of Antarctic Seals (CCAS),[15] the CAMLR Convention and the Protocol on Environmental Protection to the Antarctic Treaty (Madrid Protocol).[16]

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[11] LOSC (1982).
[12] Joyner (1992), 9.
[13] Ibid 10.
[14] Madrid Protocol (1991).
[15] CCAS (1972).
[16] Madrid Protocol, above n 14.

Contracting parties to the AT may be either 'consultative' or 'non-consultative', with only consultative parties (ATCPs) participating in consensus decision making at the ATCM. Non-ATCPs can attend meetings but cannot vote. Observers and Invited Experts also participate at the ATCM, such as the International Association of Antarctica Tour Operators (IAATO).

1.5.4 Sovereignty in Antarctica

Rather than conclusively resolving the issue of claims to territorial sovereignty over Antarctica, the AT 'froze' territorial claims.[17] Article IV reflects a compromise between the interests of the seven claimant and five non-claimant states originally party to the Treaty.[18] Its effect is that none of the claimant states lose their claim by becoming parties, but neither is their claim confirmed, and further that during the life of the Treaty no new or expanded territorial claims may be made.[19]

Under the LOSC, coastal states are entitled to certain maritime zones, by virtue of their sovereignty over land with a sea-coastline, within which they may or must exercise jurisdiction. In Antarctica, where no state has recognised sovereignty, it is generally accepted that therefore no state is entitled to exercise coastal state jurisdiction over any maritime zones off the continent.[20] Several sub-Antarctic islands are subject to undisputed sovereignty, however their maritime zones are largely outside the AT area, and therefore also beyond the scope of this thesis.

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[17] Joyner (1992), above n 12, 63-64.
[18] Sahurie (1992), 185.
[19] Art IV.
[20] Joyner (1992), above n 12, 75.

2. Chapter 2 – Shipping in Antarctica

2.1 The Antarctic marine environment

The frigid and remote waters of the Southern Ocean present serious risks to shipping. The environment's vulnerability means that a shipping incident in Antarctic waters could have disastrous impacts. During the winter a substantial area of the ocean is frozen, rendering the Antarctic continent largely inaccessible by sea. Due to these conditions, there are significant knowledge gaps in our understanding of the Southern Ocean,[21] which in turn make the situation for shipping even more hazardous. The combination of these factors renders the Southern Ocean 'arguably the riskiest and most dangerous of maritime environments'.[22] Climate change is having impacts in the polar regions at a rate greater than that experienced in the rest of the world.[23] The impacts being experienced in Antarctica are volatile, with an unexpected growth in sea ice in most areas.[24] New and unpredictable sea ice regimes, as well as the increased extent of sea ice throughout much of the Antarctic marine environment will present a significant challenge to seafarers. In recent years numerous shipping incidents of varying severity have occurred in the Southern Ocean. Annex 1 provides an outline of some recent shipping incidents.

2.2 Current and future shipping trends

2.2.1 Current shipping traffic

Shipping traffic in the Southern Ocean is largely composed of vessels for fishing, tourism, research, government patrol, and resupply for the Antarctic bases.[25] Likely due to its isolation from population centres, lack of utility for trade routes and severe climatic conditions, the Southern Ocean is not a major area in terms of global shipping. It is

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[21] Scott (2010a), 129.
[22] Ibid 117.
[23] IPCC (2007), 656-58, 675; Turner et al (2014), 242, 249; Burleson and Huang (2013), 1.
[24] Turner et al (2014), above n 23, 246; IPCC (2014), 4; ACE CRC (2014), 16.
[25] Jabour (2012), 238-39.

estimated that only 0.5 percent of the world's passenger ships operate around Antarctica.[26] Tourism makes up a sizeable proportion of total shipping, with 44 ships and yachts making 268 voyages in the 2014-15 season, carrying a total of 36,702 passengers.[27] This passenger number is 2 percent lower than in 2013-14 and significantly lower than the pre-financial crisis peak of 2007-08 with 46,265 passengers.[28]

2.2.2 Projected future shipping traffic

Despite the uncertain impacts of climate change on the Antarctic marine environment, shipping activities are expected to increase in the Southern Ocean.[29] The number of vessels travelling through Antarctic waters increased significantly in the decade up to the global financial crisis of 2007/08.[30] This trend was expected to continue, had the financial downturn not impacted so severely on the tourism industry.[31] Unlike in the Arctic, where shipping routes will become attractive in the future with the reduction of sea ice, the Southern Ocean is not likely to host trans-Antarctic cargo ships in the future, primarily due to its isolation from trade hubs and population centres. Instead the growth in shipping traffic will be generated by the anticipated growth in fishing, tourism and scientific research activities.[32] Visitor numbers to Antarctica are predicted to increase,[33] exceeding the pre-financial crisis peak and reaching numbers of around 120,000-160,00 per year by 2060, with an increase in the number of tourist vessels.[34]

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[26] Ibid 238.
[27] Doc. ATCM XXXVIII/IP/53 (2015), 'IAATO Overview of Antarctic Tourism: 2013-14, 2014-15 Season and Preliminary Estimates for 2015-16 Season' (IAATO), 4. ATCM Acts and Documents are available on the Antarctic Treaty website, <www.ats.aq>.
[28] Doc. ATCM XXXVIII/IP/84 (2015), 'Report of the International Association of Antarctic Tour Operators 2014-15' (IAATO), 3.
[29] Woehler et al (2014), 45.
[30] Scott (2010a), above n 21, 117.
[31] Woehler et al (2014), above n 29.
[32] Ibid.
[33] Rothwell (2012), 133.
[34] Woehler et al (2014), above n 29, 39.

2.3 Conclusions

With an increase in shipping traffic in the Southern Ocean logically comes an increase in the risk of incidents hazardous to the environment or posing risks to maritime safety.[35] Although maritime safety and marine environmental protection are often treated separately in law and commentary, the two are closely linked. In general, pollution from ships happens for one of two main reasons- either the result of operational discharges, or as a result of maritime accidents.[36] Antarctica's 'pristine' environment is a major part of its value to the rest of the world, and what makes it attractive to tourists. Considering the difficulties of clean up operations in such an environment, as well as the extreme challenge of operating an effective search and rescue system,[37] the best way to protect the marine environment is to prevent damaging incidents occurring. As will be outlined in the following chapters, the marine Antarctic is subject to very stringent environmental and maritime safety regulations. Therefore, it is not more law that is needed, but rather mechanisms to ensure that these laws are complied with.

[35] Liggett at al (2011), 362.
[36] De la Rue and Anderson (2009), 807.
[37] Scott (2010), above n 21, 130.

3. Chapter 3 – Global legal framework for shipping

3.1 Introduction

As a framework convention, and due to the compromises of consensus decision-making, the LOSC's provisions are often broad and lacking in detail.[38] Therefore the LOSC calls on states to establish international rules and standards for shipping, often through the 'competent international organisation', which in relation to shipping is taken to be primarily the IMO. Through the IMO, states have concluded several instruments on maritime safety and the protection of the marine environment, such as SOLAS, MARPOL, and recently, the Polar Code. Frequent reference is also made in the LOSC to 'generally accepted international rules and standards' (GAIRAS), which are linked by rules of reference to ensure a global system of uniform international minimum standards. Most major IMO conventions are considered to be 'generally accepted'.[39]

3.2 The LOSC

3.2.1 Flag state enforcement and prescriptive jurisdiction on the high seas

3.2.1.1 Maritime safety

The duties of the flag state include taking necessary measures with regard to a non-exhaustive list of matters to ensure safety at sea, including seaworthiness, training of crew and communications.[40] All these measures must conform to 'generally accepted international regulations, procedures and practices'.[41] Although it is the flag state that has the responsibility for these measures, article 94 of the LOSC provides for some level of

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[38] De la Rue and Anderson (2009), above n 36.
[39] Sekimizu, Koji, Secretary-General of the IMO, 'The United Nations Convention on the Law of the Sea (UNCLOS) and the International Maritime Organisation' (Speech delivered at the International Tribunal for the Law of the Sea, Hamburg, Germany, 18 March 2014) <http://www.imo.org/en/MediaCentre/SecretaryGeneral/SpeechesByTheSecretaryGeneral/Pages/itlos.aspx>.
[40] Art 94.
[41] Art 94(5).

oversight by other states. If another state 'has clear grounds to believe that proper jurisdiction and control with respect to a ship have not been exercised', it has the option to make a report to the flag state,[42] which must investigate, and if appropriate, take action.[43] Extended coastal state jurisdiction is granted by article 234 with respect to protection of the environment and navigational safety in 'ice-covered areas'. Although the Southern Ocean could arguably be considered an 'ice-covered area', this section, along with others in the LOSC granting non-flag state enforcement jurisdiction, cannot apply in Antarctica, as there are no recognised coastal states entitled to exercise it.

3.2.1.2 Protection and preservation of the marine environment

Part XII on 'Protection and Preservation of the Marine Environment', begins with a general obligation binding on all states to protect and preserve the marine environment.[44] States have a duty to take all measures necessary so that activities or incidents under their jurisdiction or control do not cause pollution to the high seas.[45] States must take measures to 'minimise to the fullest possible extent' pollution from vessels, including the prevention of accidents, responding to emergencies, ensuring safety at sea, preventing discharges, and CDEM regulations,[46] as well as prevention of the introduction of alien species.[47] With respect to vessel-source pollution, flag states must adopt laws and regulations to at least the same level as GAIRAS.[48]

3.3 IMO Instruments and Mechanisms

The LOSC envisages the conclusion of further instruments and agreements under the auspices of the IMO, in order to expand its regime for environmental protection and maritime safety.[49] Many of these IMO instruments are indirectly binding on states once they achieve a status as GAIRAS, due to their formal adherence to the LOSC. A brief outline of the main provisions of the current MARPOL and SOLAS conventions will now follow, before a more detailed examination of the Polar Code's amendments.

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[42] Art 94(6).
[43] Ibid.
[44] Art 192.
[45] Art 194(2).
[46] Art 194(3)(b).
[47] Art 196(1).
[48] Art 211(2).
[49] See for example, arts 197, 211(1).

3.3.1 MARPOL

MARPOL is the primary international agreement on vessel-source pollution.[50] The body of MARPOL is structured as a framework convention, with currently six annexes each focusing on a different category of polluting substance. Participation in Annex I on the prevention of pollution by oil, and Annex II on the control of pollution by noxious liquid substances in bulk, is compulsory for parties to MARPOL, with the other four annexes optional.[51] MARPOL has achieved a very high level of participation, with 153 parties, representing 98.52% of world tonnage.[52] The optional annexes count as members 97.79%, 90.74%, 98.03% and 95.23% of world tonnage respectively.[53]

3.3.1.1 Special areas

The Antarctic sea area south of 60º South is listed as a Special Area under Annexes I, II and V. With respect to the Annex I listing, this means that any discharge into the sea of oil or oily mixtures from any ship is prohibited.[54] Under Annex II, no discharge of noxious liquid substances or mixtures containing such substances is permitted.[55] Annex V does not totally prohibit discharge of garbage within Antarctic waters, however it is strictly limited in terms of allowable substances and the distance from land or ice at the time of discharge.[56]

3.3.2 SOLAS

SOLAS lays down extensive regulations on ship safety and navigation standards, with the bulk of its provisions contained in, or adopted under, its Annex. The Annex to SOLAS is divided into Chapters, dealing with general provisions, construction, fire safety, life saving, radiocommunications, safety of navigation, carriage of cargoes, carriage of dangerous goods, nuclear ships, safety management, high-speed craft, special measures to

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[50] Rothwell (2000), 58.
[51] Annex III- The prevention of pollution by harmful substances in packaged forms; Annex IV- The prevention of pollution by sewage from ships; Annex V- The prevention of pollution by garbage from ships; Annex VI- The prevention of air pollution from ships.
[52] IMO, Summary of Status of Conventions (5 June 2015), <http://www.imo.org/en/About/Conventions/StatusOfConventions/Pages/Default.aspx>.
[53] Ibid.
[54] Annex I reg 15(4).
[55] Annex II reg 13(8).
[56] Annex V regs 3, 6.

