

## Alien invaders in ballast water - new Convention adopted at IMO

*International Conference on Ballast Water Management: 9-13 February 2004*

A new international convention to prevent the potentially devastating effects of the spread of harmful aquatic organisms carried by ships' ballast water has been adopted by the International Maritime Organization (IMO), the United Nations agency responsible for the safety and security of shipping and the prevention of marine pollution from ships. The instrument was adopted at an international conference held from 9 to 13 February 2004 at IMO's London Headquarters.

The Convention will require all ships to implement a Ballast Water and Sediments Management Plan. All ships will have to carry a Ballast Water Record Book and will be required to carry out ballast water management procedures to a given standard. Existing ships will be required to do the same, but after a phase-in period.

Parties to the Convention are given the option to take additional measures which are subject to criteria set out in the Convention and to IMO guidelines yet to be developed.

IMO Secretary-General Mr. Efthimios E. Mitropoulos congratulated Member Governments on the successful outcome of the conference.

"With the adoption of this Convention, the Organization has made global provisions to control and manage ships' ballast water and thus prevent, minimize and ultimately eliminate the transfer of harmful aquatic organisms and pathogens across the seas and oceans of the world. Your work over the past week is a significant step towards controlling the introduction of invasive species via ballast water and thus towards safeguarding the biodiversity of the oceans", Mr. Mitropoulos said.

"In no small measure, this is an achievement that becomes all the more important and significant given the consensus decisions you were able to make on a subject of undeniable complexity. Adopting international provisions, through consensus, when regulating an international industry like shipping is of vital importance and you have done just that."

The Secretary-General emphasised that implementation of the Convention was now crucial.

"The work of IMO and its membership on the subject that brought us together this week will not cease with the signing of the Final Act. The momentum must be sustained and our efforts should turn immediately to the task of bringing the Convention into force as soon as possible," he said.

Mr. Mitropoulos commented that reaching agreement on issues such as the global standards for ballast water exchange and treatment; the measures a party can take in addition to the global standards, and IMO's involvement in such measures; ballast water exchange areas; and the entry into force provisions "would not have been possible without the spirit of goodwill, understanding and compromise on the part of the many delegates and observers from all over the world who have contributed to attaining this goal."

"We often speak about the fabled 'IMO spirit of co-operation' and we have witnessed it many times over this past week," he added.

Mr. Mitropoulos emphasized the importance of early, wide and effective implementation of the new convention and pledged the support of the Organization's Integrated Technical Co-operation Programme to help those countries who needed assistance. The Conference adopted a resolution on Promotion of technical co-operation and assistance.

The GEF/UNDP/IMO Global Ballast Water Management Programme (GloBallast) is already providing technical support and expertise under a multi-million dollar project (GloBallast: <http://globallast.imo.org/>).

The Convention will enter into force 12 months after ratification by 30 States, representing 35 per cent of world merchant shipping tonnage.

- NEWSROOM
- Press Briefings
- 2004
- Archive - 2003 Press Briefings
- Archive - 2002 Press Briefings
- Archive - 2001 Press Briefings
- Archive - 2000 Press Briefings
- Archive - 1999 Press Briefings

The Conference was attended by representatives of 74 States, one Associate Member of IMO; and observers from two intergovernmental organizations and 18 non-governmental international organizations.

### **Convention requirements**

The International Convention for the Control and Management of Ships' Ballast Water and Sediments is divided into Articles; and an Annex which includes technical standards and requirements in the Regulations for the control and management of ships' ballast water and sediments.

The main features of the Convention are outlined below.

### **Entry into force**

The Convention will enter into force 12 months after ratification by 30 States, representing 35 per cent of world merchant shipping tonnage (Article 18 Entry into force).

### **General Obligations**

Under Article 2 General Obligations Parties undertake to give full and complete effect to the provisions of the Convention and the Annex 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.

Parties are given the right to take, 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. Parties should ensure that ballast water management practices do not cause greater harm than they prevent to their environment, human health, property or resources, or those of other States.

### **Reception facilities**

Under Article 5 Sediment Reception Facilities Parties undertake to ensure that ports and terminals where cleaning or repair of ballast tanks occurs, have adequate reception facilities for the reception of sediments.

### **Research and monitoring**

Article 6 Scientific and Technical Research and Monitoring calls for Parties individually or jointly to promote and facilitate scientific and technical research on ballast water management; and monitor the effects of ballast water management in waters under their jurisdiction.

