



ENVIRONMENT IN THE COURTROOM II

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Ship Source Pollution Regimes (Canada)—A Primer

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Introduction

This chapter serves as an introduction to a subject that has occupied ship owners, operators, directors, investors, lenders, insurers, shippers/charterers, trade groups, environmentalists, legislators, and lawyers for some time. Much as the *Exxon Valdez* grounding in Alaskan waters in 1989 gave rise to the *Brander-Smith Report*,² which focused on Canada's ability to handle major oil spills (and the need for more oversight into tanker operations in Canadian waters) and led to changes in Canada's pollution laws, similar major foreign incidents have laid the groundwork for international cooperation in advancing structured pollution regimes for shipping.

Such cooperation has resulted in a body of international conventions developed through the International Maritime Organization (IMO)³—assisted, amongst other interested parties, by the Comité Maritime International (CMI)⁴ and many national maritime law associations.⁵ A number of these conventions will be discussed in greater detail below. At the same time, trade associations have developed platforms to drive policy issues and garner support for “green” initiatives in Canadian waters and bilateral arrangements.⁶

Ship source pollution is not limited to oil pollution. It may encompass a series of events, mishaps, circumstances, and substances in respect of fossil fuels (oil and related petroleum products), hazardous and noxious substances, and ballast water, not to mention recycling practices and wreck removal. One may go further and include air particles (emissions and bulk cargo residues) and waste (sewage, garbage, etc.). While oil remains the principal source of

concern due to its persistent and particularly harmful environmental characteristics (in terms of substance, duration, impact, and cleanup cost), air pollution has increasingly become the focus of recent marine environmental efforts.

Background

Canada is a confederation whose jurisdictions and powers are limited by the *Constitution Act, 1867*.⁷ Also limited by this Act are the powers of the federal authority, which has sole jurisdiction over navigation and shipping throughout the country's navigable waters, both internal and external.

Canada's authority over its external waters is limited to its territorial sea (12 NM from Canada's jurisdictional coastline) and the adjoining exclusive economic zone, which stretches 200 NM beyond the jurisdictional coastline.⁸ Such waters may be further extended depending on the nature of the underlying continental shelf.

Generally speaking, Canada's pollution laws apply to contamination of navigable waters, be they on freshwater or seawater (whether ice-covered or not). Provincial and territorial pollution laws apply to non-navigable waters and provincial/territorial shorelines. On occasion, such jurisdictions may overlap depending on the nature and effect of the contamination. Thus, charges under both the federal and provincial/territorial pollution statutes may be laid in connection with marine contamination. In Canada's Arctic regions, this would include the province of Quebec's (and to a lesser degree the province of Newfoundland & Labrador's) northern non-navigable waters and shorelines, and the non-navigable waters and shorelines of the three territories—Nunavut, the Northwest Territories, and the Yukon Territory—in addition to Canada's large expanse of arctic waters.

In 1985, Canada enacted the *Arctic Waters Pollution Prevention Act (AWPP)*,⁹ an Act that has since been made subject to Canada's principal oil pollution liability statute—the *Marine Liability Act (MLA)*.¹⁰ The AWPP prohibits the deposit of waste in arctic waters. The term "arctic waters" is defined¹¹ as "the internal waters of Canada and the waters of the territorial sea of Canada and its exclusive economic zone, within the area enclosed by the 60th parallel of north latitude, the 141st meridian of west longitude and the outer limit of the exclusive economic zone; however, where the international boundary between Canada and Greenland is less than 200 nautical miles from the baselines of the territorial sea of Canada, the international boundary

shall be substituted for that outer limit,” and this essentially covers the Arctic Archipelago. As the international boundary between Canada and Greenland is less than 200 nautical miles from the baselines of Canada’s territorial sea, the outer limit in that area is replaced by the international boundary. The term “waste” is broadly defined to cover any substance that, if added to water, would degrade or alter the quality of such water to an extent detrimental to their use by man or by any animal, fish, or plant that is useful to man.¹² This definition parallels the definition of “pollutant” under the *MLA*.¹³