enhance maritime safety, maritime security and bulk carriers. Chapter V on Safety of Navigation contains provisions on matters including the duty to provide navigational warnings,[57] meteorological services,[58] search and rescue services,[59] ships' routeing,[60] ship reporting systems[61] and vessel traffic services.[62]

3.3.3 The Polar Code

The Polar Code builds on the non-binding 2009 Guidelines for Ships Operating in Polar Waters. It was adopted by the IMO's Maritime Safety Committee (MSC) in November 2014,[63] and by the IMO's Marine Environment Protection Committee (MEPC) in May 2015.[64] It acknowledges that the polar waters present more serious navigational challenges than the rest of the world's oceans, and that the polar ecosystems are vulnerable to human activities.[65] Different requirements are imposed on ships depending on the ice regime that they are designed for, with Category A ships designed for operating in waters with at least medium first-year ice; Category B ships for at least thin first-year ice; and Category C ships for open water or ice conditions less severe than those included in categories A and B.[66]The area of application of the Polar Code in Antarctic waters is the same as the AT area.[67]

3.3.3.1 Maritime safety

Part I-A on mandatory requirements for maritime safety is divided into Chapters, each dealing with a specific maritime safety goal. Ships to which the Code applies must carry on board a Polar Ship Certificate,[68] as evidence of their compliance with the Code's

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[57] Ibid reg 4.
[58] Ibid reg 5.
[59] Ibid reg 7.
[60] Ibid reg 10.
[61] Ibid reg 11.
[62] Ibid reg 12.
[63] Doc. MSC Res.385(94), International Code for Ships Operating in Polar Waters (Polar Code), adopted 21 November 2014.
[64] MEPC, above n 1.
[65] Preamble.
[66] Introduction, [2].
[67] Introduction, [5].
[68] Pt I-A, [1.3.1].

requirements.[69] Ships are also required to carry a Polar Water Operational Manual,[70] in order to provide sufficient information on the capabilities and limitations of the specific vessel.[71] Ships must be able to receive current information including ice information,[72] and the navigational equipment and systems must be able to operate under the expected environmental conditions.[73] All ships and rescue boats and lifeboats must be properly equipped for effective communication during normal operation and emergency situations.[74] In planning the voyage, the master and crew must take into account potential hazards, and consider matters such as limitations of hydrographic information, current information on ice type and extent, places of refuge, and search and rescue capabilities.[75] Masters, chief mates and officers on navigational watch must be adequately trained to acquire the appropriate abilities for their duties and responsibilities.[76]

With respect to design and construction standards, all ships must be made from materials suitable for operation at the ship's polar service temperature,[77] and approved by the authorities of the state of registration.[78] All ships must be designed to have sufficient stability in intact conditions when subject to ice accretion.[79] Fire safety systems and appliances must be effective and operable, protected from ice and snow and designed to be used by people in bulky winter gear.[80] Escape routes must remain accessible and safe even in the presence of icing and snow accumulation,[81] and adequate thermal protection must be provided for all persons.[82] Lifeboats must be either partially or totally enclosed.[83]

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[69] Ibid [1.3.2].
[70] Ibid [2.3.1].
[71] Ibid [2.1].
[72] Ibid [9.2.1].
[73] Ibid [9.2.2].
[74] Ibid [10.2.1], [10.2.2].
[75] Ibid [11.2], [11.3].
[76] Ibid [12.2].
[77] Ibid [3.2]. Polar service temperature is defined in [1.2.11] as the temperature at least 10^{o}C below the lowest mean daily low temperature for the intended area and season of operation.
[78] Ibid [3.3].
[79] Ibid [4.2].
[80] Ibid [7.2].
[81] Ibid [8.2.1].
[82] Ibid [8.2.3.1].
[83] Ibid [8.3.3.3].

3.3.3.2 Pollution Prevention Measures

Part II-A of the Polar Code on Pollution Prevention Measures has more implications for navigation in the Arctic than the Antarctic, as the Antarctic is already subject to more strenuous pollution prevention requirements under the Annexes of MARPOL. Chapter 1 on prevention of pollution imposes structural requirements on Category A and B ships constructed on or after the date of entry into force of the Polar Code, such as separation of fuel tanks from the outer shell.[84]

With respect to sewage discharge, Ch 4 of the Polar Code extends the requirements of MARPOL Annex IV, prohibiting discharge unless as far as practicable from ice areas.[85] New Category A and B ships, and new passenger ships, as well as Category A and B ships that operate in ice areas for extended periods of time are required to have an approved sewage treatment plant.[86] Discharge of garbage in the Antarctic area is subject to the further requirements that discharges shall be as far as practicable from areas of ice concentration exceeding 1/10, and not less than 12nm from the nearest fast ice, and that food waste may not be discharged onto ice.[87]

3.3.4 Other conventions and instruments

Several other international instruments play an important role in the regulation of shipping in Antarctica, however a discussion of their substantive provisions is beyond the scope of this thesis. These conventions include COLREG,[88] the SAR Convention,[89] and the STCW Convention, which contains important provisions on manning and training of crew.[90] It should also be noted that insurance and classification societies play an important role, however a further discussion is also beyond the scope of this thesis.

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[84] Pt II-A, [1.2].
[85] Ibid [4.2.1].
[86] Ibid [4.2.2], [4.2.3].
[87] Ibid [5.2.2].
[88] COLREG (1972).
[89] SAR Convention (1979).
[90] STCW Convention (1978).

3.4 Conclusions

The basic framework contained in the LOSC for the regulation of high seas shipping is filled out by several IMO-adopted instruments, such as MARPOL, SOLAS and the Polar Code. Although these instruments are global in application and membership, they contain rules targeted at specific areas, most notably the special area provisions in MARPOL. When the newly adopted Polar Code enters into force, the global legal framework for shipping will include further detailed rules for shipping in Antarctica, on matters such as discharges, CDEM standards and training. In addition to this body of global rules, Antarctica is also subject to regional shipping regulation- in particular by the ATS, which will be discussed below in Ch 4.

4. Chapter 4 – Antarctic framework for shipping

4.1 The ATS

Whilst the AT does not provide for any direct environmental protection measures, it lists 'preservation and conservation of living resources in Antarctica' amongst the list of topics the ATCPs may consult on in furtherance of the Treaty's principles and objectives.[91] Pursuant to article VII, all parties must inform the other parties in advance of all shipping expeditions to Antarctica.[92]

4.1.1 Acts by the ATCM

At the ATCM, Measures, Decisions and Resolutions are adopted by consensus. Since the first ATCM in 1961, the ATCPs have regularly adopted decisions and resolutions related to the protection and preservation of the marine environment from the impacts of shipping.[93] At ATCM III the binding Agreed Measures for the Conservation of Antarctic Fauna and Flora were adopted,[94] including the duty to 'take all reasonable steps towards the alleviation of pollution of the waters adjacent to the coast and ice shelves'.[95] This act was the first direct measure taken by the ATCPs to protect the environment.[96] Recommendations were passed at ATCM XV on waste disposal and discharges in the Treaty area.[97] The parties were also recommended to take measures to ensure compliance with existing international agreements, and to consider making the Antarctic a MARPOL special area under Annexes I and V, through efforts within the IMO.[98]

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[91] Art 9(1)(f).
[92] Art 7(5)(a).
[93] See for example, ATCM I, Resolution I-8 (1961); ATCM II, Recommendation II-2 (1962); ATCM IV, Recommendation IV-4 (1966); ATCM XXII, Resolution VI (1998); ATCM XXVIII, Resolution III (2005); ATCM IX Recommendation IX-6 (1977).
[94] ATCM III, Recommendation III-8 (1964); Joyner (1992), above n 12, 162.
[95] ATCM III, above n 94, art 8(3).
[96] Joyner (1992), above n 12, 162.
[97] ATCM XV, Recommendation XV (1989), arts 3, 4(1).
[98] Ibid arts 4(2), (5).

In the late 1990s, the IMO developed the draft International Code of Safety for Ships in Polar Waters. At ATCM XXII in 1998, the parties discussed the draft Code, particularly with respect to concerns as to its applicability to Antarctica, not only the Arctic.[99] Consequently, Resolution 3 was passed, recommending that the consultative parties provide input to the IMO with the objective of improving its relevance to Antarctica.[100] However, on the initiative of the US, the draft Code in its final form was amended to only apply to the Arctic, and was passed in 2002 as the Guidelines for Ships Operating in Arctic Ice-covered Waters (the Arctic Shipping Guidelines).[101]

After the decision by the MSC to exclude Antarctica from the draft Polar Shipping Code, the parties passed Decision 2 at ATCM XXIII in 1999. The Decision included the agreement 'to give priority to the development of guidelines for Antarctic shipping and related activities', to be adopted by the IMO in order to extend their applicability beyond the ATCPs.[102] In 2004 at ATCM XXVII, a Decision was made endorsing the recommendatory Guidelines for Ships Operating in Arctic and Antarctic Ice-Covered Waters (the Guidelines), as prepared by Council of Managers of National Antarctic Programs (COMNAP).[103] The Decision was also to transmit the Guidelines to the IMO for consideration, and to urge the ATCPs to act at the IMO to secure its consideration at the earliest opportunity.[104] In light of 'the potential for adverse impact which a release of Heavy Fuel Oil (HFO) could have on the Antarctic marine environment', a Decision was made at ATCM XXVIII to request the IMO to examine mechanisms for restricting the use of HFO in Antarctic waters.[105] A ban on HFO resulted from this action.[106] Several recent non-binding Resolutions have been adopted by the ATCM on the risks that Antarctic

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[99] Doc. ATCM XXII (1998), 'Final Report', [85-96].
[100] ATCM XXII, Resolution III (1998).
[101] Jensen (2007), 10.
[102] ATCM XXIII, Decision II (1999).
[103] ATCM XXVII, Decision IV (2004)
[104] Ibid.
[105] ATCM XXVIII, Decision VIII (2005).
[106] Doc. MEPC Res.189(60), Amendments to the Annex of the Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships, adopted 26 March 2010.

shipping poses to human life and the marine environment, calling on parties to increase vessel reporting and promote contingency planning.[107]

ATCM XXII was held in early 2009, soon after the number of vessels and tourist passengers in Antarctica had reached its peak. At that time, the IMO was also in the process of concluding the Guidelines on Ships Operating in Polar Waters, which took into account the modifications made by COMNAP to the earlier Arctic Shipping Guidelines.[108] Due to this increased number of vessels, the parties passed a Resolution in support of the IMO's work, and desiring that the IMO commence work as soon as practicable on mandatory Antarctic shipping requirements.[109]

4.1.2 The Madrid Protocol

The Madrid Protocol (excepting Annexes V and VI) entered into force on January 14, 1998. The Protocol has six annexes, on Environmental Impact Assessment, Fauna and Flora, Waste Disposal, Marine Pollution, Protected Areas, and Liability respectively. The annexes are an integral part of the Protocol.[110] The Protocol fits within the framework of international law for marine environmental protection, designed with links to the primary gobal conventions.[111] The Protocol emphasises the prevention of environmental harm, with frequent references to the requirement to 'plan and conduct' activities to avoid damage to the environment.[112]

4.1.2.1 Annex I – Environmental Impact Assessment

Essentially all activities in the AT area are subject to the Annex I impact assessment regulations, including shipping voyages.[113] However, if the activity is deemed under national impact assessment regulations to have 'less than a minor or transitory impact', a

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[107] ATCM XXX, Resolution IV (2007); ATCM XXXI, Resolution VI (2008); ATCM XXXIII, Resolution VI (2010); ATCM XXXV, Resolutions VII, VIII, X (2012); ATCM XXXVI, Resolution IV (2013).
[108] ATCM XXXII, Resolution VIII (2009).
[109] Ibid.
[110] Art 9(1).
[111] Joyner (2000), 107.
[112] Art 3.
[113] Madrid Protocol, art 8.

further assessment is not required.[114] This test has been criticised, as neither 'minor' nor 'transitory' are defined in the Protocol or the Annex, and therefore the decision of whether a further assessment is required relies on the judgment of the state carrying out the activity.[115] It is only at the highest of three assessment levels that activities in Antarctica are subject to compulsory oversight beyond the level of national authorities.[116] Data is scarce, however it is unlikely that most shipping activities would be deemed to have a more than minor or transitory impact.

