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## Prevention of Vessel-Source Marine Pollution: A Note on the Challenges and Prospects for Chinese Practice Under International Law

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# Prevention of Vessel-Source Marine Pollution: A Note on the Challenges and Prospects for Chinese Practice Under International Law

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*This article examines China's domestic legal regime for the prevention of vessel source pollution. It pays special attention to the recently adopted Regulation on Prevention and Control of Marine Pollution from Vessels. Potential challenges and emerging issues that China has to confront are addressed, including: application of the legislation to disputed sea areas between China and its neighbors, freedom of navigation in the exclusive economic zone, reduction of emission from ships, and prevention of invasive species from ballast water.*

**Keywords** China, vessel source pollution

## Introduction

It is estimated that there are 177,720 km<sup>2</sup> of polluted sea areas within China's jurisdiction.<sup>1</sup> In 2010, there were 69 recorded red tide events affecting 10,892 km<sup>2</sup> of sea area.<sup>2</sup> Most of China's coastal sea areas are polluted. Land-based pollutants are the most serious cause. Oil spills and other marine activities also contribute to the problem.<sup>3</sup> In 2010, China imported 239.31 million tons of crude oil and 36.88 million tons of refined oil.<sup>4</sup> Ninety-five percent of this was carried by maritime transport, which creates a considerable risk of vessel source pollution. While an oil spill of more than 10,000 tons has yet to happen, between 1973 and 2006 a total of 2,635 oil spill accidents occurred. A total of 37,000 tons of oil leaked into China's sea areas.<sup>5</sup>

Over the past three decades China has promulgated a series of statutes and regulations to address the threat of vessel source pollution. These include the Maritime Transport Safety Law (MTSL)<sup>6</sup> and the Marine Environmental Protection Law (MEPL).<sup>7</sup> In 2010, the Regulation on the Prevention and Control of Marine Pollution from Vessels (2010 Regulation) was adopted.<sup>8</sup> The 2010 Regulation replaced the 1983 Regulation on the

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Prevention and Control of Vessel-Source Pollution (1983 Regulation).<sup>9</sup> China is actively involved in the development, ratification, and implementation of the relevant international conventions that deal with vessel source pollution.

This article first describes the international legal regime and the Chinese domestic legal framework for the prevention of vessel source pollution. It answers the following questions: (1) Will China apply its marine environment legislation to the disputed sea areas between China and its neighbors? (2) Will the Chinese legislation affect the freedom of navigation in China's exclusive economic zone (EEZ)? (3) How will the Chinese legislation address environmental problems such as the reduction of emissions from shipping and the prevention of invasive species from ballast water?

## **The International Legal Regime**

The framework for the international legal regime for preventing vessel source pollution is described in the United Nations Convention on the Law of the Sea (LOSC).<sup>10</sup> The LOSC provides that the legislative and enforcement jurisdiction of a state over a particular vessel varies depending on whether the state is a flag, coastal or port state.<sup>11</sup> The LOSC attempts to balance the interests of flag states and coastal states. The Convention has created a uniform system that seeks to safeguard the freedom of navigation and the interest of coastal states in protecting and preserving the marine environment within their jurisdiction.<sup>12</sup>

In addition to the LOSC, vessel source pollution is governed by the various conventions adopted by the International Maritime Organization (IMO). The global mandate of the IMO is implicitly acknowledged in the LOSC through the expression "competent international organization."<sup>13</sup> The IMO is responsible for setting the standards at the international level to prevent vessel source pollution. These include: discharge and emission standards; construction, design, equipment, and manning (CDEM) standards; and navigational standards. The IMO conventions include: the International Convention for the Prevention of Pollution from Ships (1973), as modified by the Protocol of 1978 (MARPOL);<sup>14</sup> the International Convention for the Safety of Life at Sea (SOLAS);<sup>15</sup> the International Convention on the Control of Harmful Anti-Fouling Systems on Ships (Anti-Fouling Convention);<sup>16</sup> and the International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention).<sup>17</sup> In addition, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (Basel Convention) regulates hazardous wastes carried by ships.<sup>18</sup>

China is generally supportive of the international legal regime for the prevention of vessel source pollution. China signed the LOSC in 1982 and ratified the Convention in 1996. In 1983, China ratified MARPOL 73/78 and its Annexes I and II. Many of the provisions and standards in MARPOL 73/78 were incorporated into China's 1982 MEPL and the 1983 Regulation. China has also ratified MARPOL Annex III (in 1994), Annexes IV and VI (in 2006), and Annex V (in 1988); the Basel Convention (in 1991) and the Basel Ban Amendment (in 2001); and SOLAS (in 1994). In 2011, China ratified the Anti-Fouling Convention.<sup>19</sup>

