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Jennifer Mehaffey J.D.

*Sea Grant Law Fellow, Roger Williams University School of Law, [marineaffairs@rwu.edu](mailto:marineaffairs@rwu.edu)*

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# Ballast Water and Invasive Species in the Northeast: The Current Situation and Policy Recommendations



Jennifer Mehaffey, J.D.  
Sea Grant Law Fellow

## Main Topics...

- Current Situation in the Northeast
- Current Federal Situation
- International  
(IMO Ballast Water Convention)
- Treatment Technologies
- Policy Recommendations



# The Basics

**The introduction of invasive species is considered one of the top four threats to marine ecosystems**

Results in environmental, social and economic problems

Ballast water is the primary vector for non-native invasive species



It is estimated over 10,000 species being carried in ballast tanks daily

Currently, Ballast Water Exchange is the only internationally accepted technology

# Ballast Water Exchange (BWE)

USCG (33 CFR 151.2025) defines BWE as replacing the ballast water by either

- (a) Flow through exchange: flush out ballast water by pumping mid-ocean water at the bottom of the tank and overflowing the tank from the top until three full volumes of water has been changed
- (a) Empty/Refill Exchange: pump out water taken on in ports (until tank is empty) and flushing with mid-ocean water – should pump out as close to 100% ballast water as is safe to do

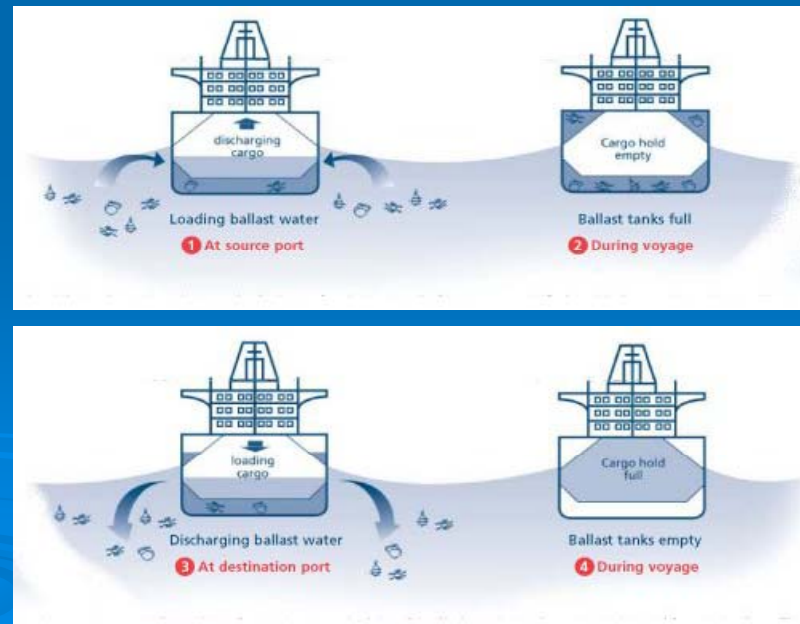
## Problems:

Safety

Operations

Effectiveness

Compliance monitoring



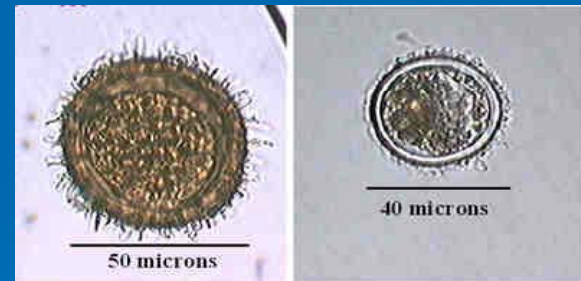
# The 2004 IMO Ballast Water Convention: Performance Based Technology Standards

**(Regulation D-1)** Ballast Water Exchange: 95% volumetric exchange at least 200nm from land in water 200m deep

**(Regulation D-2)** Concentration performance based standard

(D-2.1) Viable Organisms: allowable limits discharged in ballast water defined by maximum number and size per cubic meter

