

Shipping: Vessel-source Pollution

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Introduction

This chapter focuses on the international law that has been developed at the global and regional levels for the purpose of the prevention, control and reduction of (further: combating) pollution of the marine environment by merchant ships (further: vessel-source pollution). The development of this body of law has to a large extent been brought about by shipping incidents. Whereas the sinking of the *RMS Titanic* south of Newfoundland, in 1912, triggered the international regulation of merchant shipping for the purpose of maritime safety – culminating in the adoption of the first SOLAS Convention¹ in 1914 – international regulation for the purpose of combating vessel-source pollution only seriously commenced following the *Torrey Canyon's* shipwreck off Cornwall in 1967. OILPOL 54² had already been in force for almost a decade by then, but its regulations were widely acknowledged to be inadequate in light of the threats posed by the increasingly larger volumes of oil then transported by increasingly larger oil tankers.

The chapter consists of two main sections: 'International regulation of vessel-source pollution' and 'International enforcement of vessel-source pollution'. The former focuses largely on substantive international rules and standards (e.g. discharge standards) relating to vessel-source pollution, and the latter largely on international mechanisms (e.g. audits and harmonized inspection) aimed at ensuring compliance with these rules and standards. This chapter will not comprehensively cover the international law relating to jurisdiction by States in their capacities as flag, coastal or port States, as this is covered by Chapters 4–6. Finally, no attention will be paid here either to the substantive international rules and standards that have been developed primarily for the purpose of maritime safety or security, as this is covered by Chapter 11 'Shipping: Safety of Life at Sea'. It is nevertheless worth emphasizing that regulation that has maritime safety as its primary purpose may have combating vessel-source pollution as an explicit secondary purpose, or may implicitly contribute significantly to combating vessel-source pollution.

In addition to the two main sections described above, this chapter continues below with a discussion on the 'Scope of vessel-source pollution' and ends with 'Summary and concluding observations'.

Scope of vessel-source pollution

The scope of vessel-source pollution for the purpose of this chapter does not include ‘dumping’ as defined in Article 1(1)(5) of the LOS Convention.³ The point of departure for further delimiting the scope of this chapter is the definition of ‘pollution of the marine environment’ (further: marine pollution) in Article 1(1)(4) of the LOS Convention, which reads as follows:

“pollution of the marine environment” means the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities;

Vessel-source pollution may therefore be caused intentionally or unintentionally and directly or indirectly (e.g. through emissions), may actually or possibly result in damage, and such damage can occur through “substances or energy”. This latter phrase can be regarded as including heat, radiation, light, noise, electricity, vibrations and – arguably – physical impacts such as anchoring or grounding.⁴

Whether or not a human activity qualifies as marine pollution is important because it determines the applicability of the LOS Convention’s jurisdictional framework relating to vessel-source pollution. If applicable, coastal State jurisdiction would in most scenarios be limited to imposing generally accepted international rules and standards (GAIRAS) on foreign ships passing through the coastal State’s maritime zones. A coastal State could nevertheless seek IMO approval for imposing rules and standards that are more stringent than GAIRAS. These issues are discussed in more detail later.

The qualification as marine pollution has, among others, arisen in relation to anchoring and the introduction of organisms and pathogens through ballast water and sediments. The regulation of anchoring in areas with coral reefs located seaward of the territorial sea by the United States and the Netherlands indicates that they take the view that the LOS Convention’s jurisdictional framework relating to vessel-source pollution is not applicable in these circumstances. Rather than seeking IMO approval, they justified their unilateral regulation of anchoring on the basis of their sovereign rights relating to the use and conservation of marine living resources of their exclusive economic zones (EEZs) or continental shelves.⁵ This state practice does not appear to have led to formal objections by other States.

As regards aquatic organisms or pathogens, it is clear that they do not qualify as either substances or energy for the purpose of Article 1(1)(4) of the LOS Convention. However, Article 196(1) of the LOS Convention classifies significant and harmful changes to the marine environment caused by “intentional or accidental introduction of species, alien or new” as “resulting from” marine pollution. Subsequent practice by the international community no longer supports this classification in the shipping domain, however. Instead of including international regulation of ballast water and sediments in an Annex to the principal global treaty on vessel-source pollution, MARPOL 73/78⁶, the Members of IMO preferred a stand-alone instrument, which ultimately became the BWM Convention.⁷ While the Preamble to the BWM Convention opens with recalling Article 196(1) of the LOS Convention, it subsequently notes that the introduction of harmful aquatic organisms and pathogens via ship’s ballast water and sediments threatens the conservation and sustainable use of marine biodiversity.⁸ The non-applicability of the

LOS Convention's jurisdictional framework relating to vessel-source pollution is also apparent from the fact that the BWM Convention allows States – whether individually or collectively – to regulate ballast water exchange more stringently than prescribed by the BWM Convention, without IMO approval.⁹ There are no indications that these views are affected by the circumstance that the BWM Convention had not yet entered into force at the time of writing, as the reasons for this do not seem related to the discussion above.¹⁰

In view of this practice on the regulation of anchoring and ballast water and sediments, it is decided that – for the purpose of this chapter – vessel-source pollution can be caused by the following actual and potential impacts on the marine environment and marine biodiversity:

1. Shipping practices and incidents leading to accidental discharges of polluting substances (cargo or fuel) or physical impact on components of the marine ecosystem (e.g., on the benthos and larger marine mammals);
2. Operational discharges (cargo residues, fuel residues (sludge), garbage and sewage) and emissions, as well as toxic and other impacts of anti-fouling systems;
3. Introduction of harmful organisms and pathogens through ballast-water exchanges or attachment to vessel hulls;
4. Other navigation impacts (noise pollution and other forms of impacts on, or interference with, marine species potentially causing, for instance, disruption of behavior, abandonment, or trampling of the young by fleeing animals or displacement from normal habitat); and
5. Anchoring impacts.¹¹

International regulation of vessel-source pollution

Global regulation

LOS Convention

The LOS Convention and its implementation agreements¹² are to a large extent framework conventions and in many areas do not contain the substantive standards necessary for actual regulation (e.g. marine pollution standards or fisheries conservation and management measures) or, except for the International Seabed Authority (ISA), establish regulatory bodies with a mandate to do so. To ensure implementation at the appropriate level, the LOS Convention and its implementation agreements acknowledge the competence of pre-existing global or regional instruments and bodies, impose obligations on States to cooperate and agree on regulations through them, and encourage the adoption and establishment of new instruments and bodies.¹³

While pre-existing international bodies are occasionally mentioned by name,¹⁴ it is more common for the LOS Convention to use non-specific references to “competent” or “relevant” international organizations or similar wording. This acknowledges not only that more than one pre-existing international body may have competence in certain scenarios, but also that the mandates of international bodies may develop over time, and that new international bodies may be established.¹⁵

Even though the IMO is only explicitly mentioned once in the LOS Convention,¹⁶ it is generally accepted that the IMO is the primary competent international organization for the regulation of international merchant shipping.¹⁷ At the same time, however, the IMO is not the only competent international organization for this sector.¹⁸ Both the International Labour Organization (ILO) and the International Atomic Energy Agency (IAEA) have a long-lasting

and widely recognized standard-setting role relating to shipping.¹⁹ Moreover, several international organizations, such as the International Hydrographic Organization (IHO) and the World Meteorological Organization (WMO) are ‘competent’ as well, even though not for the purposes of standard-setting. Rather, the information and services provided by and through them, safeguard and facilitate safe shipping as well as provide the scientific basis for standard-setting by other organizations. Lastly, reference must be made to the important role in the merchant shipping sector of self-regulation by international non-governmental bodies, for instance the International Association of Classification Societies (IACS).

