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Ballast Water Control and Management Regulations

Statutory authority

Canada Shipping Act

Sponsoring department

Department of Transport

REGULATORY IMPACT ANALYSIS STATEMENT

(*This statement is not part of the Regulations.*)

Description

Scientific evidence suggests that ballast water (which includes the suspended matter in the water) carried on board a ship can be a vector by which harmful aquatic organisms and pathogens are unintentionally transported around the world. These organisms and pathogens carried in ballast water can potentially invade an ecosystem when a ship discharges untreated ballast water. When non-indigenous organisms are discharged into waters where environmental conditions are such that they grow and flourish, they can become invasive and decimate native flora and fauna. The purpose of the proposed Regulations is to require ships to manage ballast water in such a manner as to reduce the potential of such invasions.

The international community recognizes that uncontrolled discharge of ballast water and sediment has led to the transfer of harmful aquatic organisms and pathogens. The International Maritime Organization (IMO) has been addressing the issue since 1988 when Canada reported on invasive marine species in the Great Lakes. In response, the IMO adopted voluntary guidelines in 1991 to help prevent further introductions. In an

attempt to control further transfers, members of the IMO signed the International Convention for the Control and Management of Ships' Ballast Water and Sediments (the Convention) on February 13, 2004. Signatories to this Convention, of which Canada is one, agree to take measures that will help prevent, minimize, and ultimately eliminate the transfer of harmful aquatic organisms and pathogens through the control and management of ships' ballast water and sediments. However, the international convention only enters into force when 30 countries comprising 35 percent of the world's tonnage offer intent to ratify or accede to it, without reservation.

The proposed Regulations are made pursuant to section 657.1 of the *Canada Shipping Act*, which provides the authority for the Governor in Council to make Regulations respecting the control and management of ballast water. The Regulations make several of the existing voluntary measures outlined in Transport Canada Publication No. 13617, "Guidelines for the Control of Ballast Water Discharge from Ships in Waters under Canadian Jurisdiction" (TP 13617), mandatory for all ships designed to carry ballast water that enter waters under Canadian jurisdiction and incorporate some of the principles enshrined in the international convention. TP 13617 will be amended and is now designed to be a "Guide" to the proposed Regulations.

Neither the international convention nor the proposed Regulations provide specific requirements or procedures that address ships that have no ballast on board (NOBOB). The NOBOB issue is currently being studied, but specific procedures suitable to include in a regulation have not yet been identified; thus, NOBOB ships are not specifically covered by the proposed Regulations. However, the proposed Regulations do provide that measures may be required if ballast water taken on within waters under Canadian jurisdiction is mixed with water taken on outside waters under Canadian jurisdiction. Therefore, while the authority to deal with NOBOB ships in Canadian waters exists, the lack of concrete measures to deal with them precludes any specific measures being included in the proposed Regulations at this time. Should concrete measures be identified in the future, the proposed Regulations may be amended to include them. In the interim, the revised TP 13617 includes guidance to NOBOB ships entering waters under Canadian jurisdiction on the measures they are expected to take.

As a solution to the issue of harmful aquatic organisms and pathogens entering Canadian ecosystems via ballast water, the proposed Regulations prescribe how ships traveling to Canadian ports must manage their ballast water. Exchange, treatment, disposal (at a reception facility) or retention on board are all considered to be best management practices for ballast water and accumulated sediment. Of these management practices, ballast water exchange that occurs 200 nautical miles from shore in waters that are at least 2 000 metres deep is, at this time, recognized as the most effective means available to control the potential of an invasive exotic species being transported in ballast water.

Also, since Canadian ports receive a number of ships that do not voyage out beyond 200 nautical miles, requirements and options are included in the proposed Regulations that stipulate how these ships must manage their ballast water in order to protect waters under Canadian jurisdiction from the potential effects of non-indigenous species. The proposed Regulations also contain contingency provisions in the event that it is unsafe or impractical for ships to manage their ballast as required by the proposed Regulations.

There are also provisions in the proposed Regulations delineating areas within waters under Canadian jurisdiction where ships can exchange ballast water and where the overall potential for invasion is reduced. These areas have been identified based on

scientific advice provided to Transport Canada from the Department of Fisheries and Oceans (DFO).

Furthermore, the proposed Regulations require ship operators to develop a ballast water management plan for each ship. The ballast water management plan will outline safety criteria and will identify suitable procedures that will ensure that ballast water management is conducted in an effective manner.

Alternatives

Three alternatives were considered in developing the proposed Regulations. These alternatives were (1) maintain the status quo, (2) incorporate the International Convention, and (3) follow the process developed by the United States of America.

