**Translation: Only the Danish document has legal validity.**

*Order no. 968 of 24 July 2017*
*issued by the Danish Environmental Protection Agency*

# Order on the management of ballast water and sediments from ships' ballast water tanks

Pursuant to section 2(3), section 19b(2) and (3), section 19c(2)-(4), section 43b, section 48(1) and (2) and section 61(1) of the act on protection of the marine environment (*lov om beskyttelse af havmiljøet)*, cf. consolidated act no. 116 of 26 January 2017, as amended by act no. 427 of 18 May 2016, and following consultation with the Minister of Defence, the following shall be laid down by authority pursuant to section 2(1) of order no. 930 of 27 June 2016 on the transfer of tasks and powers to the Danish Agency for Water and Nature Management:

## Part 1
*Purpose, definitions and application*

**Section 1.** This order lays down regulations on the management of ballast water and sediments from ships' ballast water tanks in order to prevent the spread of invasive species when discharging ballast water.

**Section 2.** For the purposes of this order, the following definitions shall apply:

1) *Active substance* means a substance or organism, including a virus or a fungus, that has a general or specific action on or against harmful aquatic organisms and pathogens and that is used to treat ballast water.
2) *Ballast water* means water, including water with suspended matter, taken on board a ship to regulate the trim, list, draught, stability or stresses of the ship. Water taken on board a ship solely for other reasons than the above-mentioned, including in order to refrigerate and carry articles of food, shall not be considered ballast water.
3) *Ballast water management systems* mean systems used to treat ballast water.
4) *Ballast water capacity* means the total capacity in cubic metres of a ship's ballast water tanks.
5) *Ballast water tank* means the tanks and spaces or sections on ships that can be used to carry, take in or discharge ballast water.
6) *Built* means, for the purposes of this order, the date when
   a) the keel of the ship is laid,
   b) a construction identifiable with a specific ship begins,
   c) assembly of that ship has commenced comprising at least 50 tonnes or 1% of the estimated mass of all structural material, whichever is less, or
   d) the ship is subject to major alterations, meaning an alteration of a ship which changes its ability to carry ballast water by 15 per cent or more, which changes the ship's type, which is projected to prolong the ship's life by ten years or more, or which results in other changes to the ballast water management system than the replacement of a component.
7) *Detailed analysis* means an analysis of a representative sample made in accordance with the guidelines of United Nations' International Maritime Organization indicating whether the ballast water analyzed has been managed in accordance with the requirements of this order on the exchange or management of ballast water.

8) *Waters of a Party* means the freshwater, brackish water or saltwater areas within the jurisdiction of a given Party, including inner waterways, lakes, inner and outer territorial waters and the exclusive economic zones.
9) *Ballast water management* means the mechanical, physical, chemical, and biological processes, either singularly or in combination, taking place when treating or replacing ballast water in order to remove, render harmless, or avoid the uptake or discharge of invasive species in ballast water and sediments.
10) *Non-representative sample* means a sample of a ship's ballast water taken and managed in accordance with the guidelines of United Nations' International Maritime Organization providing a non-representative picture of the total amount of aquatic organisms and pathogens herein.
11) *Indicative analysis* means an analysis made in accordance with the guidelines of United Nations' International Maritime Organization indicating whether the ballast water analyzed has been managed in accordance with the requirements of this order for replacing or treating ballast water.
12) *Invasive species* mean aquatic organisms, including pathogens, that – if introduced into the sea, including estuaries or freshwater courses – may cause damage to the environment, human health or property, impair the biological diversity or disturb any other lawful use of these areas.
13) *Convention* means the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004, as reproduced in annex 1 to this order.
14) *Party* means a country that is a Party to the Convention.
15) *Coast* means the base line from where the outer territorial waters have been determined in accordance with international law.
16) *Ship owner* means the owner of the ship or any other organisation or person, such as the operator or the bareboat charterer, who has assumed the responsibility for the operation of the ship from the owner of the ship and who has, in this connection, agreed to assume all obligations and responsibilities in accordance with the International Code for the Safe Operation of Ships, adopted by United Nations' International Maritime Organization.
17) *Representative sample* means a sample of a ship's ballast water taken and handled in accordance with the guidelines of the United Nations' International Maritime Organization providing a representative picture of the total amount of aquatic organisms and pathogens herein.
18) *Sediments* mean deposits of suspended substances from a ship's ballast water.
19) *Ship* means a vessel of any type operating in the marine environment and includes submersibles, floating installations, floating platforms, floating storage units (FSUs) and floating production, storage and offloading units (FPSOs).
20) *Suspended matter* means particles and flakes either floating on or drifting in water, including particles and flakes that have been genetically suspended, for example in connection with the washing of ballast water tanks.
21) *Exchange area* means an area designated by Danish or foreign authorities in which untreated ballast water may be exchanged.
22) *Open seas* mean waters outside the national jurisdiction.
23) *Anniversary date* means the day and the month of each year corresponding to the date of expiry of the ship's certificates.

**Section 3.** This order covers ships flying the Danish flag. To the extent compatible with international law, the order also applies to ships not flying the Danish flag in Danish territorial waters or in the exclusive economic zones.

*Subsection 2*. This order shall not apply to:

1) Ships, irrespective of flag, not designed to use ballast water.
2) Ships, irrespective of flag, only using permanent ballast water in sealed tanks not subject to discharge.
3) Ships, irrespective of flag, operating exclusively in Danish territorial waters and in the exclusive economic zones.
4) Ships flying the Danish flag exclusively operating in waters under the jurisdiction of a Party and in open seas, unless otherwise determined by the relevant country.
5) Ships of a total length below 50 metres and with a maximum ballast water capacity of 8 cubic metres exclusively used for recreational activities or competition or primarily used for search and rescue purposes. However, these ships shall to the widest possible extent manage their ballast water and sediments in accordance with the requirements of sections 5-9.
6) Warships or other ships owned or used by a State and used for State, non-commercial purposes. However, these ships shall to the widest possible extent manage their ballast water and sediments in accordance with the requirements of sections 5-9.

**Section 4.** The requirements for the management of ballast water and sediments stipulated in sections 5-9 shall not apply to

1) the uptake and discharge of ballast water and sediments necessary for the purpose of ensuring the safety of a ship in emergency situations or saving life at sea;
2) the accidental discharge of ballast water and sediments resulting from damage to a ship or its equipment provided that all reasonable precautions have been taken before and after the occurrence of the damage or discovery of the damage or discharge for the purpose of preventing or minimizing the discharge; and unless the ship owner or master wilfully or recklessly caused the damage;
3) the uptake and discharge of ballast water and sediments when being used for the purpose of avoiding or minimizing pollution incidents from the ship;
4) the discharge on the open seas of ballast water and sediments solely taken up in open seas; or
5) ballast water and sediments taken up and discharged at the same location provided that no mixing with unmanaged ballast water from other areas has occurred.

## Part 2
## *Ballast water management*

**Section 5**. All ships covered by this order, cf. section 3(1), constructed on or after 8 September 2017 shall conduct ballast water management that meets the treatment standard described in section 7 and the ballast water treatment shall be conducted in consideration of annex 2, cf. however subsection 3.

*Subsection 2.* All ships covered by this order, cf. section 3(1), constructed before 8 September 2017 shall conduct ballast water management that meets the exchange standard described in section 6, cf. however subsections 3 and 4.

*Subsection 3*. The requirement of subsections 1 and 2 shall not apply to ships that discharge their ballast water to a ballast water reception facility meeting the treatment standard described in section 7(1) and (2) and established in accordance with annex 3.

*Subsection 4.* The requirement of subsection 2 shall not apply to ships that conduct ballast water management that meets the treatment standard described in section 7 where the ballast water treatment is conducted in consideration of annex 2.

**Section 6.** When exchanging untreated ballast water, it shall be ensured that at least 95 per cent of the water in each of the ballast tanks used during port calls is exchanged. If the exchange is made by pumping through the ballast water tanks, pumping through at least three times the volume of each ballast water tank used during port calls shall be conducted.

*Subsection 2.* The exchange of untreated ballast water in accordance with subsection 1 shall as a minimum be conducted at water depths above 200 metres at least 50 nautical miles from the coast closest to the ship and, if the route of the ship so permits, at least 200 nautical miles from the coast nearest to the ship unless the exchange is conducted in an exchange area designated for this purpose.

*Subsection 3.* If the requirements stipulated in subsection 2 cannot be met without the ship having to deviate from its planned voyage, or without this voyage being delayed, and if the ship does not pass an exchange area on this voyage, the ship shall not be obliged to conduct ballast water exchange.

*Subsection 4.* Ballast water exchange shall be made in consideration of annex 2 and annex 4.

**Section 7**. When conducting ballast water management it shall be ensured that the ballast water discharged contains less than

1) 10 viable organisms per cubic metre greater than or equal to 50 micrometres in minimum dimension and
2) less than 10 viable organisms per millilitre less than 50 micrometres in minimum dimension.

*Subsection 2.* Furthermore, it shall be ensured that the discharge of indicator microbes does not exceed any of the following concentrations:

1) Toxicogenic Vibrio cholerae (O1 and O139) with less than 1 colony forming unit (cfu) per millilitre or less than 1 cfu per gram (wet weight) zooplankton samples;
2) Escherichia coli with less than 250 cfu per 100 millilitres; and
3) Intestinal Enterococci with less than 100 cfu per 100 millilitres.

*Subsection 3.* Ballast water management shall be conducted using a ballast water management system either approved by the Danish authorities, cf. section 11, or approved by similar authorities in another Party and, if the system uses active substances, also approved by United Nations' International Maritime Organization, cf. section 11(4).

**Section 8.** Ships shall, insofar as practicable, avoid the uptake of ballast water with potentially harmful aquatic organisms and pathogens, including the uptake of ballast water in areas with mass toxic algal blooms.

## Part 3
## *Sediment management*

**Section 9.** Sediments shall not be discharged into the sea.

*Subsection 2.* If there is a need to remove sediments from ballast water tanks, this shall be done so that there is no risk of sediments or residues hereof getting in contact with the marine environment.

Part 4

*Exemptions*

**Section 10.** The Danish Environmental Protection Agency may, on the basis of an application, grant exemptions from the requirements for ballast water exchange and management in sections 6 and 7 to ships on specific voyages and where at least one port call is in Denmark. If an application for exemption includes the discharge of ballast water within the waters of another Party, the exemption shall also be granted by this Party. Exemptions shall be granted only if the Danish Environmental Protection Agency considers the risk of invasive species being transferred to be low.

*Subsection 2.* Exemptions shall be granted on the basis of a risk assessment made by an applicant in accordance with annex 5.

*Subsection 3.* Exemptions shall be granted for a maximum period of five years.

*Subsection 4.* Ships covered by a given exemption shall only mix ballast water originating from the ports or places covered by the exemption. If ballast water originating from other ports or places is mixed, the mixed ballast water shall be exchanged or managed in accordance with section 6 or 7, depending on which standard the ship is covered by, where after the ship may again refer to the relevant exemption.

*Subsection 5.* Applications for exemptions pursuant to subsection 1 shall be forwarded to the Danish Environmental Protection Agency, which shall inform United Nations' International Maritime Organization.

Part 5

*Type approval of ballast water management systems*

**Section 11.** The Danish Environmental Protection Agency shall type approve ballast water management systems on the basis of applications. The Danish Environmental Protection Agency shall only issue type approvals for systems using active substances if United Nations' International Maritime Organization has approved the use hereof.

*Subsection 2.* As part of the type approval, the Danish Environmental Protection Agency requests the applicant to document at its own expense that the system meets the management requirements stipulated in section 7.

*Subsection 3.* Applicants' drawing up of the documentation mentioned in subsection 2 shall be in cooperation with a classification society approved by the Danish Maritime Authority taking into account the Convention guidelines on type approval of ballast water management systems in force at any time as adopted by United Nations' International Maritime Organization.

*Subsection 4.* If the Danish Environmental Protection Agency assesses that a ballast water management system uses active substances, this use shall be approved by United Nations' International Maritime Organization in the form of, firstly, an initial and, subsequently, a final approval in accordance with annex 6. The applicant shall be informed of this and shall, at the same time, be informed that United Nations' International Maritime Organization requests a fee for the initial and any final approval. Payment shall be made to the Danish Nature Agency which shall collect the fee on behalf of United Nations' International Maritime Organization.

Part 6

*Inspection, sampling and interventions*

**Section 12.** The Danish Environmental Protection Agency shall inspect compliance with the provisions of this order.

**Section 13.** If, on the basis of inspection pursuant to section 12, doubt arises whether the provisions of this order are met or if the Danish Environmental Protection Agency in some other way becomes aware of possible contraventions hereof, the Danish Environmental Protection Agency may cause a non-representative sample to be taken and an indicative analysis of the ship's ballast water to be made.

*Subsection 2.* If the analysis mentioned in subsection 1 indicates that the ship concerned does not meet the requirements of this order for ballast water management, the Danish Environmental Protection Agency may request the Danish Maritime Authority to detain the ship until a representative sample has been taken of the ship's ballast water. The detention shall not cause any unnecessary delay of or cost to the ship.

*Subsection 3.* The Danish Environmental Protection Agency shall forward the sample mentioned in subsection 2 to an independent laboratory which shall make a detailed analysis with a view to clarifying whether the ship concerned meets the requirements of this order for ballast water management.

**Section 14.** In connection with inspection and control pursuant to sections 12 and 13, it shall be ensured that the ship does not discharge ballast water until it can do so without any danger of harm to the environment, human health or property, cf. however section 4.

**Section 15.** If a ship has contravened this order, the ship owner shall be informed about the contravention and it shall be ensured that the ship is not detained or delayed any longer than necessary to ensure compliance with this order.

Part 7

*Penalty*

**Section 16.** Unless severer penalty is due under other legislation, anyone shall be liable to punishment by fine who:

1) manages ballast water in violation of sections 5-8;
2) manages sediments in violation of section 9;
3) violates the conditions of any exemption granted pursuant to section 10; or
4) supplies incorrect information in connection with an application for exemption pursuant to section 10 or an application for type approval pursuant to section 11.

*Subsection 2.* The penalty may be increased to imprisonment for a term not exceeding two years if the violation has been made intentionally or grossly negligently and if:

1) the violation has caused damage to the environment or risk of such damage; or
2) the violation has produced or has been intended to produce financial benefits to the contravener or others, including cost savings.

*Subsection 3.* Subsection 2 shall not apply to violations committed from foreign ships unless the violations have been made in inner territorial waters. As regards violations committed from foreign ships in outer

territorial waters, the penalty may be increased to imprisonment for a term not exceeding two years in case of intentional and serious pollution of the marine environment.

*Subsection 4.* Companies, etc. (legal personalities) may be liable to punishment according to the provisions of part 5 of the Penal Code (*straffeloven).*

Part 8

*Entry into force*

**Section 17.** This order shall enter into force on 8 September 2017.

*Subsection 2.* Order no. 952 of 27 June 2016 on the management of ballast water and sediments from ships' ballast water tanks shall be repealed.

*Danish Environmental Protection Agency, 24 July 2017*

Lea Frimann Hansen / Lisbet Ølgaard

**Annex 1**

## International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004

The Parties to this Convention,

RECALLING Article 196(1) of the 1982 United Nations Convention on the Law of the Sea (UNCLOS), which provides that "States shall take all measures necessary to prevent, reduce and control pollution of the marine environment resulting from the use of technologies under their jurisdiction or control, or the intentional or accidental introduction of species, alien or new, to a particular part of the marine environment, which may cause significant and harmful changes thereto,"

NOTING the objectives of the 1992 Convention on Biological Diversity (CBD) and that the transfer and introduction of Harmful Aquatic Organisms and Pathogens via ships' ballast water threatens the conservation and sustainable use of biological diversity as well as decision IV/5 of the 1998 Conference of the Parties (COP 4) to the CBD concerning the conservation and sustainable use of marine and coastal ecosystems, as well as decision VI/23 of the 2002 Conference of the Parties (COP 6) to the CBD on alien species that threaten ecosystems, habitats or species, including guiding principles on invasive species,

NOTING FURTHER that the 1992 United Nations Conference on Environment and Development (UNCED) requested the International Maritime Organization (the Organization) to consider the adoption of appropriate rules on ballast water discharge,

MINDFUL of the precautionary approach set out in Principle 15 of the Rio Declaration on Environment and Development and referred to in resolution MEPC.67(37), adopted by the Organization's Marine Environment Protection Committee on 15 September 1995,

ALSO MINDFUL that the 2002 World Summit on Sustainable Development, in paragraph 34(b) of its Plan of Implementation, calls for action at all levels to accelerate the development of measures to address invasive alien species in ballast water,

CONSCIOUS that the uncontrolled discharge of Ballast Water and Sediments from ships has led to the transfer of Harmful Aquatic Organisms and Pathogens, causing injury or damage to the environment, human health, property and resources,

RECOGNIZING the importance placed on this issue by the Organization through Assembly resolutions A.774(18) in 1993 and A.868(20) in 1997, adopted for the purpose of addressing the transfer of Harmful Aquatic Organisms and Pathogens,

RECOGNIZING FURTHER that several States have taken individual action with a view to prevent, minimize and ultimately eliminate the risks of introduction of Harmful Aquatic Organisms and Pathogens through ships entering their ports, and also that this issue, being of worldwide concern, demands action based on globally applicable regulations together with guidelines for their effective implementation and uniform interpretation,

DESIRING to continue the development of safer and more effective Ballast Water Management options that will result in continued prevention, minimization and ultimate elimination of the transfer of Harmful Aquatic Organisms and Pathogens,

RESOLVED to prevent, minimize and ultimately eliminate the risks to the environment, human health, property and resources arising from the transfer of Harmful Aquatic Organisms and Pathogens through the control and management of ships' Ballast Water and Sediments, as well as to avoid unwanted side-effects from that control and to encourage developments in related knowledge and technology,

CONSIDERING that these objectives may best be achieved by the conclusion of an International Convention for the Control and Management of Ships' Ballast Water and Sediments,

HAVE AGREED as follows:

## Article 1
*Definitions*

For the purpose of this Convention, unless expressly provided otherwise:

1 "Administration" means the Government of the State under whose authority the ship is operating. With respect to a ship entitled to fly a flag of any State, the Administration is the Government of that State. With respect to floating platforms engaged in exploration and exploitation of the sea-bed and subsoil thereof adjacent to the coast over which the coastal State exercises sovereign rights for the purposes of exploration and exploitation of its natural resources, including Floating Storage Units (FSUs) and Floating Production Storage and Offloading Units (FPSOs), the Administration is the Government of the coastal State concerned.

2 "Ballast Water" means water with its suspended matter taken on board a ship to control trim, list, draught, stability or stresses of the ship.

3 "Ballast Water Management" means mechanical, physical, chemical, and biological processes, either singularly or in combination, to remove, render harmless, or avoid the uptake or discharge of Harmful Aquatic Organisms and Pathogens within Ballast Water and Sediments.

4 "Certificate" means the International Ballast Water Management Certificate.

5 "Committee" means the Marine Environment Protection Committee of the Organization.

6 "Convention" means the International Convention for the Control and Management of Ships' Ballast Water and Sediments.

7 "Gross tonnage" means the gross tonnage calculated in accordance with the tonnage measurement regulations contained in Annex I to the International Convention on Tonnage Measurement of Ships, 1969 or any successor Convention.

8 "Harmful Aquatic Organisms and Pathogens" means aquatic organisms or pathogens which, if introduced into the sea including estuaries, or into fresh water courses, may create hazards to the environment, human health, property or resources, impair biological diversity or interfere with other legitimate uses of such areas.

9 "Organization" means the International Maritime Organization.

10 "Secretary-General" means the Secretary-General of the Organization.

11 "Sediments" means matter settled out of Ballast Water within a ship.

12 "Ship" means a vessel of any type whatsoever operating in the aquatic environment and includes submersibles, floating craft, floating platforms, FSUs and FPSOs.

**Article 2**

*General Obligations*

1 Parties undertake to give full and complete effect to the provisions of this Convention and the Annex thereto in order to prevent, minimize and ultimately eliminate the transfer of Harmful Aquatic Organisms and Pathogens through the control and management of ships' Ballast Water and Sediments.

2 The Annex forms an integral part of this Convention. Unless expressly provided otherwise, a reference to this Convention constitutes at the same time a reference to the Annex.

3 Nothing in this Convention shall be interpreted as preventing a Party from taking, individually or jointly with other Parties, more stringent measures with respect to the prevention, reduction or elimination of the transfer of Harmful Aquatic Organisms and Pathogens through the control and management of ships' Ballast Water and Sediments, consistent with international law.

4 Parties shall endeavour to co-operate for the purpose of effective implementation, compliance and enforcement of this Convention.

5 Parties undertake to encourage the continued development of Ballast Water Management and standards to prevent, minimize and ultimately eliminate the transfer of Harmful Aquatic Organisms and Pathogens through the control and management of ships' Ballast Water and Sediments.

6 Parties taking action pursuant to this Convention shall endeavour not to impair or damage their environment, human health, property or resources, or those of other States.