The pre-eminence of global bodies in the international regulation of merchant shipping is a direct consequence of the global nature of merchant shipping and the interest of the international community in globally uniform minimum regulation. The LOS Convention safeguards this interest and the pre-eminence of global bodies by linking flag and coastal State jurisdiction in most scenarios through so-called ‘rules of reference’ to the notion of GAIRAS, which was briefly introduced above. GAIRAS refer to the technical rules and standards laid down in instruments adopted by the competent global regulatory bodies discussed above. It is likely that the rules and standards laid down in legally binding instruments in force adopted by these bodies can at any rate be regarded as GAIRAS.²⁰

The basic duty for flag States to exercise effective jurisdiction and control over ships flying their flag as laid down in Article 94 of the LOS Convention is further specified in Article 211(2), which stipulates that flag State prescriptive jurisdiction over vessel-source pollution is mandatory and must at least have the same level as GAIRAS. Flag States can of course choose to require their vessels to comply with more stringent rules and standards than GAIRAS, but this will then impact on their competitiveness.

While flag State jurisdiction is essentially a ‘mandatory minimum’, coastal State jurisdiction can be characterized as an ‘optional maximum’. The LOS Convention does not require coastal States to impose laws and regulations on ships in lateral passage through their maritime zones, but if they do, they can in principle not impose rules and standards that are more stringent than GAIRAS.²¹ The main exceptions to this general rule recognized by the LOS Convention are implied or provided by Articles 21(2) and 234. Moreover, as concluded above, IMO approval constitutes another exception,²² as well as coastal State regulation of anchoring, and ballast water and sediments.

An important limitation on the LOS Convention’s ability to safeguard globally uniform minimum regulation, is that it does not link port State jurisdiction by a rule of reference to GAIRAS. Articles 25(2), 211(3), and 255 of the LOS Convention implicitly confirm the absence of a right of access for foreign vessels to ports as well as the port State’s wide discretion in exercising jurisdiction under customary international law. This so-called ‘residual’ jurisdiction is also recognized in several IMO instruments and has on some (crucial) occasions been exercised by the United States and the European Union (EU). Nevertheless, some exceptions apply – for instance in case of *force majeure* and distress – and uncertainties exist – for instance on the implications of international trade law.²³

IMO

IMO – named International Maritime Consultative Organization (IMCO) until 1982 – was established in 1958 pursuant to the IMO Convention.²⁴ IMO’s substantive mandate pursuant to Article 1(a) of the IMO Convention was initially limited to “maritime safety and efficiency of navigation”. However, when OILPOL 54 entered into force only a few months after

IMO's establishment and charged it with certain tasks,²⁵ its mandate was in practice extended to vessel-source oil pollution. The 1975 amendments to the IMO Convention formally extended IMO's substantive mandate to "prevention and control of marine pollution from ships" and established the Marine Environment Protection Committee (MEPC) under a new Part IX of the IMO Convention.²⁶

Since then, IMO's mandate on vessel-source pollution has continued to broaden, even though this has not been codified in the IMO Convention. IMO's current 'environmental' mandate is formulated in its 2013 Mission Statement as "environmentally sound [...] and sustainable shipping".²⁷ This broader mandate gradually emerged due to IMO's efforts on, *inter alia*, emissions, anchoring, ballast water and sediments, anti-fouling systems, ship recycling, ship strikes of cetaceans and noise. The treaties and non-legally binding instruments in which these efforts are laid down will be discussed below in a chronological order and/or grouped together. As noted above, no attention will be devoted to instruments that do not have vessel-source pollution – broadly understood – as their primary purpose. Information on the status of participation in treaties can be obtained from IMO's website.²⁸

Intervention Convention

The 1969 Intervention Convention²⁹ confirms the right of coastal States to take the necessary measures on the high seas "to prevent, mitigate or eliminate grave and imminent danger to their coastline or related interests from pollution or threat of pollution of the sea by oil, following upon a maritime casualty",³⁰ and determines modalities for the right's exercise. Its adoption followed the 1967 *Torrey Canyon* disaster, which eventually made the British government decide to bomb the wreck to prevent further damage. The 1973 Protocol³¹ extends the 1969 regime to substances other than oil. The Intervention Convention is an atypical IMO instrument because it deals primarily with jurisdiction, rather than setting technical rules and standards. A corresponding basis for jurisdiction "beyond the territorial sea" – thus also encompassing the EEZ – was included in Article 224 of the LOS Convention.

Instruments on liability, insurance and compensation

In addition to the Intervention Convention, the 1967 *Torrey Canyon* disaster also culminated in two treaties on liability, insurance and compensation for oil pollution damage: CLC 69³² and FUND 71.³³ These treaties are currently known as CLC 92 and FUND 92 due to amendments contained in several protocols, and were complemented by the 2003 Supplementary Fund.³⁴ Other IMO treaties on liability and compensation for pollution are NUCLEAR 71,³⁵ HNS 96³⁶ and BUNKER 01.³⁷ The Nairobi Convention³⁸ on the removal of wrecks, which was adopted for the purpose of maritime safety as well as the protection of the marine environment, acknowledges that coastal States have the right to take measures relating to the removal of wrecks in their EEZs, and also includes provisions on liability and insurance.³⁹

MARPOL 73/78

MARPOL 73/78⁴⁰ is IMO's principal treaty on vessel-source pollution and superseded OIL-POL 54.⁴¹ Its most important category of standards is discharge and emission standards. The only other IMO treaty that contains discharge standards is the BWM Convention. As regards other categories of standards, mention can be made of the well-known double-hull standard

– triggered by the 1989 *Exxon Valdez* disaster – laid down in Annex I to MARPOL 73/78. This construction standard belongs to the category of construction, design, equipment and manning (CDEM) standards. Due to the extra-territorial effects of CDEM standards and thereby their potential to undermine globally uniform minimum regulation,⁴² coastal State prescriptive jurisdiction with regard to this category is more limited than with regard to the categories of discharge and emission standards, and navigation standards.

