Received: 11 May 2021 | Revised: 9 July 2021 | Accepted: 2 November 2021

DOI: 10.1111/reel.12420

ORIGINAL ARTICLE

RECIEL Review of European, Comparative & International Environmental Law WILEY

The legal status of Particularly Sensitive Sea Areas (PSSAs): Challenges and improvements for PSSA resolutions

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Abstract

As an area-based management tool, the concept of the Particularly Sensitive Sea Area (PSSA) has played a significant role in protecting the marine environment and marine ecosystems from threats posed by international shipping activities. The International Maritime Organization (IMO) allows a coastal State to adopt various associated protective measures in a proposed PSSA for the protection of the marine environment and the conservation of biological diversity. Yet PSSAs remain controversial, as they are based on IMO resolutions, which are not legally binding. To examine the legal status of a PSSA, this article analyses the legal effects of IMO resolutions, their relationship with Part XII of the United Nations Convention on the Law of the Sea, and the application of the precautionary principle. Furthermore, the article examines limitations of PSSAs and suggests how the effectiveness of PSSAs in preventing vessel-source pollution could be strengthened. The article concludes by referring to the necessity of revision of the PSSA resolutions to clarify the legal status of PSSAs.

1 | INTRODUCTION

Accidental or operational discharges from ships have negative consequences for the marine environment. As the number of ships and world seaborne trade has increased, pollution from international shipping activities has been recognized as a serious issue since the *Torrey Canyon* incident in 1967. The international community has mooted the need to restrict shipping activities, which harm the marine environment through more effective area-based management regimes. In particular, coastal States have raised the need for strengthened protective measures, which can apply to a sea area that needs special protective measures, since the concept of 'special areas' under the International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 (MARPOL 73/78)[1] was only limited to regulating the discharge of pollutants. The IMO has developed the concept of a Particularly Sensitive Sea Area (PSSA), which is a regime intended to protect marine environments and conserve marine ecosystems from risks associated with international shipping. PSSAs typically apply to an area that needs special protection because of its ecological, socio-economic, or scientific significance.[2] The International Maritime Organization (IMO) allows a coastal State to adopt various associated protective measures (APMs) under existing IMO instruments, ranging from measures relating to safe navigation to special discharge restrictions under MARPOL 73/78.

PSSAs play a vital role in preventing vessel-source pollution by applying APMs to vessels within a particular area. PSSAs have furthermore helped to raise global awareness about the importance of protecting the marine environment, as well as the risks posed by international shipping. However, there are important questions that remain to be addressed regarding the legal status of PSSAs as well as the legally binding nature of the IMO resolutions on which they are based.

To identify the legal status of PSSAs, analyse the effects of IMO resolutions under customary international law and understand challenges arising from PSSA resolutions, this article examines the concept of the PSSA by looking at various publications, including IMO resolutions, scholarly literature and other relevant studies. The article

[1]International Convention for the Prevention of Pollution from Ships as modified by the Protocol of 1978 (adopted 17 February 1978, entered into force 2 October 1983) 1340 UNTS 61 (MARPOL 73/78).

[2]P Nelson, 'Protecting Areas that Are Vulnerable to Damage by Maritime Activities: The Reality of Particularly Sensitive Sea Areas' (2003) 131 Maritime Studies 20, 20.

presents a conceptual analysis of PSSAs by means of a doctrinal legal study. The article aims to emphasize the need for revising the PSSA resolutions to clarify the legal status of PSSAs and addressing the limitations of PSSA resolutions.

The article is organized as follows. Section 2 analyses the definition of a PSSA and the legal bases for PSSAs and APMs. This involves systematically describing the relationships between the relevant provisions in Part XII of the United Nations Convention on the Law of the Sea (UNCLOS),[3] and the legal implications of the IMO resolutions. A PSSA can further be regarded as a practical application of the precautionary principle in preventing vessel-source pollution at the IMO level. Section 3 discusses the potential possibility of application of the precautionary principle to understand the status of a PSSA. Sections 4 and 5 explain the limitations of PSSA resolutions and suggest potential improvements. A detailed analysis of PSSAs may help to develop them as an effective means to protect the marine environment in a sea area that is vulnerable to vessel-source pollution. Section 6 concludes that PSSA resolutions should be revised to ensure that PSSAs have a clear legal status.

2 | THE LEGAL STATUS OF PSSAs

2.1 | PSSAs: An overview

In 1973, a Swedish delegation at the Tanker Safety and Pollution Prevention conference raised the need for the introduction of an area-based regime to prevent pollution from oil tankers.[4] The IMO developed the concept of a PSSA by adopting and revising various resolutions, including specific guidelines adopted in 1991[5] and in 2001.[6] To further clarify the PSSA and make it independent from the concept of 'special areas' outlined by MARPOL 73/78, the IMO in 2005 updated these PSSA guidelines by adopting Resolution A.982(24),[7] which defines a PSSA as:

> An area that needs special protection through action by IMO because of its significance for recognized ecological, socio-economic, or scientific attributes where such attributes may be vulnerable to damage by international shipping activities.[8]

Unlike its other existing instruments, the IMO allows coastal States to adopt APMs, which play a core role in PSSAs. APMs are classified mainly as discharge restriction measures and navigational safety measures. Most designated PSSAs apply both these APMs to foreign vessels passing through a PSSA. Using such measures, countries can effectively prevent operational or accidental discharges from ships in a protected area. However, these measures should be underpinned by a legal basis in accordance with existing IMO instruments, generally accepted international rules and standards for the prevention of vessel-source pollution, as well as the provisions of Article 211(6) of UNCLOS.[9]

Whether such APMs are recommendatory or mandatory measures for foreign vessels navigating a PSSA depends on their legal basis. On the one hand, if a coastal State wants to adopt navigational safety measures based on IMO resolutions, guidelines or codes, such APMs have a recommendatory nature. On the other hand, APMs based on IMO conventions, such as special discharge restrictions and vessel traffic services, constitute mandatory measures with respect to foreign vessels.[10] Under Article 220 of UNCLOS, a coastal State can exercise enforcement jurisdiction over foreign vessels that have violated international rules and standards with respect to APMs within a PSSA.

Although the legal status of PSSAs is based on IMO resolutions, which are nonbinding soft law documents, PSSAs are useful regulatory tools to effectively cope with vessel-source pollution from the viewpoint of a coastal State. Moreover, the PSSA has a functional advantage in that PSSAs can be identified within 'special areas' under MARPOL 73/78. The criteria with respect to the designation of PSSAs and the criteria for the designation of 'special areas' are not mutually exclusive. PSSAs have simplified, concise requirements and procedures compared with special areas.[11] This process of submitting a proposal for the designating a PSSA is relatively easy compared with the process for special areas.

2.2 | The legal basis for PSSAs and APMs

Beckman has questioned the legal status of PSSAs as derived from IMO resolutions.[12] This section discusses the legal implications of IMO resolutions, analysing their relationship with Article 211(6) of UNCLOS. The aim is to shed light on the legal status of PSSA and APMs, and establish whether a PSSA resolution can be considered a legally binding document under international law.

2.2.1 | IMO resolutions

The legal status of the IMO's work derives from the IMO Convention, which provides for cooperation among governments in the field of

[3]United Nations Convention on the Law of the Sea (adopted 10 December 1982, entered into force 16 November 1994) 1833 UNTS 397 (UNCLOS).
[4]Inter-governmental Maritime Consultative Organization (IMCO), 'Protection of Particularly Sensitive Sea Areas', TSPP Resolution 9 (1978).
[5]IMO, 'Guidelines for the Designation of Special Areas and the Identification of Particularly Sensitive Sea Areas', Resolution A.720(17) (6 November 1991).
[6]IMO, 'Procedures for the Identification of Particularly Sensitive Sea Areas and the Adoption of Associated Protective Measures and Amendments to the Guidelines Contained in Resolution A.720(17)', Resolution A.885(21) (25 November 1999); IMO, 'Guidelines for the Designation of Special Areas under MARPOL 73/78 and Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas', Resolution A.927(22) (29 November 2001).
[7]IMO, 'Revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas', Resolution A.982(24) (1 December 2005).
[8]ibid Annex, para 1.2.
[9]ibid Annex, para 7.5.2.3.
[10]J Roberts, *Marine Environment Protection and Biodiversity Conservation: The Application and Future Development of the IMO's Particularly Sensitive Sea Area Concept* (Springer 2006) 512.
[11]ibid 258.
[12]RC Beckman, 'PSSAs and Transit Passage – Australia's Pilotage System in the Torres Strait Challenges the IMO and UNCLOS' (2007) 38 Ocean Development and International Law 325, 328.