Internationally, Canada is a signatory to the IMO’s *International Convention for the Prevention of Pollution from Ships, 1973*, and its *Protocols of 1978 and 1997 (MARPOL)*, the main international convention for preventing ship source pollution by oil (Annex I), sewage (Annex IV), garbage (Annex V), airborne substances (Annex VI), and other noxious goods shipped by water (Annexes II and III). In 2014, the IMO completed its initial work on the Polar Code (*The International Code for Ships Operating in Polar Waters*)¹⁴ by way of certain safety related requirements adopted by its Maritime Safety Committee. In 2015, several environmental provisions were adopted by the IMO’s Marine Environment Protection Committee in Part II of the Polar Code and implemented through amendments to certain *MARPOL* provisions. The Polar Code entered into force on January 1, 2017, becoming mandatory for all ships under construction or not yet built, with a transition period until January 1, 2018, for vessels launched before the entry into force date. Provisions of the Polar Code were incorporated into domestic legislation on December 19, 2017, with the repeal and replacement of the regulations under the *AWPP*—essentially updating the regulations in accordance with the safety and environmental provisions of the Polar Code.¹⁵

Oil Pollution

Canada is a signatory to several international conventions relating to oil pollution, including *MARPOL Annex I, the International Convention on Oil Pollution Preparedness Response and Cooperation, 1990*, and the *International Convention on Civil Liability for Bunker Oil Pollution Damage, 2001* (the *Bunker Convention*). These conventions have been incorporated into federal legislation in whole or in part under the *Canada Shipping Act (CSA)* and the *MLA*¹⁶—occasionally with some modifications (some of which are described below)—and apply to Canada’s navigable waters. In essence, they establish

the principle that the ship (and its interests), as the polluter, sits on the front line of liability.

An important modification in the *MLA* concerns the liability rules of the *International Convention on Civil Liability for Oil Pollution Damage, 1992* (the *Civil Liability Convention*) that applies to all ships that cause oil pollution, with special rules in Division 1 of the *MLA* in respect of “convention ships”—tankers carrying persistent oil in bulk as cargo. The liability of non-convention ships is found in Division 2 of the *MLA*, where “oil” is defined in broader terms as meaning oil of any kind or in any form (including petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes—but not dredged spoil).¹⁷ Also, a “ship” is defined as any vessel or craft designed, used, or capable of being used—either solely or partly—for navigation, without regard to its method of propulsion or lack of propulsion and includes stranded, sunk, or wrecked vessels.¹⁸ The difference between Division 1 and 2 vessels is also relevant in terms of access to the 1992 International Oil Pollution Compensation Fund (IOPC Fund) (limited to spills involving convention vessels under Division 1).

Pollution under the *MLA* (Division 1 or 2) essentially gives rise to strict liability (not dependent on proof of fault or negligence) for oil pollution damage, including any damage as a result of impairment to the environment and the costs of reasonable measures of reinstatement, as well as the costs and expenses incurred by the federal minister of fisheries and oceans, an authorized response organization under the *CSA*,¹⁹ or others in respect of measures taken to prevent, repair, remedy, or minimize oil pollution damage. This includes the minister’s reasonable costs of monitoring a spill and cleanup efforts. As the Canadian Coast Guard (and its fleet of icebreakers, tenders, and patrol vessels) and Fisheries and Oceans Canada (and its fleet of patrol and inspection vessels) report to the minister, it is these entities who are generally engaged in such matters.

The *CSA* sets forth the framework for pollution prevention and response measures and enforcement.²⁰ In respect of oil, ships are required to have an arrangement in place with a recognized (certified) response organization that will adequately deal with the total quantity of oil (both as cargo and fuel) carried on board, and in respect of the waters navigated, in the event of a pollution incident. The ship is also required to carry a declaration in a due form that identifies the name and address of the ship’s insurers for liability pollution insurance coverage and confirms that the response arrangement (and identifies the persons authorized to implement the arrangement) is in

place. The CSA requires oil handling facilities (operators) to have similar arrangements/declarations in place.