7 Parties should ensure that Ballast Water Management practices used to comply with this Convention do not cause greater harm than they prevent to their environment, human health, property or resources, or those of other States.

8 Parties shall encourage ships entitled to fly their flag, and to which this Convention applies, to avoid, as far as practicable, the uptake of Ballast Water with potentially Harmful Aquatic Organisms and Pathogens, as well as Sediments that may contain such organisms, including promoting the adequate implementation of recommendations developed by the Organization.

9 Parties shall endeavour to co-operate under the auspices of the Organization to address threats and risks to sensitive, vulnerable or threatened marine ecosystems and biodiversity in areas beyond the limits of national jurisdiction in relation to Ballast Water Management.

**Article 3**

*Application*

1 Except as expressly provided otherwise in this Convention, this Convention shall apply to:
   (a) ships entitled to fly the flag of a Party; and
   (b) ships not entitled to fly the flag of a Party but which operate under the authority of a Party.

2 This Convention shall not apply to:
   (a) ships not designed or constructed to carry Ballast Water;

(b) ships of a Party which only operate in waters under the jurisdiction of that Party, unless the Party determines that the discharge of Ballast Water from such ships would impair or damage their environment, human health, property or resources, or those of adjacent or other States;

(c) ships of a Party which only operate in waters under the jurisdiction of another Party, subject to the authorization of the latter Party for such exclusion. No Party shall grant such authorization if doing so would impair or damage their environment, human health, property or resources, or those of adjacent or other States. Any Party not granting such authorization shall notify the Administration of the ship concerned that this Convention applies to such ship;

(d) ships which only operate in waters under the jurisdiction of one Party and on the high seas, except for ships not granted an authorization pursuant to sub-paragraph (c), unless such Party determines that the discharge of Ballast Water from such ships would impair or damage their environment, human health, property or resources, or those of adjacent of other States;

(e) any warship, naval auxiliary or other ship owned or operated by a State and used, for the time being, only on government non-commercial service. However, each Party shall ensure, by the adoption of appropriate measures not impairing operations or operational capabilities of such ships owned or operated by it, that such ships act in a manner consistent, so far as is reasonable and practicable, with this Convention; and

(f) permanent Ballast Water in sealed tanks on ships, that is not subject to discharge.

3 With respect to ships of non-Parties to this Convention, Parties shall apply the requirements of this Convention as may be necessary to ensure that no more favourable treatment is given to such ships.

## Article 4

*Control of the Transfer of Harmful Aquatic Organisms and Pathogens Through Ships' Ballast Water and Sediments*

1 Each Party shall require that ships to which this Convention applies and which are entitled to fly its flag or operating under its authority comply with the requirements set forth in this Convention, including the applicable standards and requirements in the Annex, and shall take effective measures to ensure that those ships comply with those requirements.

2 Each Party shall, with due regard to its particular conditions and capabilities, develop national policies, strategies or programmes for Ballast Water Management in its ports and waters under its jurisdiction that accord with, and promote the attainment of the objectives of this Convention.

## Article 5

*Sediment Reception Facilities*

1 Each Party undertakes to ensure that, in ports and terminals designated by that Party where cleaning or repair of ballast tanks occurs, adequate facilities are provided for the reception of Sediments, taking into account the Guidelines developed by the Organization. Such reception facilities shall operate without causing undue delay to ships and shall provide for the safe disposal of such Sediments that does not impair or damage their environment, human health, property or resources or those of other States.

2 Each Party shall notify the Organization for transmission to the other Parties concerned of all cases where the facilities provided under paragraph 1 are alleged to be inadequate.

**Article 6**

*Scientific and Technical Research and Monitoring*

1 Parties shall endeavour, individually or jointly, to:

(a) promote and facilitate scientific and technical research on Ballast Water Management; and

(b) monitor the effects of Ballast Water Management in waters under their jurisdiction.

Such research and monitoring should include observation, measurement, sampling, evaluation and analysis of the effectiveness and adverse impacts of any technology or methodology as well as any adverse impacts caused by such organisms and pathogens that have been identified to have been transferred through ships' Ballast Water.

2 Each Party shall, to further the objectives of this Convention, promote the availability of relevant information to other Parties who request it on:

(a) scientific and technology programmes and technical measures undertaken with respect to Ballast Water Management; and

(b) the effectiveness of Ballast Water Management deduced from any monitoring and assessment programmes.

**Article 7**

*Survey and certification*

1 Each Party shall ensure that ships flying its flag or operating under its authority and subject to survey and certification are so surveyed and certified in accordance with the regulations in the Annex.

2 A Party implementing measures pursuant to Article 2.3 and Section C of the Annex shall not require additional survey and certification of a ship of another Party, nor shall the Administration of the ship be obligated to survey and certify additional measures imposed by another Party. Verification of such additional measures shall be the responsibility of the Party implementing such measures and shall not cause undue delay to the ship.

**Article 8**

*Violations*

1 Any violation of the requirements of this Convention shall be prohibited and sanctions shall be established under the law of the Administration of the ship concerned, wherever the violation occurs. If the Administration is informed of such a violation, it shall investigate the matter and may request the reporting Party to furnish additional evidence of the alleged violation. If the Administration is satisfied that sufficient evidence is available to enable proceedings to be brought in respect of the alleged violation, it shall cause such proceedings to be taken as soon as possible, in accordance with its law. The

Administration shall promptly inform the Party that reported the alleged violation, as well as the Organization, of any action taken. If the Administration has not taken any action within 1 year after receiving the information, it shall so inform the Party which reported the alleged violation.

2 Any violation of the requirements of this Convention within the jurisdiction of any Party shall be prohibited and sanctions shall be established under the law of that Party. Whenever such a violation occurs, that Party shall either:

(a) cause proceedings to be taken in accordance with its law; or

(b) furnish to the Administration of the ship such information and evidence as may be in its possession that a violation has occurred.

3 The sanctions provided for by the laws of a Party pursuant to this Article shall be adequate in severity to discourage violations of this Convention wherever they occur.

## Article 9

*Inspection of Ships*

1 A ship to which this Convention applies may, in any port or offshore terminal of another Party, be subject to inspection by officers duly authorized by that Party for the purpose of determining whether the ship is in compliance with this Convention. Except as provided in paragraph 2 of this Article, any such inspection is limited to:

(a) verifying that there is onboard a valid Certificate, which, if valid shall be accepted; and

(b) inspection of the Ballast Water record book, and/or

(c) a sampling of the ship's Ballast Water, carried out in accordance with the guidelines to be developed by the Organization. However, the time required to analyse the samples shall not be used as a basis for unduly delaying the operation, movement or departure of the ship.

2 Where a ship does not carry a valid Certificate or there are clear grounds for believing that:

(a) the condition of the ship or its equipment does not correspond substantially with the particulars of the Certificate; or

(b) the master or the crew are not familiar with essential shipboard procedures relating to Ballast Water Management, or have not implemented such procedures;

a detailed inspection may be carried out.

3 In the circumstances given in paragraph 2 of this Article, the Party carrying out the inspection shall take such steps as will ensure that the ship shall not discharge Ballast Water until it can do so without presenting a threat of harm to the environment, human health, property or resources.

## Article 10

*Detection of Violations and Control of Ships*

1 Parties shall co-operate in the detection of violations and the enforcement of the provisions of this Convention.

2 If a ship is detected to have violated this Convention, the Party whose flag the ship is entitled to fly, and/or the Party in whose port or offshore terminal the ship is operating, may, in addition to any sanctions described in Article 8 or any action described in Article 9, take steps to warn, detain, or exclude

the ship. The Party in whose port or offshore terminal the ship is operating, however, may grant such a ship permission to leave the port or offshore terminal for the purpose of discharging Ballast Water or proceeding to the nearest appropriate repair yard or reception facility available, provided doing so does not present a threat of harm to the environment, human health, property or resources.

3 If the sampling described in Article 9.1(c) leads to a result, or supports information received from another port or offshore terminal, indicating that the ship poses a threat to the environment, human health, property or resources, the Party in whose waters the ship is operating shall prohibit such ship from discharging Ballast Water until the threat is removed.

4 A Party may also inspect a ship when it enters the ports or offshore terminals under its jurisdiction, if a request for an investigation is received from any Party, together with sufficient evidence that a ship is operating or has operated in violation of a provision in this Convention. The report of such investigation shall be sent to the Party requesting it and to the competent authority of the Administration of the ship concerned so that appropriate action may be taken.

## Article 11

*Notification of Control Actions*

1 If an inspection conducted pursuant to Article 9 or 10 indicates a violation of this Convention, the ship shall be notified. A report shall be forwarded to the Administration, including any evidence of the violation.

2 In the event that any action is taken pursuant to Article 9.3, 10.2 or 10.3, the officer carrying out such action shall forthwith inform, in writing, the Administration of the ship concerned, or if this is not possible, the consul or diplomatic representative of the ship concerned, of all the circumstances in which the action was deemed necessary. In addition, the recognized organization responsible for the issue of certificates shall be notified.

3 The port State authority concerned shall, in addition to parties mentioned in paragraph 2, notify the next port of call of all relevant information about the violation, if it is unable to take action as specified in Article 9.3, 10.2 or 10.3 or if the ship has been allowed to proceed to the next port of call.

## Article 12

*Undue Delay to Ships*

1 All possible efforts shall be made to avoid a ship being unduly detained or delayed under Article 7.2, 8, 9 or 10.

2 When a ship is unduly detained or delayed under Article 7.2, 8, 9 or 10, it shall be entitled to compensation for any loss or damage suffered.

**Article 13**

*Technical Assistance, Co-operation and Regional Co-operation*

1 Parties undertake, directly or through the Organization and other international bodies, as appropriate, in respect of the control and management of ships' Ballast Water and Sediments, to provide support for those Parties which request technical assistance:

(a) to train personnel;

(b) to ensure the availability of relevant technology, equipment and facilities;

(c) to initiate joint research and development programmes; and

(d) to undertake other action aimed at the effective implementation of this Convention and of guidance developed by the Organization related thereto.

2 Parties undertake to co-operate actively, subject to their national laws, regulations and policies, in the transfer of technology in respect of the control and management of ships' Ballast Water and Sediments.

3 In order to further the objectives of this Convention, Parties with common interests to protect the environment, human health, property and resources in a given geographical area, in particular, those Parties bordering enclosed and semi-enclosed seas, shall endeavour, taking into account characteristic regional features, to enhance regional co-operation, including through the conclusion of regional agreements consistent with this Convention. Parties shall seek to co-operate with the Parties to regional agreements to develop harmonized procedures.

**Article 14**

*Communication of information*

1 Each Party shall report to the Organization and, where appropriate, make available to other Parties the following information:

(a) any requirements and procedures relating to Ballast Water Management, including its laws, regulations, and guidelines for implementation of this Convention;

(b) the availability and location of any reception facilities for the environmentally safe disposal of Ballast Water and Sediments; and

(c) any requirements for information from a ship which is unable to comply with the provisions of this Convention for reasons specified in regulations A-3 and B-4 of the Annex.

2 The Organization shall notify Parties of the receipt of any communications under the present Article and circulate to all Parties any information communicated to it under subparagraphs 1(b) and (c) of this Article.

**Article 15**

*Dispute Settlement*

Parties shall settle any dispute between them concerning the interpretation or application of this Convention by negotiation, enquiry, mediation, conciliation, arbitration, judicial settlement, resort to regional agencies or arrangements or other peaceful means of their own choice.

## Article 16

*Relationship to International Law and Other Agreements*

Nothing in this Convention shall prejudice the rights and obligations of any State under customary international law as reflected in the United Nations Convention on the Law of the Sea.

## Article 17

*Signature, Ratification, Acceptance, Approval and Accession*

1 This Convention shall be open for signature by any State at the Headquarters of the Organization from 1 June 2004 to 31 May 2005 and shall thereafter remain open for accession by any State.

2 States may become Parties to the Convention by:

(a) signature not subject to ratification, acceptance, or approval; or

(b) signature subject to ratification, acceptance, or approval, followed by ratification, acceptance or approval; or

(c) accession.

3 Ratification, acceptance, approval or accession shall be effected by the deposit of an instrument to that effect with the Secretary-General.

4 If a State comprises two or more territorial units in which different systems of law are applicable in relation to matters dealt with in this Convention, it may at the time of signature, ratification, acceptance, approval, or accession declare that this Convention shall extend to all its territorial units or only to one or more of them and may modify this declaration by submitting another declaration at any time.

5 Any such declaration shall be notified to the Depositary in writing and shall state expressly the territorial unit or units to which this Convention applies.

## Article 18

*Entry into Force*

1 This Convention shall enter into force twelve months after the date on which not less than thirty States, the combined merchant fleets of which constitute not less than thirty-five percent of the gross tonnage of the world's merchant shipping, have either signed it without reservation as to ratification, acceptance or approval, or have deposited the requisite instrument of ratification, acceptance, approval or accession in accordance with Article 17.

2 For States which have deposited an instrument of ratification, acceptance, approval or accession in respect of this Convention after the requirements for entry into force thereof have been met, but prior to the date of entry in force, the ratification, acceptance, approval or accession shall take effect on the date of entry into force of this Convention or three months after the date of deposit of instrument, whichever is the later date.

3 Any instrument of ratification, acceptance, approval or accession deposited after the date on which this Convention enters into force shall take effect three months after the date of deposit.

4 After the date on which an amendment to this Convention is deemed to have been accepted under Article 19, any instrument of ratification, acceptance, approval or accession deposited shall apply to this Convention as amended.

## Article 19

*Amendments*

1 This Convention may be amended by either of the procedures specified in the following paragraphs.

2 Amendments after consideration within the Organization:

(a) Any Party may propose an amendment to this Convention. A proposed amendment shall be submitted to the Secretary-General, who shall then circulate it to the Parties and Members of the Organization at least six months prior to its consideration.

(b) An amendment proposed and circulated as above shall be referred to the Committee for consideration. Parties, whether or not Members of the Organization, shall be entitled to participate in the proceedings of the Committee for consideration and adoption of the amendment.

(c) Amendments shall be adopted by a two-thirds majority of the Parties present and voting in the Committee, on condition that at least one-third of the Parties shall be present at the time of voting.

(d) Amendments adopted in accordance with subparagraph (c) shall be communicated by the Secretary-General to the Parties for acceptance.

(e) An amendment shall be deemed to have been accepted in the following circumstances:

(i) An amendment to an article of this Convention shall be deemed to have been accepted on the date on which two-thirds of the Parties have notified the Secretary-General of their acceptance of it.

(ii) An amendment to the Annex shall be deemed to have been accepted at the end of twelve months after the date of adoption or such other date as determined by the Committee. However, if by that date more than one-third of the Parties notify the Secretary-General that they object to the amendment, it shall be deemed not to have been accepted.

(f) An amendment shall enter into force under the following conditions:

(i) An amendment to an article of this Convention shall enter into force for those Parties that have declared that they have accepted it six months after the date on which it is deemed to have been accepted in accordance with subparagraph (e)(i).

(ii) An amendment to the Annex shall enter into force with respect to all Parties six months after the date on which it is deemed to have been accepted, except for any Party that has:

(1) notified its objection to the amendment in accordance with subparagraph (e)(ii) and that has not withdrawn such objection; or

(2) notified the Secretary-General, prior to the entry into force of such amendment, that the amendment shall enter into force for it only after a subsequent notification of its acceptance.

(g)(i) A Party that has notified an objection under subparagraph (f)(ii)(1) may subsequently notify the Secretary-General that it accepts the amendment. Such amendment shall enter into force for such Party six months after the date of its notification of acceptance, or the date on which the amendment enters into force, whichever is the later date.

(ii) If a Party that has made a notification referred to in subparagraph (f)(ii)(2) notifies the Secretary-General of its acceptance with respect to an amendment, such amendment shall enter into force for such Party six months after the date of its notification of acceptance, or the date on which the amendment enters into force, whichever is the later date.

3 Amendment by a Conference:

(a) Upon the request of a Party concurred in by at least one-third of the Parties, the Organization shall convene a Conference of Parties to consider amendments to this Convention.

(b) An amendment adopted by such a Conference by a two-thirds majority of the Parties present and voting shall be communicated by the Secretary-General to all Parties for acceptance.

(c) Unless the Conference decides otherwise, the amendment shall be deemed to have been accepted and shall enter into force in accordance with the procedures specified in paragraphs 2(e) and (f) respectively.

4 Any Party that has declined to accept an amendment to the Annex shall be treated as a non-Party only for the purpose of application of that amendment.

5 Any notification under this Article shall be made in writing to the Secretary-General.

6 The Secretary-General shall inform the Parties and Members of the Organization of:

(a) any amendment that enters into force and the date of its entry into force generally and for each Party; and

(b) any notification made under this Article.

**Article 20**

*Denunciation*

1 This Convention may be denounced by any Party at any time after the expiry of two years from the date on which this Convention enters into force for that Party.

2 Denunciation shall be effected by written notification to the Depositary, to take effect one year after receipt or such longer period as may be specified in that notification.

**Article 21**

*Depositary*

1 This Convention shall be deposited with the Secretary-General, who shall transmit certified copies of this Convention to all States which have signed this Convention or acceded thereto.

2 In addition to the functions specified elsewhere in this Convention, the Secretary-General shall:

(a) inform all States that have signed this Convention, or acceded thereto, of:

(i) each new signature or deposit of an instrument of ratification, acceptance, approval or accession, together with the date thereof;

(ii) the date of entry into force of this Convention; and

(iii) the deposit of any instrument of denunciation from the Convention, together with the date on which it was received and the date on which the denunciation takes effect; and

(b) as soon as this Convention enters into force, transmit the text thereof to the Secretariat of the United Nations for registration and publication in accordance with Article 102 of the Charter of the United Nations.

**Article 22**

*Languages*

This Convention is established in a single original in the Arabic, Chinese, English, French, Russian and Spanish languages, each text being equally authentic.

DONE AT LONDON this thirteenth day of February, two thousand and four.

IN WITNESS WHEREOF the undersigned, being duly authorised by their respective Governments for that purpose, have signed this Convention.

ANNEX

# REGULATIONS FOR THE CONTROL AND MANAGEMENT OF SHIPS' BALLAST WATER AND SEDIMENTS

## SECTION A – GENERAL PROVISIONS

*Regulation A-1*

**Definitions**

For the purposes of this Annex:

1 "Anniversary date" means the day and the month of each year corresponding to the date of expiry of the Certificate.

2 "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 carriage of Ballast Water.

3 "Company" means the owner of the ship or any other organization or person such as the manager, or the bareboat charterer, who has assumed the responsibility for operation of the ship from the owner of the ship and who on assuming such responsibility has agreed to take over all the duties and responsibilities imposed by the International Safety Management Code.[1]

4 "Constructed" in respect of a ship means a stage of construction where:

.1 the keel is laid; or

.2 construction identifiable with the specific ship begins;

.3 assembly of the ship has commenced comprising at least 50 tonnes or 1 percent of the estimated mass of all structural material, whichever is less; or

.4 the ship undergoes a major conversion.

5 "Major conversion" means a conversion of a ship:

.1 which changes its ballast water carrying capacity by 15 percent or greater, or

.2 which changes the ship type, or

.3 which, in the opinion of the Administration, is projected to prolong its life by ten years or more, or

.4 which results in modifications to its ballast water system other than component replacement-in-kind.

Conversion of a ship to meet the provisions of regulation D-1 shall not be deemed to constitute a major conversion for the purpose of this Annex.

6 "From the nearest land" means from the baseline from which the territorial sea of the territory in question is established in accordance with international law except that, for the purposes of the Convention, "from the nearest land" off the north-eastern coast of Australia shall mean from a line drawn from a point on the coast of Australia in
latitude 11°00´ S, longitude 142°08´ E
to a point in latitude 10°35´ S, longitude 141°55´ E
thence to a point latitude 10°00´ S, longitude 142°00´ E
thence to a point latitude 9°10´ S, longitude 143°52´ E
thence to a point latitude 9°00´ S, longitude 144°30´ E
thence to a point latitude 10°41´ S, longitude 145°00´ E

[1] Refer to the ISM Code as adopted by the Organization by resolution A.741(18), as amended.

thence to a point latitude 13°00´ S, longitude 145°00´ E
thence to a point latitude 15°00´ S, longitude 146°00´ E
thence to a point latitude 17°30´ S, longitude 147°00´ E
thence to a point latitude 21°00´ S, longitude 152°55´ E
thence to a point latitude 24°30´ S, longitude 154°00´ E
thence to a point on the coast of Australia
in latitude 24°42´ S, longitude 153°15´ E.

7 "Active Substance" means a substance or organism, including a virus or a fungus, that has a general or specific action on or against Harmful Aquatic Organisms and Pathogens.

*Regulation A-2*

**General Applicability**

Except where expressly provided otherwise, the discharge of Ballast Water shall only be conducted through Ballast Water Management in accordance with the provisions of this Annex.