regulation and practices relating to international shipping.[13] This raises the fundamental question as to whether IMO resolutions have legally binding force over foreign vessels or other States in international law.[14] To answer this question, we need to look at the effect of IMO resolutions under international law. Above all, Article 38(1) of the Statute of the International Court of Justice (ICJ) is widely recognized as the most important provision to analyse the sources of international law. It provides that:

> The Court, whose function is to decide in accordance with international law such disputes as are submitted to it, shall apply (a) international conventions, whether general or particular, establishing rules expressly recognized by the contesting states; (b) international custom, as evidence of a general practice accepted as law; (c) the general principles of law recognized by civilized nations; (d) subject to the provisions of Article 59, judicial decisions and the teachings of the most highly qualified publicists of the various nations, as subsidiary means for the determination of rules of law.[15]

On the basis of Article 38(1) of the ICJ Statute, resolutions cannot be considered as sources of international law; instead, they are commonly referred to by the term 'soft law'.[16] Soft law IMO instruments are generally divided into two categories: codes and resolutions.[17] While codes or resolutions are considered nonlegally binding documents, the IMO provides mandatory codes or resolutions by incorporating them into the parent IMO conventions (for example, the International Convention for the Safety of Life at Sea (SOLAS),[18] the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers,[19] the International Convention on Load Lines[20] and MARPOL 73/78).

To make soft law IMO instruments mandatory, member States or contracting parties to certain IMO conventions should first agree that 'full effect should be given to these codes or resolutions under that convention in the same manner as the regulations of the convention themselves'.[21] Such IMO instruments may then be treated as mandatory and have the same legal status as the conventions.[22]

More specifically, IMO Resolution A.911(22) deals with methods for referring to IMO and other instruments to clearly indicate their legal status. The mandatory nature of IMO instruments should be referred to expressly in the text of the relevant convention regulations, which should also explicitly provide that future amendments to such instruments should follow the amendment procedures laid down in the relevant article of the parent convention.[23] Additionally, 'requirements shall be treated as mandatory' in such cases where the word 'shall' has been used instead of 'should'.[24] Resolutions or codes that grant a mandatory legal status should avoid using terms such as 'guidelines' or 'guidance' that imply recommendations.[25]

When member States or contracting parties to IMO conventions have agreed to implement certain IMO instruments, such as guidelines, manuals or guidance, with discretion and flexibility, such instruments have a recommendatory nature.[26] Moreover, IMO instruments that play such a role for member States should be mentioned in the footnotes accompanying the relevant regulations of the parent convention. Such IMO instruments should be used in the regulation indicating its status, and for instance—as per the IMO resolution—'shall be approved by the Administration, considering the recommendations developed by the organisation' or 'based on the guidelines developed by the organisation'.[27] Furthermore, mandatory IMO documents should refrain from self-contradictory expressions, such as requiring that States 'shall comply with the recommendations'.[28]

To summarize, PSSA resolutions are not treated as mandatory IMO documents. In addition, PSSA resolutions do not have legally binding force because they have not yet been incorporated into the relevant articles of existing conventions, and member States have not made an effort to make PSSA resolutions mandatory. However, when deciding to adopt APMs or reviewing the criteria of the designation of a PSSA, it can be said that PSSA resolutions have de facto binding force over States that have submitted a proposal for the designation

[13]Convention on the International Maritime Organization (adopted 6 June 1948, entered into force 17 May 1958) 289 UNTS 3 (IMO Convention) art 1.

[14]A Chircop, 'Particularly Sensitive Sea Areas and International Navigation Rights: Trends, Controversies and Emerging Issues' in I Davies (ed), *Issues in International Commercial Law* (Ashgate 2005) 231; O Asamoah, 'The Legal Effect of Resolutions of the General Assembly' (1963) 3 Columbia Journal of Transnational Law 210, 211–212; G Peet, 'Particularly Sensitive Sea Areas: A Documentary History' (1994) 9 International Journal of Marine and Coastal Law 469, 470; J Roberts et al, 'The Western European PSSA Proposal: A "Politically Sensitive Sea Area"' (2005) 29 Marine Policy 431, 432.

[15]Statute of the International Court of Justice (adopted 26 June 1945, entered into force 24 October 1945) 33 UNTS 993 art 38(1).

[16]Shaw points out that 'particular non-binding instruments or documents or non-binding provisions in treaties form a special category that may be termed "soft law". This terminology is meant to indicate that the instrument or provision in question is not of itself "law", but its importance within the general framework of international legal development is such that particular attention requires to be paid to it. Soft law is not law. That needs to be emphasised, but a document, for example, does not need to constitute a binding treaty before it can exercise an influence in international politics.' MN Shaw, *International Law* (6th edn, Cambridge University Press 2008) 117–118. Boyle states that '[w]hen used in this sense soft law can be contrasted with the hard law, which is binding. Treaties are by definition always hard law because they are always binding. In this category of soft law the legal form is decisive: if the form is that of a treaty it cannot be soft law.' He adds that '[s]oft law consists of general norms or principles, not rules'; AE Boyle, 'Some Reflections on the Relationship of Treaties and Soft Law' (1999) 48 International and Comparative Law Quarterly 901, 901.

[17]According to the IMO, '[r]esolutions are adopted by the key organs and committees of the Organization. Resolutions are issued within the official IMO meeting reports and documents relating to the relevant committee or organ'; IMO, 'Index of IMO Resolutions' <http://www.imo.org/en/KnowledgeCentre/IndexofIMOResolutions/Pages/Default.aspx>.

[18]International Convention for the Safety of Life at Sea (adopted 1 November 1974, entered into force 25 May 1980) 1184 UNTS 2.

[19]International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (adopted 7 July 1978, entered into force 28 April 1984) 1361 UNTS 75.

[20]International Convention on Load Lines (adopted 5 April 1966, entered into force 21 July 1968) 640 *UNTS* 133.

[21]IMO, 'Uniform Wording for Referencing IMO Instruments', Resolution A.911 (22) (29 November 2001) Annex, para 2.

[22]ibid.

[23]ibid Annex, para 3.2.

[24]ibid Annex, para 3.3.

[25]ibid Annex, para 3.4.

[26]P Birnie, 'The Status of Environmental "Soft Law": Trends and Examples with Special Focus on IMO Norms' in H Ringbom (ed), *Competing Norms in the Law of Marine Environmental Protection* (Kluwer Law International 1997) 45.

[27]Resolution A.911(22) (n 21) Annex, para 14.1.

[28]MJ Kachel, *Particularly Sensitive Sea Areas: The IMO's Role in Protecting Vulnerable Marine Areas* (Springer 2008) 251–252.

of a PSSA to the IMO.[29] Member States that wish to submit a proposal for the designation of a PSSA should obey the procedures referred to in PSSA resolutions. If there is insufficient information to justify the designation of a PSSA while reviewing a submitted proposal, any procedural issues are raised, or there is a lack of a legal basis for the proposed APMs, the Maritime Environment Protection Committee (MEPC) or the Maritime Safety Committee (MSC) can reject the proposal based on Resolution A.982(24).[30] Even so, the intrinsic legal status of a PSSA resolution will not change unless the PSSA resolution becomes a mandatory IMO instrument through the incorporation in a present convention or the creation of new conventions. A PSSA resolution therefore still remains nonlegally binding document.[31]

As far as the legal status of APMs within a PSSA is concerned, Resolution A.982(24) provides clarity by specifying that adopted or approved APMs must be based on existing IMO instruments, on Article 211(6), or on generally accepted international rules and standards.[32] A State that wants to submit a proposal to the IMO must consider the legal basis for proposed APMs before formulating its proposal because the issue of whether such measures have a mandatory or recommendatory nature regarding foreign vessels is decided on the legal basis for APMs.

2.2.2 | Part XII of UNCLOS

Part XII of UNCLOS has played a role as an international framework treaty since the Convention was adopted in 1982. The IMO instruments for the prevention of vessel-source pollution are reflected in several provisions of UNCLOS.[33] A coastal State's jurisdiction referred to in the convention is directly linked to PSSAs and APMs. To understand the legal status of PSSAs, it is therefore necessary to examine the relationship between UNCLOS and PSSAs.