(D-2.2) Indicator Microbes: allowable limits defined by type and maximum colony forming unit per 100 milliliters



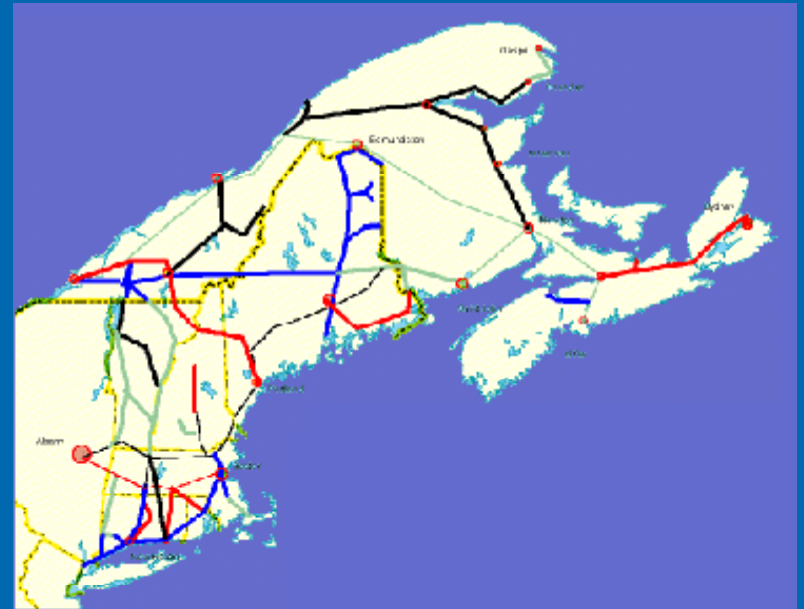
Concentration based standard will apply to all ships between 2009 and 2016

- Depends on the size, class and construction date of the ship
- Between 200-500 ships expected to be subject to the 2009 date
- All ships expected to meet D-2 standards by 2016

# Northeast

## ➤ Canada

- Transport Canada TP 13617 E (2006) require BWE 200 miles from shore or if unable must use best management practices and/or alternative zones
- list specified actions for vessels declaring no ballast onboard or unable to manage their ballast water
- Follow IMO concentration based standards for ballast water discharge



## ➤ Northeast United States

- R.I. Gen Laws Sec. 46-17.3-2 (2007) set forth plan to develop ballast water management program
- Maine, Vermont, New Hampshire, Massachusetts, Connecticut, and New York have several general laws addressing invasive species, but none specifically for ballast water management



# Shipping Patterns in the Northeast: 2000-2005

|               | Arrivals | BW Discharge | Not treated |
|---------------|----------|--------------|-------------|
| Maine         | 902      | 73           | 11          |
| New Hampshire | 86       | 4            | 1           |
| Massachusetts | 795      | 28           | 15          |
| Rhode Island  | 227      | 5            | 1           |
| Connecticut   | 213      | 11           | 1           |
| New York      | 4801     | 555          | 242         |
| <b>TOTAL</b>  | 7024     | 676          | 271         |



# Great Lakes and the West Coast

## ➤ Great Lakes

Michigan Ballast Water Control Law (2007)

- Require all ocean going vessels to obtain a permit for discharging ballast water
- Michigan DEM issued first ballast water permits in March, 2007

## ➤ West Coast (apply to vessels >300 tons entering state waters either from beyond EEZ or coastal travel)

California (2006): 0% emissions by 2020 – phase out safety exemption

- Management approach: Exchange, retain on board, treat or shore side treatment
- Internal transfer of ballast water must be logged
- Biological surveys must be conducted evaluate effectiveness

Oregon (2002)

- Management approach: exchange

Washington (2007)

- Management approach: exchange or treatment
- Requires consistency with IMO and USCG



# Federal

## **Non-indigenous Aquatic Nuisance Prevention and Control Act (1990) amended by National Invasive Species Act (1996)**

### **USCG manages ballast water at national level**

- 33 CFR Part 151, Subparts C & D
- Submit ballast water reports to National Ballast Water Information Clearinghouse (NBIC)
  - joint Smithsonian /USCG clearinghouse implemented under NISA
- Made mandatory in 2004

### **Act to Prevent Pollution from Ships (as amended 2001)**

- Implement MARPOL 73/78
- Question of invasive species as “pollution”?