*Regulation A-3*

**Exceptions**

The requirements of regulation B-3, or any measures adopted by a Party pursuant to Article 2.3 and Section C, shall not apply to:

1 the uptake or discharge of Ballast Water and Sediments necessary for the purpose of ensuring the safety of a ship in emergency situations or saving life at sea; or

2 the accidental discharge or ingress of Ballast Water and Sediments resulting from damage to a ship or its equipment:

.1 provided that all reasonable precautions have been taken before and after the occurrence of the damage or discovery of the damage or discharge for the purpose of preventing or minimizing the discharge; and

.2 unless the owner, Company or officer in charge wilfully or recklessly caused damage; or

3 the uptake and discharge of Ballast Water and Sediments when being used for the purpose of avoiding or minimizing pollution incidents from the ship; or

4 the uptake and subsequent discharge on the high seas of the same Ballast Water and Sediments; or

5 the discharge of Ballast Water and Sediments from a ship at the same location where the whole of that Ballast Water and those Sediments originated and provided that no mixing with unmanaged Ballast Water and Sediments from other areas has occurred. If mixing has occurred, the Ballast Water taken from other areas is subject to Ballast Water Management in accordance with this Annex.

*Regulation A-4*

**Exemptions**

1 A Party or Parties, in waters under their jurisdiction, may grant exemptions to any requirements to apply regulations B-3 or C-1, in addition to those exemptions contained elsewhere in this Convention, but only when they are:

.1 granted to a ship or ships on a voyage or voyages between specified ports or locations; or to a ship which operates exclusively between specified ports or locations;

.2 effective for a period of no more than five years subject to intermediate review;

.3 granted to ships that do not mix Ballast Water or Sediments other than between the ports or locations specified in paragraph 1.1; and

.4 granted based on the Guidelines on risk assessment developed by the Organization.

2 Exemptions granted pursuant to paragraph 1 shall not be effective until after communication to the Organization and circulation of relevant information to the Parties.

3 Any exemptions granted under this regulation shall not impair or damage the environment, human health, property or resources of adjacent or other States. Any State that the Party determines may be adversely affected shall be consulted, with a view to resolving any identified concerns.

4 Any exemptions granted under this regulation shall be recorded in the Ballast Water record book.

*Regulation A-5*

**Equivalent compliance**

Equivalent compliance with this Annex for pleasure craft used solely for recreation or competition or craft used primarily for search and rescue, less than 50 metres in length overall, and with a maximum Ballast Water capacity of 8 cubic metres, shall be determined by the Administration taking into account Guidelines developed by the Organization.

## SECTION B – MANAGEMENT AND CONTROL REQUIREMENTS FOR SHIPS

*Regulation B-1*

**Ballast Water Management Plan**

Each ship shall have on board and implement a Ballast Water Management plan. Such a plan shall be approved by the Administration taking into account Guidelines developed by the Organization. The Ballast Water Management plan shall be specific to each ship and shall at least:

1 detail safety procedures for the ship and the crew associated with Ballast Water Management as required by this Convention;

2 provide a detailed description of the actions to be taken to implement the Ballast Water Management requirements and supplemental Ballast Water Management practices as set forth in this Convention;

3 detail the procedures for the disposal of Sediments:

.1 at sea; and

.2 to shore;

4 include the procedures for coordinating shipboard Ballast Water Management that involves discharge to the sea with the authorities of the State into whose waters such discharge will take place;

5 designate the officer on board in charge of ensuring that the plan is properly implemented;

6 contain the reporting requirements for ships provided for under this Convention; and

7 be written in the working language of the ship. If the language used is not English, French or Spanish, a translation into one of these languages shall be included.

*Regulation B-2*

**Ballast Water Record Book**

1 Each ship shall have on board a Ballast Water record book that may be an electronic record system, or that may be integrated into another record book or system and, which shall at least contain the information specified in Appendix II.

2 Ballast Water record book entries shall be maintained on board the ship for a minimum period of two years after the last entry has been made and thereafter in the Company's control for a minimum period of three years.

3 In the event of the discharge of Ballast Water pursuant to regulations A-3, A-4 or B-3.6 or in the event of other accidental or exceptional discharge of Ballast Water not otherwise exempted by this Convention, an entry shall be made in the Ballast Water record book describing the circumstances of, and the reason for, the discharge.

4 The Ballast Water record book shall be kept readily available for inspection at all reasonable times and, in the case of an unmanned ship under tow, may be kept on the towing ship.

5 Each operation concerning Ballast Water shall be fully recorded without delay in the Ballast Water record book. Each entry shall be signed by the officer in charge of the operation concerned and each completed page shall be signed by the master. The entries in the Ballast Water record book shall be in a working language of the ship. If that language is not English, French or Spanish the entries shall contain a translation into one of those languages. When entries in an official national language of the State whose flag the ship is entitled to fly are also used, these shall prevail in case of a dispute or discrepancy.

6 Officers duly authorized by a Party may inspect the Ballast Water record book on board any ship to which this regulation applies while the ship is in its port or offshore terminal, and may make a copy of any entry, and require the master to certify that the copy is a true copy. Any copy so certified shall be admissible in any judicial proceeding as evidence of the facts stated in the entry. The inspection of a Ballast Water record book and the taking of a certified copy shall be performed as expeditiously as possible without causing the ship to be unduly delayed.

*Regulation B-3*

**Ballast Water Management for Ships**

1 A ship constructed before 2009:

.1 with a Ballast Water Capacity of between 1500 and 5000 cubic metres, inclusive, shall conduct Ballast Water Management that at least meets the standard described in regulation D-1 or regulation D-2 until 2014, after which time it shall at least meet the standard described in regulation D-2;

.2 with a Ballast Water Capacity of less than 1500 or greater than 5000 cubic metres shall conduct Ballast Water Management that at least meets the standard described in regulation D-1 or regulation D-2 until 2016, after which time it shall at least meet the standard described in regulation D-2.

2 A ship to which paragraph 1 applies shall comply with paragraph 1 not later than the first intermediate or renewal survey, whichever occurs first, after the anniversary date of delivery of the ship in the year of compliance with the standard applicable to the ship.

3 A ship constructed in or after 2009 with a Ballast Water Capacity of less than 5000 cubic metres shall conduct Ballast Water Management that at least meets the standard described in regulation D-2.

4 A ship constructed in or after 2009, but before 2012, with a Ballast Water Capacity of 5000 cubic metres or more shall conduct Ballast Water Management in accordance with paragraph 1.2.

5 A ship constructed in or after 2012 with a Ballast Water Capacity of 5000 cubic metres or more shall conduct Ballast Water Management that at least meets the standard described in regulation D-2.

6 The requirements of this regulation do not apply to ships that discharge Ballast Water to a reception facility designed taking into account the Guidelines developed by the Organization for such facilities.

7 Other methods of Ballast Water Management may also be accepted as alternatives to the requirements described in paragraphs 1 to 5, provided that such methods ensure at least the same level of protection to the environment, human health, property or resources, and are approved in principle by the Committee.

*Regulation B-4*

**Ballast Water Exchange**

1 A ship conducting Ballast Water exchange to meet the standard in regulation D-1 shall:

.1 whenever possible, conduct such Ballast Water exchange at least 200 nautical miles from the nearest land and in water at least 200 metres in depth, taking into account the Guidelines developed by the Organization;

.2 in cases where the ship is unable to conduct Ballast Water exchange in accordance with paragraph 1.1, such Ballast Water exchange shall be conducted taking into account the Guidelines described in paragraph 1.1 and as far from the nearest land as possible, and in all cases at least 50 nautical miles from the nearest land and in water at least 200 metres in depth.

2 In sea areas where the distance from the nearest land or the depth does not meet the parameters described in paragraph 1.1 or 1.2, the port State may designate areas, in consultation with adjacent or other States, as appropriate, where a ship may conduct Ballast Water exchange, taking into account the Guidelines described in paragraph 1.1.

3 A ship shall not be required to deviate from its intended voyage, or delay the voyage, in order to comply with any particular requirement of paragraph 1.

4 A ship conducting Ballast Water exchange shall not be required to comply with paragraphs 1 or 2, as appropriate, if the master reasonably decides that such exchange would threaten the safety or stability of the ship, its crew, or its passengers because of adverse weather, ship design or stress, equipment failure, or any other extraordinary condition.

5 When a ship is required to conduct Ballast Water exchange and does not do so in accordance with this regulation, the reasons shall be entered in the Ballast Water record book.

*Regulation B-5*

**Sediment Management for Ships**

1 All ships shall remove and dispose of Sediments from spaces designated to carry Ballast Water in accordance with the provisions of the ship's Ballast Water Management plan.

2 Ships described in regulation B-3.3 to B-3.5 should, without compromising safety or operational efficiency, be designed and constructed with a view to minimize the uptake and undesirable entrapment of Sediments, facilitate removal of Sediments, and provide safe access to allow for Sediment removal and sampling, taking into account guidelines developed by the Organization. Ships described in regulation B-3.1 should, to the extent practicable, comply with this paragraph.

*Regulation B-6*

**Duties of Officers and Crew**

Officers and crew shall be familiar with their duties in the implementation of Ballast Water Management particular to the ship on which they serve and shall, appropriate to their duties, be familiar with the ship's Ballast Water Management plan.

## SECTION C – SPECIAL REQUIREMENTS IN CERTAIN AREAS

*Regulation C-1*

**Additional Measures**

1 If a Party, individually or jointly with other Parties, determines that measures in addition to those in Section B are necessary to prevent, reduce, or eliminate the transfer of Harmful Aquatic Organisms and Pathogens through ships' Ballast Water and Sediments, such Party or Parties may, consistent with international law, require ships to meet a specified standard or requirement.

2 Prior to establishing standards or requirements under paragraph 1, a Party or Parties should consult with adjacent or other States that may be affected by such standards or requirements.

3 A Party or Parties intending to introduce additional measures in accordance with paragraph 1 shall:

.1 take into account the Guidelines developed by the Organization.

.2 communicate their intention to establish additional measure(s) to the Organization at least 6 months, except in emergency or epidemic situations, prior to the projected date of implementation of the measure(s). Such communication shall include:

.1 the precise co-ordinates where additional measure(s) is/are applicable;

.2 the need and reasoning for the application of the additional measure(s), including, whenever possible, benefits;

.3 a description of the additional measure(s); and

.4 any arrangements that may be provided to facilitate ships' compliance with the additional measure(s).

.3 to the extent required by customary international law as reflected in the United Nations Convention on the Law of the Sea, as appropriate, obtain the approval of the Organization.

4 A Party or Parties, in introducing such additional measures, shall endeavour to make available all appropriate services, which may include but are not limited to notification to mariners of areas, available and alternative routes or ports, as far as practicable, in order to ease the burden on the ship.

5 Any additional measures adopted by a Party or Parties shall not compromise the safety and security of the ship and in any circumstances not conflict with any other convention with which the ship must comply.

6 A Party or Parties introducing additional measures may waive these measures for a period of time or in specific circumstances as they deem fit.

*Regulation C-2*

**Warnings Concerning Ballast Water Uptake in Certain Areas and Related Flag State Measures**

1 A Party shall endeavour to notify mariners of areas under their jurisdiction where ships should not uptake Ballast Water due to known conditions. The Party shall include in such notices the precise co-ordinates of the area or areas, and, where possible, the location of any alternative area or areas for the uptake of Ballast Water. Warnings may be issued for areas:

.1 known to contain outbreaks, infestations, or populations of Harmful Aquatic Organisms and Pathogens (e.g., toxic algal blooms) which are likely to be of relevance to Ballast Water uptake or discharge;

.2 near sewage outfalls; or

.3 where tidal flushing is poor or times during which a tidal stream is known to be more turbid.

2 In addition to notifying mariners of areas in accordance with the provisions of paragraph 1, a Party shall notify the Organization and any potentially affected coastal States of any areas identified in paragraph 1 and the time period such warning is likely to be in effect. The notice to the Organization and any potentially affected coastal States shall include the precise coordinates of the area or areas, and, where possible, the location of any alternative area or areas for the uptake of Ballast Water. The notice shall include advice to ships needing to uptake Ballast Water in the area, describing arrangements made for alternative supplies. The Party shall also notify mariners, the Organization, and any potentially affected coastal States when a given warning is no longer applicable.

*Regulation C-3*

**Communication of Information**

The Organization shall make available, through any appropriate means, information communicated to it under regulations C-1 and C-2.

## SECTION D – STANDARDS FOR BALLAST WATER MANAGEMENT

*Regulation D-1*

**Ballast Water Exchange Standard**

1 Ships performing Ballast Water exchange in accordance with this regulation shall do so with an efficiency of at least 95 percent volumetric exchange of Ballast Water.

2 For ships exchanging Ballast Water by the pumping-through method, pumping through three times the volume of each Ballast Water tank shall be considered to meet the standard described in paragraph 1. Pumping through less than three times the volume may be accepted provided the ship can demonstrate that at least 95 percent volumetric exchange is met.

*Regulation D-2*

**Ballast Water Performance Standard**

1 Ships conducting Ballast Water Management in accordance with this regulation shall discharge less than 10 viable organisms per cubic metre greater than or equal to 50 micrometres in minimum dimension and less than 10 viable organisms per milliliter less than 50 micrometres in minimum dimension and greater than or equal to 10 micrometres in minimum dimension; and discharge of the indicator microbes shall not exceed the specified concentrations described in paragraph 2.

2 Indicator microbes, as a human health standard, shall include:

.1 Toxicogenic Vibrio cholerae (O1 and O139) with less than 1 colony forming unit (cfu) per 100 milliliters or less than 1 cfu per 1 gram (wet weight) zooplankton samples ;

.2 Escherichia coli less than 250 cfu per 100 milliliters;

.3 Intestinal Enterococci less than 100 cfu per 100 milliliters.

*Regulation D-3*

**Approval requirements for Ballast Water Management systems**

1 Except as specified in paragraph 2, Ballast Water Management systems used to comply with this Convention must be approved by the Administration taking into account Guidelines developed by the Organization.

2 Ballast Water Management systems which make use of Active Substances or preparations containing one or more Active Substances to comply with this Convention shall be approved by the Organization, based on a procedure developed by the Organization. This procedure shall describe the approval and withdrawal of approval of Active Substances and their proposed manner of application. At withdrawal of approval, the use of the relevant Active Substance or Substances shall be prohibited within 1 year after the date of such withdrawal.

3 Ballast Water Management systems used to comply with this Convention must be safe in terms of the ship, its equipment and the crew.

*Regulation D-4*

**Prototype Ballast Water Treatment Technologies**

1 For any ship that, prior to the date that the standard in regulation D-2 would otherwise become effective for it, participates in a programme approved by the Administration to test and evaluate promising Ballast Water treatment technologies, the standard in regulation D-2 shall not apply to that ship until five years from the date on which the ship would otherwise be required to comply with such standard.

2 For any ship that, after the date on which the standard in regulation D-2 has become effective for it, participates in a programme approved by the Administration, taking into account Guidelines developed by the Organization, to test and evaluate promising Ballast Water technologies with the potential to result in treatment technologies achieving a standard higher than that in regulation D-2, the standard in regulation D-2 shall cease to apply to that ship for five years from the date of installation of such technology.

3 In establishing and carrying out any programme to test and evaluate promising Ballast Water technologies, Parties shall:

.1 take into account Guidelines developed by the Organization, and

.2 allow participation only by the minimum number of ships necessary to effectively test such technologies.

4 Throughout the test and evaluation period, the treatment system must be operated consistently and as designed.

*Regulation D-5*

**Review of Standards by the Organization**

1 At a meeting of the Committee held no later than three years before the earliest effective date of the standard set forth in regulation D-2, the Committee shall undertake a review which includes a determination of whether appropriate technologies are available to achieve the standard, an assessment of the criteria in paragraph 2, and an assessment of the socio-economic effect(s) specifically in relation to the developmental needs of developing countries, particularly small island developing States. The Committee shall also undertake periodic reviews, as appropriate, to examine the applicable requirements for ships described in regulation B-3.1 as well as any other aspect of Ballast Water Management addressed in this Annex, including any Guidelines developed by the Organization.

2 Such reviews of appropriate technologies shall also take into account:

.1 safety considerations relating to the ship and the crew;

.2 environmental acceptability, i.e., not causing more or greater environmental impacts than they solve;

.3 practicability, i.e., compatibility with ship design and operations;

.4 cost effectiveness, i.e., economics; and

.5 biological effectiveness in terms of removing, or otherwise rendering not viable, Harmful Aquatic Organisms and Pathogens in Ballast Water.

3 The Committee may form a group or groups to conduct the review(s) described in paragraph 1. The Committee shall determine the composition, terms of reference and specific issues to be addressed by any such group formed. Such groups may develop and recommend proposals for amendment of this Annex for consideration by the Parties. Only Parties may participate in the formulation of recommendations and amendment decisions taken by the Committee.

4 If, based on the reviews described in this regulation, the Parties decide to adopt amendments to this Annex, such amendments shall be adopted and enter into force in accordance with the procedures contained in Article 19 of this Convention.

## SECTION E – SURVEY AND CERTIFICATION REQUIREMENTS FOR BALLAST WATER MANAGEMENT

*Regulation E-1*

**Surveys**

1 Ships of 400 gross tonnage and above to which this Convention applies, excluding floating platforms, FSUs and FPSOs, shall be subject to surveys specified below:

.1 An initial survey before the ship is put in service or before the Certificate required under regulation E-2 or E-3 is issued for the first time. This survey shall verify that the Ballast Water Man-

agement plan required by regulation B-1 and any associated structure, equipment, systems, fitting, arrangements and material or processes comply fully with the requirements of this Convention.

.2 A renewal survey at intervals specified by the Administration, but not exceeding five years, except where regulation E-5.2, E-5.5, E-5.6, or E-5.7 is applicable. This survey shall verify that the Ballast Water Management plan required by regulation B-1 and any associated structure, equipment, systems, fitting, arrangements and material or processes comply fully with the applicable requirements of this Convention.

.3 An intermediate survey within three months before or after the second Anniversary date or within three months before or after the third Anniversary date of the Certificate, which shall take the place of one of the annual surveys specified in paragraph 1.4. The intermediate surveys shall ensure that the equipment, associated systems and processes for Ballast Water Management fully comply with the applicable requirements of this Annex and are in good working order. Such intermediate surveys shall be endorsed on the Certificate issued under regulation E-2 or E-3.

.4 An annual survey within three months before or after each Anniversary date, including a general inspection of the structure, any equipment, systems, fittings, arrangements and material or processes associated with the Ballast Water Management plan required by regulation B-1 to ensure that they have been maintained in accordance with paragraph 9 and remain satisfactory for the service for which the ship is intended. Such annual surveys shall be endorsed on the Certificate issued under regulation E-2 or E-3.

.5 An additional survey either general or partial, according to the circumstances, shall be made after a change, replacement, or significant repair of the structure, equipment, systems, fittings, arrangements and material necessary to achieve full compliance with this Convention. The survey shall be such as to ensure that any such change, replacement, or significant repair has been effectively made, so that the ship complies with the requirements of this Convention. Such surveys shall be endorsed on the Certificate issued under regulation E-2 or E-3.

2 The Administration shall establish appropriate measures for ships that are not subject to the provisions of paragraph 1 in order to ensure that the applicable provisions of this Convention are complied with.

3 Surveys of ships for the purpose of enforcement of the provisions of this Convention shall be carried out by officers of the Administration. The Administration may, however, entrust the surveys either to surveyors nominated for the purpose or to organizations recognized by it.

4 An Administration nominating surveyors or recognizing organizations to conduct surveys, as described in paragraph 3 shall, as a minimum, empower such nominated surveyors or recognized organizations[2] to:

.1 require a ship that they survey to comply with the provisions of this Convention; and

.2 carry out surveys and inspections if requested by the appropriate authorities of a port State that is a Party.

5 The Administration shall notify the Organization of the specific responsibilities and conditions of the authority delegated to the nominated surveyors or recognized organizations, for circulation to Parties for the information of their officers.

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[2] Refer to the guidelines adopted by the Organization by resolution A.739(18), as may be amended by the Organization, and the specifications adopted by the Organization by resolution A.789(19), as may be amended by the Organization.

6 When the Administration, a nominated surveyor, or a recognized organization determines that the ship's Ballast Water Management does not conform to the particulars of the Certificate required under regulation E-2 or E-3 or is such that the ship is not fit to proceed to sea without presenting a threat of harm to the environment, human health, property or resources such surveyor or organization shall immediately ensure that corrective action is taken to bring the ship into compliance. A surveyor or organization shall be notified immediately, and it shall ensure that the Certificate is not issued or is withdrawn as appropriate. If the ship is in the port of another Party, the appropriate authorities of the port State shall be notified immediately. When an officer of the Administration, a nominated surveyor, or a recognized organization has notified the appropriate authorities of the port State, the Government of the port State concerned shall give such officer, surveyor or organization any necessary assistance to carry out their obligations under this regulation, including any action described in Article 9.

7 Whenever an accident occurs to a ship or a defect is discovered which substantially affects the ability of the ship to conduct Ballast Water Management in accordance with this Convention, the owner, operator or other person in charge of the ship shall report at the earliest opportunity to the Administration, the recognized organization or the nominated surveyor responsible for issuing the relevant Certificate, who shall cause investigations to be initiated to determine whether a survey as required by paragraph 1 is necessary. If the ship is in a port of another Party, the owner, operator or other person in charge shall also report immediately to the appropriate authorities of the port State and the nominated surveyor or recognized organization shall ascertain that such report has been made.