The status quo, i.e. the use of voluntary guidelines enshrined in TP 13617 and no legal requirement to manage ballast water, was rejected because Canada is committed to the concept of controlling the spread of harmful aquatic organisms and pathogens via the ballast water vector, specifically by its signature on the international agreement dealing with this subject and generally by its signature on the Convention on Biological Diversity. Thus, at this point in time, it is incumbent upon the Government to enact legislation to control ballast water. The status quo defies the intent of these agreements.

The proposed Regulations attempt to clarify the policy objectives of the guidelines in order to ensure greater compliance. Clarification of the objectives is necessary because there is evidence that some ships do not voluntarily comply and, as such, invasions appear to continue. As recently as September of 2004, the Chinese Mitten Crab (*Eriocheir sinensis*), one of the world's 100 most invasive species, has been spotted in the St. Lawrence River near Québec. Since ballast water could potentially be a vector by which this and many other invasive species enter Canada, there is a need for greater government control of how ballast water is managed. In an attempt to curb further such sightings and garner greater control, Canada is proposing to move from voluntary guidelines to mandatory regulations.

The second option, i.e. to directly incorporate the Convention into the proposed Regulations, was also rejected because the Convention has not yet entered into force and it does not appear that it will in the near future. Incorporating its provisions prior to it coming into force would be ineffective, in particular with respect to the fact that foreign administrations would be under no obligation to ensure that their ships meet the requirements for certification, inspection and fitting of approved ballast water treatment systems. Canada's eventual accession to the Convention and subsequent incorporation by reference into regulations under the *Canada Shipping Act, 2001*, would appear to be Canada's most effective means to address this global issue. However, before doing so, Transport Canada must confirm Canada's commitment to such an action via consultations with other government departments and stakeholders. The proposed Regulations do, however, take the Convention into account as much as possible.

The third option, i.e. to duplicate the United States' rule for ballast water management, was also rejected. The United States currently requires ships to exchange their ballast water beyond 200 nautical miles from any shore. If a ship cannot perform exchange beyond this limit, because either it is not safe to do so or they do not travel out beyond 200 nautical miles from shore, then they may discharge, at port, only the amount of

ballast water "operationally necessary."

To every extent possible, the proposed Regulations do harmonize with the United States' rule. For example, both require ballast water exchange operations to occur in an area beyond 200 nautical miles from shore, both have similar reporting requirements and both require the vessels to carry on board a ballast water management plan. Furthermore, both have a safety provision and a provision that deals with ships that do not travel beyond 200 nautical miles from shore (i.e. coastal traffic). However, the proposed Regulations differ from the United States' rule in that it was possible to identify alternate areas where ballast water exchange would be acceptable to Canada, for both transoceanic and non-transoceanic traffic, based upon scientific advice provided by DFO.

Thus, given such scientific advice, Transport Canada rejected the option to duplicate the United States' rule for ballast water management.

Benefits and costs

Although there is a large body of literature on the subject of alien invasive species, very little of it assesses economic impacts and the literature that does exist appears to be inconclusive. Thus, the numbers in this benefit and cost analysis come from a number of sources. The numbers cited for ballast water exchange and development come from the United States Federal Register and were extrapolated to Canadian dollars using a standard 1.25 conversion value. The numbers cited for the value of the Canadian fishing industry were taken directly from the DFO Web site.

There appear to be costs to both the Canadian government and to the owners and operators of ships; however, costs to both of these groups are minimal. Costs to the Canadian government are mainly in the area of additional equipment, data management, enforcement and inspections. The costs to the owners and operators of ships fall into three separate categories: equipment and reporting costs, development costs and exchange cost.

Costs to owners and operators

Equipment and reporting

Ballast water exchange as a management method is available to practically all ships and, with slight adjustments to operating procedures, can be implemented without costly retrofits or expensive technology installations. Since ships are already equipped with the required ballast tanks and pumps, as ballast is pumped into and out of ships for stability and safety reasons, the proposed Regulations do not require ship owners to purchase additional equipment. Also, there will not be an increased cost associated with reporting ballast water activity under the proposed Regulations, as ballast water reporting forms are now voluntarily submitted to the Canadian Government.

Cost of exchange

In practice, due to its ease of application and relatively inexpensive operational cost, ballast water exchange is generally the method used by the shipping industry to prevent the introduction and transfer of aquatic species carried in ballast water. As such, the

proposed Regulations require 95 percent volumetric ballast exchange when vessels use a "flow-through" method. This level of exchange is reached when each ballast tank being exchanged has been pumped through three times.

Large vessels (those with greater than 80 000 Dead weight tonnage)[DWT] have an average ballast capacity of approximately 63 000 cubic metres, which would be pumped through three times to reach the required level of exchange. Given that ballast exchange costs approximately .0195 Canadian dollars/m^3, 95 percent exchange will cost an estimated (189 000 m^3 × .0195 dollars/m^3 =) 3,685.50 Canadian dollars.