China is not yet a party to the BWM Convention. However, China actively participates in the Globallast program as one of six pilot countries (with Iran, India, Ukraine, South Africa, and Brazil). The program is coorganized by the IMO, the Global Environment Facility (GEF), and the United Nations Development Programme (UNDP). This program assists less industrialized countries to prepare for the implementation of the BWM Convention.<sup>20</sup> In addition, the Maritime Safety Administration of China (MSA) has been a member of the Memorandum of Understanding on Port State Control in the Asia-Pacific Region (the Tokyo MOU)<sup>21</sup> since 1994.

The Chinese constitution does not contain any general provision on the relation between treaties and domestic law. In the context of marine environmental protection, treaty obligations are implemented by transformation under specific national legislation.<sup>22</sup> Article 97 of the MEPL and Article 75 of the 2010 Regulation provide that, where there is a difference between the domestic legislation and a treaty which China has ratified, the treaty provision is to prevail unless China has made a reservation to the treaty to the contrary effect.

## **The General Framework of Chinese Law**

### ***Marine Environmental Protection Law***

The MEPL was adopted in 1982 at the initial stage of China's open door and economic reform policy. It was amended in 1999 in conjunction with China's ratification of the LOSC.<sup>23</sup> The MEPL is the most important law for the protection of the marine environment under China's jurisdiction. Chapter 8 deals specifically with vessel source pollution. The MEPL requires all ships to possess antipollution equipment. Moreover, ports, harbors, loading stations, and shipyards are to be equipped with reception facilities.<sup>24</sup> The MEPL provides that the carriage of hazardous goods must be approved by the competent authority; namely, the MSA.<sup>25</sup> It also calls for the establishment of an oil pollution insurance and compensation fund.<sup>26</sup> The MSA may exercise enforcement measures on the ships and marine installations if a casualty on the high seas causes serious pollution damage or poses the threat of pollution damage to sea areas within China's jurisdiction, in accordance with Article 221 of the LOSC (measures to avoid pollution arising from maritime casualties).<sup>27</sup>

### ***Maritime Transport Safety Law***

The MTSL was adopted in 1983.<sup>28</sup> It applies to all vessels, installations, and personnel and to the owners and managers of such vessels and installations that navigate, berth, or operate in the sea areas under the jurisdiction of China. The MTSL provides the legal basis for Chinese authorities to implement port state control. Article 19 states that the MSA has the right to prohibit a vessel or an installation from leaving a port and to order it to suspend its voyage, change its route, or cease its operations where it violates any law, regulation, or other rule of China.

### ***The 2010 Regulation***

*Driving Forces for the Adoption of the 2010 Regulation.* As the world's second largest oil consumer, China experienced 718 oil spill accidents from 1998 to 2008. As a result, a total of 11,749 tons of oil leaked into sea areas.<sup>29</sup> Thus far, no tanker spill disaster of a magnitude of more than 10,000 tons (such as the *Erika* and *Prestige*) has occurred in sea areas under China's jurisdiction. Nevertheless, as evidenced by events in Chinese waters such as pollution by the vessels *Al Samidoon* in 2001, the collision of *Cape Bowen* and *Genmar Transporter* in 2004, and the *Arteaga* in 2005, there is a significant risk of a serious oil spill accident in Chinese coastal waters. The 1983 Regulation was considered not to be sufficient to deal with vessel source pollution in China. An updated regulation was seen as necessary.<sup>30</sup> Therefore, new measures for the regulation of vessel source pollution, including oil spill contingency plans, mandatory insurance, and the establishment of an oil pollution compensation fund were incorporated into the MEPL 1999. However, these measures need to be implemented by more detailed legislation.

In the international sphere, MARPOL and SOLAS have undergone significant developments since 1983. Moreover, international organizations and other countries, such as the European Union ([EU]; after the *Erika* incident in 1999 and the *Prestige* in 2002), the United States (after the *Exxon Valdez* oil tanker disaster in 1989), and South Korea (after the *Hebei Spirit* disaster in 2007), have strengthened their vessel source pollution legislation. This has created further pressure on China to improve the protection of its marine environment from vessel source pollution. The concern is that, if strict environmental regulations are not in place, China's booming economy may attract irresponsible shipowners and substandard vessels into Chinese coastal waters from other areas of the world.