4.1.2.2 Annex IV – Prevention of Marine Pollution

Annex IV provides that except as permitted under MARPOL Annex I, no oil or oily mixture may be discharged in the Treaty area.[117] The discharge of noxious liquid substances and any other chemical or other substance is prohibited if the discharge is in a quantity or concentration harmful to the marine environment.[118] Disposal of plastics and garbage is also prohibited, and limitations are imposed on the disposal of food wastes.[119] 'Except where it would unduly impair Antarctic operations', discharge of untreated sewage within 12nm of land or ice shelves is prohibited, and beyond that distance discharge must be released at a moderate rate and while the ship is travelling at over 4 knots.[120] 'Unduly impair' is not defined and therefore the force of this provision is substantially weakened.

Parties are under a duty to ensure that ships are fitted with capacity to store all waste substances and garbage while operating in the Treaty area.[121] Departure port states must ensure 'as soon as possible' that adequate reception facilities for waste substances and garbage are available.[122] The parties must also develop contingency plans for marine pollution response, and procedures for cooperative response to pollution emergencies.[123] However, the provisions of this Annex are seriously curtailed by its article 11, which provides that it does not apply to any ship owned or operated by a state and used for

[114] Annex I, art 1.
[115] Scott (2012), 303-04.
[116] Annex I, art 6; Hemmings and Roura (2003), 15.
[117] Annex I, art 3.
[118] Ibid art 4.
[119] Ibid art 5.
[120] Ibid art 6(1).
[121] Ibid art 9(1).
[122] Ibid art 9(2).
[123] Ibid art 12.

government non-commercial service. Considering that the majority of vessels flagged to states party to the Protocol are on government service, this article essentially restricts the application of Annex IV to only fishing and tourist vessels.[124]

4.1.2.3 Annex V – Area Protection and Management

Annex V provides for a regime of Antarctic Special Protected Areas (ASPA) and Antarctic Specially Managed Areas (ASMA), within which activities are prohibited, restricted or managed.[125] Although several marine areas have been listed as ASPAs and ASMAs, their small size and lack of substantive restrictions on shipping operations mean that they do not play a major role in the protection of the marine environment from shipping.[126]

4.1.2.4 Annex VI – Liability arising from Environmental Emergencies

Annex VI was adopted at ATCM XXVIII in 2005, after several drafts and many years of negotiations.[127] Although liability provisions generally only come into play after environmental damage has occurred, the objective of the Annex is to prevent the occurrence of environmental emergencies, not compensation for the harm.[128] All parties must ensure that its operators undertake preventative measures to reduce the risk of environmental emergencies, establish contingency plans, and take prompt and effective action in response to an eventual emergency arising from its activities.[129] Strict liability arises when an operator fails to take the required prompt and effective response action.[130] In that case, the operator is liable to pay the costs of response action taken by any other parties,[131] unless the environmental emergency was caused by a number of exceptions such as protection of human life or an exceptional natural disaster.[132]

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[124] Molenaar (2005), 263.
[125] Annex V, art 2.
[126] Scott (2013), 130-31.
[127] Joyner (2000), above n 111, 121.
[128] Annex VI, Preamble.
[129] Ibid arts 3, 4, 5.
[130] Ibid art 6.
[131] Ibid.
[132] Ibid art 8.

4.1.3 The CAMLR Convention

The CAMLR Convention is primarily focused on the living resources of the marine Antarctic, and more particularly fishing and related activities.[133] The Convention recognises that it is the primary responsibility of the ATCPs to regulate for the protection and preservation of the marine environment more broadly.[134] However, both the Convention itself and particularly conservation measures and resolutions adopted by its Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) are relevant to the regulation of shipping in the Southern Ocean more broadly.

In recent years CCAMLR has passed binding Conservation Measures and non-binding Resolutions dealing with maritime safety and other shipping related matters. These include Conservation Measure 26-01, which regulates for environmental protection during fishing, including prohibitions on the disposal and discharge of certain substances.[135] CCAMLR is empowered to designate marine protected areas (MPAs) under article IX of the CAMLR Convention. Pursuant to Conservation Measure 91-04 of 2011, CCAMLR may adopt measures including on the restriction, prohibition or management of activities within MPAs.[136] Such measures include the prohibition of discharges and dumping of any type of waste from any fishing vessel within an MPA to the south of the South Orkney Islands.[137]

Non-binding Resolution 20/XXII was adopted out of the concern 'that collisions with ice could result in oil spills and other adverse consequences for Antarctic marine living resources and the pristine Antarctic environment'.[138] Several other Resolutions have been adopted on maritime safety, on matters such as survival training and equipment,[139] salvage,[140] and search and rescue coordination.[141] Similarly to the ATCM, CCAMLR

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[133] Art 2; Rochette et al (2015), 10 (table 1 ftn. B).
[134] Preamble, art 5.
[135] CCAMLR Conservation Measure 26-01 (2009). CCAMLR Documents and Acts are available on the CCAMLR website, <www.ccamlr.org>.
[136] CCAMLR Conservation Measure 91-04 (2011), 3(iii).
[137] CCAMLR Conservation Measure 91-03 (2009).
[138] CCAMLR Resolution 20/XXII (2003).
[139] CCAMLR Resolution 23/XXIII (2004).
[140] CCAMLR Resolution 29/XXVII (2009).
[141] CCAMLR Resolution 33/XXX (2011).

adopted a resolution in 2012 in support of the progress being made at the IMO on the Polar Code.[142]

4.2 IAATO

A significant proportion of shipping traffic in Antarctica is made up of tourist vessels. IAATO is the industry body for tourist operators in Antarctica, and plays an important role in the regulation of shipping tourism in the Southern Ocean. The practice of the ATCPs in regulating tourism has been criticised as weak, and therefore IAATO has filled this gap to some extent.[143] One of the drawcards to Antarctica is its pristine, or apparently pristine, environment, and therefore it is in the tourist industry's interests to maintain the integrity of the environment. Most tour operators active in Antarctic are members of IAATO.[144] IAATO has attended ATCMs since ATCM 7 in 1992 as an invited expert, and submits regular reports.

The IAATO Bylaws contain provisions relevant to shipping, such as the requirement to maintain vessels in a suitable condition for safe and effective operation under Antarctic conditions.[145] Vessels entering the AT area must have a Captain or Ice Pilot with suitable Antarctic experience, and in some cases bridge officers with relevant Antarctic experience.[146] Tour operators are required to regularly update the IAATO Vessel Database, and to incorporate the IAATO guidelines and operational procedures into their own operating procedures.[147] IAATO has produced Guidelines on varied aspects of Antarctic tourism activities, however they are in general not available to the public. Detailed procedures to be followed by Organisers and Operators are available on the IAATO website,[148] divided into procedures for before, during, and after the voyage to Antarctica.[149]

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[142] CCAMLR Resolution 34/XXXI (2012).
[143] Haase et al (2009), 417.
[144] Secretariat of the Antarctic Treaty, Tourism and non Governmental Activities, <http://www.ats.aq/e/ats_other_tourism.htm>.
[145] IAATO, Bylaws (version of 30 April 2015), <http://iaato.org/bylaws>, art 10, s B.
[146] Ibid art 10, s C.
[147] Ibid.
[148] <www.iaato.org>.
[149] IAATO, Guidance for those Organising and Conducting Tourism and Non-governmental Activities in the Antarctic, <http://iaato.org/guidance-for-those-organising-tourism>.

When planning a tour to the Antarctic, organisers and operators must follow numerous procedures, such as completion of an initial environmental impact assessment; provision of information to assist with contingency response plans and marine pollution contingency plans; obtaining permits required by national law; ensuring that personnel are experienced and trained; and obtaining best available maps and hydrographic charts.[150] Neither participation in IAATO, nor compliance with its bylaws or guidelines, is compulsory. However, IAATO has developed a membership level scheme as a means of ensuring compliance on the part of its members.

4.3 Conclusions

The Antarctic framework for shipping regulations is comprised of the ATS instruments and associated binding and non-binding instruments, as well as the voluntary requirements imposed by IAATO. The AT itself does not regulate shipping to any significant extent, however the Annexes to its Protocol, particularly Annex IV contain a number of relevant rules and regulations. The practice of the ATCM over the decades since the creation of the AT shows that the ATCPs have considered shipping an important matter to be regulated, passing several Measures, Resolutions and Decisions on shipping. Similarly, the CAMLR Convention does not explicitly refer to shipping, however acts by CCAMLR have included measures for the regulation of shipping, particularly in recent years. This Antarctic regime for shipping coexists with the global regime discussed in Ch 3, and therefore it is necessary to investigate the relationship between the two regimes in law and in practice.

[150] Ibid.

5. Chapter 5 – Interaction of the Antarctic and global regimes with respect to shipping regulation

5.1 Legal relationship between the regimes

5.1.1 Introduction

It is beyond the scope of this thesis to analyse the legal relationship between all elements of the ATS and all elements of the global shipping regulatory framework. As Scovazzi states, the ATS together with its recommendations and measures 'constitutes an extremely bulky and complicated body of treaty law', and the LOSC 'also shows a respectable degree of intricacy'.[151] Instead, this section will focus on the relationships most relevant to maritime safety and marine environmental protection from shipping. The relationship between the ATS and LOSC will first be examined, and then that between the Madrid Protocol and MARPOL.

5.1.2 The relationship between the ATS and LOSC

In the case of overlapping treaties, determining their legal relationship is first and foremost determined by the terms of any relationship clause in the treaties themselves.[152] The AT, as well as the Madrid Protocol and the CAMLR Convention, contains a provision regarding its relationship to the law of the sea. The LOSC also provides for its relationship to other treaties, both in general, and in particular with respect to environmental instruments. It is necessary to provide a analysis of the relevant provisions in both instruments before discussing their effect on the relationship between the instruments.

5.1.2.1 ATS relationship provisions

Article VI of the AT provides that:

> The provisions of the present Treaty shall apply to the area south of 60° South Latitude, including all ice shelves, but nothing in the present Treaty shall prejudice or in any way affect the rights, or the exercise of the rights,

[151] Scovazzi (1996), 388.
[152] VCLT art 30(2).

> of any State under international law with regard to the high seas within that area.

This provision is incorporated into both the CAMLR Convention and the Madrid Protocol in different ways. The Protocol's area of application is defined as 'the area to which the provisions of the Antarctic Treaty apply in accordance with article VI of that Treaty',[153] in effect introducing the above relationship clause into the Protocol. The CAMLR Convention provides that within the AT area, parties are bound by article VI of the AT.[154]

The precise meaning of article VI of the AT has been debated by some states and commentators,[155] with the uncertainty raising issues such as the extent of the Treaty's application to the Southern Ocean and the effect of the saving of high seas rights within the Treaty area.[156] The AT was concluded in 1959, before negotiations had begun on LOSC, and therefore it could be questioned whether the 'international law with regard to the high seas' referred to in article VI includes the LOSC provisions. However, it is preferable, both from a logical standpoint and in light of the subsequent practice of the ATCPs, to assume a flexible and evolutionary meaning of article VI, incorporating developments in customary international law.[157]

The drafting history of article VI, as discussed by Scovazzi, assists in resolving the interpretational uncertainties with respect to the Treaty's application to the high seas. The original draft submitted by the Preliminary Working Group explicitly excluded the high seas.[158] The statement that the Treaty will not prejudice or affect high seas rights represents a compromise between the desire of the United States to preserve navigational and other high seas freedoms,[159] and the proposal by Argentina that all areas south of 60° should be included. The Soviet Union proposed that the Treaty should apply to all areas south of 60° however 'without prejudice to the use by any of the High Contracting Parties, in accordance with the international law, of those parts of the high seas'.[160] The rephrasing of

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[153] Madrid Protocol art 1(b).
[154] CAMLR Convention art 4(1).
[155] Scovazzi (1996), above n 151; Boyle (2000), 19; Vigni (2000), 493.
[156] Rothwell and Joyner (2001), 16.
[157] Scovazzi (1996), above n 151, 387; Davis and Lee (2001), 204-05.
[158] Scovazzi (1996), above n 151, 396.
[159] Ibid.
[160] Ibid 387.

this proposal by the United Kingdom was the formulation eventually adopted.[161] Therefore the purpose of article VI is to preserve high seas freedoms, whilst including the marine areas within the Antarctic regime. With respect to the preservation of high seas freedoms, only such rights are preserved that have not been limited by an ATS instrument.[162] Further, as article VI should be taken to have an evolutionary meaning, only the rights that exist in international law at the time of interpretation are preserved, not those that existed in 1959.[163]

5.1.2.2 LOSC relationship provisions

The LOSC contains article 311 on the Relation to Other Conventions and International Agreements, as well as article 237 on Obligations under Other Conventions on the Protection and Preservation of the Marine Environment. The effect of article 311 is that in general the LOSC will prevail over most prior and future agreements. However, the LOSC 'shall not alter the rights and obligations of States Parties which arise from other agreements compatible with the Convention and which do not affect the enjoyment by other States Parties of their rights or the performance of their obligations under this Convention'.[164] Further, article 311 does not affect international agreements expressly permitted or preserved elsewhere in the LOSC.[165] Article 237 operates to the effect that previously concluded agreements which relate to the protection and preservation of the marine environment, carried out consistently with the general principles and objectives of the LOSC, are not subject to the provisions of Pt XII.[166]

Section 2 of Pt XII on Global and Regional Cooperation contains article 197, which places a duty on states to cooperate on a regional basis as appropriate to formulate and elaborate international rules, standards, practices and procedures for the protection and preservation of the marine environment, taking into account characteristic regional features. An agreement concluded pursuant to article 197 would most likely fall under the exception to

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[161] Ibid.
[162] Ibid.
[163] Ibid.
[164] Art 311(2).
[165] Art 311(5).
[166] Art 237(1), (2).

the LOSC's prevalence under article 311 in accordance with article 311(5)- agreements expressly permitted elsewhere in the LOSC.