8 In every case, the Administration concerned shall fully guarantee the completeness and efficiency of the survey and shall undertake to ensure the necessary arrangements to satisfy this obligation.

9 The condition of the ship and its equipment, systems and processes shall be maintained to conform with the provisions of this Convention to ensure that the ship in all respects will remain fit to proceed to sea without presenting a threat of harm to the environment, human health, property or resources.

10 After any survey of the ship under paragraph 1 has been completed, no change shall be made in the structure, any equipment, fittings, arrangements or material associated with the Ballast Water Management plan required by regulation B-1 and covered by the survey without the sanction of the Administration, except the direct replacement of such equipment or fittings.

*Regulation E-2*

**Issuance or Endorsement of a Certificate**

1 The Administration shall ensure that a ship to which regulation E-1 applies is issued a Certificate after successful completion of a survey conducted in accordance with regulation E-1. A Certificate issued under the authority of a Party shall be accepted by the other Parties and regarded for all purposes covered by this Convention as having the same validity as a Certificate issued by them.

2 Certificates shall be issued or endorsed either by the Administration or by any person or organization duly authorized by it. In every case, the Administration assumes full responsibility for the Certificate.

*Regulation E-3*

**Issuance or Endorsement of a Certificate by Another Party**

1 At the request of the Administration, another Party may cause a ship to be surveyed and, if satisfied that the provisions of this Convention are complied with, shall issue or authorize the issuance of a Certificate

to the ship, and where appropriate, endorse or authorize the endorsement of that Certificate on the ship, in accordance with this Annex.

2 A copy of the Certificate and a copy of the survey report shall be transmitted as soon as possible to the requesting Administration.

3 A Certificate so issued shall contain a statement to the effect that it has been issued at the request of the Administration and it shall have the same force and receive the same recognition as a Certificate issued by the Administration.

4 No Certificate shall be issued to a ship entitled to fly the flag of a State which is not a Party.

*Regulation E-4*

**Form of the Certificate**

The Certificate shall be drawn up in the official language of the issuing Party, in the form set forth in Appendix I. If the language used is neither English, French nor Spanish, the text shall include a translation into one of these languages.

*Regulation E-5*

**Duration and Validity of the Certificate**

1 A Certificate shall be issued for a period specified by the Administration that shall not exceed five years.

2 For renewal surveys:

.1 Notwithstanding the requirements of paragraph 1, when the renewal survey is completed within three months before the expiry date of the existing Certificate, the new Certificate shall be valid from the date of completion of the renewal survey to a date not exceeding five years from the date of expiry of the existing Certificate.

.2 When the renewal survey is completed after the expiry date of the existing Certificate, the new Certificate shall be valid from the date of completion of the renewal survey to a date not exceeding five years from the date of expiry of the existing Certificate.

.3 When the renewal survey is completed more than three months before the expiry date of the existing Certificate, the new Certificate shall be valid from the date of completion of the renewal survey to a date not exceeding five years from the date of completion of the renewal survey.

3 If a Certificate is issued for a period of less than five years, the Administration may extend the validity of the Certificate beyond the expiry date to the maximum period specified in paragraph 1, provided that the surveys referred to in regulation E-1.1.3 applicable when a Certificate is issued for a period of five years are carried out as appropriate.

4 If a renewal survey has been completed and a new Certificate cannot be issued or placed on board the ship before the expiry date of the existing Certificate, the person or organization authorized by the Administration may endorse the existing Certificate and such a Certificate shall be accepted as valid for a further period which shall not exceed five months from the expiry date.

5 If a ship at the time when the Certificate expires is not in a port in which it is to be surveyed, the Administration may extend the period of validity of the Certificate but this extension shall be granted only for the purpose of allowing the ship to complete its voyage to the port in which it is to be surveyed, and then only in cases where it appears proper and reasonable to do so. No Certificate shall be extended for a period longer than three months, and a ship to which such extension is granted shall not, on its

arrival in the port in which it is to be surveyed, be entitled by virtue of such extension to leave that port without having a new Certificate. When the renewal survey is completed, the new Certificate shall be valid to a date not exceeding five years from the date of expiry of the existing Certificate before the extension was granted.

6 A Certificate issued to a ship engaged on short voyages which has not been extended under the foregoing provisions of this regulation may be extended by the Administration for a period of grace of up to one month from the date of expiry stated on it. When the renewal survey is completed, the new Certificate shall be valid to a date not exceeding five years from the date of expiry of the existing Certificate before the extension was granted.

7 In special circumstances, as determined by the Administration, a new Certificate need not be dated from the date of expiry of the existing Certificate as required by paragraph 2.2, 5 or 6 of this regulation. In these special circumstances, the new Certificate shall be valid to a date not exceeding five years from the date of completion of the renewal survey.

8 If an annual survey is completed before the period specified in regulation E-1, then:

.1 the Anniversary date shown on the Certificate shall be amended by endorsement to a date which shall not be more than three months later than the date on which the survey was completed;

.2 the subsequent annual or intermediate survey required by regulation E-1 shall be completed at the intervals prescribed by that regulation using the new Anniversary date;

.3 the expiry date may remain unchanged provided one or more annual surveys, as appropriate, are carried out so that the maximum intervals between the surveys prescribed by regulation E-1 are not exceeded.

9 A Certificate issued under regulation E-2 or E-3 shall cease to be valid in any of the following cases:

.1 if the structure, equipment, systems, fittings, arrangements and material necessary to comply fully with this Convention is changed, replaced or significantly repaired and the Certificate is not endorsed in accordance with this Annex;

.2 upon transfer of the ship to the flag of another State. A new Certificate shall only be issued when the Party issuing the new Certificate is fully satisfied that the ship is in compliance with the requirements of regulation E-1. In the case of a transfer between Parties, if requested within three months after the transfer has taken place, the Party whose flag the ship was formerly entitled to fly shall, as soon as possible, transmit to the Administration copies of the Certificates carried by the ship before the transfer and, if available, copies of the relevant survey reports;

.3 if the relevant surveys are not completed within the periods specified under regulation E-1.1; or

.4 if the Certificate is not endorsed in accordance with regulation E-1.1.

**APPENDIX I**

**FORM OF INTERNATIONAL BALLAST WATER MANAGEMENT CERTIFICATE**

**INTERNATIONAL BALLAST WATER MANAGEMENT CERTIFICATE**

Issued under the provisions of the International Convention for the Control and Management of Ships' Ballast Water and Sediments (hereinafter referred to as "the Convention") under the authority of the Government of …….....

*(full designation of the country)*

by …….....

*(full designation of the competent person or organization authorized under the provisions of the Convention)*

*Particulars of ship*[3]

Name of ship .....

Distinctive number or letters .....

Port of registry .....

Gross Tonnage .....

IMO number[4] .....

Date of Construction …….....

Ballast Water Capacity (in cubic metres) .....

*Details of Ballast Water Management Method(s) Used*

Method of Ballast Water Management used …….....

Date installed (if applicable) .....

Name of manufacturer (if applicable) .....

The principal Ballast Water Management method(s) employed on this ship is/are:

□ in accordance with regulation D-1

□ in accordance with regulation D-2 (describe) .....

□ the ship is subject to regulation D-4

THIS IS TO CERTIFY:

1 That the ship has been surveyed in accordance with regulation E-1 of the Annex to the Convention; and

2 That the survey shows that Ballast Water Management on the ship complies with the Annex to the Convention.

This certificate is valid until …… subject to surveys in accordance with regulation E-1 of the Annex to the Convention.

Completion date of the survey on which this certificate is based: dd/mm/yyyy

---

3 Alternatively, the particulars of the ship may be placed horizontally in boxes.

4 IMO Ship Identification Number Scheme adopted by the Organization by resolution A.600(15).

Issued at .....
*(Place of issue of certificate)*

..... .....
*(Date of issue)* *(Signature of authorized official issuing the certificate)*

*(Seal or stamp of the authority, as appropriate)*

ENDORSEMENT FOR ANNUAL AND INTERMEDIATE SURVEY(S)
THIS IS TO CERTIFY that a survey required by regulation E-1 of the Annex to the Convention the ship was found to comply with the relevant provisions of the Convention:

Annual survey:

Signed .....
*(Signature of duly authorized official)*

Place .....

Date.....
*(Seal or stamp of the authority, as appropriate)*

Annual*/Intermediate survey*:

Signed .....
*(Signature of duly authorized official)*

Place .....

Date.....
*(Seal or stamp of the authority, as appropriate)*

Annual*/Intermediate survey*:

Signed .....
*(Signature of duly authorized official)*

Place .....

Date.....
*(Seal or stamp of the authority, as appropriate)*

Annual survey:

Signed .....
*(Signature of duly authorized official)*

Place .....

Date.....
*(Seal or stamp of the authority, as appropriate)*

* Delete as appropriate

**ANNUAL / INTERMEDIATE SURVEY IN ACCORDANCE WITH REGULATION E-5.8.3**

THIS IS TO CERTIFY that, at an annual / intermediate* survey in accordance with regulation E-5.8.3 of the Annex to the Convention, the ship was found to comply with the relevant provisions of the Convention:

Signed .....
*(Signature of authorized official)*

Place .....

Date.....….....
*(Seal or stamp of the authority, as appropriate)*

**ENDORSEMENT TO EXTEND THE CERTIFICATE IF VALID FOR LESS THAN 5 YEARS WHERE REGULATION E-5.3 APPLIES**

The ship complies with the relevant provisions of the Convention, and this Certificate shall, in accordance with regulation E-5.3 of the Annex to the Convention, be accepted as valid until…….....

Signed .....
*(Signature of authorized official)*

Place .....

Date.....….....
*(Seal or stamp of the authority, as appropriate)*

**ENDORSEMENT WHERE THE RENEWAL SURVEY HAS BEEN COMPLETED AND REGULATION E-5.4 APPLIES**

The ship complies with the relevant provisions of the Convention and this Certificate shall, in accordance with regulation E-5.4 of the Annex to the Convention, be accepted as valid until …….....

Signed .....
*(Signature of authorized official)*

Place .....

Date.....….....
*(Seal or stamp of the authority, as appropriate)*

* Delete as appropriate

**ENDORSEMENT TO EXTEND THE VALIDITY OF THE CERTIFICATE UNTIL REACHING THE PORT OF SURVEY OR FOR A PERIOD OF GRACE WHERE REGULATION E-5.5 OR E-5.6 APPLIES**

This Certificate shall, in accordance with regulation E-5.5 or E-5.6* of the Annex to the Convention, be accepted as valid until …….....

Signed .....
*(Signature of authorized official)*

Place .....

Date.....….....
*(Seal or stamp of the authority, as appropriate)*

**ENDORSEMENT FOR ADVANCEMENT OF ANNIVERSARY DATE WHERE REGULATION E-5.8 APPLIES**

In accordance with regulation E-5.8 of the Annex to the Convention the new Anniversary date is …….....

Signed .....
*(Signature of authorized official)*

Place .....

Date.....….....
*(Seal or stamp of the authority, as appropriate)*

In accordance with regulation E-5.8 of the Annex to the Convention the new Anniversary date is …….....

Signed .....
*(Signature of duly authorized official)*

Place .....

Date.....….....
*(Seal or stamp of the authority, as appropriate)*

* Delete as appropriate

**APPENDIX II**
**FORM OF BALLAST WATER RECORD BOOK**
**INTERNATIONAL CONVENTION FOR THE CONTROL AND MANAGEMENT OF SHIPS' BALLAST WATER AND SEDIMENTS**

Period From: ….…… To: ……..

Name of Ship ……..…….....

IMO number …….……..…….....

Gross tonnage …….....

Flag …….....

Total Ballast Water capacity (in cubic metres) …….…….....

The ship is provided with a Ballast Water Management plan □

Diagram of ship indicating ballast tanks:

**1 Introduction**

In accordance with regulation B-2 of the Annex to the International Convention for the Control and Management of Ships' Ballast Water and Sediments, a record is to be kept of each Ballast Water operation. This includes discharges at sea and to reception facilities.

**2 Ballast Water and Ballast Water Management**

"Ballast Water" means water with its suspended matter taken on board a ship to control trim, list, draught, stability, or stresses of a ship. Management of Ballast Water shall be in accordance with an approved Ballast Water Management plan and taking into account Guidelines[5] developed by the Organization.

**3 Entries in the Ballast Water Record Book**

Entries in the Ballast Water record book shall be made on each of the following occasions:

3.1 When Ballast Water is taken on board:
- .1 Date, time and location port or facility of uptake (port or lat/long), depth if outside port
- .2 Estimated volume of uptake in cubic metres
- .3 Signature of the officer in charge of the operation.

3.2 Whenever Ballast Water is circulated or treated for Ballast Water Management purposes:
- .1 Date and time of operation
- .2 Estimated volume circulated or treated (in cubic metres)
- .3 Whether conducted in accordance with the Ballast Water Management plan

[5] Refer to the Guidelines for the control and management of ships' ballast water to minimize the transfer of harmful aquatic organisms and pathogens adopted by the Organization by resolution A.868(20).

.4 Signature of the officer in charge of the operation

3.3 When Ballast Water is discharged into the sea:

.1 Date, time and location port or facility of discharge (port or lat/long)

.2 Estimated volume discharged in cubic metres plus remaining volume in cubic metres

.3 Whether approved Ballast Water Management plan had been implemented prior to discharge

.4 Signature of the officer in charge of the operation.

3.4 When Ballast Water is discharged to a reception facility:

.1 Date, time, and location of uptake

.2 Date, time, and location of discharge

.3 Port or facility

.4 Estimated volume discharged or taken up, in cubic metres

.5 Whether approved Ballast Water Management plan had been implemented prior to discharge

.6 Signature of officer in charge of the operation

3.5 Accidental or other exceptional uptake or discharges of Ballast Water:

.1 Date and time of occurrence

.2 Port or position of the ship at time of occurrence

.3 Estimated volume of Ballast Water discharged

.4 Circumstances of uptake, discharge, escape or loss, the reason therefore and general remarks.

.5 Whether approved Ballast Water Management plan had been implemented prior to discharge

.6 Signature of officer in charge of the operation

3.6 Additional operational procedure and general remarks

4 Volume of Ballast Water

The volume of Ballast Water onboard should be estimated in cubic metres. The Ballast Water record book contains many references to estimated volume of Ballast Water. It is recognized that the accuracy of estimating volumes of ballast is left to interpretation.

**RECORD OF BALLAST WATER OPERATIONS**

SAMPLE BALLAST WATER RECORD BOOK PAGE

Name of Ship: …….....

Distinctive number or letters .....

| Date | Item (number) | Record of operations/signature of officers in charge |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Master’s signature ……

**Annex 2**

(corresponding to the Convention guidelines (G4))

# GUIDELINES FOR BALLAST WATER MANAGEMENT AND DEVELOPMENT OF BALLAST WATER MANAGEMENT PLANS

## 1 INTRODUCTION

1.1 Ballast water is essential to control trim, list, draught, stability, or stresses of the ship. However, ballast water may contain aquatic organisms or pathogens which, if introduced into the sea including estuaries, or into fresh water courses, may create hazards to the environment, human health, property or resources, impair biological diversity or interfere with other legitimate uses of such areas.

1.2 The selection of appropriate methods of ballast water management should take into account the need ensure that Ballast Water Management practices used to comply with this Convention do not cause greater harm than they prevent to the environment, human health, property or resources of any States and the safety of ships.

1.3 The objectives of these Guidelines are to assist Governments, appropriate authorities, ships masters, operators and owners, and port authorities, as well as other interested parties, in preventing, minimizing and ultimately eliminating the risk of introducing harmful aquatic organisms and pathogens from ships' ballast water and associated sediments while protecting ships' safety in applying the International Convention for the Control and Management of Ships' Ballast Water and Sediments (hereinafter referred to as the "Convention").

1.4 These guidelines consist of two parts:

Part A – "Guidelines for Ballast Water Management", which contains guidance on the general principles of Ballast Water Management; and

Part B – "Guidelines for the development of Ballast Water Management Plans", which contains guidance on the structure and content of Ballast Water Management Plans required by Regulation B-1 of the Convention.

## 2 DEFINITIONS

2.1 For the purposes of these Guidelines, the definitions in the Convention apply.

2.2 Ballast Water Tank means any tank, hold, or space used for the carriage of ballast water.

## 3 APPLICATION

3.1 The Guidelines apply to all ships and to Flag Administrations, port States, coastal States, ship owners, ship operators, ships' personnel involved in Ballast Water Management, ship designers, ship builders, classification societies as well as other interested parties.

# PART A – GUIDELINES FOR BALLAST WATER MANAGEMENT

## 1 SHIP OPERATIONAL PROCEDURES

### 1.1 Precautionary practices

**Avoiding unnecessary discharge of ballast water**

1.1.1 If it is necessary to take on and discharge ballast water in the same port to facilitate safe cargo operations, care should be taken to avoid unnecessary discharge of ballast water that has been taken up in another port.

1.1.2 Managed ballast water which is mixed with unmanaged ballast water is no longer in compliance is no longer in compliance with Regulations D-1 and D-2 of the Annex to the Convention.

**Minimizing the uptake of harmful aquatic organisms, pathogens and sediments**

1.1.3 When loading ballast, every effort should be made to avoid the uptake of potentially harmful aquatic organisms, pathogens, and sediment that may contain such organisms. The uptake of ballast water should be minimized or, where practicable, avoided in areas and situations such as:

.1 in areas identified by the port State in connection with advice provided by ports under paragraph 2.2.2;

.2 in darkness when organisms may rise up in the water column;

.3 in very shallow water;

.4 where propellers may stir up sediment; or

.5 where dredging is or recently has been carried out.

## 1.2 Ballast water management options

### 1.2.1 Ballast Water Exchange

1.2.1.1 Ballast water exchange is to be conducted in accordance with Regulation B-4 of the Convention and in accordance with the Guidelines for Ballast Water Exchange.

1.2.1.2 The voyage should be planned taking into account when ballast water exchange in accordance with Regulation B-4 of the Convention can be carried out.

1.2.1.3 Because of the possibility that partially exchange may encourage re-growth of organisms, ballast water exchange should only be commenced in any tank if there is sufficient time to complete the exchange to comply with the standard in Regulation D-1 and the ship can comply with the distance from land and minimum water depth criteria in Regulation B-4. As many complete tanks should be exchanged to the standard in Regulation D-1 as the time allows, if for any tank the standard in Regulation D-1 cannot be fully met the exchange should not be commenced for that tank.

1.2.1.4 If ballast water exchange is not undertaken for the reasons in Regulation B-4.4, i.e. if the master reasonably decides that such exchange would threaten the safety or stability of the ship, its crew, or its passengers because of adverse weather, ship design or stress, equipment failure, or any other extra-ordinary condition, then details of the reasons ballast water exchange was not undertaken are to be recorded in the Ballast Water Record Book.

1.2.1.5 A port State may designate areas in which exchange may be conducted taking into account the Guidelines on designation of areas for ballast water exchange. Designated areas should only be used for those ballast water tanks that are intended to be discharged in the port of that State and that could not be exchanged in accordance with Regulation B-4.1 of the Convention.

### 1.2.2 Ballast Water Management Systems

1.2.2.1 Ballast Water Management Systems installed for compliance with Regulation B-3 are to be approved in accordance with Regulation D-3. Such systems are to be operated in accordance with the system design criteria and the manufacturer's operational and maintenance instructions. The use of such systems should be detailed in the ship's Ballast Water Management Plan. All failures and malfunctions of the system are to be recorded in the Ballast Water Record Book.

### 1.2.3 Discharge to ballast water reception facilities

1.2.3.1 If ballast water reception facilities provided by a port State are utilized, Regulation B-3.6 applies.

### 1.2.4 Prototype ballast water treatment technologies

1.2.4.1 Prototype ballast water treatment technologies should be used within a programme approved by the Administration in accordance with Regulation D-4.

## 1.3 Sediment management

1.3.1 Regulation B-5 requires that all ships shall remove and dispose of sediments from spaces designated to carry ballast water in accordance with the ballast water management plan.

1.3.2 All practical steps should be taken during ballast uptake to avoid sediment accumulation, however, it is recognized that sediment will be taken on board and will settle on tank surfaces. When sediment has accumulated, consideration should be given to flushing tank bottoms and other surfaces when in suitable areas, i.e. areas complying with the minimum depth and distance described by Regulations B-4.1.1 and B-4.1.2.

1.3.3 The volume of sediment in a ballast tank should be monitored on a regular basis.

1.3.4 Sediment in ballast tanks should be removed in a timely basis in accordance with the Ballast Water Management Plan and as found necessary. The frequency and timing of removal will depend on factors such as sediment build up, ship's trading pattern, availability of reception facilities, work load of the ship's personnel and safety considerations.

1.3.5 Removal of sediment from ballast tanks should preferably be undertaken under controlled conditions in port, at a repair facility or in dry dock. The removed sediment should preferably be disposed of in a sediment reception facility if available, reasonable and practicable.