Smaller vessels (those with less than 80 000 DWT) would not pump as much ballast as larger vessels. Therefore, the cost of exchange would be decreased. Given that smaller vessels may carry as little as 3 115 cubic metres of ballast that needs to be pumped through three times, the cost could be (9 345 m^3 × .0195 dollars/m^3 =) 182.23 Canadian dollars.

Regardless of the size, most vessels calling at Canadian ports already incur this cost, as they voluntarily exchange their ballast water.

Development costs

Under the proposed Regulations, ship owners are required to develop a ballast water management plan. The estimated cost of this "one-time" expense is approximately 1,200 Canadian dollars. This development cost is based on the hypothesis that it will require approximately eight hours of work at approximately $150 per hour.

These costs, however, are outweighed by the potential costs to the Canadian ecosystem if the proposed Regulations are not implemented.

Costs to the Canadian government

Reporting

The costs to the Canadian Government are marginal. While there will be a slight cost associated with the required reporting, ships currently send in Ballast Water Reports to the Canadian Government, as such, government officials currently handle these reports.

Inspection costs

Ships are currently inspected and compliance with the proposed Regulations will be monitored during regularly scheduled inspections. Inspection times will be increased slightly to include the new provisions in the proposed Regulations and to follow up in cases of non-compliance. It is intended that the necessary effort to enforce the proposed Regulations will be from existing resources.

Equipment costs

Paragraph 7(1)(*b*) of the proposed Regulations sets out a salinity standard which ships must meet if they conduct ballast water exchange outside 50 nautical miles of shore.

Thus, in order to monitor compliance, there is a need for Transport Canada to conduct salinity tests. As such, Transport Canada must purchase refract meters for each of its 31 offices that will permit inspectors to measure salinity. The cost of each refract meter is approximately 1,500 Canadian dollars.

Once ships have the ability to engage in ballast water treatment on board, Transport Canada will have to purchase suitable equipment that will permit inspectors to measure compliance against the set standard. This equipment will include, but is not limited to, sterilized dishes and test tubes. Furthermore, there will be a minimal training cost for inspectors. All training requirements will be included in normal inspector training courses.

Benefits

Canada has some of the most viable commercial fisheries in the world. The proposed Regulations are designed to protect, to some extent, these fisheries. In Canada, the Great Lakes commercial fishery alone has an average annual landed value of about $45 million and adds over $100 million to the Canadian economy. Recreational angling on the Great Lakes provides a further $350 million, for an overall contribution of $450 million to the Canadian economy.

Commercial fish catches on the east and the west coasts of Canada are also a valuable Canadian industry. The total sea fisheries catch in 2003 for Canada was valued at approximately $2,182,729,000 and averaged over $2 billion in each of the previous three years.

In current dollars, the value of output in the ocean sector increased from $16.6 billion in 1988 to $22.7 billion by the year 2000. Despite a downturn in the mid 1990s, the average rate of growth for the period was 2.6 percent in current terms and 0.7 percent in real terms (constant 1992 dollars). The value added to the Canadian economy by the ocean sector increased in real terms from $8.9 billion to $11.7 billion, at an average rate of 2.2 percent a year.

The contribution to Canada's gross domestic product (GDP) made by the ocean sector increased from 1.49 percent of GDP in 1988 to a peak of 1.56 percent in 1991 to 1993, then declined to a low of 1.16 percent in 1997 but increased to 1.48 percent of GDP in 2000. In 2000, fisheries was among the three most significant contributors to this increase.

In terms of landed value, the average rate of growth (ARG) of the primary fisheries in Canada from 1988 to 2000 was $2.7 million per year. Although the ARG of employment of "fishers" for that period dropped by 4.8 per cent per year, there was an ARG of 14.4 percent in Mariculture employment in Canada.

The proposed Regulations contain provisions to help and maintain a healthy Canadian marine environment. As demonstrated in the above paragraphs, the Canadian economy, through both ocean and fresh water commercial fisheries and the subsequent secondary industries, adds substantially to Canada's economy. Fish harvesters and recreational anglers and those who supply them equipment will all benefit from the protection offered to Canada's marine environment through the proposed Regulations. The ongoing costs of invasions of species, such as the zebra mussel in the Great Lakes that resulted in the fouling of water intakes (among other things), has been estimated at over $1 billion for

the region.

Given the above, it appears that the benefits resulting from the proposed Regulations clearly outweigh the costs. The benefit that the fisheries industry provides to Canada's economy greatly outweighs the accumulated costs to either the Government or owners and operators of ships.