5.1.2.3 Analysing the relationship between the ATS and LOSC

The ATS and its associated measures and recommendations, to the extent relevant to the protection and preservation of the marine environment, most likely qualify as a regional regime under article 197.[167] Cooperation under article 197 may be either direct or through 'competent international organisations'.[168] The use of the plural 'organisations' is unusual in the LOSC, as generally it refers to *the* competent international organisation, which is generally taken to be the IMO with respect to shipping. By providing for cooperation through competent international organisations, article 197 makes it clear that the LOSC does not the exclude formation of institutions such as the ATCM, and legitimises therefore to some extent its role in regional regulation.

Therefore as an agreement expressly permitted by the LOSC, article 311 does not operate to ensure the prevalence of the LOSC over the ATS.[169] In any case, the environmental aspects of the ATS fall under article 237, as a prior agreement relating to the protection and preservation of the environmental and carried out consistently with LOSC. Therefore Part XII of the LOSC does not prejudice the environmental obligations of parties to the ATS. Article VI of the AT as discussed above serves to preserve high seas rights to the extent that they are not limited by ATS instruments or developments in customary law. However, the operation of articles 311(5) and 237 of the LOSC is that the environmental requirements of the ATS will prevail over the LOSC, provided that they are consistent with the LOSC's general principles.[170]

Rather than conflicting with one another, the overlapping regimes of the ATS and the LOSC are complementary in practice.[171] As stated by Joyner:

> The various instruments in the ATS clearly serve to reinforce [the law of the sea] rules and norms within the specific context of their application to the Southern Ocean. The competing jurisdictions of international regimes in

[167] Joyner (1995), 315.
[168] Art 197.
[169] Art 311(5).
[170] Boyle (2000), above n 155, 22.
[171] Joyner (1995), above n 167, 302.

> Antarctic seas thus serve more as complementary reinforcement of desirable norms, rather than conflictive or duplicative efforts creating difficulties for the affected states. In this way both these regimes contribute considerably to strengthening the rule of law in the ocean space surrounding Antarctica.[172]

5.1.3 The relationship between the Madrid Protocol and MARPOL

The Madrid Protocol, particularly its Annex IV, and MARPOL address the same subject matter- protection of the marine environment from pollution. The legal relationship between the two instruments is not controversial, as the Madrid Protocol states that, '[w]ith respect to those Parties which are also Parties to MARPOL 73/78, nothing in this Annex shall derogate from the specific rights and obligations thereunder'.[173] However, it is worthwhile to briefly consider how MARPOL and the Madrid Protocol interact in practice, especially in light of Antarctica's listing as a Special Area with respect to many forms of pollution. At the time of writing, every party to the AT was a party to MARPOL, and thereby automatically party to Annexes I and II.[174] Further, all parties to the AT were also parties to Annex V to MARPOL, and therefore to all the Annexes under which Antarctic is listed as a special area (Annexes I, II and V).

As outlined above in Ch 3, MARPOL imposes strict limitations on discharges in the Antarctic area, with prohibitions on the discharge of oil and oily reside and noxious substances.[175] Under Annex IV of the Madrid Protocol, the rules on the discharge of oil or oily mixtures are tied to the MARPOL rules. However the discharge of noxious liquid substances and other chemical substances is only prohibited if harmful to the environment, unlike the total prohibition in Annex II of MARPOL. Article 6 of the Madrid Protocol Annex IV provides that 'except where it would unduly impair Antarctic operations' parties shall eliminate discharge of untreated sewerage within 12nm, and beyond that only whilst 'where practicable' the ship is travelling at 4 knots. Whether this rule is weaker or stricter than the rule in MARPOL Annex IV is difficult to determine, as it depends on the interpretation of 'unduly impair Antarctic operations' and 'where practicable'.

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[172] Ibid 331.
[173] Madrid Protocol art 14; Scovazzi, above n 151, 390.
[174] IMO, Summary of Status of Conventions, above n 52.
[175] Annexes I and II.

It is apparent that in general the discharge rules contained in Annex IV of the Madrid Protocol do not greatly strengthen the rules contained in MARPOL. Therefore, it has been observed that the practical utility of the Madrid Protocol's Annex IV is dependent on the number of ships in Antarctic waters that are not parties to the MARPOL Annexes.[176] Its practical utility is further reduced by its non application to most vessels due to sovereign immunity, as discussed in Ch 4. However, as mentioned above, all AT parties are parties to MARPOL, including the annexes under which Antarctica is listed as a special area. Eighteen AT states are not parties to Annex IV on sewage, and therefore not directly bound by its provisions.[177] However, considering the very high level of global participation in Annex IV, at just over 90%, there is a strong argument to be made that it falls under the title of 'generally accepted international rules and standards'.[178] If that is the case, such states would be bound by Annex IV through Pt XII of LOSC regardless.[179] Even the USA, which is not a party to the LOSC or Annex IV of MARPOL, accepts that it is bound by the vast majority of provisions in the LOSC.

Therefore, in terms of the actual regulations to which states are bound, the Madrid Protocol does not make any significant additions.[180] However, according to Joyner, it is not without purpose, as the 'integration of salient legal norms from global international agreements into a specific Antarctic regional context furnishes a more cogent and coherent legal framework for regulating marine pollution in the circumpolar South'.[181]

5.2 The relationship between the IMO and the ATCM

As outlined above, the ATCM has adopted measures and passed recommendations relating to shipping, however at the same time it has been explicit in declaring that it considers the IMO to be the appropriate body to regulate shipping.[182] Although measures adopted under the ATS related to shipping are not incompatible with the LOSC, the ATCM considers that the global reach of the IMO, as well as its technical expertise, makes it the more

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[176] Vidas (2000), 78, 96.
[177] IMO, Summary of Status of Conventions, above n 52.
[178] Beckman (2015), 263.
[179] Art 211(2).
[180] Vidas (20000, above n 176, 100.
[181] Joyner (1995), above n 167, 123.
[182] See eg ATCM XXXVII, Resolution III (2014); ATCM XXXII (2009), 'Final Report', 286; ATCM XXIX, Decision II (2006); ATCM XXVIII, Decision VIII (2005).

appropriate forum to regulate shipping.[183] The ATCM has strived to enhance cooperation with the IMO in relation to shipping, and the IMO has been invited to attend ATCMs since 1987.[184] Cooperation between the two bodies has increased throughout the process of development of the various forms of polar shipping guidelines and the mandatory Polar Code.[185]

The ATCM plays an important role in regulating Antarctic shipping, but this role is often more of a preparatory nature, identifying issues and potential solutions, and then transmitting information to the IMO for implementation. A more detailed outline of this role is given in section 4.1.1 above. For example, as discussed in that section, the decision to ban HFO in Antarctic waters was initiated by the ATCM, but executed by the IMO.[186] This relationship allows the specific needs and circumstances of shipping in Antarctica to be considered, whilst at the same time ensuring that any regulations directed at Antarctica are implemented at the global level. However, on the other hand, this means that Antarctic-specific issues are not always prioritised, for example in the Polar Code, which has been criticised for not being adequately tailored to the Antarctic environment.[187] As fishing vessels are not a major part of the IMO's mandate, there is less of an overlap with CCAMLR's operations. In general, instruments and measures adopted under the IMO are rarely relevant to the work of CCAMLR. However, CCAMLR has become more involved in shipping related matters in recent years, and therefore the potential for overlap is growing. The resolution adopted by CCAMLR in support of the work of the IMO in relation to the development of the Polar Code,[188] shows that CCAMLR, like the ATCM, recognises the superior competence of the IMO with respect to shipping.

5.3 Conclusions

In general the LOSC prevails over other instruments. However, the ATS provisions with respect to shipping fall under two exceptions to this dominance, as a prior environmental

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[183] Doc. ATCM XXIII/WP/40 (1998), 'Polar Shipping Code' (United Kingdom).
[184] Weber (2012), 379.
[185] Ibid 380.
[186] Weber (2012), above n 184, 382.
[187] Doc. ATCM XXXVIII/IP/113 (2015), 'Next Steps for Vessel Management in the Southern Ocean' (ASOC).
[188] CCAMLR Resolution 34/XXXI (2012).

agreement carried out consistently with the LOSC, and as a regional regime for the protection of the marine environment, which is expressly permitted by the LOSC. In practice there is no conflict between the instruments, as the ATS serves to complement and support the provisions of the LOSC. With respect to the Madrid Protocol and MARPOL, the relationship clause in the Protocol clearly establishes MARPOL's dominance, and further, the provisions in MARPOL are generally more stringent than those in the Protocol, as well as globally applicable. In terms of the institutional relationship between the IMO and the ATCM, although the ATCM has adopted Decisions, Measures and Resolutions that overlap with the mandate of the IMO, its practice makes it clear that it recognises the dominance of the IMO in the area of shipping. As its name suggests, the ATCM is merely a meeting for parties and observers, without its own organs or expert competence. Therefore it is well placed to understand the issues facing shipping in Antarctica, however not equipped with the expertise of the IMO. The ATCM has adopted a preparatory role, reaching agreement on what needs to be done with respect to shipping in the AT area, with the IMO relied on for the implementation.

6. Chapter 6 – Imposing jurisdiction and ensuring compliance

6.1 Introduction

Under the international law of the sea, in general the right and duty to impose enforcement jurisdiction is shared between flag states, coastal states and port states. The unresolved sovereignty issue over the Antarctic territory essentially removes coastal state jurisdiction as an option for ensuring compliance with shipping standards. Imposition of the remaining available forms of jurisdiction is rendered challenging by the vast size, remoteness and conditions of the Southern Ocean.

The previous chapters have outlined the strict and multi-level legal regime for environmental protection to which the marine Antarctic is subject. As Joyner states, 'degradation of the Antarctic marine environment will not occur on account of weak law'.[189] It is much more likely that any future harm to the Antarctic marine environment will come as a result of the failure or inability of states in which jurisdiction is vested, to impose that jurisdiction.[190] This chapter will present an overview of the various means by which jurisdiction may be imposed on vessels in the AT area. Chapter 7 will suggest possible mechanisms to enhance compliance with law of the sea in the Treaty area.