1.3.6 When sediment is removed from the ship's ballast tanks and is to be disposed of by that ship at sea, such disposal should only take place in areas outside 200 nm from land and in water depths of over 200 m.

1.3.7 Regulation B-5 requires that ships constructed in or after 2009 should, without compromising safety or operational efficiency, be designed and constructed with a view to minimize the uptake and undesirable entrapment of sediments, facilitate removal of sediments, and provide safe access to allow for sediment removal and sampling, taking into account the Guidelines for sediments control on ships (G12). This also applies to ships constructed prior to 2009, to the extent practicable.

## 1.4 Additional Measures

1.4.1 Ships to which additional measures apply, under Regulation C-1, should take them into account in the ships voyage planning. Actions taken to comply with any additional measures should be recorded in the Ballast Water Record Book.

## 1.5 Exemptions

1.5.1 Regulation A-4 provides that an exemption may be granted from the requirements of Regulations B-3 or C-1 by a Party or Parties to a ship in specific circumstances. Applications for and the granting of such exemptions should be completed in accordance with the Guidelines for risk assessment (G7).

1.5.2 Ships granted an exemption referred to in paragraph 1.5.1 above should record the exemption in the Ballast Water Record Book and what actions have been taken with regards to the ships ballast water.

## 2 RECORDING PROCEDURES

### 2.1 Procedures for ships

2.1.1 To facilitate the administration of ballast water management and treatment procedures on board each ship, a responsible officer is to be designated in accordance with Regulation B-1 to ensure the maintenance of appropriate records and to ensure that ballast water management and/or treatment procedures are followed and recorded.

2.1.2 When carrying out any ballast water operation the details are to be recorded in the Ballast Water Record Book together with any exemptions granted in accordance with Regulation B-3 or C-1.

2.1.3 Where a port State requires information on ships ballast operations, relevant documentation, which takes account of the information requirements of the Convention, should be made available to the port State.

### 2.2 Procedures for port States

2.2.1 Port States should provide ships with details of their requirements concerning ballast water management including:

.1 the location and terms of use of areas designated for ballast water exchange under Regulation B-4.2 of the Convention;

.2 any additional measures determined under Regulation C-1 of the Convention;

.3 warnings concerning ballast uptake and any other port contingency arrangements in the event of emergency situations; and

.4 the availability, location, capacities of reception facilities that are provided for the environmentally safe disposal of ballast water and/or sediments, under Article 5 and Regulation B-3.6.

2.2.2 To assist ships in applying the precautionary practices described in section 1.1 of Part A, port States are required by Regulation C-2 of the Convention to endeavour to notify mariners of area(s), where ships should not uptake Ballast Water due to known conditions. Similar notification should be given for areas where the uptake of ballast water should be minimized, such as:

.1 areas with outbreaks, infestations or known populations of harmful organisms and pathogens;

.2 areas with current phytoplankton blooms (algal blooms, such h as red tides);

.3 nearby sewage outfalls;

.4 areas where a tidal stream is known to be the more turbid;

.5 areas where tidal flushing is known to be poor;

.6 nearby dredging operations; and

.7 nearby or in sensitive or estuarine sea areas.

## 3 TRAINING AND EDUCATION

3.1 Regulation B-6 requires that officers and crew shall be familiar with their duties in the implementation of Ballast Water Management particular to the ship on which they serve. Owners, managers, operators, and others involved in officer and crew training for ballast water management should consider the following:

3.2 Training for ships' masters and crews as appropriate should include instructions on the requirements of the Convention, the ballast water and sediment management procedures and the Ballast Water Record Book particularly having regard to matters of ship safety and maintenance of records in accordance with the information contained in these Guidelines.

3.3 The Ballast Water Management Plan should include training and education on ballast water management practices and the systems and procedures used on board the ship.

## PART B – GUIDELINES FOR THE DEVELOPMENT OF BALLAST WATER MANAGEMENT PLANS

### 1 INTRODUCTION

1.1 These Guidelines have been developed to assist with the preparation of a ship's Ballast Water Management Plan (hereafter referred to as the "Plan"). The Plan must be approved by the Administration in accordance with Regulation B-1 of the Convention.

1.2 This Part is comprised of three primary sections:

.1 General: this section provides the objectives and a general overview of the subject matter and introduces the reader to the basic concept of the Guidelines and the Plan that is expected to be developed from them. This section also contains guidance on updating and use of the Plan.

.2 Mandatory provisions: this section provides guidance to ensure that the mandatory provisions of Regulation B-1 of the Annex to the Convention are met.

.3 Non-mandatory provisions: this section provides guidance concerning the inclusion of other information in the Plan. This information, although not required under Regulation B-1 of the Convention, may be found useful by local authorities in ports visited by the ship, or may provide additional assistance to the ship's master.

1.3 The format for a Ballast Water Management Plan is given in Appendix 1.

### 2 GENERAL

#### 2.1 Concept of the Guidelines

2.1.1 These Guidelines are intended to provide a basis for the preparation of the Plans for individual ships. The broad spectrum of ships for which Plans are required makes it impractical to provide specific guidelines for each ship type. For a Plan to be effective and to comply with Regulation B-1 of the Annex of the Convention, it must be carefully tailored to the particular ship for which it is intended. Properly used, the Guidelines will ensure that all appropriate issues that may be applicable to a particular ship are considered in developing the Plan.

2.1.2 The issues that may require consideration include but are not limited to: type and size of ship, volume of ballast carried and total capacity of tanks used for ballast, ballast pumping capacity, ship and crew safety issues, voyage type and length, the ship's typical operational requirements, and ballast water management techniques used on board.

#### 2.2 Concept of the Plan

2.2.1 The Plan is required to be onboard the ship and available to guide personnel in safe operation of the Ballast Water Management system employed on a particular ship. Effective planning ensures that the necessary actions are taken in a structured, logical, and safe manner.

2.2.2 For the Plan to accomplish its purpose, it must be:

.1 realistic, practical, and easy to use;

.2 understood by ship's personnel engaged in ballast water management, both on board and ashore;

.3 evaluated, reviewed, and updated as necessary; and

.4 consistent with the operational ballasting requirements of the ship.

2.2.3 The Plan envisioned by Regulation B-1 of the Annex to the Convention is intended to be a simple document. Inclusion of extensive background information on the ship, its structure, etc., should be

avoided, as this is generally available elsewhere. If such information is relevant, it should be kept in annexes, or an existing document or manual reference should be made to the location of the information.

2.2.4 The Plan is a document to be used on board by the ship's personnel engaged in ballast water management. The Plan must therefore be available in a working language of the ship's personnel. A change in the personnel and or the, working language or would require the issuance of the Plan in the new language(s).

2.2.5 The Plan should be readily available for inspection by officers authorized by a Party to the Convention.

**2.3 Exemptions**

2.3.1 Regulation A-4 allows that exemption may be granted to a ship from Regulation B-3 or C-1.

2.3.2 Details of exemptions should be retained with the Plan.

2.3.3 Any exemption granted is to be recorded in the Ballast Water Record Book.

**2.4 Additional Measures**

2.4.1 The Convention, in Regulation C-1 Additional Measures, gives a Party individually or jointly with other Parties, the right to introduce measures in addition to those in Section B. Such Additional Measures are to be communicated to the Organization at least 6 months prior to the projected date of implementation.

2.4.2 The Plan should be accompanied by a most recent list of Additional measures, as communicated by the Organization relevant to the ship's trade. The Plan should contain details and advice on the actions a ship must take to comply with any additional measures that may be required in accordance with Regulation C-1 and for any emergency or epidemic situations.

**2.5 Review of the Plan**

2.5.1 Regular review of the Plan by the owner, operator, or master should be conducted to ensure that the information contained is accurate and updated. A feedback system should be employed which will allow quick capture of changing information and incorporation of it into the Plan.

2.5.2 Changes to the provisions of this Plan will need Administration approval.

**3 MANDATORY PROVISIONS**

3.1 This section provides individual guidelines for the seven mandatory provisions of Regulation B-1 of the Annex to the Convention. In addition, it provides information to assist ships personnel in managing ballast water and sediments.

3.2 Regulation B-1 of the Annex to the Convention provides that the Plan shall be specific to each ship and shall at least:

.1 detail safety procedures for the ship and the crew associated with Ballast Water Management as required by the Convention;

.2 provide a detailed description of the actions to be taken to implement the Ballast Water Management practices required by the Convention;

.3 detail the procedures for the disposal of sediments at sea and to shore;

.4 include the procedures for coordinating shipboard Ballast Water Management that involves discharge to the sea with the authorities of the State into whose waters such discharge will take place;

.5 designates the officer on board in charge of ensuring that the Plan is properly implemented;

.6 contain the reporting requirements for ships provided for under the Convention; and

.7 be written in the working language of the ship. If the language used is not English, French or Spanish, a translation into one of these languages should be provided.

3.3 The Ballast Water Management Plan should give guidance on the ballast handling procedures to be followed, including:

.1 uptake of ballast water;

.2 step-by-step procedures and sequences for the Ballast Water Management System used; and

.3 any operational or safety restrictions including those associated with the Ballast Water Management System used. This will also assist ship's personnel when responding to enquiries from inspection officers authorized by a Party.

3.4 Safety aspects of the Ballast Water Management system used should include, as applicable, guidance on:

.1 stability to be maintained at all times to values not less than those recommended by the Organization (or required by the Administration);

.2 approved longitudinal stress and, where applicable, torsional stress values are to be maintained within permitted values;

.3 transfer or exchange of ballast that can generate significant structural loads by sloshing action in partially-filled tanks. If these operations include partially-filled tanks, consideration should be given to carrying out the operation in favourable sea and swell conditions such that the risk of structural damage is minimized;

.4 wave-induced hull vibrations when carrying out ballast water exchange;

.5 forward and aft draughts and trim, with particular reference to bridge visibility, slamming and minimum forward draft;

.6 the effects of any potential hazards and occupational health that may affect ship's personnel shall also be identified together with any safety precautions that need to be taken; and

.7 the possible effects of tank over pressurization.

3.5 If a ship is able to complete at least 95 per cent volumatic exchange in less than three pumped volumes, documentation indicating that this ballast water exchange process has been approved under Regulation D-1.2 should be provided in the Plan.

3.6 The Plan should also include procedures for the disposal of sediments and in particular:

.1 on the sediment removal or reduction at sea, and when cleaning of the ballast tanks to remove sediments;

.2 regarding the safety consideration to be taken if tank entry is required to remove sediments; and

.3 regarding the use of port reception facilities for sediments.

3.7 The Plan should clearly identify the officer in charge of ballast water management and outline his/her duties which should include:

.1 ensuring that the Ballast Water Management performed follows the procedures in the Plan;

.2 ensuring that the Ballast Water Record Book and any other necessary documentation are maintained; and

.3 being available to assist the inspection officers authorized by a Party for any sampling that may need to be undertaken.

3.8 The Plan should contain guidance on the recording requirements according to ship's Ballast Water Record Book provided for under this Convention including details of exemptions granted to the ship.

3.9 In addition to the above, the Plan should include the following:

.1 A foreword which should provide the ship's crew with explanations on the need for ballast water management and for record keeping. The foreword should include a statement that, "This Plan must be kept available for inspection on request by an authorized authority".

.2 Ship particulars including at least:

.1 ships' name, flag, port of registry, Gross Tonnage, IMO number[6], length (BP), beam, international call sign; deepest ballast drafts (normal and heavy weather);

.2 the total ballast capacity of the ship in cubic meters and other units if applicable to the ship;

.3 a brief description of the main ballast water management method(s) used on the ship; and

.4 identification (rank) of the officer in charge for implementing the Plan.

.3 Information on Ballast Water Management System used on board, including:

.1 ballast tank arrangement;

.2 ballast capacity plan;

.3 a ballast water piping and pumping arrangement, including air pipes and sounding arrangements;

.4 ballast water pump capacities;

.5 the Ballast Water Management System used on board, with references to operational and maintenance manuals held on board;

.6 installed ballast water treatment systems; and

.7 a plan and profile of the ship, or a schematic drawing of the ballast arrangement.

.4 Information on the ballast water sampling points, including:

.1 A list or diagrams indicating the location of sampling and access points in pipelines and ballast water tanks, to enable crew members to assist the authorized officers of a Party that have reason to obtain samples.

.2 This section should make clear that sampling of ballast water is primarily a matter for the authorized inspection officers, and there is unlikely to be any need for crew members to take samples except at the express request, and under the supervision, of the authorized inspection officers.

.3 The authorized inspection officers should be advised of all safety procedures to be observed when entering enclosed spaces.

.5 Provisions for crew training and familiarization, including:

.1 requirements of a general nature regarding Ballast Water Management;

.2 training and information on ballast water management practices;

.3 ballast water exchange;

.4 ballast water treatment systems;

.5 general safety considerations;

.6 the Ballast Water Record Book and maintenance of records;

.7 the operation and maintenance of installed ballast water treatment systems;

.8 safety aspects associated with the particular systems and procedures used onboard the ship which affect the safety or human health of crew and passengers and/or the safety of the ship;

.9 precautions for entering tanks for sediment removal;

.10 procedures for the safe handling and packaging of sediment; and

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[6] In accordance with resolution A.600(15) IMO Ship Identification Number Scheme.

.11 storage of sediment.

## 4 NON-MANDATORY INFORMATION

4.1 In addition to the provisions required by Articles and regulations of the Convention, the owner/operator may include in the Plan, as appendices, additional information such as: provision of additional diagrams and drawings, shipboard equipment and reference materials. National or regional requirements that differ from the Convention may also be recorded for reference.

4.2 Non-mandatory information may also include manufactures manuals (either as extracts or complete) or reference to the location on board of such manuals and other relevant material.

## APPENDIX
## STANDARD FORMAT FOR THE BALLAST WATER MANAGEMENT PLAN

### PREAMBLE

*The ballast water management plan should contain the information required by Regulation B-1 of the Convention. For guidance in preparing the plan the following information is to be included. The plan should be specific to each ship.*

### INTRODUCTION

*At the beginning of each plan, wording should be included to reflect the intent of the following text.*

1 This Plan is written in accordance with the requirements of Regulation B-1 of the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (the Convention) and the associated Guidelines.

2 The purpose of the Plan is to meet the requirements for the control and management of ship's ballast water and sediments in accordance with the Guidelines for Ballast Water Management and the Development of Ballast Water Management Plans resolution MEPC XX(YY) (The Guidelines). It provides standard operational guidance for the planning and management of ships' ballast water and sediments and describes safe procedures to be followed.

3 This Plan has been approved by the Administration and no alteration or revision shall be made to any part of it without the prior approval of the Administration.

4 This Plan may be inspected on request by an authorized authority.

**Note: The Plan is to be written in the working language of the crew, if the text is not in English, French, or Spanish, the plan is to include a translation into one of these languages.**

**SHIP PARTICULARS**

*At least the following details should be included:*

Ships' name;
Flag;
Port of registry;
Gross Tonnage;
IMO number;[7]
Length (BP);
Beam;
International call sign;
Deepest ballast drafts (normal and heavy weather);
Total ballast capacity of the ship in cubic meters and other units if applicable to the ship;
A brief description of the main ballast water management method(s) used on the ship; and Identification (rank) of the appointed ballast water management officer.

**INDEX**

*An index of sections should be included to reference the content of the Plan.*

**PURPOSE**

*Should contain a brief introduction for the ship's crew, explaining the need for ballast water management, and the importance of accurate record keeping.*

**PLANS/DRAWINGS OF THE BALLAST SYSTEM**

*Plans or drawings of the ballast system for example:*

1) ballast tank arrangement;
2) ballast capacity plan;
3) a ballast water piping and pumping arrangement, including air pipes and sounding arrangements;
4) ballast water pump capacities;
5) the ballast water management system used onboard, with references to detailed operational and maintenance manuals held on board;
6) installed ballast water treatment systems; and
7) a plan and profile of the ship, or a schematic drawing of the ballast arrangement.

**DESCRIPTION OF THE BALLAST SYSTEM**

*A description of the ballast system.*

**BALLAST WATER SAMPLING POINTS**

*Lists and/or diagrams indicating the location of sampling and access points in pipelines and ballast water tanks. A note that sampling of ballast water is primarily a matter for the authorized authority, and there is unlikely to be any need for crew members to take samples except at the express request, and under the supervision, of the authorized authority.*

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[7] In accordance with resolution A.600(15), IMO Ship Identification Number Scheme.

**OPERATION OF THE BALLAST WATER MANAGEMENT SYSTEM**
*A detailed description of the operation of the Ballast Water Management System(s) used on board. Information on general ballast water management precautionary practices.*

**SAFETY PROCEDURES FOR THE SHIP AND THE CREW**
*Details of specific safety aspects of the ballast water management system used.*

**OPERATIONAL OR SAFETY RESTRICTIONS**
*Details of specific operational or safety restrictions including those associated with the management system which affects the ship and or the crew including reference to procedures for safe tank entry.*

**DESCRIPTION OF THE METHOD(S) USED ON BOARD FOR BALLAST WATER MANAGEMENT AND SEDIMENT CONTROL**
*Details of the method(s) used on board for the management of ballast and for sediment control including step-by-step operational procedures.*

**PROCEDURES FOR THE DISPOSAL OF SEDIMENTS**
*Procedures for the disposal of sediments at sea and to shore.*

**METHODS OF COMMUNICATION**
*Details of the procedures for coordinating the discharge of ballast in waters of a coastal State.*

**DUTIES OF THE BALLAST WATER MANAGEMENT OFFICER**
O*utline of the duties of the designated officer.*

**RECORDING REQUIREMENTS**
*Details of the record-keeping requirements of the Convention.*

**CREW TRAINING AND FAMILIARIZATION**
*Information on the provision of crew training and familiarization.*

**EXEMPTIONS**
*Details of any exemptions granted to the ship under Regulation A-4.*

**APPROVING AUTHORITY**
*Details and stamp of approving authority.*

***

**Annex 3**

**(corresponding to Convention guidelines (G5))**

# GUIDELINES FOR BALLAST WATER RECEPTION FACILITIES

## 1 INTRODUCTION

### Purpose

1.1 The purpose of these guidelines is to provide guidance for the provision of facilities for the reception of ballast water as referred to in Regulation B-3.6 of the Convention. These guidelines are not intended to require that a Party shall provide such facilities. The guidance is also intended to encourage a worldwide uniform interface between such facilities and the ships without prescribing dedicated shoreside reception plants.

### Application

1.2 These guidelines apply to ballast water reception facilities referred to in the International Convention for the Control and Management of Ships' Ballast Water and Sediments (the Convention), Regulation B-3.6.

1.3 These guidelines do not apply to reception facilities for sediment referred to in Article 5 and Regulation B-5 of the Convention.

## 2 DEFINITIONS

2.1 For the purposes of these guidelines, the definitions in Article 1 and Regulation A-1 of the Convention apply.

## 3 GENERAL REQUIREMENTS FOR BALLAST WATER RECEPTION FACILITIES

3.1 A ballast water reception facility should be capable of receiving ballast water from ships so as not to create a risk to the environment, human health, property and resources arising from the release to the environment of Harmful Aquatic Organisms and Pathogens. A facility should provide pipelines, manifolds, reducers, equipment and other resources to enable, as far as practicable, all ships wishing to discharge ballast water in a port to use the facility. The facility should provide adequate equipment for mooring ships using the facility and when applicable safe anchorage.

3.2 Each Party shall report to the Organization and, where appropriate, make available to other Parties, information on the availability and location of any reception facilities for the environmentally safe disposal of ballast water.

## 4 PROVISION OF BALLAST WATER RECEPTION FACILITIES

4.1 When considering the requirements of these facilities many factors will have to be taken into account, these should include but not be limited to:

.1 regional, national and local legislation which will affect the facility and related to the items below;

.2 site selection;

.3 ship type and size that will use the facility;

.4 ship configurations;

.5 mooring requirements;

.6 handling of ballast water;

.7 sampling, testing and analysis of ballast water;
.8 storage and of conditions of ballast water;
.9 environmental benefits and costs;
.10 proximity of available sites to local ports;
.11 effect on the environment in construction and operation of the facility;
.12 training of facility staff;
.13 human health;
.14 safety;
.15 maintenance;
.16 operational limitations;
.17 waterway access, approaches and traffic management; and
.18 the amount of ballast water likely to be received.

## 5 TREATMENT AND DISPOSAL OF RECEIVED BALLAST

5.1 Disposal of ballast water from a reception facility should not create a risk to the environment, human health, property and resources arising from the release or transfer to the environment of Harmful Aquatic Organisms and Pathogens.

5.2 Treatment methods applied to the ballast water should not produce effects that may create a risk to the environment, human health, property and resources.

5.3 Where ballast water is disposed into the aquatic environment it should at least meet the ballast water performance standard specified in Regulation D-2 of the Convention. Disposal to other environments should be to a standard acceptable to the Port State. Such a standard should not create a risk to the environment, human health, property and resources arising from the release or transfer to the environment of Harmful Aquatic Organisms and Pathogens.

## 6 SUSPENDED MATTER

6.1 Ballast water discharged from a ship should be accepted by the ballast water reception facility including its suspended matter.