### **Survey, certification and inspection**

Ships are required to be surveyed and certified (Article 7 Survey and certification) and may be inspected by port State control officers (Article 9 Inspection of Ships) who can verify that the ship has a valid certificate; inspect the Ballast Water Record Book; and/or sample the ballast water. If there are concerns, then a detailed inspection may be carried out and "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."

All possible efforts shall be made to avoid a ship being unduly detained or delayed (Article 12 Undue Delay to Ships).

### **Technical assistance**

Under Article 13 Technical Assistance, Co-operation and Regional Co-operation, 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 to train personnel; to ensure the availability of relevant technology, equipment and facilities; to initiate joint research and development programmes; and to undertake other action aimed at the effective implementation of this Convention and of guidance developed by the Organization related thereto.

### **Annex - Section A General Provisions**

This includes definitions, application and exemptions. Under 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."

### **Annex - Section B Management and Control Requirements for Ships**

Ships are required to have on board and implement a Ballast Water Management Plan approved by the Administration (Regulation B-1). The Ballast Water Management Plan is specific to each ship and includes a detailed description of the actions to be taken to implement the Ballast Water Management requirements and supplemental Ballast Water Management practices.

Ships must have a Ballast Water Record Book (Regulation B-2) to record when ballast water is taken on board; circulated or treated for Ballast Water Management purposes; and discharged into the sea. It should also record when Ballast Water is discharged to a reception facility and accidental or other exceptional discharges of Ballast Water

The specific requirements for ballast water management are contained in regulation B-3 Ballast Water Management for Ships:

- Ships constructed before 2009 with a ballast water capacity of between 1500 and 5000 cubic metres must conduct ballast water management that at least meets the ballast water exchange standards or the ballast water performance standards until 2014, after which time it shall at least meet the ballast water performance standard.
- Ships constructed before 2009 with a ballast water capacity of less than 1500 or greater than 5000 cubic metres must conduct ballast water management that at least meets the ballast water exchange standards or the ballast water performance standards until 2016, after which time it shall at least meet the ballast water performance standard.
- Ships constructed in or after 2009 with a ballast water capacity of less than 5000 cubic metres must conduct ballast water management that at least meets the ballast water performance standard.
- Ships constructed in or after 2009 but before 2012, with a ballast water capacity of 5000 cubic metres or more shall conduct ballast water management that at least meets the ballast water performance standard.
- Ships 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 ballast water performance standard.

Other methods of ballast water management may also be accepted as alternatives to the ballast water exchange standard and ballast water performance standard, 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 IMO's Marine Environment Protection Committee (MEPC).

Under Regulation B-4 Ballast Water Exchange, all ships using ballast water exchange should:

- whenever possible, conduct ballast water exchange at least 200 nautical miles from the nearest land and in water at least 200 metres in depth, taking into account Guidelines developed by IMO;
- in cases where the ship is unable to conduct ballast water exchange as above, this should be 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.

When these requirements cannot be met areas may be designated where ships can conduct ballast water exchange. All ships shall remove and dispose of sediments from spaces designated to carry ballast water in accordance with the provisions of the ships' ballast water management plan (Regulation B-4).

### **Annex - Section C Additional measures**

A Party, individually or jointly with other Parties, may impose on ships additional measures to prevent, reduce, or eliminate the transfer of Harmful Aquatic Organisms and Pathogens through ships' Ballast Water and Sediments.

In these cases, the Party or Parties should consult with adjoining or nearby States that may be affected by such standards or requirements and should 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). When appropriate, Parties will have to obtain the approval of IMO.

#### **Annex - Section D Standards for Ballast Water Management**

There is a ballast water exchange standard and a ballast water performance standard. Ballast water exchange could be used to meet the performance standard:

**Regulation D-1 Ballast Water Exchange Standard** - Ships performing Ballast Water exchange shall do so with an efficiency of 95 per cent volumetric exchange of Ballast Water. 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. 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** - Ships conducting ballast water management 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.

The indicator microbes, as a human health standard, include, but are not be limited to:

- a. 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 ;
- b. *Escherichia coli* less than 250 cfu per 100 milliliters;
- c. Intestinal Enterococci less than 100 cfu per 100 milliliters.