6.2 Flag state jurisdiction

6.2.1 Introduction

As the Antarctic marine area is an area of *de facto* high seas, pursuant to the LOSC, vessels are subject to the primary jurisdiction of the flag state.[191] The flag state has the duty to ensure compliance by its vessels with applicable international rules and standards, such as SOLAS and MARPOL regulations, as well as with their domestic laws adopted in accordance with the LOSC for the prevention, reduction and control of vessel-source

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[189] Joyner (1995), above n 167, 123.
[190] Ibid.
[191] Art 92(1).

pollution.[192] The flag state is required to provide for the effective enforcement of these laws and regulations regardless of where the violation occurs, [193] as well as rules established through the IMO.[194] Penalties enacted by the flag state must be of adequate severity to discourage violations.[195] The state of registry must periodically inspect its vessels to verify that the required certificates are reflective of the condition of the vessel.[196]

Responsibility for ensuring compliance with AT shipping regulations also largely falls on the state of registry. Under both the Madrid Protocol and the CAMLR Convention, parties are under a duty to take appropriate measures to ensure compliance with the instruments.[197] CAMLR Convention parties must also ensure compliance with binding conservation measures adopted by CCAMLR.[198] The jurisdictional framework under the AT itself is not well articulated, however it is apparent that it also envisages primary flag state responsibility for ensuring compliance. Despite this, in addition to the primary reliance on flag state jurisdiction, the ATS also incorporates other mechanisms aimed at ensuring compliance, which will be discussed below in section 6.5.

6.2.2 Issues with respect to flag state jurisdiction

The primacy of flag state jurisdiction on the high seas is a long-standing principle in the international law of the sea, however evidence suggests that exclusive flag state jurisdiction is inadequate to ensure compliance. The failure of a flag state to fulfil its duties may be due to intentional non-imposition of jurisdiction, or an inability to do so. Further, vessels may render the imposition of jurisdiction even more challenging by avoiding ports in their state of registry, or by frequently changing their flag.[199]

Pursuant to article 91(1) of the LOSC, a 'genuine link' must exist between the state of registration and the vessel. However, the International Tribunal for the Law of the Sea (ITLOS) has found that this requirement is not intended to be a condition on the grant of

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[192] Art 217(1).
[193] Ibid.
[194] Art 217(4).
[195] Art 217(8).
[196] Art 217(3).
[197] Madrid Protocol art 13; CAMLR Convention art XXI.
[198] CAMLR Convention art XXI.
[199] Rayfuse (2004), 24-25.

registration, but rather to be a way of ensuring that the flag state exercises effective jurisdiction and control.[200] Consequently owners of a vessel are free to select the state of registration. Therefore, some states offer open registries, and may be attractive to vessels due to their low crew costs and weaker labour laws, low fees and taxation, and their lacklustre enforcement practices and consequent savings to be made.[201] Further, registries may be selected for their non-participation in various treaties that would impose requirements on the vessel.[202]The economic benefits of open registries, in the form of income from registration fees, encourage such states to continue to neglect their obligations. States with registries consisting primarily of ships under foreign ownership account for well over half of the total world tonnage.[203] The states to which such registries belong are popularly known as 'flags of convenience' states, or more accurately flags of non-compliance, and present a serious and growing challenge to the maintenance of an effective global governance regime for the oceans.

However, even states that are willing to ensure compliance with legal obligations may struggle to do so, due to lack of financial resources or infrastructure.[204] The vast size of the high seas, and especially in remote areas such as the Southern Ocean, means that it may be difficult or impossible for the flag state to receive information concerning violations by its vessels. It may not be aware of problem vessels, or be able to prosecute, even if it is aware.[205] It is clear that particularly in an environment such as the marine Antarctic, imposing jurisdiction and ensuring compliance with shipping regulations requires the political will, as well as the considerable finances and infrastructure to do so.[206] Failing this, alternative bases of jurisdiction are needed to supplement the traditional primacy of flag state jurisdiction on the high seas.

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[200] *M/V Saiga Case* (*St Vincent and the Grenadines v Guinea)* 120 ILR 144, [80]-[83].
[201] Churchill and Lowe (1999), 258.
[202] Ibid 6.
[203] UNCTAD, Review of Maritime Transport 2014 (2014), 44, <http://unctad.org/en/pages/PublicationWebflyer.aspx?publicationid=1068>.
[204] Rayfuse (2004), above n 199, 24.
[205] Ibid.
[206] Joyner (1992), above n 12, 175.

6.3 'Expedition' basis of jurisdiction

6.3.1 Introduction

The problem in Antarctic waters is not only that increasing numbers of vessels, including large cruise ships, are flagged to registries of non-compliance,[207] but also that often these flag states are not AT parties. As rules under the ATS are only opposable to parties, third party vessels in the Treaty area are not bound. In response to this jurisdictional gap, another basis of jurisdiction has been relied upon, namely 'expedition' basis. Under customary international law, a state may exercise jurisdiction over its citizens regardless of their location – the nationality principle. This means that an AT party may impose its jurisdiction on, for example, a tour company based in that state, despite the fact that the vessel operated by that tour company is flagged to a third party.[208] Such vessels thereby become indirectly bound by the ATS provisions via the domestic implementation of those rules by the state in which the tour operator or company is based.

The ATS instruments give implied approval of this basis of jurisdiction. Article VII(5) of the AT imposes a duty on states to inform the other parties in advance of activities including all expeditions to and within Antarctica, on the part of its ships and nationals, and all expeditions to Antarctica organised or proceeding from its territory. However this does not necessarily mean that the state is obliged to exercise jurisdiction more broadly with respect to these activities.[209] Article 2 of Annex IV to the Madrid Protocol extends its application beyond ships flying the flag of parties, to 'any other ship engaged in or supporting its Antarctic operations'. By entering into an agreement with a Madrid Protocol party, a company consents to be subjected to the jurisdiction of the state party to some extent.[210]

6.3.2 Issues with respect to the expedition basis of jurisdiction

The prerequisite to the exercise of expedition basis jurisdiction is the domestic implementation of the ATS instruments. That a state not party to the AT has enacted

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[207] Rothwell (2012), above n 33, 62-63.
[208] Bush (2000), 21, 40.
[209] Molenaar (2005), above n 124, 283.
[210] Molenaar (1998), 447.

legislation implementing the ATS regulations is not guaranteed, or even likely. Further, although the expedition basis of jurisdiction may be useful in ensuring compliance with ATS instruments, as discussed above, the rapid developments in international shipping law have had the effect of rendering the ATS regulations almost redundant. Therefore there is not necessarily a significant advantage in holding third party vessels to ATS regulations, when essentially all vessels are bound by the more restrictive global regulations in SOLAS and MARPOL. Another barrier in the way of enforcement on the expedition basis is the difficulty of obtaining sufficient evidence to support prosecution. It is unlikely that a sufficient law enforcement presence would exist, particularly in the marine Antarctic, to allow enforcement jurisdiction to be exercised against a vessel,[211] except perhaps in the event of a major incident.

6.4 Port state jurisdiction

Port state jurisdiction is founded in customary international law, by virtue of a state's sovereignty over its land territory. Provided that sovereign or diplomatic immunity does not arise, any vessel voluntarily in port is subject to the domestic laws of the port state.[212] However with respect to violations committed outside of the port state's territory or maritime zones, under customary law the only action the port state may take is to refuse entry to port. There is no customary basis for the exercise of jurisdiction against a vessel of another state for a violation committed outside of the port state's maritime zones. The LOSC however provides a treaty basis, allowing port states to take enforcement action with respect to discharge violations beyond its maritime zones, committed by a vessel voluntarily in port.[213] The port state also has the right to set conditions of entry to port.[214]

Further, if a vessel in port is in violation of applicable international rules and standards relating to seaworthiness of vessels, and thereby threatens damage to the marine environment, the port state must as far as practicable take administrative measures to prevent it departing until the violation is rectified.[215] The applicable rules and standards in

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[211] Rothwell (2012), above n 33,146.
[212] McDorman (2000), 210.
[213] Art 218.
[214] Arts 25(2), 211(3).
[215] LOSC art 219.

the case of a vessel departing to Antarctica would include the Polar Code amendments to SOLAS.

6.4.1 Regional port state jurisdiction

In an attempt to ensure more consistent regional application of international shipping standards, the Paris Memorandum of Understanding on Port State Control (Paris MoU) was concluded in 1982.[216] Since then several other MoUs have been concluded, based on the model of the Paris MoU.[217] As these MoUs do not constitute legally binding international instruments, they do not require the port state to conduct inspections, but merely encourage them to do so.[218] Vessels travelling through the Southern Ocean generally pass through one of the 'gateway ports' such as Ushuaia, Punta Arenas, Christchurch and Hobart.[219] These ports of departure to Antarctica are all included in one port state control MoU or another, variously the Indian Ocean MoU,[220] the Tokyo MoU,[221] and the Viña del Mar Agreement.[222] These agreements are based on the Paris MoU, and in general are substantively similar.[223] The text of the Tokyo MoU will be used for the purposes of this discussion.

Pursuant to the arrangements, Antarctic departure port states are expected to conduct inspections of vessels in port, based on an order of priority, in order to check that the vessel carries the required certificates, and that the vessel and its onboard conditions meet

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[216] Paris Memorandum of Understanding on Port State Control (entered into force 1 July 1982), version including 37th amendment, adopted 23 May 2014, effective 1 July 2014.
[217] McDorman (2000), above n 212, 209.
[218] Ibid.
[219] Boone (2013), 207.
[220] Indian Ocean Memorandum of Understanding on Port State Control (concluded 5 June 1998), version of 8 October 2014. Of the 'gateway port' states, Australia is a member of the Indian Ocean MoU.
[221] Tokyo Memorandum of Understanding on Port State Control in the Asia-Pacific Region (entered into force 1 April 1994), version containing 14th amendments adopted 28 and 29 October 2013 with the effect on 28 October 2013 and 1 January 2014. Of the 'gateway port' states, Australia and New Zealand are members of the Tokyo MoU.
[222] Latin American Agreement on Port State Control of Vessels (concluded 5 November 1992), version of 2013, containing the amendments adopted at the 20th Committee Meeting. Of the 'departure port' states, Chile and Argentina are members of the Viña del Mar Agreement.
[223] McDorman (2000), above n 212, 209.

the provisions of the 'relevant instruments'.[224] The 'relevant instruments' include the main global maritime agreements, including SOLAS and MARPOL.[225] For ships travelling to the AT area, vessels are expected to be inspected to meet the requirements of the Polar Code amendments to SOLAS and MARPOL. Each party should establish a target percentage of ships to be inspected each year, with a regional annual inspection rate of 80% targeted by the Tokyo MoU.[226] After the initial inspection, if there are 'clear grounds for believing that the crew or the condition of the ship or its equipment does not substantially meet the requirements of a relevant instrument, or the master or crew are not familiar with the essential shipboard procedure relating to the safety of ships or the prevention of pollution, a more detailed inspection will be carried out'.[227] A vessel that is found to be deficient after a detailed inspection may be detained until the deficiency is rectified.[228] The MoUs maintain lists of flag states ranked according to their inspection performances, such as the Tokyo MoU's Black-Grey-White list.[229] These lists inform the order of priority for inspections.

6.4.2 Port state jurisdiction under the ATS

The Madrid Protocol also makes reference to port state jurisdiction. Annex IV requires all departure and arrival ports to provide reception facilities for substances such as sludge, dirty ballast and garbage.[230] PSC can also be read into the duty contained in article 13 of the Protocol that requires all parties to take appropriate measures within their competence to enhance compliance with the Protocol.[231] A similar duty is repeated in article XXII of the CAMLR Convention. At ATCM XXXIII in 2010, a Resolution was adopted calling on the parties to 'proactively apply' the existing regime of PSC, directed particularly at passenger vessels bound for the AT area.[232] Pursuant to a Conservation Measure adopted by CCAMLR, parties are required to inspect all vessels in port carrying toothfish and at

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[224] Tokyo MoU 3.1, 3.3.
[225] Ibid 2.1.
[226] Ibid 1.4.
[227] Ibid 3.1.
[228] Ibid 3.6.
[229] Tokyo MoU, Black-Grey-White Lists (2015-2016), <http://www.tokyo-mou.org/doc/Flag%20performance%20list%202014.pdf>.
[230] Art 9(2).
[231] Art 13; Vicuña (2000), 62.
[232] ATCM XXXIII, Resolution VII (2010).

least half of all other vessels carrying species caught in the Convention area.[233] Although this measure is aimed at fishing violations, because some CCAMLR Conservation Measures include pollution prevention standards, compliance could be enhanced to some extent as a result of CAMLR member state inspections.