The authority and practice of pollution response officers are also set forth in the CSA.²¹ Where the officer reasonably believes that a ship might discharge or might have discharged a pollutant, the officer may direct the ship to moor or anchor. Also, the officer may board and take samples, declare an emergency zone, direct any person to provide reasonable assistance or information (logbooks, etc.), or use any computer system or data processing system to examine data, etc. The officer may also detain a ship.

The CSA empowers the minister of fisheries and oceans, on a reasonable belief that a ship has discharged, is discharging, or is likely to discharge a pollutant, to take measures to repair, remedy, minimize, or prevent pollution damage. The minister may monitor measures taken by the ship's interests in respect of any pollution, actual or anticipated, and may direct such interests to take any needed measures. The minister may also step in and take over the cleanup.

Canada has also enacted portions of the IOPC Fund, the 1992 *Civil Liability Convention*, and the 2003 *Supplementary Fund Protocol*²² through the *MLA*. Under Part 6 of the *MLA*, shipping interests are entitled to limit their liability for pollution damage, including preventive and remedial measures in certain instances. Thus, where claims exceed such limitation amounts, which ordinarily are funded by the ship's interests, including its liability insurers, recourse may be made to the IOPC Fund. However, in certain instances, recourse may be made to Canada's Ship-source Oil Pollution Fund (SOPF)²³ which is administered by a federally appointed administrator. These funds collect contributions from shippers to ensure that at the end of the day there is a fund of last recourse.

Canada's Admiralty Court, the Federal Court, has *in rem* jurisdiction in respect of navigation and shipping matters. It is a national admiralty court that sits across the country, and it is the same Admiralty Court²⁴ referred to in the *MLA* in respect of limitation proceedings and related claims for pollution matters under the Fund regimes.

Additional relevant pollution statutes that have occasionally been applied where there are overlapping federal departments or overlapping jurisdiction with provincial/territorial non-navigable waters or shorelines include (by way of example) the federal *Migratory Birds Convention Act, 1994*,²⁵ the *Canadian Environmental Protection Act, 1999*,²⁶ Newfoundland and Labrador's

Environmental Protection Act,²⁷ and Nova Scotia's *Environment Act*.²⁸ These statutes generally provide that oil pollution constitutes a strict liability offence (without proof of fault or negligence) and, like the *MLA*, generally target the owner, custodian, or person who had the charge, management, or control of the polluting substance (such as the shipowner or bareboat charterer). Some reach further and hold that the directors or officers of a company that commits an offence may be presumed to have participated in the offence unless they can establish that they exercised due diligence and took all necessary precautions to prevent such offence.

Hazardous and Noxious Substances

To cover those products not subject to the “oil conventions,” the IMO has developed a similar strict liability regime for noxious or dangerous substances. These include liquefied gases, liquid substances with certain flashpoints, harmful products carried in containers, and bulk solid materials possessing chemical hazards. Recent studies have demonstrated increased traffic in the number of container ships carrying packaged hazardous and noxious substances (HNS) as well as growth in the number of chemical tankers and liquefied natural gas (LNG) and liquefied petroleum gas (LPG) tankers. The IMO reports that some 2,000 different “types of HNS” are regularly transported by sea and some 200 million tonnes of chemicals are traded annually.²⁹

Typically known as the “*HNS Convention*,”³⁰ this regime provides a structure to compensate parties damaged through the international or domestic carriage by sea of qualifying substances not covered by the *Civil Liability Convention* or the *Bunker Convention*. Once the *HNS Convention* comes into force (only five countries have acceded to or ratified the convention to date—twelve are required), receivers of “contributing cargo” will be required to contribute to the HNS Fund. As with the oil conventions, the *HNS Convention* upholds the principle that the “polluter pays.”

The *HNS Convention* sets out a prevention, preparedness, and response regime via the *CSA*, and a framework for liability and compensation via the *MLA*. The ship's interests are the first to pay under a similar strict liability regime up to a maximum limit, supported by compulsory insurance, with a compensation fund sitting atop, financed through contributions paid by receivers of HNS.