UNCLOS outlines general obligations regarding the prescriptive and enforcement jurisdictions of flag States, coastal States and port States, as well as the rights and duties of foreign vessels in protecting and preserving the marine environment. Above all, Article 192 of UNCLOS contains a general obligation to preserve and protect the marine environment for all States. More specifically, Article 194 (5) allows a State to take measures in accordance with Part XII of UNCLOS to protect and preserve rare or fragile ecosystems, as well as the habitats of depleted, threatened or endangered species and other forms of marine life.[34] With respect to this provision, the World Wild Fund for Nature (WWF) commented that the 'IMO has the legal competence to adopt measures based on the general provisions of UNCLOS and the authority conveyed on the IMO by that instrument'.[35]

Article 211(6) of UNCLOS deals specifically with regulations for the prevention of vessel-source pollution and as such is most closely related to PSSAs.[36] De La Fayette points out that the PSSA concept is different from Article 211(6) and was devised by the IMO before anyone knew whether UNCLOS would come into force.[37] In addition, De La Fayette states that, 'as a separate concept, the PSSA responds to the same desire to protect the marine environment as Article 211 (6) but was specially devised by IMO under its own mandate'.[38]

Similarly, Molenaar states that the PSSA concept and Article 211 (6) differ. Even though the IMO is referred to as a 'competent international organization' in Article 211(6), Molenaar argues that the application of PSSAs should not be seen as the implementation of the article, either by UNCLOS or the IMO.[39] Molenaar adds that 'it seems safer to presume that the PSSA Guidelines cannot be equated with Article 211(6) of UNCLOS, even with its procedural parts'.[40] In other words, De La Fayette and Molenaar contend that the article is not relevant to PSSAs, as the IMO has adopted specific guidelines.

To examine the relationship with Article 211(6) of UNCLOS, the Division for Ocean Affairs and the Law of the Sea of the United Nations (DOALOS) submitted a report to the IMO at the 43rd session of the MEPC in 1999.[41] In the report, DOALOS sought to make a clear distinction between Article 211(6) of UNCLOS and PSSAs.

The first difference concerns the criteria for designation. To be designated as a PSSA, a sea area should meet at least one of following criteria: ecological, social, cultural, economic, or scientific and educational. However, when a sea area where the international rules and standards for the prevention of vessel-source pollution are inadequate to meet special circumstances, but the State wants to adopt special mandatory measures under Article 211(6), its sea area should satisfy all the requirements referred to in the UNCLOS article. These requirements are divided into three categories: oceanographic and ecological conditions, the need for the protection of resources, and the particular character of marine traffic.[42] The criteria for the designation of a PSSA are therefore broader than the standards for the adoption of

[29]ibid.
[30]ibid.
[31]MS Karim, *Prevention of Pollution of the Marine Environment from Vessels* (Springer 2016) 54.
[32]Resolution A982(24) (n 7) para 7.5.2.3: 'The application should identify the legal basis for each measure. The legal bases for such measures are: (i) any measure that is already available under an existing IMO instrument; or (ii) any measure that does not yet exist but could become available through amendment of an IMO instrument or adoption of a new IMO instrument. The legal basis for any such measure would only be available after the IMO instrument was amended or adopted, as appropriate; or (iii) any measure proposed for adoption in the territorial sea, or pursuant to Article 211(6) of the United Nations Convention on the Law of the Sea where existing measures or a generally applicable measure (as set forth in subparagraph (ii) above) would not adequately address the particularized need of the proposed area.'
[33]UNCLOS requires States to 'take account of', 'conform to', 'give effect to' or 'implement' the relevant international rules and standards developed by or through the 'competent international organization'; see UNCLOS (n 3) arts 211, 217–218 and 220.
[34]UNCLOS (n 3) art 194(5).
[35]IMO, 'Proposed Amendments to Assembly Resolution A.927(22) to Strengthen and Clarify the Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas (PSSAs) Submitted by WWF', MEPC52/8/4 (18 August 2004).
[36]J Roberts, 'Compulsory Pilotage in International Straits: The Torres Strait PSSA Proposal' (2006) 37 Ocean Development and International Law 93, 95.
[37]L De La Fayette, 'The Marine Environment Protection Committee: The Conjunction of the Law of the Sea and International Environmental Law' (2001) 16 International Journal of Marine and Coastal Law 155, 191.
[38]ibid.
[39]EJ Molenaar, *Coastal State Jurisdiction over Vessel-Source Pollution* (Kluwer Law International 1998) 442.
[40]ibid.
[41]DOALOS, 'Relationship between the 1982 United Nations Convention on the Law of the Sea and the IMO Guidelines for the Designation of Special Areas and the Identification of Particularly Sensitive Sea Areas', MEPC43/6/2 (31 March 1999).
[42]Roberts (n 10) 101–103.

special mandatory measures referred to in Article 211(6) of UNCLOS.[43] As stated above, the criteria for the designation of a PSSA are not based on Article 211(6). While the latter stipulates that the competent international organization (i.e. the IMO) must adopt special mandatory measures within 12 months after receiving such a communication, the IMO does not refer to any time frame for the designation of a PSSA.[44]

The second difference between PSSAs and Article 211(6) of UNCLOS concerns the application of geographical scope.[45] While the IMO allows a State to establish a PSSA within its territorial waters or a buffer zone within its boundaries—or even beyond the limits of its territory—Article 211(6) of UNCLOS is limited to a 'clearly defined area' of an Exclusive Economic Zone (EEZ).[46]

As a third difference, the IMO allows a State to exercise enforcement jurisdiction with respect to adopted APMs against foreign vessels in cases where a sea area has been designated as a PSSA. However, Article 211(6) of UNCLOS holds that a coastal State may enact additional laws and regulations concerning discharges or navigational practices, provided the competent international organization agrees.[47] Thus, Article 211(6) of UNCLOS grants a prescriptive jurisdiction to coastal States. A coastal State may also exercise enforcement jurisdiction under Article 220(8) of UNCLOS. Basically, coastal States must comply with regulations for enforcement jurisdiction over vessel-source pollution referred to in UNCLOS in the exercise of adopted APMs over foreign vessels within PSSAs.[48]

As a significant legal source for the adoption of special mandatory measures in the EEZ, Article 211(6) of UNCLOS provides a legal basis for APMs. When a State wishes to adopt APMs based on Article 211 (6) within a PSSA, such APMs are limited to measures for discharge restrictions or navigational practices.[49] In addition, APMs based on existing IMO instruments can be considered as the 'generally accepted international rules and standards' referred to in UNCLOS.[50] As regards vessel-source pollution, the 'generally accepted international rules and standards' under the relevant provisions of UNCLOS are defined as existing IMO conventions ratified by a sufficient number of member states, codes, and resolutions, except for the IMO's guidelines.[51] Whether APMs based on existing IMO instruments play a role as mandatory regulations against foreign vessels in PSSAs is determined by the legal basis of adopted APMs.

Simply put, when examining the relevance of Article 211(6) of UNCLOS to PSSAs, it can be concluded that the legal status of PSSAs is underpinned by the IMO resolution itself, not by UNCLOS. In this respect, it may well be questioned whether a coastal State can properly exercise enforcement jurisdiction for adopted APMs against foreign vessels within PSSAs without infringing their navigational rights, since IMO resolutions do not have a legally binding effect. UNCLOS provides foreign vessels with the right of innocent passage in territorial sea areas and the right of transit passage in straits, which are used for international navigation.[52] Enforcement by a coastal State against foreign vessels enjoying such navigational rights is limited under UNCLOS.[53] A coastal State is unable to hamper the navigational rights of foreign vessels within PSSAs through IMO resolutions.

Although the IMO can grant a mandatory legal status to its resolutions through the incorporation of relevant provisions in the parent conventions, there has been no effort to establish a mandatory legal status for PSSAs in diplomatic meetings at the IMO. Nevertheless, as a 'rule of reference' in the field of the protection of the marine environment, when formulating a proposal for the designation of a PSSA, a State must under no condition infringe on the rights of a foreign vessel as referred to in UNCLOS, or violate UNCLOS regulations. As a key function and grounds for the exercise of enforcement jurisdiction by a coastal State in PSSAs, the IMO regulations indicate that a coastal State should adopt APMs based on existing IMO instruments or Article 211(6) of UNCLOS. Even though Article 211(6) has no direct relevance for the concept and designation of a PSSA, regulations for the adoption of special mandatory measures under Article 211(6) provide one of legal bases for the adoption of APMs.