6.4.3 Issues with respect to port state jurisdiction

Port state jurisdiction plays an important role in ensuring compliance with global shipping regulations, however the regime that currently exists is not always adequate to meet the needs of the Antarctic context. Because the existing PSC regime does not require states to inspect all vessels travelling to Antarctica, a deficient vessel could avoid inspection on its way to the AT area. Even though the MoUs expect port authorities to detain deficient vessels, states may be reluctant to do so due to the risk of a lawsuit in the case the detention is found to have been inappropriate.[234]

As the Southern Ocean departure states are covered by three different MoUs, there is the risk that information sharing between the departure ports is not as full and efficient as it would be if they were all covered by the same MoU. Another issue caused by the coverage of the three different MoUs is that in each individual MoU, Southern Ocean issues will not necessarily by prioritised, considering the huge areas covered by each MoU and the various interests of the member states.[235]

6.5 ATS mechanisms

In response to the jurisdictional challenges that face enforcement efforts in the AT area, the ATS contains some additional mechanisms aimed at ensuring compliance with its regulations.

6.5.1 Inspection scheme

Pursuant to article VII of the AT, parties have the right to designate observers to conduct inspections of all stations and installations, and all ships and aircraft at points of discharging or embarking cargoes or personnel in Antarctica. This inspection scheme is

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[233] CCAMLR Conservation Measure 10-03 (2014).
[234] McDorman (2000), above n 212, 222.
[235] Boone (2013), above n 219, 207.

given support by the Madrid Protocol, which requires ATCPs to arrange for inspections by observers to be made pursuant to article VII of the AT.[236] The effect of tying the inspection scheme under the Madrid Protocol to the AT is that no inspections of vessels may be made outside of a port facility on the Antarctic continent.[237] Moreover, a review of inspections conducted under the AT and the Madrid Protocol presented to ATCM XXXV in 2012 revealed that only seven inspections of ships had been carried out between 1998 and 2011.[238] A further limitation on the utility of the inspection scheme is that the term 'all ships' found in article VII of the AT has been interpreted narrowly to mean vessels registered to AT parties.[239] The Checklist for inspecting vessels provides that 'only a vessel flying the flag of a Treaty Party can be inspected'.[240] This is problematic considering the significant proportion of vessels in the Treaty area that are flagged to third party states.

The CAMLR Convention employs a more comprehensive inspection scheme than that of the AT/Madrid Protocol. Notably, it provides for observation and inspection to be carried out on board vessels flying the flag of contracting parties engaged in scientific research or harvesting of marine resources anywhere in the Convention area.[241] The objective of the inspection system is to determine whether the vessel is in compliance with CCAMLR conservation measures.[242] Although the rules for inspection are focused on fishing methods and target species, the conservation measures discussed above in Ch 4 related to environmental protection could also be targeted by an inspection.

6.5.2 Liability regime

Annex VI to the Madrid Protocol introduces a liability regime to the ATS, with the objective of preventing marine pollution. By providing incentives to the parties to take measures to prevent harm to the environment, the liability regime can make an important

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[236] Madrid Protocol art 14(1).
[237] Antarctic Treaty art VII(3); Madrid Protocol art 14(3).
[238] Doc. ATCM XXXV/IP/59 (2012), 'Review of the Implementation of the Madrid Protocol: Inspections by Parties (Article 14)' (UNEP & ASOC), 5.
[239] Vicuña (2000), above n 231, 50.
[240] ATCM XIX, Resolution V (1995).
[241] CAMLR Convention art XXIV(2)(b).
[242] CCAMLR, Basic Documents, Part 9: System of Inspection (December 2013), <https://www.ccamlr.org/en/system/files/e-all_1.pdf>, art III (CCAMLR System of Inspection).

contribution to the efforts to ensure compliance with shipping regulations.[243] Annex VI imposes on all parties the duty to require all of 'its operators' to take 'reasonable preventative measures that are designed to reduce the risk of environmental emergencies and their potential adverse impact'.[244] 'Operators' include any natural or juridical person, which organises activities to be carried out in the AT area.[245] Parties must also require their operators to establish contingency plans,[246] and to take prompt and effective action in response to environmental emergencies arising from their activities.[247]

In the event that an operator fails to take the required prompt and effective action, it shall be liable to pay the costs of response action taken by any other operator or agent of its own state or other state party.[248] If the operator fails to take action, and no other party took action, then a mechanism is in place for the operator to make a payment into an environmental protection fund, to the amount of the cost of the response action that should have been taken.[249] As the Annex has not yet been ratified by all ATCPs, it has not entered into force. Therefore it is difficult to predict the effect that the liability regime will have in the future in ensuring compliance with ATS regulations.

6.6 Conclusions

Within the AT area, the flag state has the primary responsibility for imposing jurisdiction. However the prevalence of vessels registered to flags of non-compliance, as well as the practical difficulties of exercising jurisdiction in the Southern Ocean, means that flag state jurisdiction cannot be exclusively relied on to ensure compliance. Jurisdiction may also be imposed on the basis of the nationality of the operator of a vessel as a way of ensuring compliance with ATS regulations on board third-party flagged vessels. However, this relies on the domestic implementation of the ATS regulations, and the availability of information regarding any deficiency or violation. Further, the fact the global regulations

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[243] Joyner (2000), above n 111, 120.
[244] Art 3.
[245] Art 2(c).
[246] Art 4.
[247] Art 5.
[248] Art 6.
[249] Art 6(2).

are generally stricter than those contained in ATS instruments such as the Madrid Protocol weakens the utility of this jurisdictional basis.

Port state jurisdiction is used worldwide to supplement flag state jurisdiction, and can be effective, especially when exercised on a coordinated regional basis. The gateway ports to Antarctica are covered by three different MoUs, covering huge areas of ocean, and therefore the specific circumstances of the Antarctic marine environment are not necessarily afforded the necessary attention. As not all vessels must be inspected, a deficient vessel could travel to Antarctica undetected. Two further mechanisms are available under the ATS: its inspection scheme and its liability scheme. The inspection scheme is limited with respect to shipping as inspections may only be carried out when at a port facility on the Antarctic continent, and only on AT party flagged vessels. The liability regime has the potential to provide an incentive to take action to prevent harm to the marine environment or property from shipping, however it is yet to enter into force.

7. Chapter 7 – Ensuring higher compliance

7.1 Introduction

The problems caused by the law of the sea's primary reliance on flag state jurisdiction are experienced all over the world, however the Antarctic environment and its jurisdictional situation make it a special case. This chapter will present and discuss options for enhancing compliance with shipping regulations for maritime safety and environmental protection in Antarctica. It is beyond the scope of this thesis to discuss possible mechanisms that could be implemented by the IMO or other international organisations aimed at enhancing compliance at the global level, even though they may also apply to Antarctica.

7.2 Cooperation and coordination between existing PSC mechanisms

PSC can play an important role in ensuring compliance with shipping regulations, particularly when exercised in concert on a regional basis. The three regional agreements that include the ports closest to the Southern Ocean, 'the gateway ports', cover huge expanses of ocean and include as participants dozens of national maritime authorities. The possible result of this situation is that it is unlikely that Antarctic-specific issues will be given priority or special attention.[250] A potential way to ensure compliance with shipping regulations in Antarctica is to enhance cooperation and coordination between the relevant MoUs, for example through the creation of Antarctic PSC Guidelines.

7.2.1 Existing level of cooperation and coordination between the relevant MoUs

The three relevant MoUs provide for cooperation with other MoUs and intergovernmental organisations, such as through participation as Observers.[251] Observers are permitted to attend meetings, receive documents, submit documents, take part in technical cooperation programs, and participate in working groups, however they cannot vote.[252] When New

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[250] Boone (2013), above n 219.
[251] Tokyo MoU art 8.3; Viña del Mar Agreement art 8.3; Indian Ocean MoU art 10.7.
[252] Tokyo MoU Annex I art 5; Viña del Mar Agreement Annex 4 art 5.

Zealand submitted a proposal on enhancing PSC to the 2009 AT Meeting of Experts (ATME) on Ship-borne Tourism, it argued against the establishment of a new Antarctic MoU on the grounds that the existing MoUs already cooperate and 'work in harmony'.[253] However, not all of the MoUs are Observers in the other MoUs. The Tokyo MoU lists as Observers both the Indian Ocean MoU and the Viña del Mar Agreement,[254] however only the Indian Ocean reciprocates the Observer status.[255] Neither the Indian Ocean MoU[256] nor the Tokyo MoU[257] is an Observer at the Viña del Mar Agreement, and the Viña del Mar Agreement is not an Observer at the Indian Ocean MoU.[258] Therefore it is clear that the cooperation between the three MoUs is not as close as it could be.

The preambles of the three arrangements all refer to IMO Assembly Resolution A.682(17), which calls for cooperation between regional PSC arrangements. The Resolution 'invites' authorities participating in PSC 'to study matters of interregional cooperation with a view to compatibility of information systems and exchange of port State control information'. Despite this, none of the MoUs show any significant sign of acting on its recommendation. These three MoUs provide for an information sharing system, to allow their members to exchange information regarding inspections of vessels.[259] However, access to these systems is not included amongst the rights and duties of Observers to the MoUs, which could be due to a reluctance to allow substandard flag states access to their databases. This means that even if the three Southern Ocean MoUs were Observers at each other's arrangements, they still would not have access to this information.

7.2.2 A proposal for enhanced MoU cooperation

7.2.2.1 The 2009 New Zealand proposal

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[253] Doc. ATME Ship-borne Tourism WP/7 (2009), 'A Proposal to Enhance Port State Control for Tourist Vessels Departing to Antarctica' (New Zealand), 5.
[254] Tokyo MoU, Contact of Observer Organisations, available at <http://www.tokyo-mou.org/organization/contact_us.php>.
[255] Indian Ocean MoU, 'Annual Report' (2014), 2.
[256] Ibid 13.
[257] Tokyo MoU, 'Annual Report' (2014), 9.
[258] Indian Ocean MoU, above n 255, 2.
[259] Indian Ocean MoU Annex 8; Viña del Mar Agremeent Annex 2; Tokyo MoU art 6.6.

At the ATME in 2009, New Zealand submitted 'A Proposal to Enhance Port State Control for Tourist Vessels Departing to Antarctica'.[260] The proposal suggested that a 'proactive PSC inspection programme' for tourist vessels bound for Antarctica should be introduced at the departure ports through the existing MoUs. The main elements of the proposal were:

- Targeted inspections for vessels bound for Antarctica;
- Inspections to ensure compliance with Antarctic-specific regulations;
- Arrangements to ensure shared access to PSC data between the three MoUs; and
- Vessels to be inspected at a maximum of three-monthly intervals by at least one member authority of the three MoUs using common inspection guidelines.

The outcomes of the ATME included a Recommendation that called on the parties to 'proactively apply to tourist vessels bound for the AT area the existing regime of PSC, through PSC memoranda of understanding or agreements if appropriate, so that they can meet all applicable legally binding international standards'.[261] In other words, the ATME did not find much merit in the New Zealand proposal. The Chair's Report of that ATME does not conclusively explain the reason for the proposal's dismissal, however it is apparent that the parties were concerned about unnecessary duplication.[262] The United States' argument that the extraterritorial effects of any PSC measures must be incidental, with the primary purpose to be the protection of the port state's maritime zones, will be discussed below.

Although the New Zealand proposal was not particularly successful at the ATME, it is submitted that it had merit, and that its main elements could contribute to ensuring compliance with shipping regulations for Antarctica.

7.1.2.2 A new proposal for enhanced port state control

The unwillingness of the AT parties to duplicate existing agreements is valid, and a major reason for calling for increased coordination between the existing applicable MoUs, rather than establishing a new, Southern-Ocean-specific MoU. Although the Southern Ocean departure ports are members of MoUs, modelled according to a similar framework, the

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[260] ATME Ship-borne Tourism, above n 253.
[261] Doc. ATME Ship-borne Tourism Recommendation 6 (2009).
[262] Doc. ATME Ship-borne Tourism (2009), 'Chair's Report', 15.

coordination between the MoUs could be significantly strengthened. The fact that global instruments such as SOLAS and MARPOL contain regulations targeted at the Polar Regions or the Antarctic in particular, such as the Polar Code, is all the more reason for establishing a more regionally-focused PSC system.