The Annexes to MARPOL 73/78 contain, *inter alia*, discharge standards for oil (Annex I), noxious liquid substances (Annex II), sewage (Annex IV) and garbage (Annex V) as well as emission standards for ozone depleting substances, nitrogen oxides (NO_x), sulphur oxides (SO_x), volatile organic compounds (VOCs) and shipboard incinerators (Annex VI). Annexes I, II, IV and V make use of so-called ‘special areas’ where more stringent discharge standards for the various substances apply, and Annex VI makes use of so-called ‘Emission Control Areas’ where more stringent emission standards for SO_x, NO_x and/or particulate matter apply.⁴³ The various amendments to Annex VI agreed in recent years seek to enhance the energy efficiency of ships – among other things through engine design (energy efficiency) requirements – and thereby reduce emissions of greenhouse gases (GHGs). The need and desirability for IMO to adopt market-based measures (MBMs) was debated for some time, but was eventually suspended indefinitely.⁴⁴ Dissatisfied with this outcome, the EU is currently considering unilateral action.⁴⁵

OPRC 90 and the Salvage Convention

The adoption of OPRC 90⁴⁶ was one of the steps undertaken by IMO in the aftermath of the grounding of the *Exxon Valdez* in Prince William Sound, Alaska, in March 1989. The Convention requires parties “individually or jointly, to take all appropriate measures [. . .] to prepare for and respond to an oil pollution incident”.⁴⁷ One of its most important substantive standards is the requirement for all ships and offshore units to have oil pollution emergency plans. OPRC 90 also establishes a framework for multilateral cooperation in oil pollution preparedness and response, which encourages regional implementation, including through regional legally-binding instruments.⁴⁸ In 2000, the HNS Protocol⁴⁹ to OPRC 90 was adopted. It expands the scope of OPRC 90 to incidents with hazardous and noxious substances and largely follows the structure and substance of the OPRC 90. One of the main differences with OPRC 90 is that – in addition to ships – it does not apply to offshore units but to sea ports and other facilities where hazardous and noxious substances are loaded into or unloaded from ships.⁵⁰

The Salvage Convention⁵¹ was adopted in April 1989, a month after the *Exxon Valdez* disaster. It addresses a shortcoming in the 1910 Brussels Salvage Convention,⁵² which is based on the ‘no cure, no pay’ principle, implying that salvors failing to save a ship or its cargo do not get any compensation for their efforts, even though they prevented or minimized damage to the environment. Pursuant to Article 14 of the Salvage Convention, such ‘environmental salvage’ triggers entitlement to ‘special compensation’.

AFS Convention

The AFS Convention⁵³ was developed in response to the harmful effects of organotin compounds in anti-fouling paints used to prevent the build-up of organisms such as algae and

molluscs on the surface of ships, which decrease speed and increase fuel consumption. In addition to killing organisms attached to a ship's surface, however, organotin compounds have been found to also 'leach' into the marine environment, causing damage such as deformations in oysters, and possibly entering the food chain, thereby posing a potential threat to human health. Accordingly, the AFS Convention is aimed at reducing or eliminating "adverse effects on the marine environment and human health caused by anti-fouling systems".⁵⁴ Even though the term pollution only appears in the Preamble, the use of anti-fouling systems clearly qualifies as marine pollution as defined in Article 1(1)(4) of the LOS Convention. The AFS Convention prohibits parties from using harmful anti-fouling systems for ships flying their flag or operating under their authority, as well as within their ports, shipyards or offshore terminals.⁵⁵ It is finally important to note that the higher fuel efficiency that can be achieved by using anti-fouling systems is not only important for the global shipping industry, but also reduces emissions of GHGs and the spread of harmful aquatic organism and pathogens.

BWM Convention

The BWM Convention seeks "to prevent, minimize and ultimately eliminate the transfer of Harmful Aquatic Organisms and Pathogens through the control and management of ships' Ballast Water and Sediments".⁵⁶ As discussed above, the BWM Convention is aimed at combating vessel-source pollution, broadly understood. The standards and procedures for the management and control of ship's ballast water and sediments established by the BWM Convention include ballast water exchange standards and onboard ballast water treatment systems. The failure of the BWM Convention's entry into force for more than a decade since its adoption, is not only due to the high costs of implementation but also the concerns on the robustness of the type-approval review process and port State control actions. MEPC approved two sets of Guidelines in October 2014 to address these concerns.⁵⁷

Hong Kong Convention

The Hong Kong Convention⁵⁸ on ship recycling was developed in response to concerns on the effects of ship recycling on the environment – not just the marine environment – and human health and safety.⁵⁹ Parties are required to ensure that ships flying their flag and ship recycling facilities under their jurisdiction comply with the requirements of the Convention.⁶⁰ At the same time, however, the Convention does not constrain the parties' right to regulate ship recycling more stringently.⁶¹ The Convention's Annex contains detailed regulations aimed at avoiding health and environmental risks – for instance from hazardous materials such as asbestos, heavy metals and ozone-depleting substances – during the dismantling stage, as well as standards on the construction, design, operation and preparation of ships in view of future dismantling. The negotiation process of the Hong Kong Convention also had to address the relationship between the Hong Kong Convention on the one hand, and the Basel Convention⁶² as well as ILO's regulatory efforts on the other hand.⁶³ No consensus exists among parties to the Basel Convention that the Hong Kong Convention provides an "equivalent level of control and enforcement" to that provided by the Basel Convention.⁶⁴

Other IMO instruments

In addition to the IMO treaties discussed above, several other legally binding and non-legally binding IMO instruments are relevant to combating vessel-source pollution, broadly understood. These instruments, which can only be briefly touched upon, include:

1. Pursuant to the PSSA Guidelines,⁶⁵ an area can be designated as a particularly sensitive sea area (PSSA) “because of its significance for recognized ecological, socio-economic, or scientific attributes where such attributes may be vulnerable to damage by international shipping activities”.⁶⁶ Such “damage” is compatible with the broad understanding of vessel-source pollution adhered to in this chapter. The actual protection against such damage is provided by so-called associated protective measures (APMs), which can include special discharge standards, ships’ routing systems (see below) and “other measures aimed at protecting specific sea areas against environmental damage from ships, provided that they have an identified legal basis”.⁶⁷ Innovative standards are therefore not ruled out;
2. Regulation V/10 on ‘Ships’ routing’ of SOLAS 74⁶⁸ acknowledges that ships’ routing systems can be established exclusively for the purpose of the protection of the marine environment (e.g. ‘no anchoring areas’, or (recommendatory) speed restrictions to avoid ship strikes with cetaceans as part of a traffic separation scheme (TSS) or a deep-water route)⁶⁹ or partly for this purpose (e.g. ‘precautionary areas’ or ‘areas to be avoided’);⁷⁰
3. Regulations V/11 on ‘Ship reporting systems’ and V/12 on ‘Vessel traffic services’ of SOLAS 74 acknowledge that these can be adopted exclusively or partly for the purpose of the protection of the marine environment (e.g. to avoid ship strikes with cetaceans);
4. Guidance on Minimizing Ship Strikes with Cetaceans;⁷¹
5. Guidelines on Underwater Noise;⁷² and
6. The Polar Code, which will have a mandatory Part II-A entitled ‘Pollution Prevention Measures’ – containing discharge and CDEM standards relating to oil, noxious liquid substances, sewage and garbage along the lines of the Annexes to MARPOL 73/78 and a recommendatory Part II-B entitled ‘Additional Guidance Regarding the Provisions of the Introduction and Part II-A’ – relating among other things to ballast water exchange and anti-fouling systems.⁷³

Regional regulation

As concluded above, while the LOS Convention emphasizes the pre-eminence of global bodies in the international regulation of vessel-source pollution and the interest of the international community in globally uniform minimum regulation, it nevertheless explicitly allows unilateral prescription by coastal States in some scenarios, and implicitly by port and flag States more generally. Nothing in the LOS Convention prevents coastal, port or flag States from exercising these rights collectively at the regional level. The legality of regional residual port State prescriptive jurisdiction is in fact acknowledged by Article 211(3) of the LOS Convention, which merely requires regional States to give due publicity to such action.