While the *HNS Convention* has yet to come into force (Canada ratified the *HNS Convention* on April 23, 2018), the *MLA* currently obliges receivers

of certain HNS cargoes to report to the minister of transport and the SOPF administrator. Transport Canada published new reporting requirements in December 2016 following a consultation with stakeholders. Also, an online HNS and Oil Electronic Reporting System were introduced to facilitate HNS disclosure.³¹

Ballast Water

In 2004, the IMO adopted the *International Convention for the Control and Management of Ships' Ballast Water and Sediments* (the *BWM Convention*).³² Canada ratified the *BWM Convention* in 2010, and it entered into force on September 8, 2017. The convention has been ratified by eighty-three states, representing over 81 percent of world shipping tonnage.

The *BWM Convention* is designed to control the spread of invasive aquatic species picked up in ballasting operations in foreign waters and subsequently transferred to domestic waters. In Canada, this has led to a conflagration of “zebra mussels” and other invasive species, particularly in the Great Lakes. With few known predators, such species, if left unchecked, can interfere, and at times destroy, elements of such waters’ ecosystems.

Canada currently has a strong Water Ballast Program,³³ and the implementation of the *BWM Convention* places Canadian shipping interests in a delicate position. The United States has not signed the *BWM Convention*, and its several border states and ports on the Great Lakes have adopted different criteria to handle such ballast water issues. A further challenge has risen on the technical side. The freshwater and cold temperatures of the Great Lakes may not permit the tested technology used in other parts of the marine world to properly function. Thus, Canadian shipping interests face the prospect of reporting to several masters with uncertain requirements or solutions.

International shipping’s major concerns with this convention have aptly led their leaders to urge uniformity and for governments to act on the “ballast water chaos.”³⁴ While the Canadian government proposed new *Ballast Water Regulations*³⁵ in June 2019 to better implement the *BWM Convention*’s goals, Canadian shipping has expressed concern that the proposal does not reflect the state of available technology, and that it clashes with the US framework.³⁶

Ship Recycling and Wreck Removal

To ensure a secure (from a safety perspective) and environmentally sound regime to recycle ships at the end of their operational lives, the IMO adopted

the *Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships* (the *Hong Kong Convention*) in 2009.³⁷ The goal was to reduce unnecessary risk to human health, safety, and the environment in the scrapping of vessels, including oil rigs and related oil platforms. Typically, older ships contain quantities of environmentally hazardous substances, including asbestos, heavy metals, hydrocarbons, ozone-depleting chemicals, and related toxins. The *Hong Kong Convention* provides guidelines to inventory hazardous materials, develop suitable ship recycling plans and recycling facilities to mitigate health and pollution hazards, and document recycling steps and adherence to best environmental practices. In addition, parallel guidelines have been established for the inspection, survey, and certification of ships to disclose and record hazardous materials.

The *Hong Kong Convention* requires adoption by fifteen states, representing 40 percent of the world merchant shipping tonnage, before it enters into force (Canada signed the convention in 2009 but has not ratified it). While the convention has yet to come into force, its guidelines have increasingly been adopted by shipowners, and compliant recycling facilities are developing.

Although not strictly part of such “recycling” efforts, the IMO has also turned its sights onto “wreck removal” issues. The *Nairobi International Convention on the Removal of Wrecks, 2007*³⁸ (the *Nairobi Convention*) provides a structure for the prompt and effective removal of shipwrecks and cargoes located beyond territorial seas that may otherwise adversely impact marine and coastal environments.

The *Nairobi Convention* has been in force since April 2015 and has been ratified by forty-nine states, representing over 73 percent of world shipping tonnage. Canada acceded to the *Nairobi Convention* on April 30, 2019 and has incorporated certain provisions of the convention in the *Wrecked, Abandoned or Hazardous Vessels Act*³⁹ (the *WAHV Act*), which came into force on July 30, 2019.