*General Provisions.* The 2010 Regulation provides the detailed construction and equipment for vessels in national legislation and as set out in the international conventions that China has ratified.<sup>31</sup> Shortly after the adoption of 2010 Regulation, the MSA issued a schedule to phase out single-hull tankers from domestic trading. Since January 1, 2010, newly built tankers of 600 deadweight tonnages (DWT) and above must have double hulls. Existing single-hull tankers of 5,000 DWT and above will be phased out after 2011. Moreover, in order to strengthen flag state control, Article 11 of the 2010 Regulation requires all shipowners, operators, and managers of Chinese flagged vessels to establish a safe operation system for preventing vessel source pollution. This is consistent with the obligation of Chinese vessels to apply the International Safety Management (ISM) Code, which is mandatory through the SOLAS Convention.<sup>32</sup>

*Prevention of Operational Pollution.* Article 15 is the important article in the 2010 Regulation for the implementation of MARPOL and other international conventions focused on preventing operational vessel source pollution. Article 15 emphasizes that vessels are to adhere to the requirements of domestic legislation and international conventions that China has ratified. In addition, Article 15 provides standards to prevent and control discharge of garbage, sewage, oil-contaminated water, hazardous and noxious waste, exhaust, and ballast water into sea areas under China's jurisdiction. China applies the Anti-Fouling Convention since the MSA is a member of the Tokyo MOU in which the Anti-Fouling Convention is mentioned as a "relevant instrument" that must be enforced under port state control.<sup>33</sup>

*Prevention of Accidental Pollution.* The 2010 Regulation defines an "accident" as "marine pollution caused by oil or oily mixtures, as well as other hazardous and noxious waste, leaking from vessels and relevant operating activities" (e.g., shipbuilding and ship dismantling).<sup>34</sup> Article 36 provides a detailed categorization of the severity of accidents based on the amount of oil spilled or the direct economic losses.

Several issues for preventing accidental pollution are covered by the 2010 Regulation. First, operators of any vessel carrying noxious liquid substances in bulk or any other vessel of 10,000 GT and above must conclude a pollution cleanup contract with a company approved by the MSA before entering and leaving any Chinese port. The contract must specify the rights and duties of the vessel and companies in the case of an accident.<sup>35</sup> The Ministry of Transport has issued Rules on the Management of Contingency Plan for Vessel-Source Marine Pollution that contain specifications on the required qualifications for pollution cleanup companies as well as the terms of the pollution cleanup contract.<sup>36</sup>

Second, vessels carrying dangerous cargo need approval from the MSA before entering or leaving any Chinese port.<sup>37</sup> Docks and loading and unloading facilities in ports are prohibited from providing services to vessels disqualified for carrying dangerous cargo in packed form.<sup>38</sup>

Third, the 2010 Regulation does not refer to any ship routing or reporting system (SRS) to regulate vessels carrying dangerous cargo. It is left to port state control to prevent accidental pollution from dangerous substances. However, there is a legal basis for vessel reporting in two rules issued by the Ministry of Transport in 1997 (Rules for Vessel Traffic System Safety Management and Rules for Vessel Traffic System Operation Management). The MSA has established 26 vessel traffic systems (VTS)<sup>39</sup> in China's coastal sea areas.<sup>40</sup>

*Prevention of Pollution from Hazardous Waste.* Article 31 of the 2010 Regulation concerns the prevention of marine pollution from hazardous wastes listed in Annex I of the Basel Convention.<sup>41</sup> In the Preamble of the Basel Convention, it is recognized that a state has the sovereign right to ban the entry or disposal of foreign hazardous wastes and other wastes into its territory. As a contracting party to the Basel Convention, China has banned the transit of hazardous wastes within its internal waters and territorial sea.<sup>42</sup> Furthermore, the 2010 Regulation extends its application to other sea areas under China's jurisdiction (e.g., the EEZ).<sup>43</sup>

### ***Institutions***

Both the MEPL and the 2010 Regulation have designated the MSA as the responsible institution for marine pollution caused by nonmilitary vessels. The environmental department of the armed forces is in charge of regulating naval vessel pollution. The State Fishery Administration (SFA) is the competent institution for the prevention of marine pollution from fishing vessels and nonmilitary vessels within fishing ports.<sup>44</sup>

The MSA and the State Ocean Administration (SOA) are obligated to cooperate on the issue of vessel source pollution surveillance.<sup>45</sup> The MSA has established its own enforcing power at sea: the China Sea Patrol. China Sea Monitoring, China's main marine environment protection enforcing power at sea, is affiliated with the SOA.

### **Challenges and Prospects**

As described above, China has established a comprehensive legal framework to combat vessel source pollution. Nevertheless, China is confronted with several challenges under international law.