# Pending Federal Actions...

## Pending in 110<sup>th</sup> Congress

- S. 725 (Sen. Levin) 3/1/07
  - Aquatic Invasive Species Task Force develop management plan
  - EPA, Nat'l Fish and Wildlife and NOAA to implement a national system of ecological surveys for rapid early detection and monitoring of invasive species.
  - Establish emergency rapid response fund
- HR 889 (Rep. Miller, MI) 2/7/07
  - Within one year of enactment, “shall” promulgate regulations for alternative BW treatment technology to meet IMO standards
  - Urge international cooperation
- HR 2423 (Rep. LaTourette, OH) 5/22/07
  - Alternative BWM evaluation and demonstration programs

## Clean Water Act, 40 C.F.R. Sec. 122.3(a) (?)

- *Northwest Environmental Advocates v. EPA* (N.D. Cal, 2006)
  - Appeal filed Nov. 16, 2006 / Oral arguments in mid-August 2007
  - If Court's order stands – the regulatory exclusion allowing for the discharge of pollutants incidental to the normal operation of vessels without an NPDES permit will be vacated by September 2008
  - Ballast water will be regulated under CWA Sec. 301(a)
- Problem: EPA ill-equipped to handle the huge impact the Order will have
  - (2005) 8,400 vessels with ballast water tanks reporting 86,000 port calls
  - 13 million State-registered recreational boats; 81,000 commercial fishing vessels; and 53,000 tank and freight barges operating in U.S. waters

# Organizations Involved in Ballast Water Management

- National Estuary Program (est. 1987)
- Aquatic Nuisance Species Task Force
- National Invasive Species Council
- Smithsonian Environmental Research Center (SERC)
- Interagency Committee on the Marine Transportation System (2005)
- EPA/USCG
  - Programmatic Environmental Assessment (PEA) for USCG's Mandatory Ballast Water Management Program
  - Environmental Technology Verification (ETV) Program
  - Office of Wetlands, Oceans, and Watersheds (OWOW) Invasive Species Strategy
- Various Local and Regional Programs

# International Maritime Organization



- **(1997) Adopted Resolution A.868(20)** Invites States to implement national legislation on ballast water management
  - Currently US, Argentina, Australia, Canada, China, Chile, Israel, UK and New Zealand
  - But...calls for future action “based on a globally applicable regulation”
  
- **(2000) Globallast formed** to assist less developed countries address ballast water problems
  - Pilot sites represent the six main developing regions of the world
  
- **(2004) Ballast Water Convention**
  - Port States directed to apply Convention to non-Party ships – condition of port entry
  - Right of flag/port States to inspect (without need for “clear ground”) / Specific sanctions left to be determined by national law
  - If invasive species are defined as “pollution” under UNCLOS – greatly increase the scope of the BWC
  - Explicit provision allowing States to implement more stringent measures than in Convention (“sovereign right”)
  - Technology based concentration based standards
  - 15 IMO Guidelines for the uniform implementation of the Convention currently adopted or under development