Furthermore, given the above analysis, it is clear that the benefits clearly outweigh the costs in all cases. Conversely, there is a potential environmental and economic cost to not attempting to prevent further invasion of non-indigenous species into Canadian waters.

Environmental impact

The intention of the proposed Regulations is to reduce significantly the potential of the further introduction of harmful aquatic organisms and pathogens into Canadian ecosystems. Given stakeholder and public opinion and the resultant parliamentary recommendations, it is incumbent on Transport Canada, despite the high level of uncertainty inherent in invasive species biology, to propose this regulatory action. Thus, using the principles of the precautionary approach, the proposed Regulations attempt to protect Canada's biodiversity by decreasing the number of invasive species that could potentially enter Canadian ecosystems, and ballast water management is an effective first step in this process.

The most commonly used method of ballast water management available at this time is ballast water exchange. Ballast water exchange is the primary option presented in the proposed Regulations. The environmental basis for using exchange is the difference between the biological conditions (including salinity) of the ship's ballast water and the receiving waters into which it will be dumped. Potentially harmful aquatic organisms and pathogens are removed during a mid-ocean exchange process and are unlikely to survive given the difference in biological conditions of the receiving waters (fresh water to salt water). Organisms taken on during a mid-ocean exchange are unlikely to survive when eventually the exchanged ballast water is discharged into fresh water or at a coastal port (salt water into fresh/brackish water). Although some stakeholders have voiced concern about mid-ocean water entering port ecosystems, there is little to be concerned about as the "one pulse" volumes are typically minor compared to the overall volume and flushing characteristics of most ports.

There are methods other than exchange available that would ensure essentially no harmful aquatic organisms and pathogens survive in ballast water tanks. However, some of these methods may pose greater risks to the environment than the currently accepted methods of ballast water management.

The use of toxic chemical substances to treat ballast water is one commercially available ballast water management option being considered. Chemical treatment of ballast water would also, to some extent, protect Canada's biodiversity. Use of such treatment methods could kill any potential harmful aquatic organism and pathogen contained in ballast water. However, there is concern that the quantity of chemical required could have a substantial negative environmental impact. Since vessels generally deballast at port, residual chemicals contained in the ballast would enter a port's ecosystem and could subsequently kill its natural aquatic organisms. Also, the use of one single chemical to

control the spread of non-indigenous species contained in ballast does not guarantee that all harmful aquatic organisms and pathogens would die. It may require a cocktail of sorts to accomplish this task and such a cocktail could cause more environmental damage than it sought to mitigate. Given these restrictions, significantly more research is needed before any such method is adopted. If, at some future date, chemical treatment were considered as a safe method of "neutralizing" ballast water, it would be permitted only in accordance with strict international and domestic standards designed to ensure minimal environmental impacts.

The proposed Regulations identify zones in each part of the country where ships may exchange their ballast. A preliminary scan conducted in support of the strategic environmental assessment (SEA) suggests that further consideration be given to the selection of areas where exchange is permitted. Thus, for the selection of these zones, Transport Canada sought scientific advice from DFO. In order to provide this advice, DFO used scientific criteria to select zones where the environmental impact caused by ships releasing their ballast would be minimized. The zones were critically reviewed through DFO's peer review process. Transport Canada has implemented the advice provided by DFO in order to fulfill its requirement under the SEA process.

Consultation

Formal consultation meetings with concerned stakeholders such as federal and provincial government departments, the marine industry, labour associations, recreational boaters and environmental groups have been ongoing throughout the development of the proposed Regulations. Under the auspices of the Canadian Marine Advisory Council (CMAC), Transport Canada initiated both national and regional working groups on ballast water. The purpose of these working groups was twofold: firstly, it allowed stakeholders to provide Transport Canada with input to ballast water issues at both the national and international levels; and secondly, stakeholders with the opportunity to submit comments on the policies upon which the proposed Regulations are based. As a result of the meetings of these working groups, several changes were made to the initial drafting instructions for the proposed Regulations.

One of the most significant results from the consultative process was the deviation from the initial scope of the proposed Regulations. Originally intended to regulate solely ships that enter the St. Lawrence River and Great Lakes water system, the scope was expanded to apply to all ships in waters under Canadian jurisdiction. This change was a direct result of comments received at regional working group meetings on both the east and west coasts.