## 7 CAPABILITIES OF A RECEPTION FACILITY

7.1 Details of the capabilities and any capacity limitations of a treatment facility should be made available to the ships that intend to use the facility.

7.2 The details made available to ships should include but not be limited to:

.1 maximum volumetric capacity of ballast water;
.2 maximum volume of ballast water that can be handled at any one time;
.3 maximum transfer rates of ballast water (cubic metres per hour);
.4 hours of operation;
.5 ports, berths, areas where access to the facility is available;
.6 ship-to-shore pipeline connection details (pipeline size and reducers available);
.7 if ship or shore crew are required for duties such as to connect or disconnect hoses;
.8 contact details for the facility;
.9 how to request use of the facility including any notice period and what information is required from the ship;
.10 all applicable fees; and

.11 other relevant information.

The facility should provide ship to shore connections that are compatible with a recognized standard such as those in the Oil Companies International Marine Forum (OCIMF) “Recommendations for Oil Tankers Manifolds and Associated Equipment”. It is recognized that this standard was originally produced for oil tankers however the general principles in this standard can be applied to connections for ballast transfer on other ship types in particular the sections related to flanges and connection methods.

## 8 TRAINING

8.1 Personnel in charge of and those employed in the provision of a ballast water reception facility including the treatment and disposal of ballast water should have received adequate instruction. Frequent training should include but not be limited to:

.1 the purpose and principles of the Convention;

.2 the risks to the environment and human health;

.3 risk associated with the handling of ballast water including both general safety and human health risks;

.4 safety;

.5 adequate knowledge of the equipment involved;

.6 a sufficient understanding of ships using the facility, and any operational constraints;

.7 the ship/port communication interface; and

.8 an understanding of local disposal controls.

8.2 The training should be organized by the manager or the operator of the reception facility and delivered by suitably qualified professionals.

***

**Annex 4**

**(corresponding to Convention guidelines (G6))**

# GUIDELINES FOR BALLAST WATER EXCHANGE

## 1 INTRODUCTION

1.1 The purpose of these Guidelines is to provide shipowners and operators with general guidance on the development of ship specific procedures for conducting ballast water exchange. Whenever possible ship owner and operators should enlist the assistance of classification societies or qualified marine surveyors in tailoring ballast exchange practices for various conditions of weather, cargo and stability. The application of processes and procedures concerning ballast water management are at the core of the solution to prevent, minimize and ultimately eliminate the introduction of harmful aquatic organisms and pathogens. Ballast water exchange offers a means, when used in conjunction with good ballast water management practices, to assist in achieving this solution.

1.2 Ballast water exchange introduces a number of safety issues, which affect both the ship and its crew. These Guidelines are intended to provide guidance on the safety and operational aspects of ballast water exchange at sea.

1.3 Given that there are different types of ships, which may be required to undertake ballast water exchange at sea, it is impractical to provide specific guidelines for each ship type. Shipowners are cautioned that they should consider the many variables that apply to their ships. Some of these variables include type and size of ship, ballast tank configurations and associated pumping systems, trading routes and associated weather conditions, port State requirements and manning.

### Application

1.4 The Guidelines apply to all those involved with ballast water exchange including, shipowners and operators, designers, classification societies and shipbuilders. Operational procedures and guidance reflecting the issues rose in these Guidelines should be reflected in the ships ballast water management plan.

## 2 DEFINITIONS

2.1 For the purposes of these Guidelines, the definitions in the International Convention for the Control and Management of Ships' Ballast Water and Sediments (the Convention) apply and:

.1 "Ballast Water Tank" – means any tank, hold, or space used for the carriage of ballast water.

## 3 RESPONSIBILITIES

3.1 Shipowners and operators should ensure, prior to undertaking ballast water exchange, that all the safety aspects associated with the ballast water exchange method or methods used onboard have been considered and that suitably trained personnel are onboard. A review of the safety aspects, the suitability of the exchange methods being used and the aspects of crew training should be undertaken at regular intervals.

3.2 The Ballast Water Management Plan is to include the duties of key shipboard control personnel undertaking ballast water exchange at sea. Such personnel should be fully conversant with the safety aspects of ballast water exchange and in particular the method of exchange used on board their ship and the particular safety aspects associated with the method used.

3.3 In accordance with Regulation B-4.4 of the Convention if the master reasonably decides that to perform ballast water exchange would threaten the safety or stability of the ship, its crew or its passengers, because of adverse weather, the ship's design, stress, equipment failure, or any other extraordinary condition a ship shall not be required to comply with Regulations B-4.1 and B-4.2.

.1 When a ship does not undertake ballast water exchange for the reasons stated in paragraph above, the reasons shall be entered in the Ballast Water Record Book.

.2 The port or coastal State concerned may require that the discharge of ballast water must be in accordance with procedures determined by them taking into account the Guidelines for additional measures including emergency situations (G13).

## 4 BALLAST WATER EXCHANGE REQUIREMENTS

4.1 Exchange of ballast water in deep ocean areas or open seas offers a means of limiting the probability that harmful aquatic organisms and pathogens be transferred in ships ballast water.

4.2 Regulation D-1 of the Convention requires that:

.1 ships performing ballast water exchange in accordance with this regulation shall do so with an efficiency of at least 95 per cent volumetric exchange of ballast water; and

.2 for ships exchanging ballast water by the pumping-through method, pumping through three times the volume of each ballast water tank shall be considered to meet the standard described in paragraph 1. Pumping through less than three times the volume may be accepted provided the ship can demonstrate that at least 95 per cent volumetric exchange is met.

4.3 There are three methods of Ballast Water exchange which have been evaluated and accepted by the Organization. The three methods are the sequential method, the flow-through method and the dilution method. The flow-through method and the dilution method are considered as "pump through" methods.

4.4 The three accepted methods can be described as follows:

**Sequential method** – a process by which a ballast tank intended for the carriage of ballast water is first emptied and then refilled with replacement ballast water to achieve at least a 95 per cent volumetric exchange.

**Flow-through method**– a process by which replacement ballast water is pumped into a ballast tank intended for the carriage of ballast water, allowing water to flow through overflow or other arrangements.

**Dilution method** – a process by which replacement ballast water is filled through the top of the ballast tank intended for the carriage of ballast water with simultaneous discharge from the bottom at the same flow rate and maintaining a constant level in the tank throughout the ballast exchange operation.

## 5 SAFETY PRECAUTIONS ASSOCIATED WITH BALLAST WATER EXCHANGE

5.1 Three methods of carrying out ballast water exchange at sea have been identified as acceptable by the Organization. Each has particular safety aspects associated with it that should be considered when selecting the method(s) to be used on a particular ship.

5.2 When identifying the ballast water exchange method(s) for the first time for a particular ship, an evaluation should be made which should include:

.1 the safety margins for stability and strength contained in allowable seagoing conditions, as specified in the approved trim and stability booklet and the loading manual relevant to individual types of ships. Account should also be taken of the loading conditions and the envisaged ballast water exchange method or methods to be used;

.2 the ballast pumping and piping system taking account of the number of ballast pumps and their capacities, size and arrangements of ballast water tanks; and

.3 the availability and capacity of tank vents and overflow arrangements, for the flow through method, the availability and capacity of tank overflow points, prevention of under and over pressurization of the ballast tanks.

5.3 Particular account should be taken of the following:

.1 stability which is to be maintained at all times and not less than those values recommended by the Organization or required by the Administration;

.2 longitudinal stress, and where applicable torsional stress values, not to exceed permitted values with regard to prevailing sea conditions;

.3 exchange of ballast in tanks where significant structural loads may be generated by sloshing action in the partially filled tank to be carried out in favourable sea and swell conditions such that the risk of structural damage is minimized;

.4 wave-induced hull vibrations when carrying out ballast water exchange;

.5 limitations of the available methods of ballast water exchange in respect of sea and weather conditions;

.6 forward and aft draughts and trim, with particular reference to bridge visibility, slamming, propeller immersion and minimum forward draft; and

.7 additional workloads on the master and crew.

5.4 Having undertaken an evaluation for a particular ship and the exchange method or methods to be used, the ship should be provided with procedures, advice and information appropriate to the exchange method(s) identified and ship type in the Ballast Water Management Plan. The procedures, advice, and information in the Ballast Water Management Plan, may include but is not limited to the following:

.1 avoidance of over and under-pressurization of ballast tanks;

.2 free surface effects on stability and sloshing loads in tanks that may be slack at any one time;

.3 maintain adequate intact stability in accordance with an approved trim and stability booklet;

.4 permissible seagoing strength limits of shear forces and bending moments in accordance with an approved loading manual;

.5 torsional forces;

.6 forward and aft draughts and trim, with particular reference to bridge visibility, propeller immersion and minimum forward draft;

.7 wave-induced hull vibrations when performing ballast water exchange;

.8 watertight and weathertight closures (e.g. manholes) which may have to be opened during ballast exchange must be re-secured;

.9 maximum pumping/flow rates – to ensure the tank is not subjected to a pressure greater than that for which it has been designed;

.10 internal transfers of ballast;

.11 admissible weather conditions;

.12 weather routeing in areas seasonably affected by cyclones, typhoons, hurricanes, or heavy icing conditions;

.13 documented records of ballasting and/or de-ballasting and/or internal transfers of ballast;

.14 contingency procedures for situations which may affect ballast water exchange at sea, including deteriorating weather conditions, pump failure and loss of power;

.15 time to complete the ballast water exchange for each tank or an appropriate sequence thereof;

.16 continual monitoring of the ballast water operation; monitoring should include pumps, levels in tanks, line and pump pressures, stability and stresses;

.17 a list of circumstances in which ballast water exchange should not be undertaken. These circumstances may result from critical situations of an exceptional nature or force majeure due to stress of weather, known equipment failures or defects, or any other circumstances in which human life or safety of the ship is threatened;

.18 ballast water exchange at sea should be avoided in freezing weather conditions. However, when it is deemed absolutely necessary, particular attention should be paid to the hazards associated with the freezing of overboard discharge arrangements, air pipes, ballast system valves together with their means of control, and the buildup of ice on deck; and

.19 personnel safety, including precautions which may be required when personnel are required to work on deck at night, in heavy weather, when ballast water overflows the deck, and in freezing conditions. These concerns may be related to the risks to the personnel of falling and injury, due to the slippery wet surface of the deck plate, when water is overflowing on deck, and to the direct contact with the ballast water, in terms of occupational health and safety.

5.5 During ballast water exchange sequences there may be times when, for a transitory period, one or more of the following criteria cannot be fully met or are found to be difficult to maintain:

.1 bridge visibility standards (SOLAS V/22);

.2 propeller immersion; and

.3 minimum draft forward.

5.6 As the choice of acceptable ballast water exchange sequences is limited for most ships, it is not always practicable to dismiss from consideration those sequences where transitory noncompliance may occur. The practical alternative would be to accept such sequences provided an appropriate note is placed in the Ballast Water Management Plan to alert the ship's master. The note would advise the master of the nature of the transitory non-compliance, that additional planning may be required and that adequate precautions need to be taken when using such sequences.

5.7 In planning a ballast water exchange operation that includes sequences which involve periods when the criteria for propeller immersion, minimum draft and/or trim and bridge visibility cannot be met, the Master should assess:

.1 the duration(s) and time(s) during the operation that any of the criteria will not be met;

.2 the effect(s) on the navigational and manoeuvring capabilities of the ship; and

.3 the time to complete the operation.

5.8 A decision to proceed with the operation should only be taken when it is anticipated that:

.1 the ship will be in open water;

.2 the traffic density will be low;

.3 an enhanced navigational watch will be maintained including if necessary an additional lookout forward with adequate communications with the navigation bridge;

.4 the manoeuvrability of the vessel will not be unduly impaired by the draft and trim and or propeller immersion during the transitory period; and

.5 the general weather and sea state conditions will be suitable and unlikely to deteriorate.

5.9 On oil tankers, segregated ballast and clean ballast may be discharged below the water line at sea by pumps if the ballast water exchange is performed under the provisions of Regulation D-1.1 of the In-

ternational Convention for the Control and Management of Ships' Ballast Water and Sediments, provided that the surface of the ballast water has been examined either visually or by other means immediately before the discharge to ensure that no contamination with oil has taken place.

## 6 CREW TRAINING AND FAMILIARIZATION

6.1 Appropriate training for ships' masters and crews should include instructions on the safety issues associated with ballast water exchange based upon the information contained in these Guidelines. Instruction should be provided on the ships' Ballast Water Management Plan including the completion of required records.

6.2 Ships' officers and crew engaged in ballast water exchange at sea should be trained in and be familiar with the following as appropriate:

.1 the ship's ballast pumping and piping arrangements, positions of associated air and sounding pipes, positions of all compartment and tank suctions and pipelines connecting them to ship's ballast pumps and, in the case of use of the flow through method of ballast water exchange, the openings used for release of water from the top of the tank together with overboard discharge arrangements;

.2 the method of ensuring that sounding pipes are clear, and that air pipes and their non-return devices are in good order;

.3 the different times required to undertake the various ballast water exchange operations including the time to complete individual tanks;

.4 the method(s) in use for ballast water exchange at sea if applicable with particular reference to required safety precautions; and

.5 the need to continually monitor ballast water exchange operations.

## 7 FUTURE CONSIDERATIONS IN RELATION TO BALLAST WATER EXCHANGE

7.1 These Guidelines may be revised and updated in the light of possible technical evolutions with the ballast water exchange methods and of new ballast water management options.

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**Annex 5**

**(corresponding to Convention guidelines (G7))**

# GUIDELINES FOR RISK ASSESSMENT UNDER REGULATION A-4 OF THE BWM CONVENTION

## 1 PURPOSE

1.1 The purpose of these Guidelines is to assist Parties to ensure that provisions of regulation A-4 of the Convention are applied in a consistent manner, and based on scientifically robust risk assessment, which ensures that the general and specific obligations of a Party to the Convention are achieved.

1.2 An additional purpose is to provide assurance to affected States that exemptions granted by a Party meet the regulation A-4.3 obligations.

1.3 The Guidelines outline three risk assessment methods that will enable Parties to identify unacceptable high risk scenarios and acceptable low risk scenarios, and advise Parties on procedures for granting and withdrawing exemptions in accordance with regulation A-4.

## 2 INTRODUCTION

2.1 Regulation A-4 of the Convention states that a Party or Parties, in waters under their jurisdiction may grant exemptions to any requirements to apply regulation B-3 or C-1, in addition to those exemptions contained elsewhere in the Convention, but only when they are:

.1 granted to a ship or ships on a voyage or voyages between specified ports or locations; or to a ship which operates exclusively between specified ports or locations;

.2 effective for a period of no more than five years subject to intermediate review;

.3 granted to ships that do not mix ballast water or sediments other than between the ports or locations specified in paragraph 2.1.1; and

.4 granted based on the Guidelines that have been developed by the Organization.

2.2 These Guidelines provide advice and information regarding risk assessment principles and methods, data needs, advice on application of risk assessment methods, procedures for granting exemptions, consultation and communication processes, information for reviewing exemptions and advice regarding technical assistance, co-operation and regional co-operation.

2.3 These Guidelines also provide advice regarding the roles of the Organization, shipping industry, port States and other States that might be affected by granting an exemption in accordance with regulation A-4 of the Convention.

2.4 Scientifically robust risk assessment underpins the process of Parties granting exemptions under regulation A-4 of the Convention. The assessment must be sufficiently robust to distinguish between unacceptable high risk scenarios and acceptable low risk scenarios where the discharge of ballast water not meeting regulations B-3 and C-1 is unlikely to impair or damage the environment, human health, property or resources of the granting Party and of adjacent or other States.

2.5 Risk assessments should be based on best available scientific information.

2.6 The Guidelines should be kept under review in order to incorporate experiences gained during their application and any new scientific and technical knowledge.

## 3 APPLICATION

3.1 These Guidelines apply to Parties granting exemptions to ships under regulation A-4 of the Convention.

3.2 Shipowners or operators wanting to seek an exemption under regulation A-4 should also consult these Guidelines.

## 4 DEFINITIONS

4.1 For the purposes of these Guidelines, the definitions in the Convention apply.

4.2 "Anadromous": species that spawn/reproduce in freshwater environments, but spend at least part of their adult life in a marine environment.

4.3 "Biogeographic region": a large natural region defined by physiographic and biologic characteristics within which the animal and plant species show a high degree of similarity. There are no sharp and absolute boundaries but rather more or less clearly expressed transition zones.

4.4 "Catadromous": species that spawn/reproduce in marine environments, but spend at least part of their adult life in a freshwater environment.

4.5 "Cryptogenic": species that are of unknown origin, i.e. species that are not demonstrably native or introduced to a region.

4.6 "Donor Port": port or location where the ballast water is taken onboard.

4.7 "Euryhaline": species able to tolerate a wide range of salinities.

4.8 "Eurythermal": species able to tolerate a wide range of temperatures.

4.9 "Freshwater": water with salinity lower than 0.5 psu (practical salinity units).

4.10 "Marine water": Water with salinity higher than 30 psu.

4.11 "Non-indigenous species": any species outside its native range, whether transported intentionally or accidentally by humans or transported through natural processes.

4.12 "Recipient port": port or location where the ballast water is discharged.

4.13 "Target species": species identified by a Party that meet specific criteria indicating that they may impair or damage the environment, human health, property or resources and are defined for a specific port, State or biogeographic region.

## 5 RISK ASSESSMENT PRINCIPLES

5.1 Risk assessment is a logical process for assigning the likelihood and consequences of specific events, such as the entry, establishment, or spread of harmful aquatic organisms and pathogens. Risk assessments can be qualitative or quantitative, and can be a valuable decision aid if completed in a systematic and rigorous manner.

5.2 The following key principles define the nature and performance of risk assessment:

.1 **Effectiveness –** That risk assessments accurately measures the risks to the extent necessary to achieve an appropriate level of protection.

.2 **Transparency –** That the reasoning and evidence supporting the action recommended by risk assessments, and areas of uncertainty (and their possible consequences to those recommendations), are clearly documented and made available to decision-makers.

.3 **Consistency –** That risk assessments achieve a uniform high level of performance, using a common process and methodology.

.4 **Comprehensiveness –** That the full range of values, including economic, environmental, social and cultural, are considered when assessing risks and making recommendations.

.5 **Risk Management –** That low risk scenarios may exist, but zero risk is not obtainable, and as such risk should be managed by determining the acceptable level of risk in each instance.

.6 **Precautionary –** That risk assessments incorporate a level of precaution when making assumptions, and making recommendations, to account for uncertainty, unreliability, and inadequacy of information. The absence of, or uncertainty in, any information should therefore be considered an indicator of potential risk.

.7 **Science based –** That risk assessments are based on the best available information that has been collected and analysed using scientific methods.

.8 **Continuous improvement –** Any risk model should be periodically reviewed and updated to account for improved understanding.

5.3 In undertaking risk assessment when considering granting an exemption, the risk assessment principles should be carefully applied. The lack of full scientific certainty should be carefully considered in the decision making process. This is especially important under these Guidelines, as any decision to grant an exemption will allow for the discharge of ballast water that does not meet the standards of regulation D-1 or D-2.

## 6 RISK ASSESSMENT METHODS

### 6.1 General

6.1.1 There are three risk assessment methods outlined in these Guidelines for assessing the risks in relation to granting an exemption in accordance with regulation A-4 of the Convention:

- Environmental matching risk assessment
- Species' biogeographical risk assessment
- Species-specific risk assessment

6.1.2 Environmental matching risk assessment relies on comparing environmental conditions between locations, species' biogeographical risk assessment compares the overlap of native and non-indigenous species to evaluate environmental similarity and to identify high risk invaders, while species-specific risk assessment evaluates the distribution and characteristics of identified target species. Dependent on the scope of the assessment being performed, the three approaches could be used either individually or in any combination, recognizing that each approach has its limitations.

6.1.3 Environment matching and species' biogeographical risk assessment may be best suited to assessments between biogeographic regions. Species-specific risk assessment may be best suited to situations where the assessment can be conducted on a limited number of harmful species within a biogeographic region.

### 6.2 Environmental matching risk assessment

6.2.1 Environmental matching risk assessments compare environmental conditions including temperature and salinity between donor and recipient regions. The degree of similarity between the locations provides an indication of the likelihood of survival and the establishment of any species transferred between those locations.

6.2.2 Since species are widely distributed in a region, and are rarely restricted to a single port the environmental conditions of the source region should be considered.

6.2.3 These regions are typically defined as biogeographic regions. Noting that all of the existing biogeographical schemes were derived for different purposes than proposed here, it is suggested that the Large Marine Ecosystems (LME) scheme (http://www.edc.uri.edu/lme) be used based on best available information at this time, with local and regional adaptation as necessary. It is recognized that the

suggested biogeographical scheme may not be appropriate in certain circumstances and in this case other recognized biogeographical schemes may need to be considered.[8]

6.2.4 Environmental matching should therefore compare environmental conditions between the donor biogeographic region and the recipient port to determine the likelihood that any species found in the donor biogeographic region are able to survive in the recipient port in another biogeographic region. The environmental conditions that may be considered for environmental matching include salinity, temperature or other environmental conditions, such as nutrients or oxygen.