#### ***Environment or Sovereignty?***

China defines its EEZ as the area beyond and adjacent to its territorial sea. This extends up to 200 nautical miles from baselines<sup>46</sup> from which the breadth of the territorial sea is measured.<sup>47</sup> China's continental shelf comprises the seabed and subsoil of the submarine areas that extend beyond China's territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin or to a distance of 200 nautical miles from the baselines if the outer edge of the continental margin does not extend up to that distance.<sup>48</sup>

China has maritime boundary disputes with its neighboring countries, including Japan, North Korea, South Korea, Vietnam, the Philippines, and other Southeast Asian countries bordering the South China Sea.<sup>49</sup> Moreover, in the East China Sea, there is a dispute between China and Japan over the sovereignty of the Diaoyutai Islands (Chinese name)/Senkaku Islands (Japanese name). The islands are currently controlled by Japan. China, however, makes claims to these islands through Article 2 of the 1992 Law on the Territorial Sea and

Contiguous Zone.<sup>50</sup> China also has a dispute with South Korea regarding the sovereignty of Suyan Rock (Chinese name)/Leodo Rock (Korean name) in the East China Sea. In the South China Sea, China has island sovereignty disputes with Southeast Asian countries, especially Vietnam, Malaysia, and the Philippines over the Spratly Islands.<sup>51</sup>

The 2010 Regulation applies to vessel source pollution that occurs in sea areas under China's jurisdiction and, as indicated in Article 2 of MEPL, this applies to China's internal waters, territorial sea, contiguous zone, EEZ, and other sea areas under China's jurisdiction. The meaning of the term "other sea areas under China's jurisdiction," however, is unclear. It is not specified which particular sea areas China includes besides the above specified maritime zones.<sup>52</sup> As explained by Zou Keyuan about "other sea areas under China's jurisdiction," the adoption of China's first law on marine environmental protection in 1982 occurred before the regimes of the EEZ and the continental shelf had been finalized in the LOSC.<sup>53</sup> However, even with the revision of the MEPL in 1999, after the adoption of both Territorial Sea and Contiguous Zone Law (1992)<sup>54</sup> and Exclusive Economic Zone and Continental Shelf Law (1998),<sup>55</sup> there is still no official explanation for the term "other sea areas."

Concerns have been raised over whether China will enforce its vessel source pollution legislation in the disputed sea areas (disputed EEZs and sea areas around disputed islands). In the past, China's claims over disputed islands and EEZs were put forward by declarations without real action. Since 2008, China Sea Monitoring has been patrolling regularly in the sea areas under China's jurisdiction.<sup>56</sup> It is unknown whether China has patrolled in the disputed sea areas. Nonetheless, unilateral action by China in the disputed sea areas has been rare. Article 123 requires that states bordering an enclosed or semienclosed sea<sup>57</sup> should cooperate with each other in the exercise of their rights and in the performance of their duties under the LOSC. China is obliged to take a cooperative approach to the prevention of vessel source pollution in the disputed sea areas. This was reaffirmed in the Declaration on the Conduct of Parties in the South China Sea (DOC), signed by the member states of the Association of Southeast Asian Nations (ASEAN) and China in 2002.<sup>58</sup> This declaration is seen as possibly being a first step toward the establishment of a code of conduct in the South China Sea and as providing a strong framework for future talks.<sup>59</sup> In practice, China has been actively involved with regional sea programs, such as the United Nations Environmental Program East Asian Seas Action Plan and the Partnerships in Environmental Management for the Seas of East Asia (PEMSEA).<sup>60</sup>

### *Freedom of Navigation*

The ban on vessels carrying hazardous wastes in the EEZ might be in conflict with the right of freedom of navigation. According to Article 2(9) of the Basel Convention, "areas under the national jurisdiction of a state" means "any land, marine area or airspace within which a state exercises administrative and regulatory responsibility in accordance with international law in regard to the protection of human health or the environment." However, Article 4(12) of the Basel Convention provides that:

nothing in this Convention shall affect in any way the sovereignty of states over their territorial sea established in accordance with international law, and the sovereign rights and the jurisdiction which states have in their EEZ and their continental shelves in accordance with international law, and the exercise by ships and aircraft of all states of navigational rights and freedoms as provided for in international law and as reflected in relevant international instruments.