Concerns were expressed regarding the effectiveness of using alternate exchange zones within waters under Canadian jurisdiction and, in particular, whether their use would simply transfer or increase the risks rather than reduce them. On October 27 and 28, 2003, Transport Canada co-sponsored a multilateral interdepartmental workshop with the Massachusetts Institute of Technology (MIT) Sea Grant College Program to further study alternative ballast water exchange zones. Scientists attending this workshop claimed that although ballast water exchange would never completely eliminate the risk of non-indigenous species entering an ecosystem, it is " . . . a better alternative [than] no ballast water management." Furthermore, the scientists' sub-working group clearly stated that the greatest environmental risk comes when waters from a port or estuary are dumped into a port or estuary where there are "similar habitats." The ballast water management process least likely to cause an invasion of a non-indigenous species is when "offshore

water" is mixed with port or estuarine water.

In February 2005, DFO provided scientific advice to Transport Canada on the recommended use of alternative exchange zones as a result of a National Peer Review on Ballast Water Exchange Sites workshop held in 2004. The proposed Regulations follow the pattern recommended by DFO, including the agreement that alternative ballast water exchange zones, in waters under Canadian jurisdiction, are to be used only in "exceptional circumstances" where it is unsafe to exchange outside of waters under Canadian jurisdiction.

Transport Canada will continue its research efforts in the area of developing further risk assessment methodologies for the control and management of ballast water in Canadian waters.

Publication of the proposed Regulations in the *Canada Gazette*, Part I, will be followed by a 75-day period during which interested parties will have an opportunity to further examine and formally comment on the content of the proposed Regulations.

Compliance and enforcement

Enforcement of the proposed Regulations will not impact the overall established compliance mechanism for Marine Safety. The proposed Regulations will not require significant additional monitoring to ensure compliance, as Marine Safety inspectors will enforce the proposed Regulations during normal periodic inspections. In addition, the proposed Regulations do not affect existing compliance mechanisms under the provisions of the *Canada Shipping Act* enforced by Transport Canada inspectors.

Contact

Tom Morris, AMSEE, Manager, Environmental Protection, Transport Canada, Marine Safety, Place de Ville, Tower C, 10th Floor, 330 Sparks Street, Ottawa, Ontario K1A 0N8, (613) 991-3170 (telephone), (613) 993-8196 (facsimile).

PROPOSED REGULATORY TEXT

Notice is hereby given that the Governor in Council proposes, pursuant to section 657.1 (see footnote a) of the *Canada Shipping Act*, to make the annexed *Ballast Water Control and Management Regulations*.

Interested persons may make representations to the Minister of Transport with respect to the proposed Regulations within 75 days after the date of publication of this notice. All representations must be in writing and cite the *Canada Gazette*, Part I, and the date of publication of this notice, and be sent to Colleen Carmody, Project Manager, Regulatory and International Affairs, Transport Canada, Place de Ville, Tower C, 11th Floor, 330 Sparks Street, Ottawa, Ontario K1A 0N5 (tel.: (613) 990-4616; fax: (613) 991-5670; e-mail: carmodc@tc.gc.ca).

Persons making representations should identify any of those representations the disclosure of which should be refused under the *Access to Information Act*, in particular

under sections 19 and 20 of that Act, and should indicate the reasons why and the period during which the representations should not be disclosed. They should also identify any representations for which there is consent to disclosure for the purposes of that Act.

Ottawa, June 6, 2005

EILEEN BOYD
Assistant Clerk of the Privy Council

BALLAST WATER CONTROL AND MANAGEMENT REGULATIONS

INTERPRETATION

1. The following definitions apply in these Regulations.

"ballast water" means water with its suspended matter taken on board a ship to control the trim, list, draught, stability and stresses of the ship, and includes the sediment settled out of the ballast water within a ship. (*eau de ballast*)

"ballast water capacity" means the total volumetric capacity of any tanks, spaces or compartments on a ship used for carrying, loading or discharging ballast water, including any multi-use tank, space or compartment designed to allow the carriage of ballast water. (*capacité en eau de ballast*)

"ballast water system" means the tanks, spaces or compartments on a ship used for carrying, loading or discharging ballast water, including any multi-use tank, space or compartment designed to allow carriage of the ballast water, as well as the piping and pumps. (*système d'eau de ballast*)

"Great Lakes Basin" means the waters of the Great Lakes, their connecting and tributary waters and the St. Lawrence River as far as the lower exit of the St. Lambert Lock at Montréal in the Province of Quebec. (*bassin des Grands Lacs*)

"harmful aquatic organisms or pathogens" means aquatic organisms or pathogens that, if introduced into the sea, including estuaries, or into fresh water courses, could create hazards to human health, harm organisms, damage amenities, impair biological diversity or interfere with legitimate uses of the waters. (*agents pathogènes ou organismes aquatiques nuisibles*)

"reception facility" means a facility that is capable of receiving, storing, processing or transhipping ballast water or sediment in a manner that reduces the likelihood of harmful aquatic organisms or pathogens being introduced into waters under Canadian jurisdiction. (*installation de réception*)

