The role of the Brazilian ports in the improvement of the national ballast water management program according the provisions of the International Ballast Water Convention

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INTRODUCTION

• Shipping Industry

• The world’s cargo carrying fleet is more than 50,000 ships; registered in over 150 States
• More than 90% of the world trade is carried by sea;
• 2003 - US$380 billion in freight rates within the global economy,
• The equivalent of about 5% of the total world trade.
INTRODUCTION

• Shipping Industry
• Ballast Water - Definition

• Basically, it is water taken on ships to compensate loss of weight stemming from unloaded cargoes;
• It is pumped into many ballast tanks distributed throughout the ship structure;
• It is necessary to manage the draft of ships, which helps their propulsion and maneuvers (controls trim, list, and the levels of stress on their structure).

Source: Altevir Caron Jr.  
Source: GloBallast
INTRODUCTION

- Shipping Industry
- Ballast Water - Concerns

- Considering internationally and domestically journeys, ships are responsible for the transfer of more than 10 billion tons of ballast water each year;
- It is the most important vector for trans-oceanic and inter-oceanic movements of shallow-water coastal organisms (bacteria and other microbes, viruses, small invertebrates, eggs, cysts and larvae of animals and plants);

Source: GloBallast Programme
INTRODUCTION

- Shipping Industry
- Ballast Water
- Invasive Alien Species

- Biological invasions, including those caused by ships, is one of the four biggest threats to the world's oceans;
- 4,000 - 10,000 different species may be carried globally in ballast water each day;
- The global economic impacts of aquatic IAS have been estimated at US$100 billion per year;

Sources:

- IEAPM
- Ik-Soo Kim, at Fishbase.org
- Bruno Gualberto Lages
- CSIRO Marine Research
- GloBallast
- UFSC
- The Global Invasive Species Database (IUCN)
INTRODUCTION

• Shipping Industry
• Ballast Water
• Invasive Aquatic Species
• Impacts
INTRODUCTION

• Shipping Industry
• Ballast Water
• Invasive Alien Species
• Impacts
• Ports

• Ports are potential hotspots for marine invasive species:
INTRODUCTION

• Shipping Industry
• Ballast Water
• Invasive Alien Species
• Impacts
• Ports

• Strong anthropogenic influence;
• Degraded and eutrophicated areas;

Source: Kaila Pinto
INTRODUCTION

- Shipping Industry
- Ballast Water
- Invasive Alien Species
- Impacts
- Ports

- Sheltered coastal environments;
- Existence of hard substrata;
INTRODUCTION

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- Ports

Main ports in Brazil: 44 distributed along 8,698 km of coastal line and 12,000 of continental waterways (with potential to expand and reach 43,000 km);
INTRODUCTION

• Shipping Industry
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• Ports

• From 1994 to 2006, exports and cabotage shipping practically doubled their values (tons), bringing more ballast water and increasing the chances of spread alien species along the Brazilian coast.

<table>
<thead>
<tr>
<th>Year</th>
<th>Import</th>
<th>Export</th>
<th>Total</th>
<th>Cabotage</th>
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<tbody>
<tr>
<td>1994</td>
<td>78,757,173</td>
<td>185,291,170</td>
<td>264,048,343</td>
<td>84,248,720</td>
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<tr>
<td>1995</td>
<td>79,731,597</td>
<td>197,954,671</td>
<td>277,686,268</td>
<td>97,827,217</td>
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<td>1996</td>
<td>82,593,139</td>
<td>192,888,982</td>
<td>275,482,127</td>
<td>100,216,395</td>
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<td>1997</td>
<td>86,719,971</td>
<td>209,330,502</td>
<td>296,050,473</td>
<td>105,850,267</td>
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<td>1998</td>
<td>92,821,708</td>
<td>218,272,797</td>
<td>309,094,475</td>
<td>117,339,836</td>
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<td>1999</td>
<td>78,774,565</td>
<td>217,810,566</td>
<td>295,585,131</td>
<td>122,466,040</td>
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<td>2000</td>
<td>87,188,722</td>
<td>244,929,929</td>
<td>332,118,651</td>
<td>134,656,001</td>
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<tr>
<td>2001</td>
<td>88,561,904</td>
<td>258,967,816</td>
<td>347,529,720</td>
<td>137,267,499</td>
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<tr>
<td>2002</td>
<td>85,013,102</td>
<td>285,769,836</td>
<td>370,782,938</td>
<td>137,023,807</td>
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<tr>
<td>2003</td>
<td>87,715,381</td>
<td>313,880,887</td>
<td>401,596,268</td>
<td>145,926,525</td>
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<td>2004</td>
<td>95,830,852</td>
<td>351,305,369</td>
<td>447,136,221</td>
<td>148,418,917</td>
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<tr>
<td>2005</td>
<td>82,962,578</td>
<td>390,094,843</td>
<td>473,057,421</td>
<td>150,112,048</td>
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<tr>
<td>2006</td>
<td>90,010,736</td>
<td>412,908,583</td>
<td>502,919,319</td>
<td>163,520,202</td>
</tr>
</tbody>
</table>
INTRODUCTION

• Shipping Industry
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• Invasive Alien Species
• Impacts
• Ports

• Inexistence of specific and standard national requirements for ports environmental management;
• Ports under the authority of diverse agencies from different administrative levels;
• Plans or programs related to the BWM can be adopted or not depending the port authority and/or the strictness of the environmental authority;
INTRODUCTION