The *WAHV Act* establishes wreck reporting requirements, criteria for determining hazards to the environment and navigation, measures to facilitate the removal of ships and cargo, and liability provisions and insurance requirements for damages and compensation. This is essentially strict liability, with certain exceptions on the part of the ship’s interests for the cost of locating, marking, and removing wrecks and for remedial efforts. Ships that do

not comply with the *WAHV Act* may be refused access to Canadian waters, fined, or detained.⁴⁰

Air Pollution

On July 1, 2010, IMO's revised *MARPOL Annex VI, Regulations for the Prevention of Air Pollution from Ships*⁴¹ (the *Air Pollution Regulations*) came into force to tackle the increasingly prominent environmental issue of air pollution. The amendments, adopted by the IMO in 2008, introduced stricter emissions caps and emission control areas (ECAs), essentially sensitive sea zones with increased emissions standards. In 2012, Canada enacted the *Vessel Pollution and Dangerous Chemicals Regulations*⁴² (the *VPDC Regulations*) under the *CSA*, incorporating provisions of the *Air Pollution Regulations*, with Canada's Atlantic and Pacific coasts being included in the *Air Pollution Regulations*' North American ECAs.

The *Air Pollution Regulations* and *VPDC Regulations* address various forms of ship source air pollution, including most importantly nitrogen oxides (NO_x), sulphur oxides (SO_x), and particulate matter (PM) produced by marine diesel engines. Although shipping by water remains the most energy-efficient method of transporting goods, it contributes 15 percent of the world's NO_x emissions and 13 percent of its SO_x emissions.⁴³ NO_x are gases that are harmful to human health and lead to acid rain and the accumulation of ground-level ozone.⁴⁴ NO_x emission levels depend on engine efficiency and design. SO_x cause similar health and environmental effects to NO_x but depend on sulphur content in bunker fuel.⁴⁵ For its part, PM consists of residual fuel combustion particles that, when emitted close to shore, contribute to smog and form "black carbon," a significant factor in climate change.⁴⁶

The *VPDC Regulations* limit PM emissions within one mile from shore through a visual smoke density chart used to quantify the approximate density of ships' exhaust.⁴⁷ NO_x are controlled by emission limits that vary depending on the age of the vessel, the size and output of the engine, and the rated engine speed in crankshaft revolutions per minute.⁴⁸ The regulations also contain energy efficiency requirements for marine engines, which target CO_2 emissions, although ships are a relatively insignificant contributor of CO_2 emissions, as compared to SO_x , NO_x , and PM emissions.⁴⁹ Foreign ships in Canadian waters, and Canadian ships worldwide, are also required to keep either a Canadian Air Pollution Prevention Certificate or its international equivalent onboard as proof of compliance.⁵⁰ Furthermore, both

the *Air Pollution Regulations* and *VPDC Regulations* have imposed gradual restrictions on the maximum percentage of sulphur allowed in bunker fuel. On January 1, 2015, the sulphur limit in ECAs, including Canada’s Atlantic and Pacific coasts, was reduced from 1.00 percent to 0.10 percent. More recently, the worldwide limit outside of ECAs, including Canada’s Arctic coast, dropped from 3.50 percent to 0.50 percent on January 1, 2020. It is anticipated that the 2020 measures will have an important environmental and health impact, reducing SO_x emissions by 77 percent or 8.5 million metric tons.⁵¹ However, this will not be without a profound economic impact on the marine shipping and fuel industries. In 2016, the OECD projected that the 2020 measures could potentially cost the shipping industry up to \$30 billion annually in additional costs.⁵²

The shipping industry has been preparing for the new fuel regulations, increasingly relying on environmental technologies such as exhaust gas cleaning systems, also known as “scrubbers”—which are provided for in the *VPDC Regulations*, allowing ships to use fuel with a higher sulphur content than the prescribed limit⁵³—and phasing in cleaner, higher-quality fuels with less sulphur.

Conclusion

Global trade increasingly requires the carriage of hazardous commodities and materials by sea over long distances, potentially putting the marine venture, human health, and the environment at risk. Diligence, new technology, and adherence to better practices are mitigating factors, but without uniform standards and coordinated enforcement, they will only go so far.

Industry leaders, stakeholders, and governments, through the IMO and other supporting institutions, must continue to advance broad uniformity, compliance, and enforcement efforts. They must continue to seek an elevated standard of pollution prevention and environmental safety, in balance with trade necessities, on a priority basis. While enormous advancements have been made, the “greening” of the shipping industry to achieve and maintain best environmental practices and common standards at large remains ongoing.