2.2.3 | Implications for the legal status of PSSAs

The legal status of PSSAs can be summarized as follows. First and foremost, PSSAs are based on IMO resolutions. As soft law instruments, resolutions are considered nonlegally binding documents.[54] However, the IMO allows resolutions to have a mandatory nature by indicating that 'full effect should be given to these codes or resolutions under that convention in the same manner as the regulations of the convention themselves'.[55] That is, such codes or resolutions must be incorporated in the text of the relevant convention regulations. When looking at the legal status of PSSAs through IMO resolutions, PSSA resolutions are not recognized as legally binding documents, because there is no reference to a legally binding effect for PSSA resolutions under existing conventions or through the creation of new conventions.

Second, as to the interpretation of the legal status of PSSAs under UNCLOS, the DOALOS has clearly analysed whether Article 211(6) of UNCLOS provides a legal basis, concluding that the provision is not concerned with the legal status of PSSAs.[56] Even so, a coastal State must comply with provisions of UNCLOS relevant to the general obligations, rights and duties of foreign vessels, as well as the rights and responsibilities of coastal States, when establishing PSSAs and adopting APMs.

[43]ibid.
[44]ibid.
[45]ibid.
[46]UNCLOS (n 3) art 211(6)(a).
[47]ibid art 211(6)(c).
[48]DOALOS (n 41).
[49]UNCLOS (n 3) art 211(6)(c).
[50]ibid art 211(2).
[51]AE Boyle, 'Marine Pollution under the Law of the Sea Convention' (1985) 79 American Journal of International Law347, 355; R Beckman and Z Sun, 'The Relationship between UNCLOS and IMO Instruments' (2017) 2 Asia-Pacific Journal of Ocean Law and Policy 201, 221–222.
[52]UNCLOS (n 3) arts 18 and 38.
[53]ibid arts 19 and 39.
[54]Boyle (n 16) 901–902.
[55]Resolution A.911(22) (n 21).
[56]N Ünlü, 'Particularly Sensitive Sea Areas: Past, Present and Future' (2004) 3 WMU Journal of Maritime Affairs 159, 163.

Lastly, PSSA resolutions refer specifically to the legal basis for APMs. When APMs are adopted that apply to foreign vessels, the legal basis for such APMs must be underpinned by existing IMO instruments (i.e. codes, guidelines and resolutions), Article 211(6) of UNCLOS, or generally accepted international rules and standards for the prevention for vessel-source pollution.[57] Whether such APMs play a role as compulsory regulations against foreign vessels may be decided by the legal basis for adopted APMs. If the legal basis for APMs is underpinned by nonlegally binding documents, such as codes or resolutions, these APMs serve merely as recommendations for foreign vessels within PSSAs to protect the marine environment or enhance the safety of navigation.

3 | THE PRACTICAL APPLICATION OF THE PRECAUTIONARY PRINCIPLE TO PSSAs

Some scholars have argued that PSSAs can be considered a practical application of the precautionary principle in the context of IMO activities.[58] Although PSSAs may be a practical application of the precautionary principle in preventing vessel-source pollution at the IMO level, the legal basis for PSSAs with respect to the application of the precautionary principle is found in IMO resolutions, which are nonlegally binding documents. While some argue that the precautionary principle does not have a basis in customary international law,[59] others argue that the application of the precautionary principle in conventions or treaties (legally binding documents), as well as in resolutions or declarations (soft law) and domestic laws, can be 'evidence of practice and *opinio juris*'.[60] Notwithstanding the potential applicability of the precautionary principle to international shipping, the precautionary principle to PSSAs is not part of customary international law. The principle can be seen as a step or process towards accumulating *opinio juris* and State practice as a part of customary international law. This section discusses whether a PSSA can be considered an application of the precautionary principle, since the precautionary principle to PSSAs may become a customary international law in the future.[61]

3.1 | The precautionary principle and the MEPC

The precautionary principle first emerged on the international stage in the second and third North Sea Ministerial Declarations in the late 1980s/early 1990s.[62] Since then, it has been referred to in a variety of international or regional environmental conventions or treaties.[63] Of these, the most widely accepted interpretation of the term 'precautionary principle' in international environmental law is outlined in Principle 15 of the 1992 Rio Declaration, which suggests that where 'there are risks of serious or irreversible damage, scientific uncertainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation'.[64]

The precautionary principle has greatly affected global regulations for the prevention of vessel-source pollution adopted by the IMO.[65] The application of the precautionary principle in the IMO's activities arises from paragraph 17 of Agenda 21.[66] This requires the IMO to 'apply preventive, precautionary and anticipatory approaches so as to avoid degradation of the marine environment, as well as to reduce the risk of long-term or irreversible adverse effects upon it'.[67] Agenda 21 emphasizes that the IMO should take preventive measures to protect the marine environment.[68] Based on Agenda 21, the IMO adopted Resolution MEPC.67(37) on incorporating the precautionary approach in IMO activities in 1995.[69] The resolution states that 'the underlying philosophy of the precautionary approach' could be applied to the IMO activities regarding 'flag State implementation, port State control and the International Safety Management (ISM) Code'.[70] For instance, an environmental assessment or risk analysis is required to evaluate the environmental impacts of the proposed or alternative courses of action. Moreover, the IMO should provide 'anticipation and prevention of environmental problems arising from any regulatory activities'[71] in a practical application of the precautionary principle.

3.2 | PSSAs as an application of the precautionary principle

Although the PSSA resolutions do not mention the application of the precautionary principle, it can be argued that the concept of a

[57]Resolution A.982(24) (n 7) Annex, para 7.5.2.3.

[58]B Sage-Fuller, 'Precautionary Coastal States' Jurisdiction' (2006) 37 Ocean Development and International Law 359, 374; Kachel (n 28) 290; A Gillespie, 'The Precautionary Principle in the Twenty-First Century: A Case Study of Noise Pollution in the Ocean' (2007) 22 International Journal of Marine and Coastal Law 61, 81.

[59]Bodansky suggests the principle is 'too vague' to serve as a regulatory standard; D Bodansky, 'Law Scientific Uncertainty and the Precautionary Principle'(1991) 33 Environment 4, 5; Birnie and colleagues, as well as Bodansky, have taken strong positions against according any legal value to the principle because of the uncertainties in its formulation; D Bodansky, 'Customary (and not so Customary) International Environmental Law'(1995) 3 Indiana Journal of Global Legal Studies 105, 118; Patricia Birnie, Alan Boyle and Catherine Redgwell, *International Law and the Environment* (3rd edn, Oxford University Press 2009) 24.

[60]K Bosselmann, 'Power, Plants and Power Plants: New Zealand's Implementation of the Climate Change Convention' (1995) 12 Environmental and Planning Law Journal 423, 431; O McIntyre and T Mosedale, 'The Precautionary Principle as a Norm of Customary International Law' (1997) 9 Journal of Environmental Law 221, 235; I Brownlie, *Principles of Public International Law* (4th edn, Oxford University Press 1990) 5; P Sands and J Peel, *Principles of International Environmental Law* (3rd edn, Cambridge University Press 2012) 269.

[61]Cameron advocates that 'recent treaty developments provide prima facie evidence of an emerging sense of legal obligation to adhere to the precautionary principle'; J Cameron, 'The Status of the Precautionary Principle in International Law' in T O'Riordan and J Cameron (eds), *Interpreting the Precautionary Principle* (Routledge 1994) 280.

[62]Ministerial Declaration of the Third International Conference on the Protection of the North Sea, The Hague, (8 March 1990).

[63]These include the Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa (1991), the United Nations Framework Convention on Climate Change (1992) and the Convention on Biological Diversity (1992).

[64]Rio Declaration on Environment and Development in UNGA 'Report of the United Nations Conference on Environment and Development' UN Doc A/CONF.151/26 (vol I) (12 August 1992) Principle 15; Sands and Peel (n 60) 220.

[65]B Sage-Fuller, *The Precautionary Principle in Marine Environmental Law: With Special Reference to High Risk Vessels* (Routledge 2013) 359.

[66]SA Lentz, 'The Precautionary Approach and the IMO' (1991) Oil Spill Conference 667, 669.

[67]Agenda 21 in UNGA (n 64) para 17.22.

[68]ibid.

[69]IMO, Resolution MEPC.67(37), 'Guidelines on Incorporation of the Precautionary Approach in the Context of Specific IMO Activities', Resolution MEPC.67(37) (15 September 1995).

[70]ibid Annex, para 3.