Germany, Japan, and the United Kingdom are among countries that have declared that, in accordance with Article 4(12), nothing in the Basel Convention shall affect in any way the exercise of navigational rights and freedoms as provided for in international law and as reflected in relevant international instruments.<sup>61</sup> Latin American countries, such as Chile, Venezuela, and Mexico, are of the opinion that the Basel Convention protects their sovereign rights as coastal states over the areas under their national jurisdiction, including their territorial seas and EEZs. As such, these states contend that the Basel Convention allows them to take measures against vessels engaged in the transboundary transports of hazardous wastes while in their EEZ.<sup>62</sup>

Under Chinese law, whenever vessels carrying hazardous waste want to transit China's EEZ, an approval from the Ministry of Environmental Protection is required.<sup>63</sup> There are also mandatory ship routing systems and ship reporting systems imposed on these vessels. Therefore, China's legislation supports the Latin American interpretation of the Basel Convention. The lack of uniform state practice under the Basel Convention banning the transit of foreign vessels carrying hazardous waste in the EEZ may be of concern should China apply its legislative ban to foreign vessels in its EEZ, since this may affect the freedom of navigation for foreign vessels described in Article 58 of the LOSC and result in international disputes.

### *Climate Change and Shipping*

The Second IMO Greenhouse Gas (GHG) Study in 2009 estimated that 1,046 million tonnes of CO<sub>2</sub> were emitted from shipping in 2007.<sup>64</sup> This corresponds to 3.3% of the global emissions during 2007. International shipping is estimated to have emitted 870 million tonnes, or about 2.7% of the global emissions of CO<sub>2</sub> in 2007. In the absence of control measures, emissions from ships may grow to 150%–250% of 2007 emissions by 2050 as a result of the growth in shipping.<sup>65</sup> Despite efforts made within the IMO in recent years, there is still no binding international legal instrument to deal with reduction of GHG emissions from ships. The main question that has arisen is whether to apply the principle of “common but differentiated responsibility (CBDR)” to the shipping industry.<sup>66</sup> The adoption of the CBDR principle would be contrary to the principle of “no favored treatment” set out in MARPOL<sup>67</sup> and would, as a result, be unacceptable for any industrialized maritime nation.

A proposal to include shipping emissions in the 2009 Copenhagen climate agreement was blocked by China, India, Saudi Arabia, and Bahamas.<sup>68</sup> China's position is that the IMO should consider only technical issues, and leave political, legal, and economic matters to be decided by the Conference of Parties of the United Nations Framework Convention on Climate Change (UNFCCC).<sup>69</sup> Moreover, China insists that the CBDR principle should be the key principle in the negotiation process within the IMO.<sup>70</sup> Nevertheless, because GHG emissions from shipping are a major contributor to the problem of climate change, developed countries and regions, such as the EU, are pressuring for mandatory regulation.<sup>71</sup>

GHG emissions from ships are not covered by the 2010 Regulation. The 2010 Regulation contains provisions that only implement Annex VI of MARPOL on air pollution (Articles 15 and 28). China is a non-Annex I country under the Kyoto Protocol.<sup>72</sup> China, therefore, has no international obligation to accept mandatory GHG emission reductions under the Kyoto Protocol. A provision combating GHG emissions from shipping in 2010 Regulation could be seen as undermining China's policy position and climate change negotiation strategy for a post-Kyoto regime. If China supports a revised Annex VI or a new annex of MARPOL to deal with GHG emissions from shipping, it will be inconsistent with China's reliance on the CBDR principle in the broader climate change discussions.

China announced in 2009 a national emission reduction plan with the objective of reducing GHG emissions per capita by 40%–50% by 2020.<sup>73</sup> The Chinese National Plan for Combating Climate Change, published by the National Development and Reform Commission in 2007, specifically refers to the reduction of emissions from shipping.<sup>74</sup> The 2007 Plan recommends that a revision of the 2010 Regulation will be necessary if international law on the reduction of GHG emissions from shipping enters into force, though no detailed measures about reducing emissions are mentioned. Alternatively, an amendment of the Prevention and Control of Atmospheric Pollution Act (APL)<sup>75</sup> may also address the issue. Article 32 of the APL provides that emissions from vehicles and vessels must not exceed national standards.