NOTES

- 1 Partner, Stikeman Elliott LLP (Montréal). This paper is based in part of the author's contribution to the *Report on the Legal Framework for Civil Liability for Vessel Source Oil Spills in Polar Regions*, edited by LR Overby (CMI Yearbook, New York I, 2015, for section on Canadian law. See <comitemaritime.org/wp-content/uploads/2018/06/CMI_Yearbook_2015-FINAL.pdf> at 376. The author also wishes to recognize the assistance of his colleagues Arad Mojtahedi (with its initial preparation) and Simon Ledsham (for the 2020 review and update).
- 2 Public Review Panel on Tanker Safety and Marine Spills Response Capability, *Final Report: Protecting Our Waters* (Ottawa: Minister of Supply and Services Canada, 1990).
- 3 The IMO is a United Nations specialized agency tasked with the responsibility to improve the safety and security of shipping, including the mitigation of pollution risks.
- 4 Comité Maritime International <comitemaritime.org>.
- 5 See e.g., the Canadian Maritime Law Association <www.cmla.org>.
- 6 See Green Marine, <www.green-marine.org> (an organization based in Québec City, QC and Seattle, WA, composed of leading Canadian and US associations that represent more than five hundred companies in the maritime sector. It promotes a voluntary environmental certification program for sectors of the North American marine industry). See also Highway H2O, <www.hwyh2o.com> (an initiative supported by the St. Lawrence Seaway Management Corporation (Cornwall, ON) and the Saint Lawrence Seaway Development Corporation (Washington, DC) in their drive to encourage shipping as a viable alternative to road and rail traffic for the transport of bulk cargoes, including liquid bulk).
- 7 *Constitution Act, 1867*, 30 & 31 Vict, c 3, ss 91 and ff.
- 8 *Oceans Act*, SC 1996, c 31. (NM refers to nautical miles.)
- 9 *Arctic Waters Pollution Prevention Act*, RSC 1985, c A-12 [AWPP].
- 10 *Marine Liability Act*, SC 2001, c 6 [MLA].
- 11 *AWPP*, *supra* note 9, s 2.
- 12 *Ibid.*
- 13 *MLA*, *supra* note 10, s 47.
- 14 International Maritime Organization, *International Code for Ships Operating in Polar Waters* (Polar Code), [2015] MEPC 68/21 at 3.
- 15 See *Arctic Shipping Safety and Pollution Prevention Regulations*, SOR/2017-286.
- 16 *Canada Shipping Act*, SC 2001, C 26 [CSA]; *MLA*, *supra* note 10, Schedules 5, 6, 7 and 8.
- 17 *MLA*, *supra* note 10, s 75.
- 18 *Ibid.*
- 19 *CSA*, *supra* note 16.
- 20 *Ibid.*, Part 8.
- 21 *Ibid.*, Part 9.
- 22 The International Oil Pollution Compensation Funds, <www.iopcfunds.org/about-us/legal-framework/>. See also the *MLA*, *supra* note 10, Parts 6 and 7 and Schedules 5, 6, 7 and 8.
- 23 Ship-source Oil Pollution Fund, <www.ssopfund.ca/>.
- 24 *MLA*, *supra* note 10, s 2.
- 25 *Migratory Birds Convention Act*, SC 1994, c 22.