Moreover, IMO practices and several of its instruments explicitly acknowledge a State’s residual prescriptive jurisdiction in its capacity as a port State,⁷⁴ as a coastal State (e.g. in relation to ballast water exchange and anchoring) or in all three capacities (provided such exercise is consistent with international law)⁷⁵. It is nevertheless understandable that the official position by

IMO Members on regional regulation is that this should be avoided in view of the risk it poses to IMO's authority.⁷⁶ As such a risk is not posed by (anticipatory) regional implementation of IMO instruments, however, this is explicitly allowed or even encouraged. This has for instance led the Arctic Council to regional implementation of IMO's SAR Convention⁷⁷ by means of the Arctic SAR Agreement⁷⁸ and regional implementation of IMO's OPRC 90 and Intervention Convention by means of the Arctic MOPPR Agreement.⁷⁹ Another example is the anticipatory – but recommendatory – regional implementation of aspects of the BWM Convention pursued jointly by the members of the OSPAR Commission,⁸⁰ HELCOM⁸¹ and the parties to the Barcelona Convention.^{82, 83}

These instances of (anticipatory) regional implementation do not affect other States: the first two because they only implement and operationalize coastal State obligations and the last because it is pursued exclusively on a flag State basis (even though within a specified geographical area).⁸⁴ Another example of a flag State approach is Annex IV on 'Prevention of Marine Pollution' of the Protocol on Environmental Protection to the Antarctic Treaty.⁸⁵

There are in fact very few examples of regional exercises of residual coastal or port State prescriptive jurisdiction that affect non-Members. The main exception is the EU, which has exercised residual jurisdiction in a (*de facto*) port, coastal and flag State capacity.⁸⁶ In addition, various regulations in Annex IV to the Helsinki Convention⁸⁷ constitute residual prescriptive jurisdiction in all three capacities as well.⁸⁸ No residual prescriptive jurisdiction has been exercised within the framework of the regional seas programmes established under the auspices of the United Nations Environment Programme (UNEP)⁸⁹ – one of which includes the Barcelona Convention – or large marine ecosystem (LME) mechanisms – many of which are supported by the Global Environment Facility (GEF).⁹⁰ The regional port State control (PSC) Arrangements discussed below are not relevant for (residual) prescription as they are exclusively aimed at enforcement of internationally agreed standards.

Finally, regional bodies may not only pursue a regulatory role as discussed above or an enforcement/compliance role as discussed below, but could also strive to resolve jurisdictional issues by means of an agreement-to-disagree or a regional implementation of the duties of strait/coastal States and (financial) contributions by user-States towards covering the costs of strait/coastal States.⁹¹

International enforcement of vessel-source pollution

Introduction

As noted in the Introduction to this chapter, this section focuses largely on international mechanisms aimed at ensuring compliance with the substantive rules and standards discussed in the previous section. Two different types of mechanisms can be identified in this regard, namely mechanisms aimed at non-compliance by States, and mechanisms aimed at so-called 'non-compliance by ships'. The latter non-compliance can arise due to a ship's failure to meet 'static' (CDEM) standards or because the captain, crew, operator or owner have failed to comply with certain requirements (e.g. discharge standards or logbook requirements). The regional compliance mechanisms discussed below look predominantly at non-compliance by ships.

The principal international juridical mechanism to address a State's non-compliance with its international obligations is the international law relating to State responsibility, which encompasses, among other things, cessation, reparation and countermeasures.⁹² State responsibility can also be invoked through available international dispute settlement mechanisms. Such

mechanisms are for instance included in Part XV of the LOS Convention and Article 10 and Protocol II to MARPOL 73/78, but these have never been used in relation to vessel-source pollution.⁹³ Other types of mechanisms aimed at non-compliance by States that have so far been developed within IMO are covered below.

IMO compliance mechanisms

The most ‘traditional’ IMO compliance mechanisms are probably the reporting obligations laid down in IMO instruments.⁹⁴ Whereas many IMO instruments also contain provisions on in-port inspection,⁹⁵ and IMO has also encouraged the establishment of regional PSC Arrangements⁹⁶ as well as developed guidance on PSC,⁹⁷ it is submitted that this cannot be regarded as an IMO ‘mechanism’ as such. After all, in-port inspection is based on customary international law and IMO did not start to devote serious attention to PSC until the first regional PSC arrangement, the Paris MOU,⁹⁸ had been operating for almost a decade and proven successful.

The first genuine IMO compliance mechanism was incorporated in STCW 78⁹⁹ through amendments adopted in 1995¹⁰⁰ that built on its traditional reporting obligation in Article IV. The protection of the marine environment is one of the purposes of STCW 78.¹⁰¹ Pursuant to Regulation I/7 of the Annex to STCW 78 and Section A-I/7 of the STCW Code, parties were required to provide detailed information to IMO on measures taken to ensure compliance with the Convention, education and training courses, certification procedures and other factors relevant to implementation. The information was to be reviewed by panels of competent persons, who would report on their findings to the IMO Secretary-General, who, in turn, would report to the IMO’s Maritime Safety Committee (MSC) which Parties to STCW 78 were fully compliant. The MSC would then produce the ‘list of confirmed STCW Parties’ (‘White List’) in compliance with the STCW 78.¹⁰² The ‘Manila amendments’ adopted in 2010 develop and strengthen this mechanism further.¹⁰³ Not being on the STCW List entitles port States to proceed immediately to more detailed or expanded inspection and thereby increases the likelihood of other port State enforcement measures, including a prohibition to leave port.¹⁰⁴

Additional compliance mechanisms were developed by the MSC’s Sub-Committee on Flag State Implementation (FSI), including the ‘Self-Assessment of Flag State Performance’ in 1999¹⁰⁵ and the ‘Voluntary IMO Member State Audit Scheme’ in 2005.¹⁰⁶ While both are voluntary, the latter mechanism covers not only obligations of IMO Member States in their capacities as flag States but also as coastal and port States. This broader focus is also reflected in the decision to replace FSI by the Sub-Committee on Implementation of IMO Instruments (III).

In 2009, IMO decided to work towards a mandatory or ‘institutionalized’ Audit Scheme, which will become effective once the required amendments to legally binding IMO instruments have entered into force; scheduled for early 2016.¹⁰⁷ Of the IMO instruments on vessel-source pollution, only MARPOL 73/78 will be subject to the mandatory Audit Scheme.¹⁰⁸ Audits eventually culminate in final audit reports containing feedback on the performance of the audited IMO Member State, which is to respond with a corrective action plan within 90 days.¹⁰⁹ The implementation of this corrective action plan will then be assessed by an audit follow-up.¹¹⁰

The Scheme can be characterized as a facilitative compliance mechanism because it lacks a response or enforcement component.¹¹¹ It is based above all on the principle of sovereignty, which is meant to imply that audits “should be positive and constructive in approach”.¹¹² Both the audit process and report are intended to be confidential,¹¹³ and the Scheme also lacks some sort of determination of overall compliance or non-compliance. As the audits are not limited

to a State's performance as a flag State, but also extend to its performance as a port and coastal State, implicit response options are also not that apparent.

