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



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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

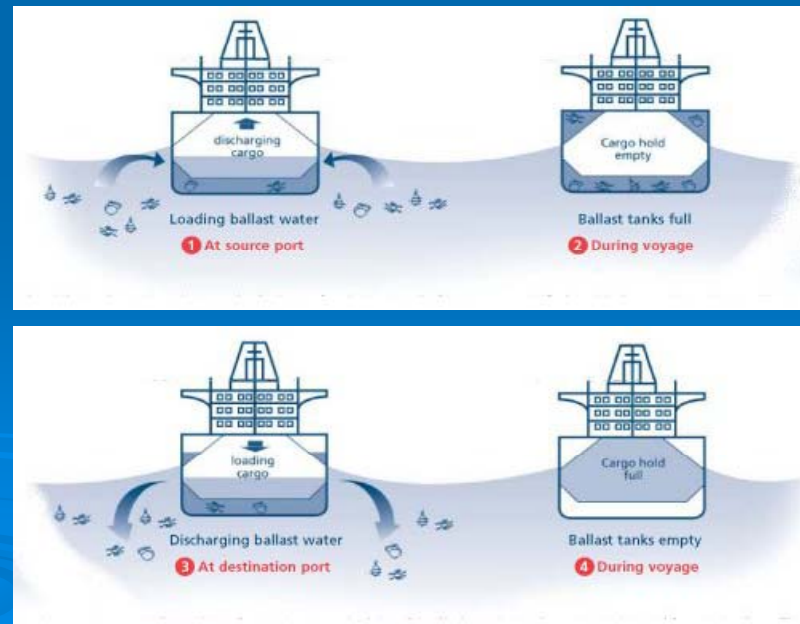
Problems:

Safety

Operations

Effectiveness

Compliance monitoring



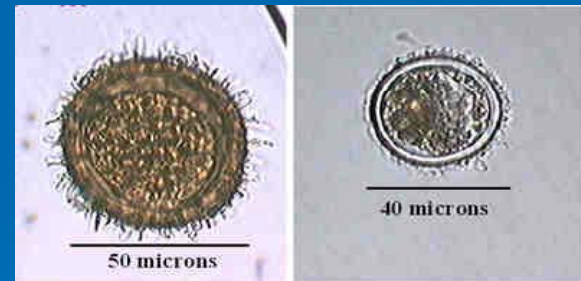
The 2004 IMO Ballast Water Convention: Performance Based Technology Standards

(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



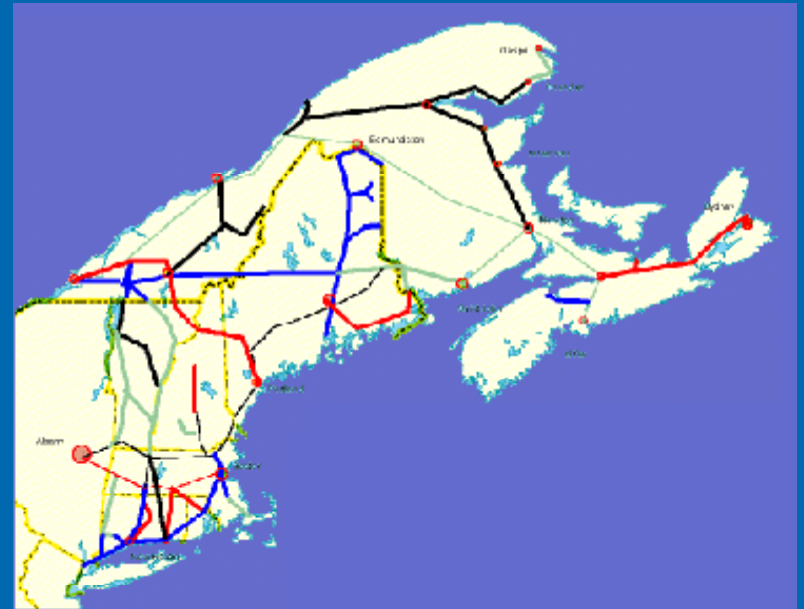
Concentration based standard will apply to all ships between 2009 and 2016

- 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
TOTAL	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 110th 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

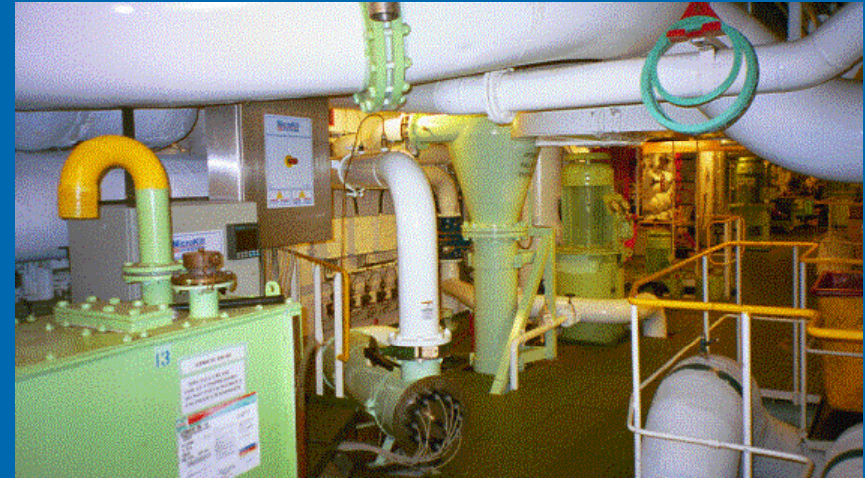
Ballast Water Management Overview

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
Reporting				
Required at each port of call		X	X	X
Electronic submission form		X	X	X
Verification and Enforcement				
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?