- 26 *Canadian Environmental Protection Act, 1999*, SC 1999, c 33.
- 27 *Environmental Protection Act*, SNL2002, c E-14.2.
- 28 *Environment Act*, NS 1994-95, C 1.
- 29 The International Oil Pollution Compensation Funds, “The HNS Convention Why It Is Needed: Compensation for Damage Caused by Hazardous and Noxious Substances Transported by Sea” (last visited 10 June 2020) at 1–6, online (pdf): *International Maritime Organization* <wwwcdn.imo.org/localresources/en/MediaCentre/HotTopics/Documents/HNS%20ConventionWebE.pdf> [perma.cc/YTT2-J8YL].
- 30 International Maritime Organization, *International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea 1996*, [2010] online: *International Maritime Organization* <www.hnsconvention.org/> [*HNS Convention*].
- 31 See *Marine Liability and Information Return Regulations*, SOR/2016-307. See also “The HNS and Oil Electronic Reporting System. Le système de déclaration électronique pour les SNPD et les hydrocarbures” (last visited 10 June 2020), online: *Transport Canada* <stats.tc.gc.ca/HNS/Login.aspx> [perma.cc/P8MY-DS67].
- 32 International Maritime Organization, *International Convention for the Control and Management of Ships’ Ballast Water and Sediments*, [2004] BWM/CONF/36 [*BWM Convention*].
- 33 Transport Canada, *Discussion Paper: Canadian Implementation of the Ballast Water Convention* (Ottawa: Transport Canada, 2012). See also the *Ballast Water Control Management Regulations*, SOR/2011-237 (under the CSA).
- 34 See International Chamber of Shipping “Urgent Need for Governments to Act on Ballast Water Chaos” (8 September 2016), online: *International Chamber of Shipping* <www.ics-shipping.org/press-release/urgent-need-for-governments-to-act-on-ballast-water-chaos/> [perma.cc/Q4W8-4EZ4].
- 35 *Ballast Water Regulations*, SOR/2021-120.
- 36 See Canadian Shipper “Chamber of Marine Commerce Releases Its 2020 Government Wish List” (15 January 2020), online: *Canadian Shipper* <www.marinedelivers.com/policy-priorities/> [perma.cc/7URR-LCRS].
- 37 International Maritime Organization, *The Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships*, [2009] SR/CONF/45 [*Hong Kong Convention*].
- 38 International Maritime Organization, *Nairobi International Convention on the Removal of Wrecks*, 18 May, 2007 (entered into force: 14 April 2015) [*Nairobi Convention*].
- 39 *Wrecked, Abandoned or Hazardous Vessels Act* SC 2019, c 1.
- 40 *Ibid*, ss 74, 82, 90, 110.
- 41 Annex VI was introduced through the 1997 Protocol to MARPOL, which came into force in 2005, and which was ratified by Canada in March 2010.
- 42 *Vessel Pollution and Dangerous Chemicals Regulations*, SOR/2012-69 [*VPDC Regulations*].
- 43 See ClearSeas “Air Pollution and Marine Shipping” (2019), online: *ClearSeas* <clearseas.org/en/air-pollution/> [perma.cc/7H5N-RM3K] [*Marine Shipping*]. See also Council of Canadian Academies, “The Value of Commercial Marine Shipping to Canada: The Expert Panel on the Social and Economic Value of Marine Shipping to Canada” (2017) at 38, 70, online (pdf): *ClearSeas* <clearseas.org/wp-content/uploads/2017/05/ValueMarineShipping_fullreport_EN.pdf> [perma.cc/RXT7-3K6D].

- 44 See Marine Shipping, *supra* note 43.
- 45 *Ibid.*
- 46 *Ibid.*
- 47 See *VPDC Regulations*, *supra* note 42, ss 117–119.
- 48 *Ibid.*, ss 110–110.6.
- 49 *Ibid.*, s 116.2; Marine Shipping, *supra* note 43 (ships contributed 2.2 percent of global CO₂ emissions in 2012).
- 50 See *VPDC Regulations*, *supra* note 42, s 122.
- 51 See “Sulphur 2020—Cutting Sulphur Oxide Emissions” (last visited 10 June 2020), online: *International Maritime Organization* <www.imo.org/en/MediaCentre/HotTopics/Pages/Sulphur-2020.aspx> [perma.cc/9XSN-FT56].
- 52 See Organization for Economic Cooperation and Development, “Reducing Sulphur Emissions from Ships: The Impact of International Regulation” (9 May 2016) at 10–42, online (pdf): *International Transport Forum* <www.itf-oecd.org/sites/default/files/docs/sulphur-emissions-shipping.pdf> [perma.cc/XJE9-ZS9T]. See also Dan Healing, “New Shipping Rules Expected to Impact Canadian Oilsands Industry in 2020,” *Global News* (28 December 2019), online: *Global News* <globalnews.ca/news/6343041/marine-fuel-imo-2020-oilsands-canada/> [perma.cc/8FXR-826P].
- 53 See *VPDC Regulations*, *supra* note 42, s 111(4).