[71]ibid Annex, para 4.1.

protected area could be seen as a typical example of the precautionary principle as applied in IMO activities. The PSSA resolutions allow a coastal State to adopt APMs to protect the marine environment of certain sea areas under its jurisdiction from risks posed by international shipping.

As to the relationship between the precautionary principle and PSSAs, the first consideration to examine is damage. Operational or accidental discharges from shipping activities may seriously threaten the marine environment and the marine ecosystem in a sensitive sea area. The PSSA resolutions clearly require a coastal State wishing to propose the designation of a protected area to have 'evidence of damage'.[72]

The second consideration relates to scientific criteria. Scientific uncertainty is a key element when applying the precautionary principle in international environmental law. There is a question as to what level of uncertainty is acceptable when taking precautionary action. The standards of 'scientific criteria' may be influenced by many factors and vary according to environmental considerations. In this respect, Hickey and Walker propose using two levels of confidence in formulating the precautionary principle: a level of 'reasonable scientific possibility', and a level of 'reasonable scientific probability'.[73] Decision makers should carry out a risk assessment or risk evaluation to identity 'reasonable thresholds'.[74] Scientific criteria may be linked to the risk assessment of international shipping activities in a sea area with environmental sensitivities.

The IMO requires a coastal State wishing to submit a proposal for the designation of a PSSA to meet at least one of several criteria. In total, there are 11 ecological criteria, three socioeconomic criteria and three scientific and educational criteria.[75] More importantly, the IMO requires a coastal State to assess the potential damage to an ecosystem and marine environment posed by international shipping activities in a proposed PSSA. PSSA resolutions do not provide much in the way of detailed requirements for the risk assessment, although the criteria point to a quantitative rather than qualitative approach.[76] For instance, Australia submitted a proposal for the extension of the Great Barrier Reef PSSA to the Torres Strait, requesting the adoption of a compulsory pilotage—under which 'certain ships are required to take on board pilots, or avail themselves of pilotage services, as they pass through certain waters'[77]—as APMs to the IMO's Sub-Committee on Safety of Navigation with the results of a safety navigation assessment.[78] The IMO required a lower threshold of risk in the PSSA.[79]

When submitting a proposal for the designation of a PSSA, a coastal State should provide a thorough description of the relationship between natural factors, maritime traffic characteristics and potential environmental damage. 'Natural factors' here include hydrographical, meteorological and oceanographic characteristics.[80] These factors are used to determine 'the degree of harm that may be expected to cause damage, and whether such damage is reasonably foreseeable, as well as whether damage is of a recurring or cumulative nature'.[81] The maritime traffic characteristics of a PSSA should be considered in assessing the potential risks posed by international shipping activities in that area.[82] In addition, environmental damage caused by maritime activity is addressed by the PSSA resolutions to emphasize the necessity of proactive action, to prevent accidental and operational discharges from ships.

These criteria ensure that, from the point of view of the IMO, the damage caused by international shipping activities are foreseeable in a sensitive sea area. A coastal State may provide a lower level of scientific evidence.[83] Based on Agenda 21, the IMO applied the precautionary principle in adopting a resolution relating to the protection of the marine environment in 1995.[84] PSSAs can be considered a prime example of the practical application of the precautionary principle in the IMO's activities. The PSSA resolutions involve a coastal State taking precautionary action to protect the marine environment and conserve the marine ecosystem in a particular sea area where international shipping poses a risk.

The third consideration is cost-effectiveness. Principle 15 of the Rio Declaration requires a State to take cost-effective measures. Agenda 21 also calls for the adoption of cost-effective practices by the IMO. On that basis, Resolution MEPC.67(37) clearly provides that 'in developing measures to prevent or reduce pollution, priority should be given to the use of cost-effective pollution prevention measures'.[85] Likewise, the IMO allows a coastal State to adopt existing APMs for the safety of navigation and special discharge restrictions, instead of new APMs under the PSSA resolution. Such older APMs could offer more cost-effective ways to prevent operational and accidental discharges by enhancing the safety of navigation and imposing strict discharge standards on foreign vessels in a special area under existing MARPOL Annexes I, II or V, or according to a sulphur oxides (SO_x) emission control area under MARPOL Annex VI. In 2002, the IMO adopted the Guidelines for Formal Safety Assessment to include the evaluation of the costs and benefits of reducing risks when drawing up rules relating to maritime safety and the protection of the marine environment.[86] For instance, the analysis of cost-effectiveness

[72]Resolution MEPC.67(37) (n 69) para 5.2.1.

[73]JE Hickey, Jr and VR Walker, 'Refining the Precautionary Principle in International Environmental Law'(1994) 14 Virginia Environmental Law Journal 423, 449; S Boutillon, 'The Precautionary Principle: Development of an International Standard' (2001) 23 Michigan Journal of International Law 429, 450.

[74]R Wang, 'The Precautionary Principle in Maritime Affairs' (2011) 10 WMU Journal of Maritime Affairs 143, 150.

[75]Resolution A.982(24) (n 7) para 4.4.

[76]Sage-Fuller (n 58) 370.

[77]DR Rothwell, 'Compulsory Pilotage and the Law of the Sea: Lessons learned from the Torres Strait' (ANU College of Law 2012) 2.

[78]Australia mentioned the risks as 'a structured approach for obtaining expert judgments on the level of waterway risk. The process also addressed the effectiveness of possible intervention actions for reducing risk in the waterway'; IMO, 'Results of a Safety of Navigation Assessment Conducted for the Torres Strait, Submitted by Australia', NAV 50/INF.2 (2 April 2004).

[79]Sage-Fuller (n 58) 374.

[80]ibid 375.

[81]Resolution A.982(24) (n 7) para 5.2.1.

[82]ibid para 5.1. For example, in the case of the Baltic PSSA, 'more than 2,000 ships are *en route* in the Baltic on an average day. The fairway is highly frequented with some 65,000 ships per year, among them 32,800 tankers, 16,800 bulk cargo ships up to 100,000 dwt and 13,200 container and ro-ro ships.'; IMO, 'Identification and Protection of Special Areas and Particularly Sensitive Sea Areas: Designation of the Baltic Sea Area as a Particularly Sensitive Sea Areas', MEPC 51/8/1 (19 December 2003).

[83]Sage-Fuller (n 58) 375.

[84]Resolution MEPC.67(37) (n 69).

[85]ibid Annex, para 5.

[86]IMO, 'The Guidelines for Formal Safety Assessment (FSA) for Use in the IMO Rule-Making Process' MSC/Circ.1023, MEPC/Circ.392 (5 April 2002).

is already taken into consideration in assessing the designation of an Emission Control Area under MARPOL Annex VI.[87] A coastal State may adopt cost-effective APMs in a proposed PSSA where there is a need for special protection measures.

4 | CHALLENGES ARISING FROM PSSA RESOLUTIONS

4.1 | Infringement on the principle of freedom of navigation under UNCLOS

UNCLOS defines the navigational rights and duties of foreign vessels according to the geographical and functional scope of foreign vessels. All ships can enjoy the freedom of navigation on the high seas or EEZs under the navigation regimes of UNCLOS.[88] In these areas, flag States have exclusive jurisdiction over ships flying their flags.[89] A coastal State has rights and duties regarding the exploitation and exploration of the EEZ, marine scientific research, the protection and preservation of the marine environment, fishing activities, and the conservation and control of the natural resources.[90] A coastal State may exercise the prescriptive and enforcement jurisdiction for the prevention of pollution from foreign vessels within its EEZ.[91] However, the prescriptive jurisdiction by a coastal State in an EEZ is limited to issues related to vessel-source pollution and navigational safety.[92]

In territorial seas and archipelagic waters, all ships have the right of innocent passage, unless passage by foreign ships is considered to be prejudicial to the peace, good order or security of the coastal State under Article 19(2) of UNCLOS.[93] Coastal States have comparatively broad powers to adopt laws and regulations relating to innocent passage within their territorial and archipelagic waters with respect to vessel-source pollution and navigational safety, 'in conformity with the provisions of this convention and other rules of international law'.[94] All ships also have the right of transit passage through straits used for international navigation. States bordering such straits can exercise only limited legislative jurisdiction under Article 42(1) of UNCLOS.[95] In addition, these States may designate sea lanes and prescribe Traffic Separation Schemes for navigation in straits used for international navigation in conformity with SOLAS and Rule 10 of the Convention on the International Regulations for Preventing Collisions at Sea.[96]