"TP 13617" means the document entitled *A Guide to Canada's Ballast Water Control and Management Regulations*, published by the Department of Transport, as amended from time to time. (*TP 13617*)

"waters under Canadian jurisdiction" means Canadian waters and waters in the exclusive

economic zone of Canada, including a shipping safety control zone prescribed under the *Arctic Waters Pollution Prevention Act*. (*eaux de compétence canadienne*)

APPLICATION

2. (1) These Regulations apply to every ship in waters under Canadian jurisdiction that is designed or constructed to carry ballast water, unless

(*a*) the ship operates exclusively in waters under Canadian jurisdiction; or

(*b*) the ship operates in the United States waters of the Great Lakes Basin or the French waters of the islands of Saint Pierre and Miquelon when it operates in waters outside Canadian jurisdiction.

(2) These Regulations do not apply to

(*a*) ships used for search and rescue operations or pleasure craft that are less than 50 m in overall length and that have a maximum ballast water capacity of 8 m^3; or

(*b*) ships that carry permanent ballast water in sealed tanks such that it is not subject to discharge.

COMPLIANCE

3. The owner of a ship and the master of a ship shall ensure that the requirements set out in sections 4 to 9 and 12 are met.

BALLAST WATER MANAGEMENT

4. (1) For the purposes of this section, a ship manages ballast water if it employs, either separately or in combination, the following management processes:

(*a*) the exchange of ballast water;

(*b*) the treatment of ballast water;

(*c*) the discharge of ballast water to a reception facility; and

(*d*) the retention of ballast water on board the ship.

(2) A ship carrying ballast water taken on board the ship outside waters under Canadian jurisdiction shall manage the ballast water in order to

(*a*) minimize both the uptake of harmful aquatic organisms or pathogens within the ballast water and their discharge with the ballast water into waters under Canadian jurisdiction; or

(*b*) remove or render harmless harmful aquatic organisms or pathogens within the ballast water.

(3) It is not necessary to manage ballast water taken on board the ship in the United States waters of the Great Lakes Basin or in the French waters of the islands of Saint Pierre and Miquelon if that ballast water is not mixed with other ballast water taken on board the ship outside waters under Canadian jurisdiction.

(4) It is not necessary to manage ballast water if the ship operates exclusively

(*a*) between ports, offshore terminals or anchorage areas situated on the west coast of North America, north of Cape Blanco; or

(*b*) between ports, offshore terminals or anchorage areas situated on the east coast of North America, north of Cape Cod, and ports, anchorage areas or offshore terminals situated in the Bay of Fundy or the east coast of Nova Scotia.

(5) It is not necessary to manage ballast water if one of the following emergency situations occurs:

(*a*) the discharge or uptake of ballast water is necessary for the purpose of ensuring the safety of the ship in emergency situations or saving life at sea;

(*b*) the discharge or uptake of ballast water is necessary for the purpose of avoiding or minimizing the discharge of a pollutant from the ship; or

(*c*) the accidental ingress or discharge of ballast water results from damage to the ship or its equipment that was not caused by a wilful or reckless act of the owner or officer in charge and all reasonable precautions are taken before and after the occurrence of the damage or discovery of the damage for the purpose of preventing or minimizing the ingress or discharge.

BALLAST WATER EXCHANGE — TRANSOCEANIC NAVIGATION

5. (1) This section applies in respect of a ship that exchanges ballast water and, during the course of a voyage, navigates more than 200 nautical miles from shore where the water depth is at least 2000 m.

(2) The ship shall not discharge ballast water that is taken on board the ship outside of waters under Canadian jurisdiction in waters under Canadian jurisdiction unless the ship conducts an exchange before entering Canadian waters in an area situated at least 200 nautical miles from shore where the water depth is at least 2000 m.

(3) If the ship is on a voyage to a port, offshore terminal or anchorage area or in the Great Lakes Basin, St. Lawrence River or Gulf of St. Lawrence and cannot comply with subsection (2) because doing so would compromise the stability of the ship or the safety of the ship or of persons on board, the ship shall notify the Minister of Transport as soon as possible. After doing so, the ship may, between December 1 and May 1, conduct an exchange in the Laurentian Channel east of 63° west longitude where the water depth is

at least 300 m.