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• Port surveys made in the scope of the environmental licensing are not nationally integrated;
• Many times these surveys do not follow the same sampling criteria or consider all the same environmental parameters;
• Biological monitoring programs do not consider alien species.
States shall adopt effective national measures for the control of all significant sources of marine pollution;

Definition of pollution of the marine environment;

States to take measures necessary to address the pollution of the marine environment resulting from introduction of alien species.
- International Maritime Organization

- (1990) The creation of a working group on ballast water within its Marine Environment Protection Committee (MEPC);


- (2000) The definition (GEF/UNDP) of the GloBallast Programme, to identify and evaluate barriers related to ballast water in some of the developing regions of the world;
The adoption of a new international legal instrument on BWM:

International Maritime Organization

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

To enter into force 12 months after 30 States representing at least 35% of the gross tonnage of the WMF, have ratification it. Currently, there are 10 States as contracting parties, representing just 3.42% of the WMF's gross shipping tonnage.
• BWMP - Every ship with ballast water should be provided with a specific BWMP to provide safe and effective procedures for BWM;
• Ballast water reporting form;
• Ballast Water Exchange Standard D1: ships must exchange at least 95% of their ballast water volume or exchange of 3 times the volume of each ballast tank. Exchange less than 3 times the volume may be accepted if the ship demonstrate that at least exchange 95% of the total ballast;
INTERNATIONAL RESPONSE

- BWMC

Dilution Method

Sequential Method

Flow-through Method
• Ballast Water Performance Standard D2: The BWM must result in discharges of ballast water with less than 10 VO per m³ greater than or equal to 50µm in minimum dimension and less than 10 VO per ml less than 50µm in minimum dimension and greater than or equal to 10µm in minimum dimension; and not exceed specified concentrations of indicator microbes, as V. cholerae, Escherichia coli and Enterococci.
At its recent 25th assembly on November 2007, IMO has postponed the enforcement of the BWMC until the end of 2011 due to the lack of an ideal ballast water treatment system available.

<table>
<thead>
<tr>
<th>Ballast Capacity (m³)</th>
<th>Construction Date</th>
<th>First Intermediate or Renewal Survey, whichever occurs first after Ballast anniversary date of delivery in the year indicated below:</th>
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</thead>
<tbody>
<tr>
<td>&lt;1500</td>
<td>&lt; 2009</td>
<td>D-1 or D-2</td>
</tr>
<tr>
<td>≥ 2009</td>
<td></td>
<td>D-2</td>
</tr>
<tr>
<td>≥ 1500</td>
<td>&lt; 2009</td>
<td>D-1 or D-2</td>
</tr>
<tr>
<td>≤ 5000</td>
<td>≥ 2009</td>
<td>D-2</td>
</tr>
<tr>
<td>&gt; 5000</td>
<td>&lt; 2012</td>
<td>D-1 or D-2</td>
</tr>
<tr>
<td>≥ 2012</td>
<td></td>
<td>D-2</td>
</tr>
</tbody>
</table>
INTERNATIONAL RESPONSE

- BWMC
- Regarding ports, Parties shall:
  - Reception and treatment facilities;
  - Monitor the effects of BWM in waters under their jurisdiction;
  - Establish areas under their jurisdiction where ships should not uptake Ballast Water, also indicate the location of any alternative area or areas for the uptake of Ballast Water.
BRAZILIAN RESPONSE

• Institutions

• Maritime Authority (CCA-IMO, DPC, IEAPM)
• Ministry of Transportation
• SEP
• ANTAQ
• Ministry of Environment
• ANVISA
• IBAMA
• Environment State Agencies
BRAZILIAN RESPONSE

- Institutions
- Legislation

- 2000 - NORMAM-08
- 2001 - RDC nº 217
- October 2005 – NORMAM-20

Norm of the Maritime Authority for the Management of the Ballast Water of Ships
BRAZILIAN RESPONSE

• Institutions
• Legislation
• Environmental licensing

• Environmental regularization of ports;
• Environmental characterization of port areas;
• Continuous monitoring programs and plans;
• There is no one specific regulation addressing the EL of ports;
• The port surveys do not follow the same criteria or standards for its execution;
• The comprehension and definition on the competence to conduct the EL process of all Brazilian ports is not the same, resulting in legal conflicts.
• Brazil shall ratify the BWMC as soon as possible;
• Definition of a strategy to achieve the provisions of the BWMC addressing port areas,
• Establishment of a working group in the scope of the CONAMA for elaborating a proposal of a specific Resolution on EL of ports, that define national standards for the environmental programs required by the competent environmental agency;
• Establishment of a national clearing house to be responsible for integrate all the information on the environmental aspects of the port areas;
• It will be also necessary to integrate the information obtained on ballast water with the currently initiatives that has been taken regarding other sources of invasive alien species.
Regarding the aspects of human health, it would be important an enforcement of the legislation and the establishment of special programs both regarding sanitation in port cities.

 Enforcement of the requirements of NORMAM-20, with more technical inspectors both for the Maritime Authority and ANVISA;

 The adoption of an “on-line” alternative for the submission of the BWMF by ships;

 Establishment of programs or working groups with representatives of neighbor countries on the issue;
Thank You!