Here, the significant question can be raised as to whether the application of a compulsory pilotage in straits used for international navigation is allowable under the navigation regimes of UNCLOS. In 1990, Australia submitted a proposal for the designation of the Great Barrier Reef PSSA to the IMO.[97] Australia is currently imposing monetary penalties on foreign vessels that violate regulations for compulsory pilotage while passing through the Torres Strait.[98] While Australia asserted that it could adopt a compulsory pilotage system (e.g. APMs) in the extension of the existing PSSA, the application of a compulsory pilotage in the Torres Strait is not allowed under the navigation regimes of UNCLOS.[99] Australia contended that, since UNCLOS does not contain specific provisions relating to compulsory pilotage, such a measure could be dealt with reference to IMO instruments, and Australia can therefore implement a compulsory pilotage system under domestic law based on IMO resolutions.[100]

Compulsory pilotage arguably violates provisions relevant to the navigational rights of foreign vessels under UNCLOS for several reasons. First, Article 42(1)(a) of UNCLOS, which assigns prescriptive jurisdiction to States bordering straits used for international navigation over transit passages, stipulates that a State may adopt laws and regulations concerning the safety of navigation and the regulation of maritime traffic.[101] Article 41 of UNCLOS enables a State to establish sea lanes and Traffic Separation Schemes in conformity with the IMO instruments.[102] In addition, Article 42(1)(b) of UNCLOS provides that a coastal State may only adopt laws and regulations relating to the prevention of vessel-source pollution 'by giving effect to applicable international regulations regarding the discharge of oil, oily wasters and other noxious substances in the strait'.[103] A coastal State can thus only adopt laws and regulations that give effect to MARPOL 73/78. Article 42(1) of UNCLOS does not contain a pilotage system under the prescriptive jurisdiction of States bordering straits used for international navigation. Therefore, the application of compulsory pilotage for foreign vessels navigating in the Torres Strait exceeds the prescriptive jurisdiction of a coastal State under UNCLOS.

Second, Article 39(2) of UNCLOS requires all ships in transit passages to comply with 'generally accepted international regulations, procedures, and practices'[104] relating to the safety of navigation and the prevention of vessel-source pollution. The IMO is the 'competent international organization' in adopting such laws and regulations with respect to international shipping activities.[105] The exercise of legislative jurisdiction by States bordering straits used for international navigation must conform to generally accepted international regulations,

[87]EJ Molenaar, *Coastal State Jurisdiction over Vessel-Source Pollution* (Kluwer Law International 1998) 435; J Viertola and J Storgård, 'Overview on the Cost-effectiveness of Maritime Safety Policy Instruments' (University of Turku 2013) 30; Kachel (n 28) 238.
[88]UNCLOS (n 3) arts 58 and 87.
[89]ibid art 92.
[90]ibid arts 56 and 73.
[91]ibid arts 211 and 219.
[92]ibid arts 56 and 211(5)–(6).
[93]ibid arts 19, 24–25.
[94]ibid art 21.
[95]ibid art 42(1).
[96]Convention on the International Regulations for Preventing Collisions at Sea (adopted 20 October 1972, entered into force 15 July 1977) 1050 UNTS 16.
[97]IMO, Resolution MEPC.44(30), 'Identification of the Great Barrier Reef Region as a Particularly Sensitive Area', Resolution MEPC.44(30) (16 November 1990).
[98]S Bateman and M White, 'Compulsory Pilotage in the Torres Strait: Overcoming Unacceptable Risks to a Sensitive Marine Environment' (2019) 40 Ocean Development and International Law 184, 198.
[99]IMO, 'Torres Strait PSSA Associated Protective Measure – Compulsory Pilotage Submitted by Australia and Papua New Guinea', LEG89/15 (2004).
[100]Beckman (n 12) 343–344; Australian Maritime Safety Authority, 'Marine Notice 8/2006, Revised Pilotage Requirements for Torres Strait' (16 May 2006); and Australian Maritime Safety Authority, 'Marine Notice 16/2006, Further Information on Revised Pilotage Requirements for Torres Strait' (3 October 2006). The regulations adopting the new compulsory pilotage system in the Torres Strait were stipulated in Marine Orders Part 54.
[101]UNCLOS (n 3) art 42(1)(a).
[102]ibid art 41.
[103]ibid art 42(1)(a).
[104]ibid art 39(2).
[105]Beckman (n 12) 343–344; Roberts (n 36) 98–99.

not domestic laws and regulations. Flag States have a responsibility to enforce such international regulations, standards and procedures. Thus, Article 39(2) of UNCLOS does not constitute a legal basis for a compulsory pilotage scheme by a coastal State.

Third, as a significant provision in analysing the legality of a compulsory pilotage system, Article 211(6) of UNCLOS provides that coastal States may adopt special mandatory measures for the prevention of pollution from vessels in clearly defined areas of their respective EEZs that require special attention to protect the marine environment, if approved by the IMO.[106] Australia has contended that a compulsory pilotage system is a special mandatory measure, and that Article 211(6) of UNCLOS underpins the legal basis for a compulsory pilotage system in the Torres Strait. However, while Australia has adopted a compulsory pilotage system in the Torres Strait for internal waters and territorial seas, the geographical scope for the application of special mandatory measures under Article 211(6) of UNCLOS is limited to only certain sea areas of the EEZ. There is no specific reference in the PSSA resolutions to whether Article 211(6) of UNCLOS grants the right to exercise prescriptive jurisdiction over ships enjoying the right of transit passage to a State bordering the Torres Strait used for international navigation.[107] As a precondition, Article 211(6) of UNCLOS requires that special mandatory measures must be adopted and approved by the IMO. However, the IMO has already rejected the request of Australia for the adoption of a compulsory pilotage system as APMs. A compulsory pilotage system as an APM in the Great Barrier Reef PSSA is a measure that does not conform to the navigation regimes of UNCLOS, and it cannot be a special mandatory measure under Article 211(6) of UNCLOS. Specifically, the IMO at the 55th meeting of the MEPC in October 2006 reconfirmed that pilotage schemes adopted in Resolution MEPC.133(53) only have a recommendatory nature.[108] In addition, Australia as a port State may not refuse a foreign vessel entry into a port even if a foreign vessel does not follow a compulsory pilotage system, when the vessel entered voluntarily into a port.[109] According to Article 218 of UNCLOS, a port State's enforcement jurisdiction is limited to laws and regulations tackling pollution.

Such a compulsory pilotage system can infringe the rights of transit passage for foreign vessels. Australia's unilateral action violates the long-standing international law principle of the freedom of navigation. Moreover, the Australian action may disturb existing international law because it may become a precedent, resulting in the excessive exercise of legislative jurisdiction in other States that consider adopting APMs for a compulsory pilotage system. Although the IMO grants a State the right to adopt a wide range of APMs within PSSAs, such discretionary power can lead to the excessive extension of a coastal State's prescriptive jurisdiction. Thus, the international community or the IMO need to take concerted action to prevent coastal States from extending their jurisdiction excessively when adopting compulsory pilotage via APMs in straits used for international navigation.[110]

4.2 | Is it possible to designate a PSSA on the high seas?

Resolution A.982(24) allows a State's territory to be designated as a PSSA beyond its territorial waters with a view to the adoption of international protective measures regarding pollution and other damage caused by ships. However, the resolution does not clearly indicate whether a State can submit a proposal for the designation of a PSSA on the high seas to protect its coastal sea areas. The resolution only mentions that 'an application to the IMO for the designation of a PSSA and the adoption of APMs may only be submitted by a Member Government or, where two or more Governments have a common interest in a particular area, they should formulate a co-ordinated proposal'.[111]

Given that all flag States have common interests on the high seas, they may be entitled to establish a PSSA adjacent to their maritime zones and enforce adopted APMs against vessels flying their flags, although not foreign vessels. Flag States have an exclusive jurisdiction over ships flying their flags on the high seas under Articles 92(1) and 94 of UNCLOS. Coastal States may not claim jurisdiction over foreign vessels on the high seas. As all States have a general obligation to protect and preserve the marine environment under Article 194 of UNCLOS, it may be theoretically possible for a State to propose the designation of a PSSA on the high seas.[112] In such cases, the exercise of enforcement jurisdiction over a foreign vessel can be limited under UNCLOS.