(4) If the ship cannot comply with subsection (2) because doing so would be impractical or would compromise the stability of the ship or the safety of the ship or of persons on board, the ship may conduct an exchange in the following areas in waters under Canadian jurisdiction:

(*a*) in respect of a voyage to a port, offshore terminal or anchorage area on the east coast of Canada, an area south of 43°30' north latitude where the water depth is at least 1000 m;

(*b*) in respect of a voyage to a port, offshore terminal or anchorage area on the west coast of Canada, an area at least 50 nautical miles from the western side of Vancouver Island and the Queen Charlotte Islands and from a line extending from Cape Scott to Cape St. James where the water depth is at least 500 m, with the exception of waters within 50 nautical miles of the Bowie Seamount (53°18' north latitude and 135°40' west longitude);

(*c*) in respect of a voyage to a port, offshore terminal or anchorage area in Hudson Bay, an area in Hudson Strait east of 70° west longitude where the water depth is at least 300 m; or

(*d*) in respect of a voyage to a port, offshore terminal or anchorage area in the Higher Arctic, an area in Lancaster Sound east of 80° west longitude where the water depth is at least 300 m.

(5) If the ship is on a voyage to a port, offshore terminal or anchorage area on the west coast of Canada and cannot comply with paragraph (4)(*b*) because doing so would be impractical or would compromise the stability of the ship or the safety of the ship or of persons on board, the ship may conduct an exchange in an area at least 45 nautical miles from the western side of Vancouver Island and the Queen Charlotte Islands and from a line extending from Cape Scott to Cape St. James where the water depth is at least 500 m, with the exception of waters within 50 nautical miles of the Bowie Seamount (53°18' north latitude and 135°40' west longitude).

BALLAST WATER EXCHANGE — NON-TRANSOCEANIC NAVIGATION

6. (1) This section applies in respect of a ship that exchanges ballast water and does not, during the course of a voyage, navigate more than 200 nautical miles from shore where the water depth is at least 2000 m.

(2) The ship shall not discharge ballast water that is taken on board the ship outside of waters under Canadian jurisdiction in waters under Canadian jurisdiction unless the ship conducts an exchange before entering Canadian waters in an area situated at least 50 nautical miles from shore where the water depth is at least 500 m.

(3) If the ship cannot comply with subsection (2) because doing so would be impractical or would compromise the stability of the ship or the safety of the ship or of persons on board, the ship may conduct an exchange in the following areas in waters under Canadian jurisdiction:

(*a*) in respect of a voyage along the east coast of North America, an area south of latitude 43°30' north latitude where the water depth is at least 1000 m;

(*b*) in respect of a voyage along the west coast of North America, an area situated at least 50 nautical miles from the western side of Vancouver Island and the Queen Charlotte Islands and from a line extending from Cape Scott to Cape St. James where the water depth is at least 500 m, with the exception of waters within 50 nautical miles of the Bowie Seamount (53°18' north latitude and 135°40' west longitude);

(*c*) in respect of a voyage to a port, offshore terminal or anchorage area in Hudson Bay, an area in Hudson Strait east of 70° west longitude where the water depth is at least 300 m; or

(*d*) in respect of a voyage to a port, offshore terminal or anchorage area in the Higher Arctic, an area in Lancaster Sound east of 80° west longitude where the water depth is at least 300 m.

BALLAST WATER EXCHANGE STANDARD

7. (1) A ship that exchanges ballast water shall attain

(*a*) an efficiency of at least 95 per cent volumetric exchange; and

(*b*) a ballast water salinity of at least 30 parts per thousand, if the exchange of ballast water is conducted in an area not less than 50 nautical miles from shore.

(2) In the case of a ship that exchanges ballast water through flow-through exchange, pumping through three times the volume of each ballast tank shall constitute 95 per cent volumetric exchange, unless the ship provides evidence in its ballast water management plan that pumping through less than three times that volume achieves 95 per cent volumetric exchange.

BALLAST WATER TREATMENT STANDARD

8. A ship that treats ballast water shall attain, after the treatment, ballast water having a viable organism and indicator microbe content less than the following concentrations:

(*a*) 10 viable organisms per cubic metre greater than or equal to 50 µ in minimum dimension;

(*b*) 10 viable organisms per millilitre less than 50 µ and greater than or equal to 10 µ in minimum dimension;

(*c*) one colony-forming unit (cfu) of toxicogenic *Vibrio cholerae* (O1 and O139) per 100 mL or one cfu per 1 g (wet weight) zooplankton samples;

(*d*) 250 cfu of *Escherichia coli* per 100 mL; and

(*e*) 100 cfu of intestinal enterococci per 100 mL.

SEDIMENT DISPOSAL

9. (1) A ship shall not discharge into waters under Canadian jurisdiction sediment that comes from the routine cleaning of spaces used to carry ballast water taken on board the ship outside of waters under Canadian jurisdiction.

(2) The ship may carry out the disposal of the sediment at a reception facility.