Ballast Water Management systems must be approved by the Administration in accordance with IMO Guidelines (Regulation D-3 Approval requirements for Ballast Water Management systems). These include systems which make use of chemicals or biocides; make use of organisms or biological mechanisms; or which alter the chemical or physical characteristics of the Ballast Water.

#### **Prototype technologies**

Regulation D-4 covers Prototype Ballast Water Treatment Technologies. It allows for ships participating in a programme approved by the Administration to test and evaluate promising Ballast Water treatment technologies to have a leeway of five years before having to comply with the requirements.

#### **Review of standards**

Under regulation D-5 Review of Standards by the Organization, IMO is required to review the Ballast Water Performance Standard, taking into account a number of criteria including safety considerations; environmental acceptability, i.e., not causing more or greater environmental impacts than it solves; practicability, i.e., compatibility with ship design and operations; cost effectiveness; and biological effectiveness in terms of removing, or otherwise rendering inactive harmful aquatic organisms and pathogens in ballast water. The review should include a determination of whether appropriate technologies are available to achieve the standard, an assessment of the above mentioned criteria, and an assessment of the socio-economic effect(s) specifically in relation to the developmental needs of developing countries, particularly small island developing States.

#### **Annex- Section E Survey and Certification Requirements for Ballast Water Management**

Gives requirements for initial renewal, annual, intermediate and renewal surveys and certification requirements. Appendices give form of Ballast Water Management Certificate and Form of Ballast Water Record Book.

#### **Resolutions adopted by the Conference**

The Conference also adopted four resolutions:

- Conference resolution 1: Future work by the Organization pertaining to the

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

- Conference resolution 2: The use of decision-making tools when reviewing the standards pursuant to Regulation D-5
- Conference resolution 3: Promotion of technical co-operation and assistance
- Conference resolution 4: Review of the Annex to the International Convention for the Control and Management of Ships' Ballast Water and Sediments

**Background**

The problem of invasive species is largely due to the expanded trade and traffic volume over the last few decades. The effects in many areas of the world have been devastating. Quantitative data show the rate of bio-invasions is continuing to increase at an alarming rate, in many cases exponentially, and new areas are being invaded all the time. Volumes of seaborne trade continue overall to increase and the problem may not yet have reached its peak.

Specific examples include the introduction of the European zebra mussel (*Dreissena polymorpha*) in the Great Lakes between Canada and the United States, resulting in expenses of billions of dollars for pollution control and cleaning of fouled underwater structures and waterpipes; and the introduction of the American comb jelly (*Mnemiopsis leidyi*) to the Black and Azov Seas, causing the near extinction of anchovy and sprat fisheries.

The problem of harmful aquatic organisms in ballast water was first raised at IMO in 1988 and since then IMO's Marine Environment Protection Committee (MEPC), together with the Maritime Safety Committee (MSC) and technical sub-committees, have been dealing with the issue, focusing in the past decade first on guidelines and then on developing the new convention.

Going further into history, scientists first recognized the signs of an alien species introduction after a mass occurrence of the Asian phytoplankton algae *Odontella* (*Biddulphia sinensis*) in the North Sea in 1903.

But it was not until the 1970s that the scientific community began reviewing the problem in detail. In the late 1980s, Canada and Australia were among countries experiencing particular problems with unwanted species, and they brought their concerns to the attention of IMO's Marine Environment Protection Committee (MEPC).

In 1991 the MEPC adopted MEPC resolution 50(31) - Guidelines for Preventing the Introduction of Unwanted Organisms and Pathogens from Ships' Ballast Water and Sediment Discharges; while the United Nations Conference on Environment and Development (UNCED), held in Rio de Janeiro in 1992, recognized the issue as a major international concern.

In November 1993, the IMO Assembly adopted resolution A.774(18) - Guidelines for Preventing the Introduction of Unwanted Organisms and Pathogens from Ships' Ballast Water and Sediment Discharges, based on the Guidelines adopted in 1991. The resolution requested the MEPC and the MSC to keep the Guidelines under review with a view to developing internationally applicable, legally-binding provisions.

The 20th Assembly of IMO in November 1997 adopted resolution A.868(20) - Guidelines for the control and management of ships' ballast water to minimize the transfer of harmful aquatic organisms and pathogens.

The development of the draft mandatory instrument has been continuing since then until this week's adoption of the new instrument.