As to the kinds of APMs a State can adopt on the high seas, such proposed measures must have at least the same effect as generally accepted international rules and standards. Thus, long-range identification and tracking (LRIT),[113] which is regulated under Chapter V of SOLAS, can become a useful measure in consideration of the limited actions of flag States on the high seas. Moreover, LRIT can be also helpful for a port State to prevent accidental discharges from ships or to properly respond to oil or hazardous and noxious substances pollution by monitoring navigation routes in real time. UNCLOS grants an expanded power to exercise enforcement jurisdiction against an act of pollution that has occurred outside the EEZ and the territorial sea of another State to a port State, when the ship voluntarily entered into a port.[114] LRIT can be a crucial ground for proving that a ship has

[106]UNCLOS (n 3) art 211(6).
[107]LEG89/15 (n 99).
[108]IMO, 'Designation of the Torres Strait as an Extension of the Great Barrier Reef Particularly Sensitive Sea Area', Resolution MEPC.133(53) (22 July 2005).
[109]Beckman (n 12) 345.
[110]ibid 350; Roberts (n 10) 106.
[111]Resolution A.982(24) (n 7) para 3.1.
[112]J Roberts, A Chircop and S Prior, 'Area-Based Management on the High Seas: Possible Application of the IMO's Particularly Sensitive Sea Area Concept' (2010) 25 International Journal of Marine and Coastal Law 483, 506–507; G Peet, 'Particularly Sensitive Sea Areas: An Overview of Relevant IMO Documents' (1994) 9 International Journal of Marine and Coastal Law 556, 557.
[113]The LRIT system 'provides for the global identification and tracking of ships to enhance security of shipping and for the purposes of safety and marine environment protection'; IMO, 'Long-Range Identification and Tracking' <https://www.imo.org/en/OurWork/Safety/Pages/LRIT.aspx>.
[114]T Keselj, 'Port State Jurisdiction in Respect of Pollution from Ships: The 1982 United Nations Convention on the Law of the Sea and the Memoranda of Understanding' (1999) 30 Ocean Development and International Law 127, 135.

committed illegal discharges on the high seas when a port State exercises enforcement jurisdiction over a ship.[115]

Enforcement jurisdiction by a port State constitutes an 'innovative expansion of jurisdiction in international law'.[116] While flag States have the exclusive right of control over vessels flying their flags anywhere in the world, they may be unable or unwilling to exercise their power due to flags of convenience.[117] Port State enforcement jurisdiction over vessel-source pollution may supplement flag State control by providing extraterritorial jurisdiction (e.g. Article 218 of UNCLOS grants the right to exercise ex post facto enforcement jurisdiction to a port State).[118] However, for a port State to exercise enforcement jurisdiction, a foreign vessel should have entered into its port voluntarily—not under distress or *force majeure*. Under port State control, a port State may also take administrative measures relating to adopted APMs on the high seas with regard to foreign vessels within its local ports to ascertain whether such vessels comply with international rules and standards relating to ship safety, to prevent vessel-source marine pollution, and to check crew manning and adherence to its national laws.[119] 'Port State control' means that the State can exercise its administrative power over substandard foreign vessels, permitting it to detain ships and rectify deficiencies prior to departure pursuant to an inspection by a Port State Control Officer.[120] Simply put, a port State has enforcement power for using LRIT to monitor compliance with anti-pollution laws and regulations and the safety of navigation.[121]

Even though the PSSA resolutions do not provide for the application of protected status to an area beyond national jurisdiction, as an 'area-based management tool' a PSSA can be designated over a space beyond national jurisdiction to protect marine biodiversity from the threat of shipping activities.[122] In this regard, some scholars have already mooted the possibility of designating a PSSA on the high seas.[123] For example, Roberts points out in one case study that the Southern Ocean has potential for the designation of a PSSA on the high seas.[124] However, this would raise the question as to how effective such a designation would be or how much associated APMs could contribute to the prevention of vessel-source pollution.[125] No State has submitted a proposal for the designation of a PSSA on the high seas to the IMO so far, and any APMs adopted would likely only apply to a ship flying its flag, not to foreign vessels.[126] More importantly, for a proposal to be successful a State would need to have the political support of member States of the IMO.[127] As the PSSA resolutions do not provide for the possibility of designating PSSAs on the high seas, this suggestion remains controversial. To resolve this issue, the IMO should explicitly refer to the geographical scope for the application of PSSAs and clarify what kinds of APMs can be adopted in PSSAs on the high seas.[128]

4.3 | Ambiguous geographical scope with respect to the designation of PSSAs

The topic of geographical scope proved controversial when determining the designation of the Western European PSSA at the 49th and 51st MEPC meetings.[129] The reason was that the proposed size of the Western European PSSA was very large, and contained several different ecosystems. Resolution A.982(24) is silent on this issue. Even though some member States have argued that the proposed size of the Western European PSSA made the area ineligible for a PSSA designation, the MEPC did not present clear grounds to exclude its sea area as a PSSA.[130] According to Resolution A.982(24),[131] the decision regarding the size of a PSSA only depends on whether its sea area requires special protection from damage by international shipping activities. This geographical scope is too ambiguous. Since the Western European PSSA has been adopted, the Great Barrier Reef PSSA (including the Torres Strait PSSA) and the Baltic Sea PSSA have also established a PSSA of a similar geographical size to that of the Western European one.

In the Report of the Prevention of Pollution from Merchant Ships, Lord Donaldson commented that '[t]he more numerous and larger the areas highlighted as particularly sensitive, the greater the risk of assumptions that the remainder is of no environmental significance.[132] It must follow that only limited areas can be singled out for any special status.'[133] Lord Donaldson's comments were

[115]IMO, 'Use of the Long-Range Identification and Tracking Information for Maritime Safety and Marine Environment Protection Purposes', Resolution MSC.242(83) (12 October 2007).
[116]GC Kasoulides, *Port State Control and Jurisdiction: Evolution of the Port State Regime* (Springer 1993) 126.
[117]B Ho-Sam, 'Port State Jurisdiction and Article 218 of the UN Convention on the Law of Sea' (2009) 40 Journal of Maritime Law and Commerce *291*, 299–300.
[118]TL McDorman, 'Port State Enforcement: A Comment on Article 218 of the 1982 Law of the Sea Convention' (1997) 28 Journal Maritime Law and Commerce 305, 322.
[119]ZO Özçayir, 'The Impact of Port State Control on Pollution at Sea' in B Soyer and A Tettenborn (eds), *Pollution at Sea: Law and Liability* (Informa 2012) 277.
[120]B Ho-Sam, 'Is Port State Control an Effective Means to Combat Vessel Source Marine Pollution? An Empirical Survey of the Practical Exercise by Port States of Their Powers of Control' (2008) 23 International Journal of Marine and Coastal Law 715, 722.
[121]D Freestone and V Harris, 'Particularly Sensitive Sea Areas beyond National Jurisdiction: Time to Chart a New Course' in MH Nordquist, J Norton Moore and R Long (eds), *International Marine Economy* (Brill 2017) 322, 360.
[122]United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC) and Seascape Consultants Ltd., *Learning from Experience: Case studies of Area-Based Planning in ABNJ* (UNEP-WCMC 2009) 70; KM Gjerde and A Rulska-Domino, 'Marine Protected Areas beyond National Jurisdiction: Some Practical Perspectives for Moving Ahead' (2012) 27 International Journal of Marine and Coastal Law 351, 365.
[123]Freestone and Harris (n 121) 361; Roberts et al (n 112) 511.
[124]Roberts et al (n 112) 502.
[125]ibid 520.
[126]ibid 521.
[127]ibid 522.
[128]Freestone and Harris (n 121) 362.
[129]IMO, 'Designation of a Western European Particularly Sensitive Sea Area', LEG87/16/1 (15 September 2003).
[130]M Detjen, 'The Western European PSSA: Testing a Unique International Concept to Protect Imperilled Marine Ecosystems' (2006) 30 Marine Policy 442, 442–443.
[131]Resolution A982(24) (n 7) Annex, para 1.2.
[132]According to Plant, '[t]he occurrence of two major oil pollution incidents in Western European waters, involving the losses of the tankers Aegean Sea and Braer, within a few weeks of each other, at the end of 1992 and beginning of 1993, aroused a great deal of public concern.' Glen Plant, '"Safer Ships, Cleaner Seas": Lord Donaldson's Inquiry, the UK Government's Response and International Law' (1995) 44 International and Comparative Law Quarterly 939, 939. The United Kingdom Department of Transport set up a major enquiry, under the chairmanship of Lord Donaldson. The report stated that 'to advise whether further measures are appropriate and feasible to protect the UK coastline from pollution from merchant shipping. Due consideration should be given to the international and economic aspects of any action.' 'Safer Ships, Cleaner Seas: Report of Lord Donaldson Inquiry into the Prevention of Pollution from Merchant Ships' (HMSO 1994) para 1.3.
[133]ibid para 14.118.