BALLAST WATER MANAGEMENT PLAN

10. (1) Within six months after the day on which these Regulations come into force, the owner of a ship shall ensure that the ship carries on board and implements a ballast water management plan setting out safe and effective procedures for ballast water management and containing at least the following:

(*a*) a detailed description of the ballast water management processes that the ship must use;

(*b*) a detailed description of the safety procedures that the crew and the ship must follow with respect to ballast water management;

(*c*) a detailed description of the procedures that the crew must follow with respect to implementing the requirements of these Regulations and the ballast water management plan;

(*d*) a detailed description of the procedures that the crew must follow for the disposal, at sea or on land, of sediment resulting from the routine cleaning of the spaces used to carry ballast water; and

(*e*) a detailed description of the procedures that the crew must follow for co-ordinating ballast water management with Canadian authorities.

(2) The ballast water management plan shall also include the following:

(*a*) a detailed description of the ballast water system, including the design specifications;

(*b*) for ships that exchange ballast water through flow-through exchange, evidence of the stability of the tank boundary structure in cases where the tank head is equivalent to the full distance to the top of the overflow;

(*c*) for ships that exchange ballast water through sequential exchange, a list of the exchange sequences that take account of the strength, stability, minimum draught forward and propeller immersion, as well as a list of solutions for the problems of sloshing, slamming and ballast inertia;

(*d*) a description of the operational limits, such as wave height for various speeds and headings, for the safe and effective management of ballast water;

(*e*) an identification of the officer on board who is responsible for implementing the plan; and

(*f*) the ballast water reporting form and requirements respecting its delivery, as well as the reporting requirements applicable to the ship under the laws of other jurisdictions.

11. (1) The owner of a Canadian ship or a ship that could be registered under Part I of the *Canada Shipping Act* shall submit four copies of its ballast water management plan to the Board six months after the day on which these Regulations come into force.

(2) If any change is made to the ship or its operations that affects its ballast water management plan, four copies of an amended ballast water management plan shall, as soon as possible, be submitted to the Board.

EXCEPTIONAL CIRCUMSTANCES

12. (1) If a ship that is required to manage ballast water under section 4 cannot comply with these Regulations or its ballast water management plan because of an equipment failure or because such compliance would compromise the stability of the ship or the safety of the ship or of persons on board, the ship shall notify the Minister of Transport at least 96 hours before entry into the territorial sea and provide updates on the status of the situation in the manner provided in section 5.1 of TP 13617.

(2) A ship that exchanges ballast water in accordance with subsection 5(3), (4) or (5) or 6(3) is not required to notify the Minister of Transport.

(3) After being notified, the Minister of Transport shall, in consultation with the master of the ship, determine the measures that, without compromising the safety of the ship or of persons on board, would reduce as much as practicable the likelihood of the introduction of harmful aquatic organisms or pathogens into waters under Canadian jurisdiction.

(4) In determining the measures that should be implemented, the Minister of Transport shall take the following criteria into account:

(*a*) the information provided to the Minister of Transport by the master of the ship respecting the nature of the ballast water it is carrying, including its origin and operations previously performed on the ballast water on board the ship;

(*b*) possible operations that would, taking into account prevailing sea conditions, remove or render harmless harmful aquatic organisms and pathogens within the ballast water taken onto the ship outside waters under Canadian jurisdiction or that would minimize their uptake in that ballast water or their discharge with that ballast water into waters under Canadian jurisdiction;

(*c*) the feasibility of implementing the possible operations, taking into account their compatibility with the design and operation of the ship; and

(*d*) the consequences of the possible operations on the safety of the ship and of persons on board.

(5) The ship shall implement the measures determined by the Minister of Transport, which shall include one or more of the following:

(*a*) the retention of some or all of the ballast water on board the ship while it is in waters under Canadian jurisdiction;

(*b*) the exchange of the ballast water or a portion of it in the location indicated, using the procedures specified;

(*c*) the discharge of the ballast water or a portion of it in the location indicated, using the procedures specified; and

(*d*) the treatment of the ballast water or a portion of it on board the ship in accordance with a specified method.

(6) The ship shall provide all reasonable assistance that the Minister of Transport may request.

REPORTING

13. (1) The master of a ship bound for a port, offshore terminal or anchorage area in Canada shall submit to the Minister of Transport a completed Ballast Water Reporting Form in the manner provided in section 5.2 of TP 13617 as soon as possible after a management process is performed or a measure determined by the Minister is implemented.

(2) A copy of every submitted Ballast Water Reporting Form shall be carried on board the ship for 24 months after it is submitted.

COMING INTO FORCE

14. These Regulations come into force on the day on which they are registered.

[24-1-o]

Footnote a

S.C. 1998, c. 16, s. 18

NOTICE:
The format of the electronic version of this issue of the Canada Gazette was modified in order to be compatible with hypertext language (HTML). Its content is very similar except for the footnotes, the symbols and the tables.

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Important Notices

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