Regional compliance mechanisms

Regional PSC Arrangements

Regional PSC Arrangements for merchant shipping were established to enhance compliance with internationally agreed standards by means of commitments to carry out harmonized and coordinated inspections and to take predominantly corrective enforcement action (i.e. detention for the purpose of rectification). The instruments in which these internationally agreed standards are contained are commonly referred to as the 'relevant instruments'. These consist of the main IMO instruments, including IMO instruments relevant to vessel-source pollution.¹¹⁴ A participating Maritime Authority must only apply standards that are not just in force generally but also for that Maritime Authority.¹¹⁵ Some applicability gaps can therefore be expected.

The Arrangements are non-legally binding and – rather than States as such – Maritime Authorities are parties to them.¹¹⁶ Saving-clauses have nevertheless been incorporated in the Arrangements to ensure that nothing in them affects residual port State jurisdiction, which includes the right to take more onerous enforcement measures.¹¹⁷

The expansion in participation in the Paris MOU and the creation and expansion of eight new arrangements since then (i.e. Asia and the Pacific (Tokyo MOU); Latin America (Acuerdo de Viña del Mar); Caribbean (Caribbean MOU); West and Central Africa (Abuja MOU); the Black Sea region (Black Sea MOU); the Mediterranean (Mediterranean MOU); the Indian Ocean (Indian Ocean MOU); and the Arab States of the Gulf (Riyadh MOU), means that almost complete global coverage has now been achieved.¹¹⁸ While the Arctic Ocean/region and the Southern Ocean/Antarctic region constitute gaps in global coverage, this does not necessarily mean that these gaps require the establishment of new regional PSC Arrangements.¹¹⁹ As regards the Paris MOU, it should be emphasized that the adoption of a 1995 Directive on PSC by the then European Community¹²⁰ and its 2009 revision (recast),¹²¹ meant that the EU assumed an increasingly more prominent role in the evolution of the Paris MOU.¹²²

Whereas regional PSC Arrangements are primarily aimed at addressing non-compliance by ships, account can also be taken of the performance of the flag States of these ships. The Paris MOU, for instance, not only requires its Maritime Authorities to detain a ship to ensure that deficiencies are rectified, but also to refuse a ship access to port following multiple detentions.¹²³ Refusal of access to port depends among other things on whether or not the flag State appears on the annual grey or black lists.¹²⁴

Other regional compliance mechanisms

In addition to regional PSC Arrangements, the following other regional compliance mechanisms relevant to vessel-source pollution exist:

1. Regional arrangements on monitoring, control and surveillance in relation to pollution incidents, for instance the Bonn Agreement¹²⁵ or within the framework of HELCOM;¹²⁶
2. The North Sea Network of Investigators and Prosecutors (NSN), which is a body established in 2002 by the OSPAR Commission in order to facilitate enforcement of international

regulation of vessel-source pollution in the North Sea, in close cooperation with the Bonn Agreement;¹²⁷

3. The efforts of HELCOM towards harmonized and effective cooperation on enforcement of pollution violations;¹²⁸ and
4. The efforts of the EU, including on penalties for pollution offences¹²⁹ and the establishment of the European Maritime Safety Agency (EMSA), tasked among other things with operating various information systems, thereby reinforcing and supporting the enforcement capability of EU Member States in their capacities as port and coastal States.¹³⁰

Summary and concluding observations

The LOS Convention provides the global legal framework for jurisdiction over vessel-source pollution. In support of its main objective in this regard – globally uniform minimum regulation – it emphasizes the pre-eminence of global bodies in the international regulation of vessel-source pollution and limits coastal State regulation – as a general rule – to implementing generally accepted international rules and standards (GAIRAS).

While IMO is the primary competent international organization for the substantive regulation of international merchant shipping at the global level, other global bodies are relevant as well, for instance ILO and IAEA. The efforts of the international community to combat vessel-source pollution commenced with a focus on oil pollution through OILPOL 54, but have since then expanded to a wide range of impacts of merchant shipping on the marine environment and its biodiversity, such as emissions, anchoring, ballast water and sediments, anti-fouling systems, ship recycling, ship strikes of cetaceans and noise. Some of these are not even necessarily covered by the definition of ‘pollution of the marine environment’ laid down in Article 1(1)(4) of the LOS Convention, for instance impacts of anchoring and ballast water and sediments.

Nothing in the LOS Convention prevents States from exercising residual jurisdiction over vessel-source pollution in their capacities as port, coastal or flag States. The same applies in principle to IMO instruments, some of which even have provisions that explicitly acknowledge residual jurisdiction in various capacities. So far, however, regional bodies have only sparingly exercised this right, and even more sparingly in relation to regulation that also affects non-Members.

The international law on State responsibility and the international dispute settlement mechanisms available under the LOS Convention and IMO instruments have not been resorted to in relation to vessel-source pollution so far. During the last two decades, IMO has gradually expanded its compliance mechanisms beyond the more ‘traditional’ reporting requirements towards the mandatory Audit Scheme that is scheduled to become operational in early 2016. The Scheme can be characterized as a facilitative compliance mechanism because it lacks a response or enforcement component. Whereas these IMO mechanisms are exclusively aimed at non-compliance by States, the various regional compliance mechanisms are largely aimed at non-compliance by ‘ships’. The most well-known of these are regional PSC Arrangements.

Notes

- 1 *International Convention on Safety of Life at Sea*, signed 20 January 1914, His Majesty’s Stationery Office by Harrison and Sons, 1914 (never entered into force).
- 2 *International Convention for the Prevention of Pollution of the Sea by Oil*, signed 12 May 1954, 327 UNTS 3 (entered into force 26 July 1958); as amended.