As discussed above in Ch 5, the ATCM often plays a preparatory role in the creation of shipping rules adopted by the IMO, but applying to Antarctica. This is because the ATCM is well positioned to identify gaps in the Antarctic legal regime, through the input provided by the ATCPs. At the same time the ATCM recognises that it is the IMO that has the expertise and the mandate to establish global shipping regulations. By reaching agreement at the ATCM before communicating proposals to the IMO, and thereby presenting a united front on Antarctic matters outside of the ATCM, the ATCPs reinforce the ATCM's international legitimacy. It is suggested therefore that the preferable way to enhance the existing PSC system would be for the ATCM to reach agreement on a set of inspection guidelines, to then be formally adopted under the MoUs. The fact that the departure ports to Antarctica are all located in ATCPs should assist the development process.

The Antarctic PSC Guidelines would be adopted by the MoUs, and implemented by the ports from which ships travel to or from the AT area. The mandates of the Committees established under the three MoUs include the development and adoption of guidelines for carrying out inspections and the exchange of information.[263] Therefore, adoption of the Guidelines would fall under their mandates. The purpose of the Guidelines would be to prevent harm to the environment and risks to human life and property, by ensuring compliance with the applicable global shipping regulations. Considering that in general the global regulations are stricter than the Madrid Protocol, and that the global regulations are essentially applicable to ships of all nationality, not just those flagged to AT parties, the Guidelines should focus on IMO, rather than ATS, regulations. The Guidelines would not establish a new regime or authority, but rather fit within the existing MoU structure.

In order to ensure the highest possible level of compliance, the Guidelines should provide for inspection of all vessels on departure to, and arrival from Antarctica. A vessel arriving in one of the relevant ports would have to make a declaration as to its Antarctic destination

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[263] Indian Ocean MoU art 7.3; Tokyo MoU art 6.3; Viña del Mar Agreement art 6.3.

or point of origin, so that the PSC authority is aware of the need to apply the Antarctic Guidelines. There is no reason for restricting the Guidelines to tourist vessels as in the New Zealand proposal, as it would be beneficial to target all kinds of vessels. However as discussed above, even if the Guidelines in theory target all vessels, a significant number will be excluded from their application due to coverage by sovereign immunity. Although this may reduce the effectiveness of the Guidelines, it may also make them more likely to be acceptable to the ATCPs.

For ships departing to Antarctica, inspections should ensure that all the requirements of relevant instruments are met, such as the possession of a valid Polar Ship Certificate, and onboard facilities to store waste and other substances as required under MARPOL. Under the IMO Procedures for Port State Control, as incorporated into the three MoUs, an inspection may only progress beyond the initial stage if there are 'clear grounds' for believing that the vessel does not correspond substantially with the required certificates.[264] The PSC Guidelines could include a provision to the effect that all vessels travelling to Antarctica that have not been inspected under the Guidelines within a certain period, for example six months, shall be subject to a more detailed inspection. As the objective of the Guidelines would be to prevent harm to the environment or human life, vessels found to be deficient must be detained until the deficiency is rectified. The emphasis in terms of enforcement should be placed on temporary detention of vessels rather than prosecution, except in the case of very serious infractions. The legal basis for taking such action is rooted in the port state's territorial sovereignty, as the violation may have begun outside of the port state's territory, but is continuing in port. The Guidelines could also include a requirement that the PSC authorities ensure that wastes are disposed of in port before departure, to prevent illegal discharges occurring in the AT area.[265]

Inspection upon arrival into port after a voyage to Antarctica would be particularly valuable if informed by data from airborne remote sensing systems.[266] This would assist

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[264] Doc. IMO Res. A.1052(27), Procedures for Port State Control, adopted 30 November 2011, [2.4].
[265] Molenaar (2006), 205.
[266] See for example OSPAR Commission, North Sea Manual on Maritime Oil Pollution Offences (2012), 74, <http://www.ospar.org/html_documents/ospar/html/north_sea_manual_on_maritime_oil_pollution_offences.pdf>.

the PSC authority in identifying whether or not the vessel had committed any discharge violations whilst in the AT area, though it would be very costly and logistically challenging. If a discharge violation is found to have occurred, then the port state would be entitled under LOSC article 218, and urged under the PSC Guidelines, to take enforcement action against the vessel.

A vital element of the enhanced coordination between the three MoUs would be information sharing. The existing information sharing systems within the MoUs could be amended so that inspection data on all ships departing to or from Antarctica would be available to PSC authorities in all the Southern Ocean gateway ports. This shared database would allow PSC authorities to identify high-risk vessels. The same could apply to data obtained from any remote sensing system.

The benefits of the enhanced PSC system would be shared by all ATCPs, and the global community in general. However, the costs would be borne by the national authorities of the gateway ports. A possible way to reduce the financial burden on the gateway port states would be for the ATCM to provide funding, perhaps using the fund established under article 12 of Annex VI to the Madrid Protocol. Although the purpose of the fund is to reimburse action taken in response to an environmental emergency, this could be amended to include PSC, considering that its purpose is to prevent environmental emergencies.

7.2.2.3 The legality of PSC measures with extraterritorial effects

Although PSC MoUs have effects outside the maritime zones of the participating states, their origin is rooted in the jurisdiction afforded by the territorial sovereignty of the port states. Therefore the extraterritorial effect of regional PSC is always only in addition to the coverage it provides to the maritime zones of the port state participants. In contrast, the Antarctic specific PSC Guidelines would be established to protect an area of the high seas, and *not* the maritime zones of the gateway states, whose maritime zones are covered by the existing provisions of the MoUs. It is the special circumstances of the Antarctic marine environment that create the heightened need for PSC with respect to the relevant global shipping regulations.

In response to the New Zealand proposal of 2009, the United States argued that PSC is an extension of a state's right under customary law to protect its interests in its maritime zones, and that therefore an extraterritorial effect should be a secondary not primary

purpose.[267] It is correct that the customary right to exercise jurisdiction over vessels voluntarily in port does not always extend to unlimited jurisdiction with respect to activities that occurred outside of the port state's maritime zones.[268] Under general international law there must be a valid jurisdictional basis to take action beyond the customary right to refuse entry to port. However the better view is that the requirement that extraterritorial effects be incidental, rather than the object of PSC, only applies to national standards more stringent than GAIRAS.[269] The proposal to enhance PSC in the Antarctic gateway ports only envisages ensuring compliance with GAIRAS. The extraterritorial effect of such action will be no greater than holding the vessels to standards that they are already bound by, and that the flag state is under a duty to prescribe and enforce.

The right of a port state to take action to ensure compliance with GAIRAS is implicit in the law of the sea by virtue of its territorial sovereignty. It is explicitly found in the instruments that themselves contain GAIRAS- MARPOL[270] and SOLAS,[271] and also provided for in the 2011 IMO Procedures for Port State Control, by making reference to the instruments containing GAIRAS.[272] Enhancing PSC does not detract from the primary role of the flag state to ensure compliance with regulations, but rather serves to assist the flag state in carrying out its challenging duties.[273] The powers that a port state may exercise with respect to a breach of GAIRAS are quite far-reaching, including the right to make the breach an offence under its domestic law, and prosecuting accordingly.[274] The right to do so remains at the discretion of the port state, however the objective of the proposed Antarctic PSC Guidelines would be met once the identified breach is rectified before departure for Antarctica.

7.3 Creation of a new PSC MoU

It has been suggested by some commentators and organisations in the past that a proposal such as the one above to enhance PSC is not sufficient for the Antarctic situation, and that

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[267] ATME Ship-borne Tourism, above n 262.
[268] Molenaar (1998), above n 210, 102; McDorman (2000), above n 212, 216.
[269] Molenaar (1998), above n 210, 102; Molenaar (2006), above n 265, 198.
[270] Arts 5, 6.
[271] Ch I, reg 6.
[272] Doc. IMO Res. A.1052(27), above n 264.
[273] Ibid [1.3].
[274] Molenaar (2006), above n 265, 204; Churchill and Lowe (1999), above n 201, 276.

a new Antarctic PSC MoU is required.[275] According to Scott, even if the three existing MoUs are amended to introduce the criterion of destination to the Antarctic as an inspection priority, other priorities may still prevail.[276] Whilst a MoU entirely focused on Antarctica may provide the best possible opportunity for ensuring compliance with shipping regulations, such a proposal is unlikely to be politically feasible. The ATCPs have clearly shown unwillingness to duplicate institutions, and the cost and institutional infrastructure required to establish a new MoU would be considerable. The Chairs' Report of the discussion of the New Zealand proposal on PSC stated that, 'whilst there may be a need to strengthen the capacity of ports to conduct such control, it was necessary that such port State control be based on existing international agreements and avoided unnecessary duplication'.[277] The New Zealand proposal expressly rejected the establishment of a new MoU, but rather the coordination of existing MoUs, so the reaction of the ATCPs to a proposed new MoU is likely to be even less favourable.

Further, the adoption of guidelines for Antarctic PSC such as the proposal above in section 7.2, in combination with a funding mechanism and an information sharing system, would likely achieve a similar practical outcome as a new MoU. In light of the relatively small number of ships sailing to the Southern Ocean, establishing a new MoU would be an inefficient use of resources, especially considering the existing MoU framework already in place. For these reasons, it is submitted that a new Antarctic MoU is neither politically feasible nor necessary.

7.4 Expansion of existing inspection schemes

The existing inspection schemes under the AT/Madrid Protocol and under CCAMLR are outlined above in section 6.5. The CCAMLR system of inspection is more extensive than that under the AT/Madrid Protocol, particularly in that it includes at-sea inspections. Strengthening the existing inspection scheme under the AT/Madrid Protocol could play a role in enhancing compliance with shipping regulations in the AT area.

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[275] Scott (2010b), 41; Doc. ATCM XXVI/IP/44 (2003), 'Port State Control: An Update on International Law Approaches to Regulate Vessels Engaged in Antarctic Non-Governmental Activities' (ASOC).
[276] Scott (2010b), above n 275, 41.
[277] ATME Ship-borne Tourism, above n 253.

The primary weakness in the AT/Madrid Protocol system is that vessels may only be inspected 'at points of discharging or embarking cargoes or personnel in Antarctica'.[278] A significant number of cruise vessels, particularly large cruise vessels, does not land at all during their Antarctic voyage, and therefore are never subject to inspection. In order for the inspection scheme to achieve the highest degree of effectiveness, it would have to be applicable to vessels flagged to all states, at any time within the AT area. The right to inspect fishing vessels flying the flag of non-members to a relevant regional fisheries management organisation (RFMO) within its regulatory area is contained in a limited form in the 1995 Fish Stocks Agreement (FSA).[279] However, as with most RFMOs, the CCAMLR scheme only extends to at-sea inspection of vessels flagged to member states or contracting parties.[280] Such is the primacy given to flag state jurisdiction on the high seas that boarding and inspection of vessels by non-flag states is only permitted in a very few extreme situations, such as piracy or slave trade.[281] Therefore, any attempt to extend the inspection scheme to the at-sea inspection of third-party flagged vessels would be in violation of the LOSC,[282] apart from for the few exceptions outlined above, or on the basis of UN Security Council Resolutions. A possibility for extending the inspection scheme also exists if the ATCPs were to exercise collective coastal state jurisdiction, to be discussed below.

Although at-sea inspection of third-party vessels is generally incompatible with the LOSC, the existing AT/Madrid Protocol inspection scheme could be expanded to include at-sea inspections of vessels flagged to member states, with the consent of the parties. The ATCM could adopt a Measure to this effect, perhaps modelled on the CCAMLR system. The practical benefits of such a proposal are however questionable when considered in light of the poor record of inspections under the CCAMLR scheme.[283] During the 2011-12

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[278] Madrid Protocol art 14(3); Antarctic Treaty art VII.
[279] Fish Stocks Agreement (1995), art 21.
[280] CCAMLR System of Inspection, art V.
[281] LOSC art 110.
[282] LOSC art 311.
[283] Rayfuse (2004), above n 199, 276.

season, 59 inspectors were designated by 4 member states, however only 7 at-sea inspections were carried out, leading to three instances of discovered non-compliance.[284]

An expanded inspection scheme could cause undue delay to vessels, particularly if they have already been subjected to PSC on departure from a gateway port. An enhanced inspection scheme could be beneficial if no changes are made to the PSC procedures in the gateway ports, as it would allow the inspection of large cruise ships without planned landings. However, considering that many large cruise ships are flagged to non-party states, the value of the inspection scheme may in practice be minimal.