### *Invasive Species from Ballast Water*

The introduction of invasive marine species into new environments by ships' ballast water or attached to ships' hulls and via other vectors has been identified as one of the four greatest threats to the world's oceans. Shipping moves over 80% of the world's commodities and transfers approximately 3 billion to 5 billion tonnes of ballast water internationally each year.<sup>76</sup> The international community has addressed the issue in international conventions such as the LOSC and the Convention on Biological Diversity (CBD).<sup>77</sup> The IMO has adopted Resolution A.868 (20) "Guidelines for the Control and Management Ship's Ballast Water to Minimize the Transfer of Harmful Aquatic Organisms as well as Pathogens" and the BWM Convention.<sup>78</sup>

The BWM Convention will enter into force 12 months after the ratification of 30 states representing at least 35% of the gross tonnage of the world's merchant shipping.<sup>79</sup> As of 31 March 2011, 27 countries had ratified the Convention. These include: EU member states (Sweden, the Netherlands, France, and Spain), shipping states (Norway and South Korea), small island states (Maldives, Cook Islands, Marshall Islands, and Tuvalu), developing countries (Mexico, Brazil, Egypt, Kenya, and South Africa), and Canada. The combined merchant fleets of the contracting parties now constitute approximately 25.32% of the gross tonnage of the world's merchant fleet. Eleven countries ratified the BWM Convention during the period from September 2009 to September 2010, which indicates an increasing acceptance of the Convention within the international community. The BWM Convention establishes a two-tier process for ballast water management. This includes standards set by the Convention and more stringent rules from coastal states. The BWM Convention, together with its Annex and supplementary guidelines, identifies four discrete elements integral to ballast water management. These are: planning and record keeping, management of sediment uptake and discharge, management of ballast water uptake and discharge, and special area requirements. There are additional obligations in the Convention related to notification and the provision of information, research and development, cooperation, enforcement, and compliance.<sup>80</sup>

China faces great challenges caused by invasive species from ballast water.<sup>81</sup> According to Article 62(1) of the MEPL, ships are not to discharge any pollutants, wastes, ballast water, garbage, and other noxious substances into sea areas under China's jurisdiction. Article 15 in the 2010 Regulation provides that "ships that discharge ballast water shall comply with laws, regulations, relevant standards and international conventions ratified or acceded by China." Nevertheless, neither the MEPL nor the 2010 Regulation mentions any detailed requirements for managing the discharge of ballast water. As noted above, China has not ratified the BWM Convention. A lacunae currently exists in the Chinese legal system on the issue of invasive species from ballast water. The entry into force of the BWM Convention is imminent. As declared in Article 15 of 2010 Regulation, the BWM Convention, if ratified

by China, when it enters into force, will be the legal basis and set detailed requirements for regulating the discharge of ballast water in sea areas under China's jurisdiction. However, ratification is the first step. The BWM Convention sets only first-tier requirements, which are minimum standards for coastal states. In the long run, an amendment of the 2010 Regulation or the adoption of a special regulation is recommended to cope with specific ballast water problems in Chinese sea areas.

## Conclusion

With the adoption of the 2010 Regulation, China has a comprehensive legal regime for the prevention of vessel source pollution. International conventions that address this issue have been transferred into domestic legislation.

As a contracting party to the LOSC, China is under an obligation to cooperate with neighboring countries to protect the marine environment. Therefore, any unilateral action from the Chinese side may result in international disputes. The enforcement of Chinese domestic legislation may cause international disputes. China must be careful with this kind of unilateral action.

There are gaps in the Chinese vessel source pollution legislation. For example, problems not dealt with are GHG emissions from vessels and invasive species from ballast water. While China has no international legal obligation to act on the issue of GHG emissions from shipping, nevertheless, in the face of mounting international pressure, it is not a good strategy for China to turn a blind eye to the issue. It is recommended that China enact a national GHG emission standard for shipping, by revising either the Prevention and Control of Atmospheric Pollution Law or the 2010 Regulation. Regarding ballast water management, if China ratifies the BWM Convention, and the Convention comes into force, it will fill the lacunae in the Chinese legal system to prevent ecological, economic, and human health damage caused by invasive species from ballast water. But, considering the two-tier system set by the BWM Convention, a specific regulation will be needed in the long run.