- 3 *United Nations Convention on the Law of the Sea*, signed 10 December 1982, 1833 UNTS 396 (entered into force 16 November 1994).
- 4 See Harm M. Dotinga and Alex G. Oude Elferink, 'Acoustic Pollution in the Oceans: The Search for Legal Standards' (2000) 31 *Ocean Development & International Law* 151–182, at p. 158; and Erik J. Molenaar, *Coastal State Jurisdiction over Vessel-Source Pollution* (Kluwer Law International, 1998), at pp. 16–17.
- 5 See Molenaar, note 4 supra, at pp. 416–418 and 'Regulation designating the Saba Bank as Nature Park' (*Regeling van de Staatssecretaris van Economische Zaken, Landbouw en Innovatie van 15 december 2010, nr. 169929, houdende aanwijzing van de Saba Bank als natuurpark*; Staatscourant Nr. 20424, 21 December 2010), at Art. 3.
- 6 *International Convention for the Prevention of Pollution from Ships*, signed 2 November 1973, as modified by the 1978 Protocol (London, 1 June 1978) and the 1997 Protocol (London, 26 September 1997) and as regularly amended. Entry into force varies for each Annex. At the time of writing Annexes I–VI were all in force.
- 7 *International Convention for the Control and Management of Ships' Ballast Water and Sediments*, signed 13 February 2004, IMO Doc. BWM/CONF/36, of 16 February 2004 (not yet in force).
- 8 The term 'biological diversity' is defined in Art. 2 of the CBD (*Convention on Biological Diversity*), signed 22 May 1992, 1760 UNTS 143 (entered into force 29 December 1993).
- 9 *Ibid.*, Arts 2(3) and 13(3), and Section C of the Annex. IMO Assembly Resolution, A.868(20), 27 November 1997, 'Guidelines for the Control and Management of Ships' Ballast Water to Minimize the Transfer of Harmful Aquatic Organisms and Pathogens', had already recognized in para. 11.2 that "Member States have the right to manage ballast water by national legislation".
- 10 See note 57 infra and accompanying text.
- 11 This list is consistent with the 'environmental hazards associated with shipping' listed in paras 2.1–2.2 of IMO Assembly Resolution A.982(24), of 1 December 2005, 'Revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas'.
- 12 These are the Part XI Deep-Sea Mining Agreement (*Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982*), signed 28 July 1994, 1836 UNTS 42 (entered into force 28 July 1996) and the Fish Stocks Agreement (*Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks*), signed 4 August 1995, 2167 UNTS 3 (entered into force 11 December 2001).
- 13 See, for example, Arts 237 and 311 of the LOS Convention and Art. 8(5) of the Fish Stocks Agreement, note 12 supra.
- 14 E.g. the International Civil Aviation Organization (ICAO) in Art. 39(3)(a) of the LOS Convention.
- 15 See "'Competent or relevant international organizations'" under the United Nations Convention on the Law of the Sea', (1996) *Law of the Sea Bulletin*, No. 31, pp. 79–96.
- 16 Art. 2(2) of Annex VIII to the LOS Convention.
- 17 Cf. 'Competent or Relevant International Organizations', note 15 supra. See also the IMO Secretariat Study 'Implications of the United Nations Convention on the Law of the Sea for the International Maritime Organization' (IMO doc. LEG/MISC.7, of 19 January 2012); Craig H. Allen, 'Revisiting the Thames Formula: The Evolving Role of the International Maritime Organization and its Member States in Implementing the 1982 Law of the Sea Convention' (2009) 10 *San Diego International Law Journal* 265–333 (2009).
- 18 Henrik Ringbom, 'Regulatory Layers in Shipping', in Davor Vidas and Peter J. Schei (eds.), *The World Ocean in Globalization. Climate Change, Sustainable Fisheries, Biodiversity, Shipping, Regional Issues* (Martinus Nijhoff, 2011) pp. 345–370, at p. 348. See also: Olav S. Stokke, 'Regime Interplay in Arctic Shipping Governance: Explaining Regional Niche Selection', (2013) 13 *International Environmental Agreements: Politics, Law and Economics* 65–85.
- 19 As regards ILO, reference can be made to the Maritime Labour Convention (Geneva, 23 February 2006. In force 20 August 2013; *United Nations Treaty Registration* No. I-51299; <www.ilo.org>), which consolidates and updates a large number of maritime conventions and recommendations adopted by ILO since 1920. As regards IAEA, reference can be made to the various IAEA Regulations for the Safe Transport of Radioactive Materials (available at <www.iaea.org>).
- 20 Molenaar, note 4 supra, pp. 140–167.
- 21 See, *inter alia*, Arts 21(2), 39(2) and 211(5) of the LOS Convention.
- 22 See, *inter alia*, Arts 41(4) and 211(6) of the LOS Convention.

- 23 Erik J. Molenaar 'Port State Jurisdiction' *Max Planck Encyclopedia of Public International Law* (October 2014). As regards international trade law, the key issue is whether its freedom of transit and prohibition of quantitative restrictions constrain residual port State jurisdiction in the domain of the law of the sea. This issue came up in the case on (Pacific) swordfish between Chile and the EU and in the case on Atlanto-Scandian herring between Denmark (in respect of the Faroe Islands) and the EU, both instituted under the World Trade Organization.
- 24 *Convention on the Intergovernmental Maritime Consultative Organization*, signed 6 March 1948, 289 UNTS 3 (entered into force 17 March 1958), as amended. A consolidated version is contained in *Basic Documents, Volume I* (IMO, 2010 ed.), pp. 8–32.
- 25 See Art. XXI of OILPOL 54.
- 26 These amendments were adopted pursuant to IMCO Assembly Resolution A.358(IX), of 14 November 1975. In force 22 May 1982 (1276 UNTS 468).
- 27 IMO Assembly Resolution A.1060(28), of 29 November 2013, 'Strategic Plan for the Organization (for the six-year period 2014–2019)', at para. 1.1 of the Annex. See also the phrase "the effect of shipping on the marine environment" included by means of amendments into Arts 1(d), 2(d), 15(j) and 59 of the IMO Convention.
- 28 Available at <www.imo.org>.
- 29 *International Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties*, signed 29 November 1969, 970 UNTS 211 (entered into force 6 May 1975).
- 30 *Ibid.*, Art. I(1).
- 31 *Protocol Relating to Intervention on the High Seas in Cases of Marine Pollution by Substances Other than Oil*, signed 2 November 1973, 1313 UNTS 3 (entered into force 30 March 1983), as amended.
- 32 *International Convention on Civil Liability for Oil Pollution Damage*, signed 29 November 1969, 973 UNTS 3 (entered into force 19 June 1975).
- 33 *International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage*, signed 18 December 1971, 1110 UNTS 57 (entered into force 16 October 1978), as amended.
- 34 See *Liability and Compensation for Oil Pollution Damage. Texts of the 1992 Civil Liability Convention, the 1992 Fund Convention and the Supplementary Fund Protocol* (IOPC, 2011 ed.; available at <www.iopcfunds.org>).
- 35 *Convention Relating to Civil Liability in the Field of Maritime Carriage of Nuclear Material*, signed 17 December 1971, 974 UNTS 255 (entered into force 15 July 1975).
- 36 *International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea*, signed 3 May 1996. Not in force; as superseded by the Protocol adopted on 30 April 2010; also not in force; consolidated text available at <www.hnsconvention.org>.
- 37 *International Convention on Civil Liability for Bunker Oil Pollution Damage*, signed 23 March 2001, IMO Doc. LEG/CONF.12/19, of 27 March 2001 (entered into force 21 November 2008).
- 38 *Nairobi International Convention on the Removal of Wrecks*, signed 18 May 2007, IMO Doc. LEG/CONF.16/19, of 23 May 2007 (will enter into force 14 April 2015).
- 39 See Arts 1(1), 2(1) and 10–12 of the Nairobi Convention.
- 40 See note 6 supra.
- 41 Art. 9(1) of MARPOL 73/78.
- 42 See in particular Art. 21(2) of the LOS Convention.
- 43 See the overview available at <www.imo.org/OurWork/Environment/PollutionPrevention/SpecialAreasUnderMARPOL>.
- 44 See IMO Doc. MEPC 65/22, of 24 May 2013, at para. 5.1
- 45 See COM(2013) 480 final, of 28 June 2013, 'on the monitoring, reporting and verification of carbon dioxide emissions from maritime transport and amending Regulation (EU) No 525/2013'. It is submitted that the proposed regulation's consistency with general international law depends above all on the type of enforcement action that will eventually be resorted to. Support for the view that more onerous enforcement action than denial of entry is consistent with international law, can be found in a 2011 Judgment of the European Court of Justice (ECJ); Case C-366/10, *Air Transport Association of America and Others v. Secretary of State for Energy and Climate Change*; Judgment of the Court (Grand Chamber) of 21 December 2011; *European Court Reports* 2011, p. I-13833, at paras 212–130). The ECJ's Judgment on this issue in this case may well have been built on the Advocate General Kokott's – arguably erroneous – conclusion (Opinion, of 6 October 2011, at para. 133) based on the earlier – arguably erroneous – conclusion of the ECJ in the *Poulsen* case (Case C-286/90, *Anklagemyndigheden*