## Ballast Water Management Overview

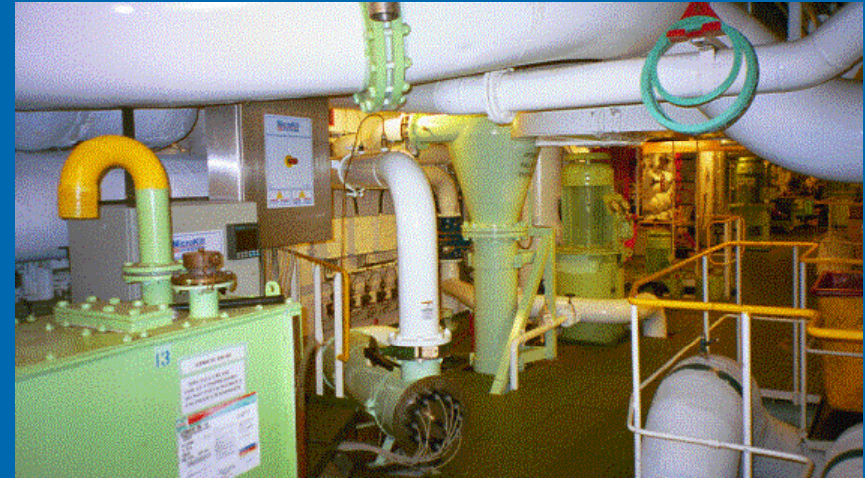
| Provisions                                  | IMO | Federal | Canada | Cal |
|---|-----|---------|--------|-----|
| Mandatory open Ocean Exchange               | X   | X       | X      | X   |
| Safety and other exemptions                 | X   | X       | X      | X   |
| Applies to domestic coastal voyages         |     |         |        | X   |
| Allows alternative treatment (if approved)  | X   | X       | X      | X   |
| Offers incentives for alternative treatment | X   | X       |        | X   |
| Includes Fees to support program            |     |         |        | X   |
| Requires BW Management Plan                 | X   | X       | X      | X   |
| <b>Reporting</b>                            |     |         |        |     |
| Required at each port of call               |     | X       | X      | X   |
| Electronic submission form                  |     | X       | X      | X   |
| <b>Verification and Enforcement</b>         |     |         |        |     |
| Boarding of Vessels to verify               |     | X       | X      | X   |
| Penalty for non-reporting / non-compliance  |     | X       | X      | X   |



# New Technology

**IMO:** Encourage technological development

- 5 year waiver offered if participate in programs testing prototype ballast water treatment technologies
- Globallast sponsor research and development symposiums



**United States:**

- ETV and USCG National Ballast Water Management program developing protocol for testing new technologies (Naval Research Lab in Key West, FL)
- ETV and USCG Research and Development Center develop protocol and testing for BWE screening technology (Groton, CT)
  - BEAM technology (Dakota Technologies, Inc.)
- NOAA/Maritime Administration/Fish and Wildlife 2007 Ballast water Technology demonstration Program Competitions
- (Great Lakes, California, Washington) Encourage development of new technologies in their ballast water management plans / Demonstrations and competitions



# Problems...

- Question of federal pre-emption (commerce vs. environmental concerns)
- There is currently no ballast water management program for Northeast ports
- Problems with BWE
  - Inspectors often do not understand the technical realities of ballast water exchange (can cause hull stress and instability)
  - Ballast water exchange cannot be performed during high seas conditions
  - Often inspections are a cursory glance at paperwork – not really effective
- No uniform standards for shipping industry to work towards



Pumping residual water with a hand-operated pump in a double bottom ballast tank.

# Policy Recommendations

- Northeast Ballast Water Management Program
  - Need stable source of funding
  - Effective coordination and management of Program for state agencies
  - Clearly state treatment requirement (technology based standards)
  - Provide incentives for alternative treatment technologies (cut port fees vs. punitive sanctions?)
  - Align state laws with national and international ballast water regulations (need for uniformity)
  - Include requirement of environmental monitoring to evaluate effectiveness of Program
- Model for Federal Ballast Water Management?
  - Australia's requirements incorporate the Ballast Water Decision Support System (BWDSS) - a computer application that can provide vessels with a risk assessment of their ballast water and deem it to be acceptable for discharge or otherwise. Use of the BWDSS is not mandatory.

# Comments?