concerned with 'Marine Environmental High Risk Areas',[134] which are substantially similar to PSSAs. Simply put, the large size can make a specific area that needs special attention less meaningful.[135] The IMO needs to clarify the geographical scope for PSSAs through amendments to PSSA resolutions.[136]

5 | RECOMMENDATIONS FOR ENHANCING THE EFFECTIVENESS OF PSSAs

PSSAs are an innovative and attractive mechanism that allow coastal States to establish a wide range of APMs to protect the marine environment from the threats posed by international shipping activities.[137] The IMO grants the right to adopt and enforce navigational safety measures and special discharge restrictions as APMs to coastal States based on whichever methods are most effective and useful in preventing vessel-source pollution in certain sea areas that States wish to have designated as PSSAs. Unlike 'special areas' under MARPOL73/78, PSSAs can contribute to the prevention of accidental or operational discharges from ships through various APMs. However, fundamental limitations and legal uncertainties still exist. The IMO should resolve these issues to prevent vessel-source pollution effectively by expanding the designation of PSSAs. This section puts forward some recommendations for further developing PSSAs.

The lack of a legally binding status is considered a major drawback of PSSAs. Lefebvre-Chalain and Beckman assert that the PSSA resolutions should be amended to provide a legal basis for both the APMs and protected areas.[138] Although the PSSA resolutions include an explanation of the legal basis for APMs, the legal status of APMs is not based on these resolutions.[139] Instead, the legal basis for APMs are existing IMO instruments, Article 211(6) of UNCLOS, or generally accepted international rules and standards for the prevention of vessel-source pollution. As a core component of PSSAs, APMs are regulations meant to require foreign vessels to comply with discharge standards or navigational safety norms. The application of APMs to foreign vessels enables certain PSSAs to prevent vessel-source pollution effectively. PSSAs without APMs may be unable to be adopted by the MEPC since there would be no regulatory instruments to control foreign vessels. PSSA resolutions should therefore be revised to provide a clear procedure for APMs, for instance specifying how proposed APMs are applied by a coastal State and how those APMs have balanced the interest of a coastal State with navigational rights provided for by UNCLOS.[140]

The legal basis for PSSAs should be clarified to improve the effectiveness of PSSAs and adopt additional APMs.[141] For instance, member States at the MEPC should agree on a PSSA resolution to make PSSAs mandatory through the incorporation into existing conventions when amending such conventions.

Another important topic concerns the procedural aspects of PSSAs. Due to ambiguous definitions or unclear regulations under PSSA resolutions, there has been disagreement regarding the geographical scope when determining the designation of a protected area. Thus, the IMO must amend PSSA resolutions to provide for more specific procedures on how to designate an area as a PSSA for member States by using clearer language. In addition, PSSA resolutions need to outline concretely the legal relationship between international and domestic law. Furthermore, the MEPC should provide more specific allowable types of APMs and specify the explicit roles of APMs vis-à-vis foreign vessels. Together with the improvement of the procedures related to PSSA resolutions, the IMO should strengthen management and supervision for the stages before and after designating a PSSA or adopting APMs to prevent the coastal States' jurisdiction from excessively expanding, as could be seen in the Australian case of compulsory pilotage. Even though the IMO did not permit the adoption of a compulsory system in the Torres Strait due to the possibility of the violation of navigational rights of foreign vessels regulated in UNCLOS, Australia still implemented a compulsory pilotage system in domestic law. In that case, the IMO did not have the power to invalidate or control such measures, which possibly violate general international law, because IMO decision makers have no right to interfere with APMs implemented in domestic law. However, given that such APMs may infringe on the rights of foreign vessels or neighbouring States, the IMO should devise a way to manage and supervise such cases. Alternatively, it could impose an administrative sanction on member States found to be in violation of the procedures of the PSSA resolution or that have unilaterally adopted APMs.

6 | CONCLUSION

Since the IMO initially introduced the concept of a PSSA, it has adopted a range of PSSA resolutions. PSSAs have played a more important role in preventing vessel-source pollution than the 'special areas' outlined by MARPOL 73/78.[142]

[134]Donaldson recommended 'that a comparatively limited number of areas of high environmental sensitivity, which are also at risk from shipping, should be identified and established around the UK coast. [He] referred to these areas as Marine Environmental High Risk Areas (MEHRAs) and said that their primary purpose was to inform ships' masters of areas where there is a real prospect of a problem arising.' UK Hydrographic Office, 'Marine Environmental High Risk Areas' <https://www.admiralty.co.uk/AnnualNMs/26.pdf>.

[135]Roberts et al (n 112) 505.

[136]ibid 439.

[137]Beckman (n 12) 350.

[138]H Lefebvre-Chalain, 'Fifteen Years of Particularly Sensitive Sea Areas: a Concept in Development' (2007) 13 Ocean and Coastal Law Journal 47, 60.

[139]IMO, 'Implications of the United Nations Convention on the Law of the Sea for the International Maritime Organization', LEG/MISC.8 (30 January 2014).

[140]Beckman (n 12) 351.

[141]Roberts (n 10) 409 points out that 'the PSSA concept has no legal basis in any international convention. This lack of a clear legal basis has resulted in some considerable concerns over the application and future development of the PSSA concept.' See also A Prylipko, 'PSSA in the Baltic Sea: Protection on Paper or Potential Progress?' (World Maritime University 2014) 35; *HB Nugroho*, 'The Particularly Sensitive Sea Area (*PSSA*): History and Development' in MH Nordquist et al (eds), *The Law of the Sea Convention: US Accession and Globalization* (Martinus Nijhoff 2012) 548; V Frank, *The European Community and Marine Environmental Protection in the International Law of the Sea: Implementing Global Obligations at the Regional Level* (Brill 2007) 374; Beckman (n 12) 350.

[142]Roberts (n 10) 259.

IMO regulations allow States to adopt and enforce a wide range of APMs against foreign vessels who navigate through a PSSA. Moreover, PSSAs significantly contribute to the prevention of vessel-source pollution by providing member States ways to adopt both navigational safety measures and special discharge restrictions. Simplified criteria for the designation of PSSAs (compared with the criteria for the designation of special areas under MARPOL 73/78) encourage member States to submit proposals for the designation of PSSAs to the IMO. This approach has led to an increasing number of PSSA proposals. One advantage of PSSAs is that sea areas that have already been designated as special areas under MARPOL 73/78 can become PSSAs as well, because PSSAs and special areas are not mutually exclusive.

Notwithstanding these benefits of PSSAs, some challenges exist. This article has first examined questions regarding the legal effects of PSSAs. To answer this question, the article specifically focused on the legal relationship between IMO resolutions and Article 211(6) of UNCLOS, as well as between such resolutions and the precautionary principle. The article finds that the legal status of PSSAs is based on IMO resolutions, and the PSSA resolutions have no legally binding force unless the IMO grants full effect to PSSA resolutions under existing IMO conventions. The legal status of APMs is clear, as they are based on existing IMO instruments or Article 211(6) of UNCLOS. The significant point for APMs is whether such measures play a mandatory or recommendatory role regarding foreign vessels within PSSAs. This all depends on their legal basis. For instance, APMs based on non-legally binding documents cannot bind foreign vessels while passing through PSSAs.

Although the legal basis for APMs is clear, IMO members should make PSSA resolutions mandatory through the incorporation of MARPOL 73/78 or the creation of a new convention regarding PSSA to settle the continuous controversy concerning the legal status of PSSAs. In addition, given that procedural issues exist due to unclear language or the absence of explicit definitions (e.g. geographical size or allowable APMs), the IMO should address such issues through a new PSSA resolution in the future. The IMO should also strengthen the management and supervision before and after designating PSSAs to control the excessive exercise of coastal States' jurisdiction. Therefore, IMO decision makers need to consider the imposition of administrative sanctions on member States that adopt APMs that may violate international law. Such sanctions would help to keep a coastal State's jurisdiction from excessively expanding, as seen in the compulsory pilotage case in the Torres Strait.

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How to cite this article: Choi J. The legal status of Particularly Sensitive Sea Areas (PSSAs): Challenges and improvements for PSSA resolutions. *RECIEL*. 2021;1-12. doi:10.1111/reel.12420