- (Public Prosecutor) v. P.M. Poulsen and Diva Navigation Corp, Judgment of 24 November 1992; *European Court Reports* (1992), p. I-6019, at paras 30–34). It is not evident, however, whether the ECJ’s view would be upheld following a challenge before a global court or tribunal.
- 46 *International Convention on Oil Pollution Preparedness, Response and Cooperation*, signed 30 November 1990, 1891 UNTS 77 (entered into force 13 May 1995).
- 47 *Ibid.*, Art. 1(1).
- 48 *Ibid.*, Preamble and Arts 6 and 7.
- 49 *Protocol on Preparedness, Response and Co-operation to Pollution Incidents by Hazardous and Noxious Substances*, signed 15 March 2000, IMO Doc. HNS-OPRC/CONF/11/Rev.1, of 15 March 2000 (entered into force 14 June 2007).
- 50 *Ibid.*, Art. 3.
- 51 *International Convention on Salvage*, signed 28 April 1989, 1953 UNTS 194 (entered into force 14 July 1996).
- 52 *International Convention for the Unification of Certain Rules of Law related to Assistance and Salvage at Sea and Protocol of Signature*, signed 23 September 1910, *United Kingdom Treaty Series* 4 (1913), Cd. 6677 (entered into force 1 March 1913).
- 53 *International Convention on the Control of Harmful Anti-fouling Systems on Ships*, signed 5 October 2001, IMO Doc. AFS/CONF/26, of 18 October 2001 (entered into force 17 September 2008).
- 54 Art. 1(1) of the AFS Convention.
- 55 *Ibid.*, Arts 3(1) and 4(1).
- 56 Art. 2(1) of the BWM Convention.
- 57 See Resolutions MEPC.252(67), of 17 October 2014, ‘Guidelines for port State control under the BWM Convention’ and MEPC.253(67), of 17 October 2014, ‘Measures to be taken to facilitate entry into force of the [BWM Convention]’ (IMO Doc. MEPC 67/20, of 31 October 2014, Annexes 1 and 3).
- 58 *Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships*, signed 15 May 2009, IMO Doc. SR/CONF/14, of 19 May 2009 (not yet in force).
- 59 *Ibid.*, Art. 1(1).
- 60 *Ibid.*, Art. 4.
- 61 *Ibid.*, Art. 1(2).
- 62 *Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal*, signed 22 March 1989, 1673 UNTS 126 (entered into force 5 May 1992), as amended.
- 63 See the Preamble and Regulation 3 of the Annex.
- 64 Conference of the Parties (COP) 10 Decision BC-10/17 (2011), para. 1.
- 65 Adopted by means of IMO Assembly Resolution A.720(17), of 6 November 1991, as amended. The version that is currently in effect is included in IMO Assembly Resolution A.982(24), note 11 *supra*.
- 66 *Ibid.*, para. 1.2.
- 67 *Ibid.*, para. 6.1.3.
- 68 *International Convention for the Safety of Life at Sea*, signed 1 November 1974, 1184 UNTS 277 (entered into force 25 May 1980), with protocols and regularly amended.
- 69 See IMO Doc. NAV 59/20, of 1 October 2013, at paras 3.2–3.4, 3.18 and 3.24 and Annex 2. See also IMO Doc. MEPC.1/Circ.833, of 7 April 2014, ‘Guidelines for the reduction of underwater noise from commercial shipping to address adverse impacts on marine life’, at para. 10.5.
- 70 See paras 2.1.12–2.1.14 of the ‘General Provisions on Ships’ Routing’ (IMO Resolution A.572(14), of 20 November 1985, as amended).
- 71 IMO Doc. MEPC.1/Circ.674, of 31 July 2009, ‘Guidance Document for Minimizing the Risk of Ship Strikes with Cetaceans’.
- 72 IMO Doc. MEPC.1/Circ.833, note 69 *supra*.
- 73 A recent version is included in IMO Doc. MSC 94/21/Add.1, of 27 November 2014, at Annex 6.
- 74 E.g. Reg. 21(8)(2) of Annex I to MARPOL 73/78.
- 75 E.g. Art. 1(3) of the AFS Convention, Art. 2(3) of the BWM Convention, Reg. XI-2/2(4) of SOLAS 74 and para. B/4.34 of the International Ship and Port Facility Security Code (ISPS Code; IMO Doc. SOLAS/CONF.5/34, of 17 December 2002).
- 76 See e.g. IMO Assembly Resolution A.1060(28), note 27 *supra*, at para. 2.2 which reads – in part – that the challenge for IMO is to “provide an effective and efficient response to shipping trends, developments and incidents, and in so doing, stave off regional or unilateral tendencies which conflict with the Organization’s regulatory framework”.