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19. "Notification of the Entry into Force of the IMO Anti-Fouling Convention," Ministry of Transport, available at [www.moc.gov.cn/zhuzhan/zhengwugonggao/jiaotongbu/haishijiulao/201104/t20110422\\_934664.html](http://www.moc.gov.cn/zhuzhan/zhengwugonggao/jiaotongbu/haishijiulao/201104/t20110422_934664.html) (in Chinese).
20. The Globallast Program, available at [globallast.imo.org/index.asp?page=gef\\_interw\\_project.htm&menu=true](http://globallast.imo.org/index.asp?page=gef_interw_project.htm&menu=true).
21. Memorandum of Understanding on Port State Control in the Asia Pacific Region (the Tokyo MOU), available at the Web site of the Tokyo MOU at [www.tokyo-mou.org](http://www.tokyo-mou.org).
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24. MEPL, *supra* note 7, art. 62(2).
25. *Ibid.*, art. 67.
26. *Ibid.*, art. 66.
27. *Ibid.*, art. 71.
28. The revision of the MTSL was included in the legislation plan of the State Council in 2008, see [www.jxzb.gov.cn/2008-4/2008481625035.htm](http://www.jxzb.gov.cn/2008-4/2008481625035.htm) (in Chinese).
29. Ministry of Transport and Legislative Affairs Office of State Council, *The Legislative Interpretation of 2009 Regulation on the Prevention and Control of Marine Pollution from Vessels* (Beijing: China Communications Press, 2010), 2 (in Chinese).
30. "Press Release About 2010 Regulation" Legislative Affairs Office of the State Council, China, available at [www.gov.cn/zwhd/2009-09/16/content\\_1418816.htm](http://www.gov.cn/zwhd/2009-09/16/content_1418816.htm) (in Chinese).
31. 2010 Regulation, *supra* note 8, art. 10.
32. See also Rules on the Safety Management and Prevention of Vessel-Source Pollution of P. R. China, Ministry of Transport, [2001], no. 383.
33. Memorandum of Understanding on Port State Control in the Asia-Pacific Region, *supra* note 21, part 2.1, sec. 2.

34. 2010 Regulation, *supra* note 8, art. 35.
35. *Ibid.*, art. 33.
36. Issued by the Ministry of Transport on 30 December 2010 and entered into force 1 June 2011, available at [www.gov.cn/jflfg/2011-03/02/content\\_1814743.htm](http://www.gov.cn/jflfg/2011-03/02/content_1814743.htm) (in Chinese).
37. 2010 Regulation, *supra* note 8, art. 22.
38. *Ibid.*, art. 21(1).
39. For an overview of VTS, see C. P. Mooradian, "Protecting 'Sovereign Rights': The Case for Increased Coastal State Jurisdiction over Vessel-Source Pollution in the Exclusive Economic Zone," *Boston University Law Review* 82 (2002): 808–809.
40. G. C. Liu and H. L. E. "The Implementation of IMO Conventions on Preventing Marine Pollution in China," *China Maritime Safety* 6 (2008): 6 (in Chinese).
41. Basel Convention, *supra* note 18.
42. MEPL, *supra* note 7, art. 39.
43. 2010 Regulation, *supra* note 8, art. 31.
44. MEPL, *supra* note 7, art. 5(3).
45. 2010 Regulation, *supra* note 8, art. 7.
46. China has set its territorial sea at a breadth of 12 nautical miles from the coastal baselines. The method of straight baselines is used. Territorial Sea and Contiguous Zone Law, 1992, Article 3, available at the Web site of the UN Division for Ocean Affairs and the Law of the Sea (DOALOS) at [www.un.org/Depts/los/index.htm](http://www.un.org/Depts/los/index.htm). In 1996, part of the baselines around the mainland and the Xisha Islands was publicized. See Declaration on the Baseline of the Territorial Sea, 15 May 1996, available at the DOALOS Web site.
47. Exclusive Economic Zone and Continental Shelf Law, 1998, Article 2(1), available at the DOALOS Web site, *supra* note 46.
48. *Ibid.*, art. 2(2).
49. See K. Y. Zou, "China's Exclusive Economic Zone and Continental Shelf: Developments, Problems, and Prospects," *Marine Policy* 25 (2001): 77–78.
50. Territorial Sea and Contiguous Zone Law, *supra* note 46.
51. See, generally, K. Y. Zou, "Implementing the United Nations Convention on the Law of the Sea in East Asia: Issues and Trends," *Singapore Year Book of International Law and Contributors* (2005): 50–52.
52. K. Y. Zou, "Regulation of Waste Dumping at Sea: The Chinese Practice," *Ocean and Coastal Management* 52 (2009): 385.
53. Zou, *supra* note 51, at 76.
54. Territorial Sea and Contiguous Zone Law, *supra* note 46.
55. Exclusive Economic Zone and Continental Shelf Law, *supra* note 47.
56. *National Report on the Administrative Law Enforcement* (SOA, 2008), available at [www.soa.gov.cn/soa/hygbml/xzgb/eight/webinfo/2009/03/1271382651525631.htm](http://www.soa.gov.cn/soa/hygbml/xzgb/eight/webinfo/2009/03/1271382651525631.htm) (in Chinese).
57. LOSC, *supra* note 10. Article 122 defines that "enclosed or semi-enclosed sea" means a gulf, basin, or sea surrounded by two or more states and connected to another sea or the ocean by a narrow outlet or consisting entirely or primarily of the territorial seas and exclusive economic zones of two or more coastal states. Obviously, the South China Sea and East China Sea both fit this definition.
58. The 2002 Declaration on the Conduct of Parties in the South China Sea is available at the ASEAN Web site at [www.ASEANsec.org](http://www.ASEANsec.org). Article 7 declares that "pending a comprehensive and durable settlement of the disputes, the parties concerned may explore or undertake cooperative activities, including (a) marine environmental protection."
59. N. H. Thao, "The 2002 Declaration on the Conduct of Parties in the South China Sea: A Note," *Ocean Development and International Law* 34 (2003): 279.
60. For more information on these two programs, see N.-T. A. Hu, "Semi-enclosed Troubled Waters: A New Thinking on the Application of the 1982 UNCLOS Article 123 to the South China Sea," *Ocean Development and International Law* 41 (2010): 294–307.
61. See the declarations of the state parties to the Basel Convention available at the Basel Convention Web site at [www.basel.int](http://www.basel.int).