Some examples of aquatic bio-invasions causing major impact are listed in the table, but there are hundreds of other serious invasions which have been recorded around the world:

Name	Native to	Introduced to	Impact
Cholera <i>Vibrio cholerae</i> (various strains)	Various strains with broad ranges	South America, Gulf of Mexico and other areas	Some cholera epidemics appear to be directly associated with ballast water

Cladoceran Water Flea <i>Cercopagis pengoi</i>	Black and Caspian Seas	Baltic Sea	Reproduces to form very large populations that dominate the zooplankton community and clog fishing nets and trawls, with associated economic impacts
Mitten Crab <i>Eiocheir sinensis</i>	Northern Asia	Western Europe, Baltic Sea and West Coast North America	Undergoes mass migrations for reproductive purposes. Burrows into river banks and dykes causing erosion and siltation. Preys on native fish and invertebrate species, causing local extinctions during population outbreaks. Interferes with fishing activities
Toxic Algae (Red/Brown/ Green Tides) Various species	Various species with broad ranges	Several species have been transferred to new areas in ships' ballast water	May form Harmful Algae Blooms. Depending on the species, can cause massive kills of marine life through oxygen depletion, release of toxins and/or mucus. Can foul beaches and impact on tourism and recreation. Some species may contaminate filter-feeding shellfish and cause fisheries to be closed. Consumption of contaminated shellfish by humans may cause severe illness and death
Round Goby <i>Neogobius melanostomus</i>	Black, Asov and Caspian Seas	Baltic Sea and North America	Highly adaptable and invasive. Increases in numbers and spreads quickly. Competes for food and habitat with native fishes including commercially important species, and preys on their eggs and young. Spawns multiple times per season and survives in poor water quality
North American Comb Jelly <i>Mnemiopsis leidyi</i>	Eastern Seaboard of the Americas	Black, Azov and Caspian Seas	Reproduces rapidly (self fertilising hermaphrodite) under favourable conditions. Feeds excessively on zooplankton. Depletes zooplankton stocks; altering food web and ecosystem function. Contributed significantly to collapse of Black and Asov Sea fisheries in 1990s, with massive economic and social impact. Now threatens similar impact in Caspian Sea.
North Pacific Seastar <i>Asterias amurensis</i>	Northern Pacific	Southern Australia	Reproduces in large numbers, reaching 'plague' proportions rapidly in invaded environments. Feeds on shellfish, including commercially valuable scallop, oyster and clam species
Zebra Mussel <i>Dreissena polymorpha</i>	Eastern Europe (Black Sea)	Introduced to: Western and northern Europe, including Ireland and Baltic Sea; eastern half of North America	Fouls all available hard surfaces in mass numbers. Displaces native aquatic life. Alters habitat, ecosystem and food web. Causes severe fouling problems on infrastructure and vessels. Blocks water intake pipes, sluices and irrigation ditches. Economic costs to USA alone of around US\$750 million to \$1 billion between 1989 and 2000

Asian Kelp <i>Undaria pinnatifida</i>	Northern Asia	Southern Australia, New Zealand, West Coast of the United States, Europe and Argentina	Grows and spreads rapidly, both vegetatively and through dispersal of spores. Displaces native algae and marine life. Alters habitat, ecosystem and food web. May affect commercial shellfish stocks through space competition and alteration of habitat
European Green Crab <i>Carcinus maenus</i>	European Atlantic Coast	Southern Australia, South Africa, the United States and Japan	Highly adaptable and invasive. Resistant to predation due to hard shell. Competes with and displaces native crabs and becomes a dominant species in invaded areas. Consumes and depletes wide range of prey species. Alters intertidal rocky shore ecosystem

Reference: [http://globallast.imo.org/poster4\\_english.pdf](http://globallast.imo.org/poster4_english.pdf)

IMO - the International Maritime Organization - is the United Nations specialized agency with responsibility for the safety and security of shipping and the prevention of marine pollution by ships.

Web site: [www.imo.org](http://www.imo.org)

Ballast water management: [http://www.imo.org/ome.asp?topic\\_id=548](http://www.imo.org/ome.asp?topic_id=548)

GloBallast: <http://globallast.imo.org/>

For further information please contact:

Lee Adamson, Senior External Relations Officer on 020 7587 3153 ([media@imo.org](mailto:media@imo.org)) or  
Natasha Brown, External Relations Officer on 020 7587 3274 ([media@imo.org](mailto:media@imo.org)).