6.2.5 The difficulty in using environmental matching risk assessments is identifying the environmental conditions that are predictive of the ability of the harmful species to successfully establish and cause harm in the new location, and in determining whether the risk of ballast water discharge is sufficiently low to be acceptable. Environmental matching risk assessments have limited value where the differences between a donor biogeographic region and a recipient port are small as high similarity is likely to indicate high likelihood of successful establishment.

6.2.6 Environmental conditions should also be compared between the donor and recipient ports. Similarity in key environmental conditions between the two ports is a stronger indication that species entrained in ballast water in the donor port could survive when released into the waters of the recipient port. The environmental conditions that may be considered for environmental matching include salinity, temperature or other environmental conditions, such as nutrients or oxygen.

6.2.7 The data necessary to enable a risk assessment using environmental matching includes, but is not limited to:

.1 Origin of the ballast water to be discharged in recipient port.

.2 Biogeographic region of donor and recipient port(s).

.3 The average and range of environmental conditions, in particular salinity and temperature.

This information is used to determine the degree of environmental similarity between the donor and recipient environments. In many cases, it should be possible to use existing data for part or all of these environmental profiles.

6.2.8 The following should be considered in gathering data on the environmental conditions:

.1 The seasonal variations in surface and bottom salinities and temperatures at the recipient port and the larger water body the port is contained within (e.g., estuary or bay). Surface and bottom values are needed to determine the full range of environmental conditions available for a potential invader (e.g., low salinity surface waters allowing the invasion of a freshwater species). Salinity and temperature depth profiles are not required if available data indicates the waters are well mixed over the entire year.

.2 In recipient ports with strong tides or currents, the temporal variations in salinity should be determined over a tidal cycle.

.3 In areas with seasonal or depth variations, the salinity should be determined on a seasonal and/or depth basis.

.4 Any anthropogenic influences on freshwater flow that could temporarily or permanently alter the salinity regime of the recipient port and surrounding waters.

[8] Watling and Gerkin (http://marine.rutgers.edu/OBIS/index.html) based on Briggs (1953) and Springer (1982); IUCN bioregion system; Briggs (1953) and Ekman (1974; 1995); Longhurst provinces.

.5 The seasonal temperature variation of coastal waters for the biogeographic region of the recipient port. Consideration should be given to both surface waters and to how temperature varies with depth.

6.2.9 It is recommended that the analysis of environmental conditions be followed by a consideration of the species known to be in the donor region that can tolerate extreme environmental differences. If present, a species-specific approach should be used to evaluate the risks associated with these species. Such species include:

- species that utilize both fresh and marine environments to complete their life-cycle (including anadromous (e.g., Sea Lamprey) and catadromous (e.g., Chinese Mitten crab) species);
- species with a tolerance to a wide range of temperatures (eurythermal species) or salinities (euryhaline species).

### 6.3 Species' biogeographical risk assessment

6.3.1 Species' biogeographical risk assessment compares the biogeographical distributions of nonindigenous, cryptogenic, and harmful native species that presently exist in the donor and recipient ports and biogeographic regions. Overlapping species in the donor and recipient ports and regions are a direct indication that environmental conditions are sufficiently similar to allow a shared fauna and flora. The biogeographical analysis could also be used to identify high risk invaders. For example, native species in the donor biogeographic region that have successfully invaded other similar biogeographic regions but that are not found in the recipient biogeographic region could be considered high risk invaders for the recipient port or location. The larger the number of biogeographic regions that such species have invaded, the greater the potential that those species would be able to become established in the recipient port or biogeographic region if introduced by ballast water not meeting regulation B-3 or C-1. Another general indicator of risk would be if the donor biogeographic region is a major source of invaders to other areas.

6.3.2 The data necessary to enable a risk assessment using a species biogeographical approach includes but may not be limited to:

.1 records of invasion in the donor and recipient biogeographic regions and ports;

.2 records of native or non-indigenous species that could be transferred through ballast water in the donor biogeographic region that have invaded other biogeographic regions and the number and nature of biogeographic regions invaded;

.3 records of native species in the donor region that have the potential to affect human health or result in substantial ecological or economic impacts after introduction in the recipient region through ballast water transfer.

6.3.3 The species' biogeographical risk assessment could also be used to identify potential target species in the donor regions as indicated by native species with wide biogeographical or habitat distributions or which are known invaders in other biogeographic regions similar to that of the recipient port.

### 6.4 Species-specific risk assessment

6.4.1 Species-specific risk assessments use information on life history and physiological tolerances to define a species' physiological limits and thereby estimate its potential to survive or complete its life cycle in the recipient environment. That is, they compare individual species characteristics with the environmental conditions in the recipient port, to determine the likelihood of transfer and survival.

6.4.2 In order to undertake a species-specific risk assessment, species of concern that may impair or damage the environment, human health, property or resources need to be identified and selected. These are known as the target species. Target species should be selected for a specific port, State, or geographical region, and should be identified and agreed on in consultation with affected States.

6.4.3 To determine the species that are potentially harmful and invasive, parties should initially identify all species (including cryptogenic species) that are present in the donor port but not in the recipient port. Target species should then be selected based on criteria that identify the species that have the ability to invade and become harmful. The factors to consider when identifying target species include, but should not be limited to:

- evidence of prior introduction;
- demonstrated impacts on environment, economy, human health, property or resources;
- strength and type of ecological interactions, e.g. ecological engineers;
- current distribution within biogeographic region and in other biogeographic regions; and
- relationship with ballast water as a vector.

6.4.4 Species-specific risk assessments should then be conducted on a list of target species, including actual or potentially harmful non-indigenous species (including cryptogenic species). As the number of species included in the assessment increases the number of low risk scenarios decreases. This is justified if the species assessments are accurate. The difficulty arises when the assessments are conservative due to lack of data. It should be recognized however, that the fewer the number of species analyzed, the greater the uncertainty in predicting the overall risk. The uncertainty associated with limiting the analysis to a small number of species should therefore be considered in assessing the overall risk of invasion.

6.4.5 It should be noted that there are limitations involved with using a target species approach. Although some data and information can be obtained to support decision making, identifying species that may impair or damage the environment, human health, property or resources is subjective and there will be a degree of uncertainty associated with the approach. For example, it is possible that species identified as harmful in some environments may not be harmful in others and vice versa.

6.4.6 If species-specific risk assessments are undertaken when the donor and recipient ports are within different biogeographic regions, Parties should identify and consider any uncertainties resulting from lack of data on the presence of potentially harmful species in the donor location.

6.4.7 The data necessary to enable a risk assessment using the species-specific approach includes, but is not limited to:

.1 biogeographic region of donor and recipient port(s);

.2 the presence of all non-indigenous species (including cryptogenic species) and native species in the donor port(s), port region and biogeographic region, not present in the recipient port, to allow identification of target species;

.3 the presence of all target species in the recipient port(s), port region, and biogeographic region;

.4 the difference between target species in the donor and recipient ports, port region, and biogeographic region;

.5 life history information on the target species and physiological tolerances, in particular salinity and temperature, of each life stage; and

.6 habitat type required by the target species and availability of habitat type in the recipient port.

6.4.8 If a target species is already present in the recipient port, it may be reasonable to exclude that species from the overall risk assessment for that port unless that species is under active control. It is important

to recognize, however, that even when a non-indigenous species or cryptogenic species has been reported from the donor and recipient ports, its continual introduction into the recipient ports could increase the probability that it will become established and/or achieve invasive population densities.

6.4.9 A risk assessment can take different forms. A simple assessment can be undertaken as outlined in paragraph 6.4.7 of whether a target species is present in the donor port but not in a recipient port and can be transported through ballast water. However, if considered appropriate, the likelihood of target species surviving each of the following stages may be assessed, including:

.1 Uptake – probability of viable stages entering the vessel's ballast water tanks during ballast water uptake operations;

.2 Transfer – probability of survival during the voyage;

.3 Discharge – probability of viable stages entering the recipient port through ballast water discharge on arrival; and

.4 Population establishment – probability of the species establishing a self-maintaining population in the recipient port.

6.4.10 To determine the likelihood of transfer and survival of a harmful species, the probability of each species surviving each of the stages contained in paragraph 6.4.9 may be assessed. To the extent possible the different life stages of the target species may also be assessed considering seasonal variations of life stage occurrence in donor port with seasonal conditions in the recipient port. The overall risk assessment for the discharge of unmanaged ballast water is therefore determined based on the assessment of all target species surviving all these stages.

6.4.11 In assessing whether a species will survive in the recipient port, physiological tolerances of all life stages need to be considered.

.1 The ability of the adults to survive would be indicated by the physiological limits for both temperature and salinity that fall within the environmental ranges observed in the recipient port and larger water body. As a check, a comparison could be made with the native and/or introduced ranges of the species to determine if the predicted tolerances (based on lab or field studies) reflect actual distributions.

.2 For other life stages the physiological requirements of each stage in the life cycle should be compared against the environmental conditions during the season(s) of reproduction, noting that these stage(s) may live in different habitats to complete their life cycle (e.g., coastal pelagic larvae of estuarine benthic invertebrates). Data should be collected as appropriate.

.3 Comparisons of known physiological tolerances for other conditions should be conducted if the data are available and relevant.

6.4.12 To evaluate whether the species-specific risk assessment approach is sufficiently robust to predict invaders, the approach could be used to estimate the probabilities of invasion for a suite of existing invaders within the recipient port. Failure to accurately predict existing invaders may indicate that the model under predicts the risk.

### 6.5 Evaluation and decision-making

6.5.1 The port State granting exemptions shall, in both the evaluation and consultation processes, give special attention to regulation A-4.3 which states that any exemptions granted under this regulation shall not impair or damage the environment, human health, property or resources of adjacent or other States. Regulation A-4.3 also states that States that may be adversely affected shall be consulted, and Parties should refer to section 8 regarding consultation.

6.5.2 It is important for the transparency and consistency of the risk assessments to define a priori criteria to distinguish between unacceptable high risk scenarios and acceptable low risk scenarios where the risk of ballast water not meeting regulations B-3 and C-1 is unlikely to impair or damage the environment, human health, property or resources of the granting Party and of adjacent or other States. The specific criteria depend upon the risk assessment approach, as well as the uncertainty in the analysis.

6.5.3 For an environmental matching risk assessment:

.1 A high-risk scenario could be indicated if the environmental conditions of the donor ports overlap the environmental conditions of the recipient region.

.2 A low-risk scenario could be indicated if the environmental conditions of the donor port do not overlap the environmental conditions of the recipient region.

6.5.4 For the species' biogeographical risk assessment:

.1 A high-risk could be indicated if the recipient port presently contains non-indigenous species whose native range includes the donor biogeographic region.

.2 A high-risk could be indicated if the donor and recipient ports share non-indigenous species whose source is from other biogeographic regions.

.3 A moderate to high risk could be indicated if the recipient biogeographic region presently contains non-indigenous species whose native range includes the donor biogeographic region.

.4 A moderate to high risk could be indicated if the donor biogeographic region is a major source for invaders for other biogeographic regions.

6.5.5 For a species-specific risk assessment, an assessment could be deemed high risk if it identifies at least one target species that satisfies all of the following:

- likely to cause harm;
- present in the donor port or biogeographic region;
- likely to be transferred to the recipient port through ballast water; and
- likely to survive in the recipient port.

6.5.6 The overall probability of a successful invasion also depends in part on the number of organisms and the frequency with which they are introduced over the entire period of the exemption. Therefore, it is recommended that a risk assessment should consider estimates of at least the following four factors:

.1 the total volume of water discharged

.2 the volume of water discharged in any event (voyage)

.3 the total number of discharge events

.4 the temporal distribution of discharge events.

6.5.7 In all cases, the level of uncertainty needs to be considered in evaluating the extent of risk. High levels of uncertainty in the biogeographical distributions and/or physiological tolerances of a target species may be sufficient in themselves to classify the risk as high. Additionally, the potential ecological impact of the target species should be considered in deciding the level of acceptable risk. The absence of, or uncertainty in, any information should not be considered a reason to grant an exemption to regulation B-3 or C-1.

6.5.8 Once the level of risk and the extent of uncertainty have been assessed, the result can be compared to the levels a Party(s) is willing to accept in order to determine whether an exemption can be granted.

6.5.9 Ships on a voyage(s) or route(s) that satisfy the requirements of regulation A-4.1 and that pass(es) the terms of acceptance in the risk assessment may be granted an exemption.

6.5.10 It is recommended that an independent peer review of the risk assessment method, data and assumptions be undertaken in order to ensure that a scientifically rigorous analysis has been conducted. The peer review should be undertaken by an independent third party with biological and risk assessment expertise.

## 7 PROCEDURES FOR GRANTING EXEMPTIONS

7.1 The purpose of this section is to provide guidance for Parties, Administrations and ships, engaged in the process of applying for, evaluating and/or granting exemptions in accordance with the provisions of regulation A-4. The appendix also identifies minimum information required for an exemption application.

7.2 Parties may undertake the risk assessment themselves in order to grant exemptions, or require the shipowner or operator to undertake the risk assessment. In any event the Party granting an exemption is responsible for evaluating the risk assessment, verifying the data and information used, and ensuring the risk assessment is conducted in a thorough and objective manner in accordance with the Guidelines. The recipient port State(s) should reject any application for exemption found not to be in accordance with these Guidelines, and should provide reasons as to why the application was not accepted.

7.3 Shipowners or operators wanting to seek an exemption should contact the relevant Parties to ascertain the risk assessment procedures to be undertaken and the information requirements of these procedures.

7.4 Where a Party has determined that the shipowner or operator should undertake the risk assessment, the Party should provide relevant information, including any application requirements, the risk assessment model to be used, any target species to be considered, data standards and any other required information. The shipowner or operator should follow these Guidelines and submit relevant information to the Party.

7.5 The port State shall ensure that, as required by regulation A-4.1.3, exemptions are only granted to ships that do not mix ballast water or sediments other than between the locations specified in the exemption. The port State should require evidence of the specific measures undertaken to ensure compliance with this regulation at the time the exemption is granted and over the duration of the exemption. Non-compliance during the period of exemption should result in prompt suspension or revocation of the exemption.

7.6 An exemption shall not be effective for more than 5 years from the date granted. The approval may contain seasonal and time-specific or other restrictions within the time of validity.

7.7 The result of the risk assessment should be stated as:

.1 The voyage(s) or route(s) represent(s) an acceptable risk. The application for an exemption is granted.

.2 The voyage(s) or route(s) may represent an unacceptable risk. Further consideration is required.

.3 The voyage(s) or route(s) represent(s) an unacceptable risk. The exemption from the ballast water management requirements of regulation B-1 or C-1 of the Convention is not granted.

## 8 CONSULTATION

8.1 In accordance with regulation A-4.3, Parties shall consult any State that may be adversely affected from any exemptions that may be granted. This should include adjacent States and any other States that may be affected, including those located in the same biogeographic region as the recipient port(s). States should exchange information and endeavour to resolve any identified concerns. Sufficient time must be given for affected States to consider proposed exemptions carefully.

8.2 Affected States should be provided with information on: the risk assessment method applied; the quality of the information used in the assessment; uncertainties in the model, model inputs and/or risk assessments; the rationale for the proposed exemption; and any terms or conditions applicable to the exemption.

8.3 The risk assessment should document the following elements as appropriate:

- Criteria or reference for defining target species in the risk method.
- The inventories of native, non-indigenous, and cryptogenic species used in the species' biogeographical risk assessment.
- Acceptance criteria applied in each step of the analysis. The risk assessment has to be put in a relevant context to enable determination of whether the risk level is acceptable or not. The only transparent verifiable way of doing this is to compare the actual risk level with clear predefined acceptance criteria in paragraphs 6.5.2 to 6.5.8.

8.4 In addition, the criteria or scientific methods used in defining and delimiting the biogeographic regions shall be presented if a scheme other than that recommended in paragraph 6.2.3 is used.

8.5 The invitation for comments should contain one of the two following options for the affected State's response:

.1 Supported without comments or conditions.

.2 Supported with comments and/or conditions.

8.6 The deadline for comments from the affected State(s) should be specified in the invitation. If no response within the given time-limit is received, this may be regarded as "Accepted without comments or conditions".

8.7 If an affected State does not support the granting of the exemption(s), the appropriate reasons should be provided. Any conditions or limitations which an affected State believes to be necessary to enable them to support an exemption should be clearly identified.

## 9 COMMUNICATION OF INFORMATION

9.1 Each Party to the Convention that has indicated it will grant exemptions should establish a point or points of contact for receipt of applications. Relevant contact details should be submitted to the Organization. In the absence of such information from a Party, the IMO MEPC contact point should be regarded as the contact point for the purpose of these Guidelines.

9.2 The Organization should circulate the list of contacts, and keep this list updated on a regular basis.

9.3 The decision of the recipient port State(s) shall be communicated to the shipowners or operators, the affected State(s), and the Organization as soon as possible before the effective date of the exemption. The decision should explain the basis for granting the exemption and how any comments from affected States were addressed and specify the voyage or voyages in which the exemption is granted, including the specified ports or location(s), the duration of the exemption and details of any conditions or limitations on the exemption.

9.4 Exemptions granted in accordance with regulation A-4 of the Convention, shall be effective after communication to the Organization and circulation of relevant information to Parties.

9.5 Any exemption granted shall also be recorded in the ballast water record book in accordance with regulation A-4.4.

9.6 Where exemptions have been granted for a specific voyage, any changes in voyage plans must be communicated to the Party that has granted the exemption prior to undertaking the voyage or prior to discharge of ballast water.

## 10 REVIEW OF RISK ASSESSMENT AND WITHDRAWAL OF EXEMPTIONS

10.1 It is recommended that information used in the risk assessment be reviewed regularly as data and assumptions used in the assessment can become outdated.

10.2 It is recommended that an intermediate review be undertaken within 12 months but in any circumstances no later than 36 months after permission is granted. A recipient port State may require several reviews to be taken during the period the exemption is granted for, but more frequent than annual reviews generally should not be required.

10.3 Renewal of an exemption following the initial 60 months must not be granted without a thorough review of the risk assessment, consultation with affected States, and notice of the decision to the Organization under regulation A-4.2.

10.4 An exemption granted under regulation A-4 of the Convention may need to be withdrawn where the actual risk associated with a voyage has increased substantially since the risk assessment was conducted. This would include emergency situations such as outbreaks, incursions, infestations, or proliferations of populations of harmful aquatic organisms and pathogens (e.g., harmful algal blooms) which are likely to be taken up in ballast water (regulation C-2 of the Convention).

10.5 When a port State notifies mariners of areas under its jurisdiction where ships should not uptake ballast water due to an emergency or other high risk situation, all exemptions should be withdrawn from ships that take up ballast water in the defined area. In such circumstances the shipowners or operators should be notified of the decision to withdraw the exemption as soon as possible.

10.6 Guidelines for additional measures regarding ballast water management including emergency situations (G13) adopted by resolution MEPC.161(56) provide guidance to rapidly identify appropriate additional measures whenever emergency situations occur in relation to ballast water operations.

## 11 TECHNICAL ASSISTANCE, CO-OPERATION AND REGIONAL CO-OPERATION

11.1 Article 13 of the Convention provides that Parties undertake, directly or through the Organization and other international bodies, to provide support for those Parties which request technical assistance, that Parties undertake to co-operate and that Parties shall endeavour to enhance regional co-operation.

11.2 With regard to these risk assessment Guidelines, assistance should include provision of data and information required to undertake a risk assessment, technical assistance regarding the methods for undertaking risk assessment and acceptance criteria.

## APPENDIX

### APPLICATION TO PORT STATE

An application for exemption to the port State should as a minimum contain information on the points listed below.

### 1 GENERAL INFORMATION

- Period for which an application is sought; from month and year to month and year.
- Why an exemption under regulation A-4 is sought.

### 2 SHIP'S INFORMATION

- Ship name
- IMO number
- Port of registry
- Gross Tonnage
- Owner
- Call sign
- Ballast water management option usually undertaken by ship, including ballast water treatment technology, if installed
- A copy of the Ship's Ballast Water Management Plan should be submitted
- The Administration may also require ballast water and sediment management history for a determined period

### 3 ROUTE INFORMATION

- Route of application, given as donor port(s) and recipient port for ballast water discharge.
- If single voyage: Date and time of departure and arrival.
- If multiple voyages: Voyage frequency, regularity and estimated amount of ballast water discharged during the exemption period. Estimated time and dates for departures and arrivals.
- Any voyages the ship plans to take to ports other than the specified ports during the duration of the exemption.
- If multiple voyages, the estimated total number of voyages and the amount of ballast water discharged under the duration of the exemption.

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**Annex 6**

**(corresponding to Convention guidelines (G9))**

# PROCEDURE FOR APPROVAL OF BALLAST WATER MANAGEMENT SYSTEMS THAT MAKE USE OF ACTIVE SUBSTANCES (G9)

## 1 INTRODUCTION

1.1 This procedure describes the approval and withdrawal of approval of ballast water management systems that make use of Active Substances to comply with the Convention and their manner of application as set out in regulation D-3 of the "International Convention for the Control and Management of Ships' Ballast Water and Sediments". The Convention requires that at withdrawal of approval, the use of the relevant Active Substance or Substances shall be prohibited within 1 year after the date of such withdrawal.