62. *Ibid.*

63. 2010 Regulation, *supra* note 8, art. 31.

64. *Ibid.*

65. *Ibid.* See Second IMO GHG Study 2009, Update of the 2000 IMO GHG Study, Executive Summary, MEPC 59/4/7, 9 April 2009.

66. Principle 7 of the Rio Declaration on Environment and Development, 1992, available at the Web site of the UN Environment Programme at [www.unep.org](http://www.unep.org), provides the first formulation of the principle of common but differentiated responsibility. Principle 7 states:

In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command.

One of the major problems concerning the application of CBDR in the shipping industry, is that a large number of ships operate under flags of convenience. Thus, shipowners from developed countries can easily disguise their identity. See S. Karim and S. Alam, "Climate Change and Reduction of Emissions of Greenhouse Gases from Ships: An Appraisal," *Asian Journal of International Law* 1 (2011): 131–148.

67. MARPOL, *supra* note 14, art. 5(4).

68. "COP15 on Course to Miss Bunkers Opportunity," available at [www.seas-at-risk.org/news\\_n2.php?page = 273](http://www.seas-at-risk.org/news_n2.php?page = 273).

69. Report of the Marine Environment Protection Committee on its Fifty-Ninth Session, statement by the Delegation of China on GHG Issues, MEPC 59/24Add.I (2009), Annex 13, para. 5.

70. Report of the Marine Environment Protection Committee on its Sixtieth Session, MEPC 60/22 (2010), Annex 4.

71. The European Union has warned that, if no effective global rules to reduce GHG emissions from this sector can be agreed on, the EU should agree on its own measures. See Communication from the Commission to the European Parliament, the Council, "Towards a Comprehensive Climate Change Agreement in Copenhagen," COM (2009) Final, 28 January 2009, 7.

72. Kyoto Protocol to the United Nations Framework Convention on Climate Change, 1997, 2303 *U.N.T.S.* 148.

73. "China Targets Massive 40–45% Carbon Cut," available at [www.chinadaily.com.cn/china/2009-11/27/content\\_9060284.htm](http://www.chinadaily.com.cn/china/2009-11/27/content_9060284.htm).

74. National Plan of P. R. China for Combating Climate Change, June 2007, published by the National Development and Reform Commission, 38 (in Chinese).

75. Prevention and Control of Atmospheric Pollution Law, 2000, available at [www.envir.gov.cn/law/air.htm](http://www.envir.gov.cn/law/air.htm) (in Chinese).

76. Globallast, *supra* note 20.

77. Convention on Biological Diversity, 1992, 1760 *U.N.T.S.* 79.

78. BWM Convention, *supra* note 17.

79. *Ibid.*, art. 18(1).

80. For more information and a discussion of the BWM Convention, see M. H. F. Souza Rolim, *The International Law on Ballast Water: Preventing Biopollution* (Leiden: Martinus Nijhoff, 2008); K. N. Scott, "Defending the World Below the Brine: Managing Invasive Species Under the 2004 Ballast Water Convention—A New Zealand Perspective," *Journal of International Maritime Law* 14 (2008): 307–330; and J. Firestone and J. J. Corbett, "Coastal and Port Environments: International Legal and Policy Responses to Reduce Ballast Water Introductions of Potentially Invasive Species," *Ocean Development and International Law* 36 (2005): 291–316.

81. See Q. Chen, Y. H. Jiang, J. L. Miao, X. G. Liu, and B. Zhang, "Current Situation, Effects, Prevention and Control of Marine Invasive Species in China," available at <http://www.ln.xinhuanet.com/wangtan/yazaishui/index.htm>