- 77 International Convention on Maritime Search and Rescue, signed 27 April 1979, 1405 UNTS 118 (entered into force 22 June 1985), as amended.
- 78 *Agreement on Cooperation in Aeronautical and Maritime Search and Rescue in the Arctic*, signed 12 May 2011, 50 ILM 1119 (entered into force 19 January 2013).
- 79 *Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic*, signed 15 May 2013, available at <www.arctic-council.org> (not yet in force).
- 80 Established by the OSPAR Convention (*Convention for the Protection of the Marine Environment of the North-East Atlantic*), signed 22 September 1992, 2345 UNTS 67 (entered into force 25 March 1998), as amended. Annex V 'On the Protection and Conservation of the Ecosystems and Biological Diversity of the Maritime Area', signed 23 September 1998, consolidated text available at <www.ospar.org> (in force 30 August 2000), as amended.
- 81 Operating pursuant to the 1992 Helsinki Convention (*Convention on the Protection of the Marine Environment of the Baltic Sea Area*), signed 9 April 1992, 2099 UNTS 197 (entered into force 17 January 2000), as amended).
- 82 *Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean*, signed 10 June 1995, <www.unepmap.org> (entered into force 9 July 2004).
- 83 Joint Notice to Shipping from the Contracting Parties of the Barcelona Convention, OSPAR and HELCOM on: 'General Guidance on the Voluntary Interim Application of the D1 Ballast Water Exchange Standard by Vessels Operating between the Mediterranean Sea and the North-East Atlantic and/or the Baltic Sea' (Annex 17 to 2012 OSPAR Summary Record).
- 84 See in this regard the acknowledgment of IMO's primacy in Art. 4(2) of Annex V to the OSPAR Convention, note 80 *supra*, as well as the more general requirement for consistency with international law included in Art. 6 of the Barcelona Convention, note 82 *supra*.
- 85 Annexes I-IV, Madrid, 4 October 1991. In force 14 January 1998; <www.ats.aq>.
- 86 See Ringbom note 18 *supra*.; Henrik Ringbom, *The EU Maritime Safety Policy and International Law* (Martinus Nijhoff Publishers, 2008); and Veronica Frank, *The European Community and Marine Environmental Protection in the International Law of the Sea. Implementing Global Obligations at the Regional Level* (Martinus Nijhoff Publishers, 2007), pp. 227-257.
- 87 See note 81 *supra*.
- 88 In particular Regs 4-6, some of which are based on EU enactments.
- 89 See <www.unep.org/regionalseas>.
- 90 See, *inter alia*, <www.lme.noaa.gov> and <www.iwlearn.net>.
- 91 See, e.g., Erik J. Molenaar, 'Options for Regional Regulation of Merchant Shipping Outside IMO, with Particular Reference to the Arctic Region' (2014) 45 *Ocean Development & International Law* 272-298, at pp. 289-290. The extensive cooperation between strait States and user-States with respect to the Straits of Malacca and Singapore could be used as a model.
- 92 James R. Crawford, 'State Responsibility', *Max Planck Encyclopedia of Public International Law* (September 2006).
- 93 See also Art. 94(6) of the LOS Convention.
- 94 E.g. Art. 11 of MARPOL 73/78 and Art. IV of STCW 78 (*International Convention on Standards of Training, Certification and Watchkeeping for Seafarers*, signed 1 December 1978, 1361 UNTS 190 (entered into force 28 April 1984); as amended). See also Yoshinobu Takei, 'Institutional Reactions to the Flag State that has Failed to Discharge Flag State Responsibilities' (2012) LIX *Netherlands International Law Review* 65-90.
- 95 E.g. Art. 5 of MARPOL 73/78.
- 96 IMO Assembly Resolution A.682(17), of 6 November 1991, 'Regional Co-operation in the Control of Ships and Discharges'.
- 97 IMO Assembly Resolution A.1052(27), of 30 November 2011, 'Procedures for Port State Control, 2011'.
- 98 Paris Memorandum of Understanding on Port State Control (adopted 26 January 1982, entered into force 1 July 1982; as amended; most recent version at <www.parismou.org>). This article uses the version that includes the 37th amendment and came into effect on 1 July 2014.
- 99 See note 94 *supra*.
- 100 See in particular IMO docs STCW/CONF/DC/1, of 5 July 1995 (containing the revised Annex) and STCW/CONF/DC/2, of 5 July 1995 (containing the STCW Code).
- 101 Art. I(2) of STCW 78.

- 102 See, e.g. IMO doc. MSC.1/Circ.1164/Rev.12, of 28 June 2013.
- 103 Consolidated versions of the Annex to the STCW 78 and the STCW Code are laid down in IMO docs STCW/CONF.2/33, of 1 July 2010, and STCW/CONF.2/34, of 3 August 2010.
- 104 Art. X(3) of STCW 78.
- 105 IMO Assembly Resolution A.912(22), of 29 November 2001, 'Self-Assessment of Flag State Performance' replaces an earlier IMO Assembly Resolution with the same title.
- 106 Whereas IMO Assembly Resolution A.946(23), of 27 November 2003, 'Voluntary IMO Member State Audit Scheme' endorsed the establishment and development of the Audit Scheme as such, the Scheme was essentially established by means of the adoption of the 'Framework and Procedures for the Voluntary IMO Member State Audit Scheme' (IMO Assembly Resolution A.974(24), of 1 December 2005) and the 'Code for the Implementation of Mandatory IMO Instruments' (III Code; IMO Assembly Resolution A.973(24), of 1 December 2005). The 'Framework and Procedures' and the III Code (currently entitled 'IMO Instruments Implementation Code') have been amended several times since (see note 107 below). See also IMO doc. A.28/9/2, of 10 September 2013.
- 107 See IMO Assembly Resolution A.1068(28), of 4 December 2013, 'Transition from the Voluntary IMO Member State Audit Scheme to the Mandatory IMO Member State Audit Scheme'. Separate IMO Assembly Resolutions adopted revised versions of the 'Framework and Procedures' and the III Code (Nos. A.1067(28), of 4 December 2013, and A.1070(28), of 4 December 2013, respectively). See also IMO Assembly Resolution A.1077(28), of 4 December 2013, '2013 Non-Exhaustive List of Obligations under Instruments Relevant to the IMO Instruments Implementation Code'.
- 108 See IMO Resolutions MEPC.246(66) and MEPC.247(66), both adopted on 4 April 2014.
- 109 Cf. Para. 8.4 of the Audit Procedures included in Part II of IMO Assembly Resolution A.1067(28), note 107 supra.
- 110 Ibid., para. 9.1.
- 111 Cf. James Harrison, 'Compliance Mechanisms and the IMO: How to Solve a Problem like Flag State Performance?', unpublished paper presented at the workshop held by the K.G. Jebsen Centre for the Law of the Sea (JCLoS), 23 September 2014, Tromsø (on file with author).
- 112 Para. 6.1.1 of the Audit Framework included in Part I of IMO Assembly Resolution A.1067(28), note 107 supra. See also the principle of 'continual improvement' in para. 6.5.1.
- 113 Ibid., para. 6.3.2. See also para. 6.2.5 of the Audit Procedures included in Part II of IMO Assembly Resolution A.1067(28), note 107 supra.
- 114 As regards the Paris MOU, these are MARPOL 73/78, CLC 69 and its 1992 Protocol, the AFS Convention, BUNKER 01 and the BWM Convention (despite its not being in force).
- 115 E.g. Sec. 2.3 of the Paris MOU.
- 116 Erik J. Molenaar, 'Port State Jurisdiction: Toward Comprehensive, Mandatory and Global Coverage' (2007) 38 *Ocean Development & International Law* 225–257, at p. 227.
- 117 E.g. Secs 1.7 and 9.1 of the Paris MOU.
- 118 See the information at <www.imo.org/OurWork/Safety/Implementation/Pages/PortStateControl>.
- 119 As regards the Arctic region see Molenaar, note 91 supra, at pp. 284–287.
- 120 Council Directive 95/21/EC, of 19 June 1995 (*OJ* 1995, L 157/1).
- 121 Directive 2009/16/EC, of 23 April 2009, 'on port state control' (*OJ* 2009, L 131/57), as amended.
- 122 See the reference to the need for prior agreement within the EU in the 13th preambular paragraph of the Directive.
- 123 Sections 3.4–3.13 of the Paris MOU.
- 124 Ibid., Sec. 4. See the 2013 Paris MOU Annual Report (available at <www.parismou.org>), at pp. 33 and 35.
- 125 Agreement for Cooperation in Dealing with Pollution of the North Sea by Oil and Other Harmful Substances, signed 13 September 1983, *OJ* 1984, L 188/9 (entered into force 1 September 1989), as amended.
- 126 Including the Informal Working Group on Aerial Surveillance (IWGAS).
- 127 See info at <www.ospar.org>.
- 128 E.g. HELCOM Recommendations 19/14, of 26 March 1998, and 19/16, of 24 March 1998 (available at <helcom.fi>).
- 129 Directive 2005/35/EC, of 7 September 2005, 'on ship-source pollution and on the introduction of penalties, including criminal penalties, for pollution offenses' (*OJ* 2005, L 255/11), as amended.
- 130 See information at <www.emsa.europa.eu>.