1.2 To comply with the Convention, ballast water management systems that make use of Active Substances or Preparations containing one or more Active Substances shall be approved by the Organization, based on a procedure developed by the Organization.

1.3 The objective of this procedure is to determine the acceptability of Active Substances and Preparations containing one or more Active Substances and their application in ballast water management systems concerning ship safety, human health and the aquatic environment. This procedure is provided as a safeguard for the sustainable use of Active Substances and Preparations.

1.4 This procedure is not intended for the evaluation of the efficacy of Active Substances. The efficacy of ballast water management systems that make use of Active Substances should be evaluated in accordance with the Guidelines for approval of ballast water management systems.

1.5 The goal of the procedure is to ensure proper application of the provisions contained in the Convention and the safeguards required by it. As such the procedure is to be updated as the state of knowledge and technology may require. New versions of the procedure will be circulated by the Organization following their approval.

## 2 DEFINITIONS

2.1 For the purposes of this procedure, the definitions in the Convention apply and:

.1 "Active Substance" means a substance or organism, including a virus or a fungus that has a general or specific action on or against harmful aquatic organisms and pathogens.

.2 "Ballast Water Discharge" means the ballast water as would be discharged overboard.

.3 "Preparation" means any commercial formulation containing one or more Active Substances including any additives. This term also includes any Active Substances generated onboard for purposes of ballast water management and any relevant chemicals formed in the ballast water management system that make use of Active Substances to comply with the Convention.

.4 "Relevant Chemicals" means transformation or reaction products that are produced during and after employment of the ballast water management system in the ballast water or in the receiving environment and that may be of concern to the ship's safety, aquatic environment and/or human health.

## 3 PRINCIPLES

3.1 Active Substances and Preparations may be added to the ballast water or be generated on board ships by technology within the ballast water management system using an Active Substance to comply with the Convention.

3.2 Active Substances and Preparations accomplish their intended purpose through action on harmful aquatic organisms and pathogens in ships' ballast water and sediments. However, if the ballast water is still toxic at the time of discharge into the environment, the organisms in the receiving water may suffer unacceptable harm. Both the Active Substance or Preparation as well as the ballast water discharge should be subjected to toxicity testing in order to protect the receiving environment or human health from toxic effects due to the discharges. Toxicity testing is needed to determine if an Active Substance or Preparation can be used and under which conditions the potential of harming the receiving environment or human health is acceptably low.

3.3 Ballast water management systems that make use of Active Substances and Preparations must be safe in terms of the ship, its equipment and the personnel to comply with the Convention.

3.4 The approval of Active Substances and Preparations using viruses or fungi for use in ballast water management systems is not addressed in this procedure. The approval of such substances for ballast water management should require an additional consideration by the Organization in compliance with regulation D-3 of the Convention if the use of such substances is proposed.

## 4 GENERAL REQUIREMENTS

### 4.1 Identification

4.1.1 The proposal for approval of an Active Substance or a Preparation should include a chemical identification and description of the chemical components even if generated on board. A chemical identification should be provided for any Relevant Chemicals.

### 4.2 Data-set for Active Substances and Preparations

4.2.1 A proposal for approval should include information on the properties or actions of the Preparation including any of its components as follows:

.1 Data on effects on aquatic plants, invertebrates, fish, and other biota, including sensitive and representative organisms:

- acute aquatic toxicity;
- chronic aquatic toxicity;
- endocrine disruption;
- sediment toxicity;
- bioavailability/biomagnification/bioconcentration; and
- food web/population effects.

.2 Data on mammalian toxicity:

- acute toxicity;
- effects on skin and eye;
- chronic and long-term toxicity;
- developmental and reproductive toxicity;
- carcinogenicity; and
- mutagenicity.

.3 Data on environmental fate and effect under aerobic and anaerobic conditions:

- modes of degradation (biotic; abiotic);
- bioaccumulation, partition coefficient, octanol/water coefficient;
- persistence and identification of the main metabolites in the relevant media (ballast water, marine and fresh waters);
- reaction with organic matter;
- potential physical effects on wildlife & benthic habitats;
- potential residues in seafood; and
- any known interactive effects.

.4 Physical and chemical properties for the Active Substances and Preparations and the treated ballast water, if applicable:

- melting point;
- boiling point;
- flammability;
- density (relative density);
- vapour pressure, vapour density;
- water solubility/dissociation constant (pKa);
- oxidation/reduction potential;
- corrosivity to the materials or equipment of normal ship construction;
- autoignition temperature; and
- other known relevant physical or chemical hazards.

.5 Analytical methods at environmentally relevant concentrations.

4.2.2 A proposal for approval should include the above data set either for the Preparation or for each component separately, and a list of the name and relative quantities (in volumetric percentages) of the components should be also attached. As described in section 8.1, all proprietary data should be treated as confidential.

4.2.3 The tests for Active Substances and Preparations should be carried out in accordance with internationally recognized guidelines.[9]

4.2.4 The testing process should contain a rigorous quality control/quality assurance programme consisting of:

.1 Both a Quality Management Plan (QMP) and a Quality Assurance Project Plan (QAPP). Guidance on preparation of these plans, along with other guidance documents and other general quality control information are available for download from the International Organization for Standardization (ISO) (www.iso.org).

.2 The QMP addresses the quality control management structure and policies of the Test Organization (including subcontractors and outside laboratories).

.3 The QAPP is a project specific technical document reflecting the specifics of the system to be tested, the test facility, and other conditions affecting the actual design and implementation of the required experiments.

4.2.5 Dossiers already used for registration of chemicals can be submitted by the applicant to satisfy the required data needed for the evaluation of Active Substances and Preparations according to this procedure.

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[9] Preferably Organization for Economic Co-operation and Development (OECD) Guidelines for Testing of Chemicals (1993) or other equivalent tests.

4.2.6 The proposal should describe the manner of application of the Preparation for ballast water management, including required dosage and retention time.

4.2.7 A proposal for approval should include (Material) Safety Data Sheets ((M)SDS).

### 4.3 Assessment report

4.3.1 A proposal for approval should include an assessment report. The assessment report should address the quality of the test reports, the risk characterization and a consideration of the uncertainty associated with the assessment.

## 5 RISK CHARACTERIZATION

### 5.1 Screening for persistency, bioaccumulation and toxicity

5.1.1 An assessment on the intrinsic properties of the Active Substance and/or Preparation such as persistency, bioaccumulation and toxicity should be conducted (see Table 1 in section 6).

.1 Persistence tests: Persistence should preferably be assessed in simulation test systems that determine the half-life under relevant conditions. Biodegradation screening tests may be used to show that the substances are readily biodegradable. The determination of the half-life should include assessment of relevant chemicals.

.2 Bioaccumulation tests: The assessment of the (potential for) bioaccumulation should use measured bioconcentration factors in marine (or freshwater) organisms. Where these tests are not applicable, or if logPow <3, Bio Concentration Factor (BCF) values may be estimated using (Quantitative) Structure-Activity Relationship ((Q)SAR) models.

.3 Toxicity tests: Acute and/or chronic ecotoxicity data, ideally covering the sensitive life stages, should in principle be used for the assessment of the toxicity criterion.

### 5.2 Toxicity testing of the treated ballast water

5.2.1 Toxicity testing is necessary for the Active Substance, or Preparations (see sections 4.2.1 and 5.3) and the treated ballast water discharge as covered in this section. The advantage of conducting toxicity testing on the ballast water discharge is that it integrates and addresses the potential for interactions of the Active Substances and Preparations with the possible by-products:

.1 For the Basic Approval process, the discharge testing should be performed in a laboratory using techniques and equipment to simulate ballast water discharge following treatment by the Preparation.

.2 For Final Approval, the discharge testing should be performed as part of the land-based type approval process using the treated ballast water discharge.

5.2.2 The applicant should provide both acute and chronic toxicity test data using standardized test procedures to determine the toxicity of the Preparation and Relevant Chemicals as used in conjunction with the ballast water management system. This testing approach should be performed on the treated ballast water discharge, as the ballast water management system could either mitigate or enhance the adverse effects of the Preparation or Relevant Chemicals.

5.2.3 The discharge toxicity tests should be conducted on samples drawn from the land-based test set-up, which would be representative of the discharge from the ballast water management system.

5.2.4 These toxicity tests should include chronic test methods with multiple test species (a fish, an invertebrate and a plant) that address the sensitive life-stage. The preference is to include both MEPC 57/21 a sub-

lethal endpoint (growth) and a survival endpoint. Either freshwater or marine test methods should be tested.[10]

5.2.5 The test results to be provided include: acute 24-hour, 48-hour, 72-hour, and 96-hour Lethal Concentration at which x % of the test organisms die (LCx), No Observed Adverse Effect Concentrations (NOAECs), chronic No Observed Effect Concentration (NOEC) and/or Effect Concentration at which x % of test organisms show effect (ECx), as appropriate based on the experimental design.

5.2.6 A dilution series including a 100% ballast water discharge would be tested to determine the no adverse effect level using the statistical endpoints (NOEC or ECx). An initial analysis could use a conservative approach where the dilution capacity would not be taken into consideration (no modelling or plumes analysis would be used). The rationale for taking a conservative approach is that there could be multiple discharges into one location (even though this is not necessarily the case).

5.2.7 The acute and chronic toxicity test data in conjunction with the information in section 4.2.1 should be used to determine the holding time necessary to achieve the no adverse effect concentration upon discharge. Knowing the half-life (days), decay rate, dosage rate, volume of system and toxicity tests with time series, then a computational model can be used to determine the amount of time needed to hold the treated ballast water before discharge.

### 5.3 Risk characterization and analysis

5.3.1 For the Basic Approval process, fate and effect testing should be performed in the laboratory with Active Substances and Preparations. This section lists information that could be useful for a preliminary risk characterization.

5.3.2 Both the Active Substance or Preparation as well as the treated ballast water discharge should be subject to toxicity testing in order to protect the receiving environment from toxic effects due to discharges.

5.3.3 The reaction with organic matter of Active Substances and Preparations that produce free radicals, should be addressed qualitatively so as to identify products of concern to the environment.

5.3.4 The rate and route of abiotic and biotic degradation of the Active Substances and Preparations under aerobic and anaerobic conditions should be assessed, resulting in the identification of relevant metabolites in the relevant media (ballast water, marine and fresh waters).

5.3.5 The rate of abiotic and biotic degradation of the Active Substances and Preparations under aerobic and anaerobic conditions should be assessed, resulting in the characterization of the persistence of the Active Substances, Preparations and Relevant Chemicals in terms of degradation rates under specified conditions (e.g., pH, redox, temperature).

5.3.6 The partition coefficients (solids-water partition coefficient (Kd) and/or organic carbon normalized distribution coefficient (Koc)) of the Active Substances, Preparations and Relevant Chemicals should be determined.

5.3.7 For Active Substances and Preparations, the potential for bioaccumulation should be assessed in marine or freshwater organisms (fish or bivalves) if the logarithm octanol/water partition coefficient (logPow) is >3.

5.3.8 Based on the information on fate and behaviour of Active Substances and Preparations, the discharge concentrations at selected time intervals should be predicted.

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[10] Currently there is no compelling physiological or empirical proof that marine organisms are more sensitive than freshwater organisms or vice versa. Should this however be demonstrated for the substance under consideration, this should be taken into account.

5.3.9 The effect assessment of the Active Substances, Preparations and Relevant Chemicals is initially based on a dataset of acute and/or chronic ecotoxicity data for aquatic organisms, being primary producers (algae or sea grasses), consumers (crustaceans), predators (fish), and should include secondary poisoning to mammalian and avian top-predators, as well as data for sediment species.

5.3.10 An assessment of secondary poisoning is redundant if the substance of concern demonstrates a lack of bioaccumulation potential (e.g., BCF <500 L/kg wet weight for the whole organism at 6% fat).

5.3.11 An assessment of sediment species is redundant if the potential of the substance of concern to partition into the sediment is low (e.g., Koc <500 L/kg).

5.3.12 The effect assessment of the Active Substances, Preparations and Relevant Chemicals should include a screening on carcinogenic, mutagenic and endocrine disruptive properties. If the screening results give rise to concerns, this should give rise to a further effect assessment.

5.3.13 The effect assessment of the Active Substances, Preparations and Relevant Chemicals, taking the indicated information into account, should be based on internationally recognized guidance.[11]

5.3.14 The results of the effect assessment are compared to the results of the discharge toxicity testing. Any unpredicted results (e.g., lack of toxicity or unexpected toxicity in the discharge assessment) should give rise to a further elaboration on the effect assessment.

5.3.15 An analytical method suitable for monitoring Active Substances and Preparations in ballast water discharges should be available.

## 6 EVALUATION CRITERIA

The Organization should evaluate the application for approval based on the criteria in this section.

6.1 The information that has been provided should be complete, of sufficient quality and in accordance with this Procedure.

6.2 That this information does not indicate possible unacceptable adverse effects to environment, human health, property or resources.

### 6.3 Ship and personnel safety

6.3.1 In order to protect the ship and personnel safety the Technical Group should evaluate the physical and chemical hazards (see paragraph 4.2.1.4) to ensure that potential hazardous properties of the Active Substances, Preparations or Relevant Chemicals formed in the treated ballast water should not create any unreasonable risk to the ship and personnel. Proposed procedures for the use and technical equipment introduced needs to be taken into account.

6.3.2 For the protection of personnel involved in the handling and storage of the Active Substances and Preparations, the proposal should include relevant ((M)SDS). The Organization should evaluate (M)SDS, mammalian toxicity data and chemical properties hazards (see paragraphs 4.2.1.2 and 4.2.1.4) and ensure that potential hazardous properties of the Active Substances, Preparations or Relevant Chemicals should not create any unreasonable risk to the ship or personnel. This evaluation should take into account the different circumstances that a ship or personnel may face in its trade (e.g., ice, tropical, humidity, etc.).

[11] Such as relevant OECD guidelines or equivalent.

### 6.4 Environmental protection

6.4.1 In order to approve the application, the Organization should determine that the Active Substances, Preparations or Relevant Chemicals are not Persistent, Bioaccumulative and Toxic (PBT). Preparations that exceed all these criteria (Persistence, Bioaccumulation and Toxicity) in the table below are considered PBT.

Table 1 – Criteria for identification of PBT substances

| **Criterion** | **PBT criteria** |
|---|---|
| Persistence | Half-life:<br>> 60 days in marine water, or > 40 days in fresh-water*, or > 180 days in marine sediment, or > 120 days in freshwater sediment* |
| Bioaccumulation | BCF > 2,000 or<br>LogPoctanol/water ≥3 |
| Toxicity | Chronic NOEC < 0.01 mg/l |

* For the purpose of marine environmental risk assessment half-life data in freshwater and freshwater sediment can be overruled by data obtained under marine conditions.

6.4.2 The Organization should determine the overall acceptability of the risk the Preparation may pose in its use for ballast water management. It should do so by comparing the information provided and the undertaken assessment of PBT and the discharge with scientific knowledge of the Active Substances, Preparations and Relevant Chemicals concerned. The risk evaluation should qualitatively take into account cumulative effects that may occur due to the nature of shipping and port operations.

6.4.3 The risk evaluation should consider the uncertainties involved in the application for approval, and as appropriate, provide advice on how these uncertainties can be dealt with.

## 7 REGULATION OF THE USE OF ACTIVE SUBSTANCES AND PREPARATIONS

### 7.1 Handling of Active Substances and Preparations

7.1.1 The proposal for approval of Active Substances and Preparations should include information on their intended use and application. The quantity of Active Substances and Preparations to be added to the ballast water and the maximum allowable concentration of the Active Substances therein should be described in the instructions provided by the manufacturer. The system should ensure that the maximum dosage and maximum allowable discharge concentration are not exceeded at any time.

### 7.2 Hazard documentation and labelling

7.2.1 The proposal should include ((M)SDS) as required. The (M)SDS should describe appropriate storage and handling together with the effects of degradation and chemical reactivity during storage and should be included in the instructions provided by the manufacturer.

7.2.2 Documentation of hazards or the (M)SDS should conform to the UN Globally Harmonized System of Classification and Labelling of Chemicals (GHS) and the relevant IMO regulations (e.g., the IMDG Code) and guidelines (e.g., the GESAMP Hazard Evaluation Procedure). Where these regimes are not applicable, relevant national or regional regimes should be followed.

### 7.3 Procedures and use

7.3.1 Detailed procedures and information for safe application of Active Substances and Preparations on board should be developed and supplied, taking into consideration existing IMO Conventions, Codes and guidance. The procedures should comply with the approval conditions such as maximum allowable concentration and maximum discharge concentration, if any.

## 8 APPROVAL

### 8.1 Basic Approval

8.1.1 All proprietary data should be treated as confidential by the Organization and its Technical Group, the Competent Authorities involved, and the evaluating regulatory scientists, if any.

8.1.2 Procedure to be followed:

.1 The manufacturer should evaluate the Active Substances or Preparations and the potential discharge in accordance with the approval criteria specified in this procedure.

.2 Upon completion, the manufacturer should prepare an Application on the Active Substances and Preparations and submit it to the Member of the Organization concerned.

.3 The Administration having received a satisfactory application should as soon as possible propose an approval to the Organization.

.4 Members of the Organization may propose an approval.

.5 The Organization should announce and set the time frame for the evaluation of Active Substances and Preparations.

.6 Parties, Members of the Organization, the United Nations and its Specialized Agencies, intergovernmental organizations having agreements with the Organization and non-governmental organizations in consultative status with the Organization may submit information that is relevant to the evaluation.

.7 The Organization should establish a Technical Group in accordance with its rules of procedure ensuring that proprietary data should be treated as confidential.

.8 The Technical Group should review the comprehensive proposal along with any additional data submitted and report to the Organization whether the proposal has demonstrated a potential for unreasonable risk for environment, human health, property or resources in accordance with the criteria specified in this procedure.

.9 The Technical Group's report should be in written form and circulated to the Parties, Members of the Organization, the United Nations and its Specialized Agencies, intergovernmental organizations having agreements with the Organization and non-governmental organizations in consultative status with the Organization, prior to its consideration by the competent Committee.

.10 The Committee of the Organization should decide whether to approve any proposal, introduce any modifications thereto, if appropriate, taking into account the Technical Group's report.

.11 The Member of the Organization that submitted the application to the Organization should inform in writing the applicant about the decision made with regard to the respective Active Substance or Preparation and their manner of application.

.12 Active Substances or Preparations receiving Basic Approval by the Organization may be used for prototype or type approval testing based on the guidelines developed by the Organization.[12]

[12] Guidelines for approval and oversight of prototype ballast water treatment technologies (G10) and Guidelines for approval of Ballast Water Management Systems (G8).

Subject to evaluation against the criteria developed by the Organization, an Active Substance or Preparation may be used for Prototype or Type Approval testing for the approval of different BWMS.

**8.2 Final Approval**

8.2.1 In accordance with regulation D-3.2, a ballast water management system using an Active Substance or Preparation to comply with the Convention (which received Basic Approval) must be approved by the Organization. For this purpose, the Member of the Organization submitting an application should conduct the Type Approval tests in accordance with Guidelines for approval of ballast water management systems. The results should be conveyed to the Organization for confirmation that the residual toxicity of the discharge conforms to the evaluation undertaken for Basic Approval. This would result in Final Approval of the ballast water management system in accordance with regulation D-3.2. Active Substances or Preparations that have received Basic Approval by the Organization may be used for evaluation of ballast water management systems using Active Substances or Preparations for Final Approval.

**8.3 Notification of approval**

8.3.1 The Organization will record the Basic and Final Approval of Active Substances and Preparations and ballast water management systems that make use of Active Substances and circulate the list once a year including the following information:

- Name of ballast water management system that make use of Active Substances and Preparations;
- Date of approval;
- Name of manufacturer; and
- Any other specifications, if necessary.

**8.4 Modification**

8.4.1 Manufacturers should report any modifications in names, including trade and technical name, composition or use of the Active Substances and Preparations in the ballast water management systems approved by the Organization, to the Member of the Organization. The Member of the Organization should inform the Organization accordingly.

8.4.2 Manufacturers intending to significantly change any part of a ballast water management System that has been approved by the Organization or the Active Substances and Preparations used in it should submit a new application.

**8.5 Withdrawal of approval**

8.5.1 The Organization may withdraw any approval in the following circumstances:

.1 If the Active Substances and Preparations or ballast water management system that make use of Active Substances no longer conforms to requirements due to amendments of the Convention.

.2 If any data or test records differ materially from data relied upon at the time of approval and are deemed not to satisfy the approval condition.

.3 If a request for withdrawal of approval is made by the Member of the Organization on behalf of the manufacturer.

.4 If unreasonable harm to environment, human health, property or resources is demonstrated by any Member of the Organization or observer to have been caused by the approved ballast water management system that make use of Active Substances or Preparations.