7.5 Collective exercise of coastal state jurisdiction

Many of the jurisdictional issues that arise with respect to the marine Antarctic do so due to the lack of generally accepted coastal state jurisdiction. A possible way to eliminate this jurisdictional gap would be if the ATCPs exercised jurisdiction collectively over the AT area.[285] To a certain extent, the ATCPs exercise collective jurisdiction over Antarctica already, however only with respect to certain matters.[286] Only a small number of ATS regulations have an *erga omnes* character, such as certain elements of the CAMLR Convention and CCAS.[287] The existing ATS regulatory regime could be used a base from which to expand to the collective exercise of full coastal state jurisdiction.

In the case of disputed title to territory, general international law does not take exception to the competing claimant states exercising jurisdiction collectively. However, the situation in Antarctica is slightly different, as not only are there competing claims, but some states do not recognise the legitimacy of making a claim to Antarctica at all.[288] According to Oxman, it is possible in theory:

> To take the position that certain states - principally the Consultative Parties – have collective rights applicable *erga omnes* to establish regulatory regimes for the Antarctic continent and for offshore areas subject to coastal

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[284] CCAMLR, 'Report of the Standing Committee on Implementation and Compliance' (2011), 2.1-2.3.
[285] Lefeber (2013), 329; Molenaar (2015), 281.
[286] Lefeber, above n 285, 330.
[287] Ibid 331.
[288] Oxman (1986), 222.

> state jurisdiction under international law, even if no Consultative Party has perfected a claim to sovereignty over the land territory in question.[289]

The basis for this position could either be the establishment of a condominium over Antarctica, or rather the conclusion that the ATCPs have a 'special collective responsibility' to establish a regime for Antarctica.[290]

With regard to the first possible basis, condominia exist when sovereignty over an area of land or water is shared between two or more states.[291] If a condominium were to be established over Antarctica, shared between the ATCPs, as has been done in some instances throughout history,[292] it would be on the basis that their rights are collectively superior to any other claims.[293] This is regardless of the individual status or merit of the individual claims of the ATCPs. The effect of establishing a condominium would be that the ATCPs would be able to exercise their collective sovereignty for their own collective benefit.[294] However, this proposal is unlikely to be acceptable to those states that do not recognise the possibility of any sovereign claims to Antarctica. As early as the conclusion of the AT in 1959, such a proposal was widely unsatisfactory.[295] Further, it would go against the object and purpose of the AT itself which emphasises the 'interest of all mankind' in the maintenance of Antarctica as an area preserved for peace and science.[296]

It is therefore preferable to pursue a basis for the exercise of collective coastal state jurisdiction that does not involve shared sovereignty, but merely shared responsibility. Instead of establishing a condominium to share sovereignty between the ATCPs, the ATCPs could exercise collective coastal state jurisdiction on the basis that they are acting for the benefit of the international community as a whole, rather than pursuing their own interests. This situation would not need to affect the existing sovereignty status quo, just as the current legal regime established by the ATCPs does not affect the question of sovereignty. The ATCPs could accordingly establish shared maritime zones, within which

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[289] Ibid 223.
[290] Ibid.
[291] Brownlie (2008), 113.
[292] Ibid.
[293] Oxman (1986), above n 288, 223.
[294] Ibid 224.
[295] Molenaar (2005), above n 124, 278.
[296] Antarctic Treaty preamble.

they would collectively exercise the coastal state jurisdiction as set out in LOSC. Within the Antarctic EEZ, the ATCPs would be able to utilise the enforcement jurisdiction outlined in article 220 of the LOSC. This includes the right to take action such as instituting proceedings, and detention of the vessel, in the case of clear objective evidence of a violation of GAIRAS causing or threatening major damage to the environment.[297] Considering the special circumstances of the Antarctic environment, the ATCPs may also be able to adopt laws and regulations for the prevention, reduction and control of pollution implementing IMO rules for special areas, subject to IMO approval.[298]

The exercise of collective coastal state jurisdiction by the ATCPs would serve to fill, to a considerable extent, the jurisdictional gaps present in Antarctica. However, the effectiveness in practice towards ensuring compliance with shipping regulations for environmental protection and maritime safety will depend on the political will of the ATCPs to invest the money and infrastructure necessary. Further, the existence of coastal state jurisdiction in Antarctica, although beneficial, will not eliminate the problem of flags of non-compliance, as this issue persists all over the world, even in oceans covered by coastal state jurisdiction. However, the fact that the ATCPs will have the coastal state right to exercise enforcement jurisdiction with respect to environmental protection and maritime safety regulations will ameliorate this problem to some extent. Climatic conditions and lack of infrastructure will render the imposition of coastal state jurisdiction challenging, although the shared nature of the responsibility, as well as the combined capabilities of the ATCPs, may reduce these difficulties.

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[297] Art 220(6).
[298] Art 211(6).

8. Chapter 8 – Conclusions

The Antarctic marine environment presents dangers to shipping, and is vulnerable to harm. Accordingly, it is necessary that measures are in place to ensure to the greatest extent possible that maritime safety or environmental incidents do not occur in the AT area. Although Antarctica is subject to the global regulations for shipping, including specially targeted provisions under MARPOL, SOLAS and the Polar Code, as well as several instruments and measures under the ATS, it lacks tailor-made mechanisms for ensuring compliance with these regulations. Without coastal state jurisdiction, responsibility for ensuring compliance is placed primarily on flag states. Many ships operating in the AT area are not flagged to party states, and are therefore not bound by the ATS regulations. Further, flag state non-compliance is a serious issue in the law of the sea, and a major reason for attempting to establish other ways of ensuring compliance. The gateway ports can potentially play a significant role, however the MoUs they belong to do not place any particular focus on the Antarctic environment and its needs, nor do they effectively cooperate or share information.

Against this background, this thesis has presented four different proposals for mechanisms that may serve to ensure compliance with the global and Antarctic regulations. The adoption of guidelines by the ATCM and subsequently the three relevant MoUs, on enhancing cooperation and coordination between the existing MoUs is considered most likely to politically acceptable and practically effective. It would not require any further infrastructure, yet would ensure that all ships travelling to the AT area are in compliance with the regulations. In the face of this proposal, it does not seem practical or attractive to suggest the establishment of a new Antarctic Ocean PSC MoU, as the ATCPs are clearly opposed to the duplication of instruments, and it is unlikely to achieve greater results than the suggested cooperation and coordination mechanism.

An inspection scheme is employed under the AT/Madrid Protocol and CCAMLR as a way of ensuring compliance. By extending the AT/Madrid Protocol system to allow at-sea inspection of contracting party vessels as under the CCAMLR system, compliance with the

ATS regulations may be enhanced. However considering that the global instruments are generally more stringent than the requirements under Annex IV of the Madrid Protocol, and many vessels in the AT area are not bound by them in any case, this proposal is unlikely to be particularly beneficial. Many of the compliance and enforcement issues with respect to shipping regulations in Antarctica are to some extent due to the lack of generally accepted coastal state jurisdiction in the AT area. A direct response to this jurisdictional gap would be for the ATCPs to exercise *de facto* coastal state jurisdiction collectively, for the benefit of the entire of the world, rather than their own interests. In this way they could establish maritime zones and impose coastal state jurisdiction *erga omnes,* removing the primacy of flag state jurisdiction within 200 nautical miles from the coast.

The reluctance demonstrated by the ATCPs in response to the 2009 New Zealand PSC proposal is concerning, as is the absence of any collective action to enhance compliance in the years since. The work of the ATCM in strengthening and extending the global and regional regulatory framework for shipping in Antarctica is to be commended. However, in order for the marine environment to be protected, it is essential that these regulations be accompanied by corresponding compliance and enforcement mechanisms. It would be a pity if an even more serious environmental incident had to occur in the Southern Ocean before action is taken to put in place mechanisms such as those suggested by this thesis. It must be recognised that the value of Antarctica lies in the health of its environment, and therefore acting to ensure a higher level of compliance with shipping regulations for environmental protection and maritime safety would be a worthwhile investment.

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Annexes

Annex 1

Selected recent shipping incidents in the Southern Ocean[299]

Date	Vessel	Registry	ATS status	Incident
11/2006	*MV Lyubov Orlova*	Cook Islands	Non-party	Grounded near Deception Island, South Shetland Islands.
01/2007	*MV Nordkapp*	Norway	ATCP	Ran aground near Deception Island, South Shetland Islands.
02/2007	*Nishin Maru*	Japan	ATCP	Whaling factory ship, explosion, fire, one fatality. Ross Sea.
11/2007	*MS Explorer*	Liberia	Non-party	Passenger ship, sunk after collision with iceberg south of King George's Island.
12/2007	*FV Argos Georgia*	UK	ATCP	Fishing vessel, lost power in the Ross Sea and drifted 15 days before receiving spare parts.
12/2007	*MS Fram*	Norway	ATCP	Passenger ship, lost power and drifted into a glacier near King George Island
11/2008	*MV Ushuaia*	Panama	Non-party	Grounded near Wilhelmina Bay near Cape Anna.
2009	*In Sung 22*	Republic of Korea	ATCP	Fishing vessel, ire on board, east of South Georgia.
2009	*Clelia II*	Malta	Non-party	Cruise vessel, ran aground, Petermann Island.
01/2010	*Ady Gil* & *Shonan Maru 2*	New Zealand & Japan	ATCP & ATCP	Collision, *Ady Gil* sunk, D'Urville Sea.
12/2010	*FV No 1 Insung*	Republic of Korea	ATCP	Fishing vessel, sunk, 21 fatalities. North of Ross Sea.

[299] Doc. ATCM XXXVIII/IP/113 (2015), 'Next Steps for Vessel Management in the Southern Ocean' (ASOC); Doc. ATCM XXXVI/IP/44 (2013), 'SAR-WG Search and Rescue Incidents in the Ross Sea Region' (New Zealand); Doc. ATCM XXXI/1P/58 (2008), 'Antarctic Shipping' (ASOC); Doc. ATCM XXXVIII (2015), 'Final Report'; ASOC, Aviation and Vessel Incidents in Antarctica and Southern Ocean (2014), <http://www.asoc.org/explore/google-earth-layer/682>.

02/2011	*SV Beserk*	Norway	ATCP	Yacht, lost, presumed sunk, three fatalities. Ross Sea.
12/2011	*Sparta*	Russia	ATCP	Fishing vessel, holed in ice. Ross Sea.
01/2012	*Jeong Woo 2*	Republic of Korea	ATCP	Fishing vessel, fire, presumed sunk, three fatalities. Ross Sea.
02/2012	Unknown.	Brazil	ATCP	Oil barge, capsized carrying 10,000L diesel, recovered intact. South Shetland Islands.
04/2012	*Endless Sea*	Brazil	ATCP	Motorised yacht, sunk carrying 8,000L fuel. King George Island, South Shetland Islands.
04/2013	*FV Kai Xin*	China	ATCP	Caught fire, 97 crew members rescued. Near the Antarctic peninsula.
12/2013	*Akademik Shokalskiy*	Russia	ATCP	Trapped in ice for two weeks, passengers rescued, rescue vessel *Xue Long* (China) also trapped in ice. Both freed themselves intact.
02/2014	*Yushin Maru No 3* & *MY Bob Barker*	Japan & Norway	ATCP & ATCP	Incident between Japanese research vessel and Sea Shepherd vessel. Damage to both vessels.
02/2014	*Shirase*	Japan	ATCP	Icebreaker, ran aground. Water leakage, no injuries.
03/2014	*MY Bob Barker* & *Nishin Maru*	Norway & Japan	ATCP & ATCP	Incident between Sea Shepherd vessel and Japanese research vessel. Two small launch boats from *Bob Barker* damaged.