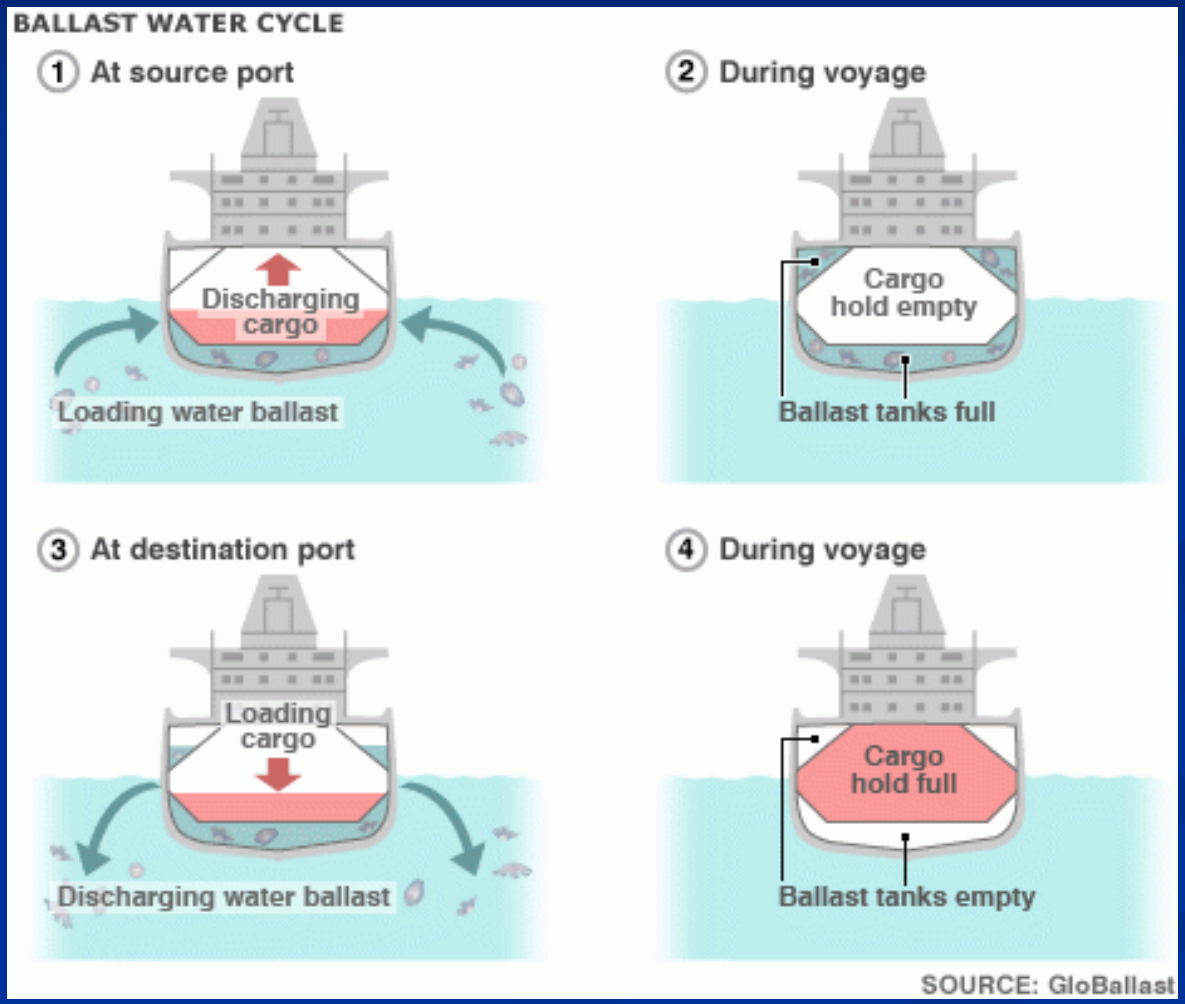
USCG Ballast Water Discharge Standard

Overview of Notice of Proposed Rulemaking

Why is ballast water used?



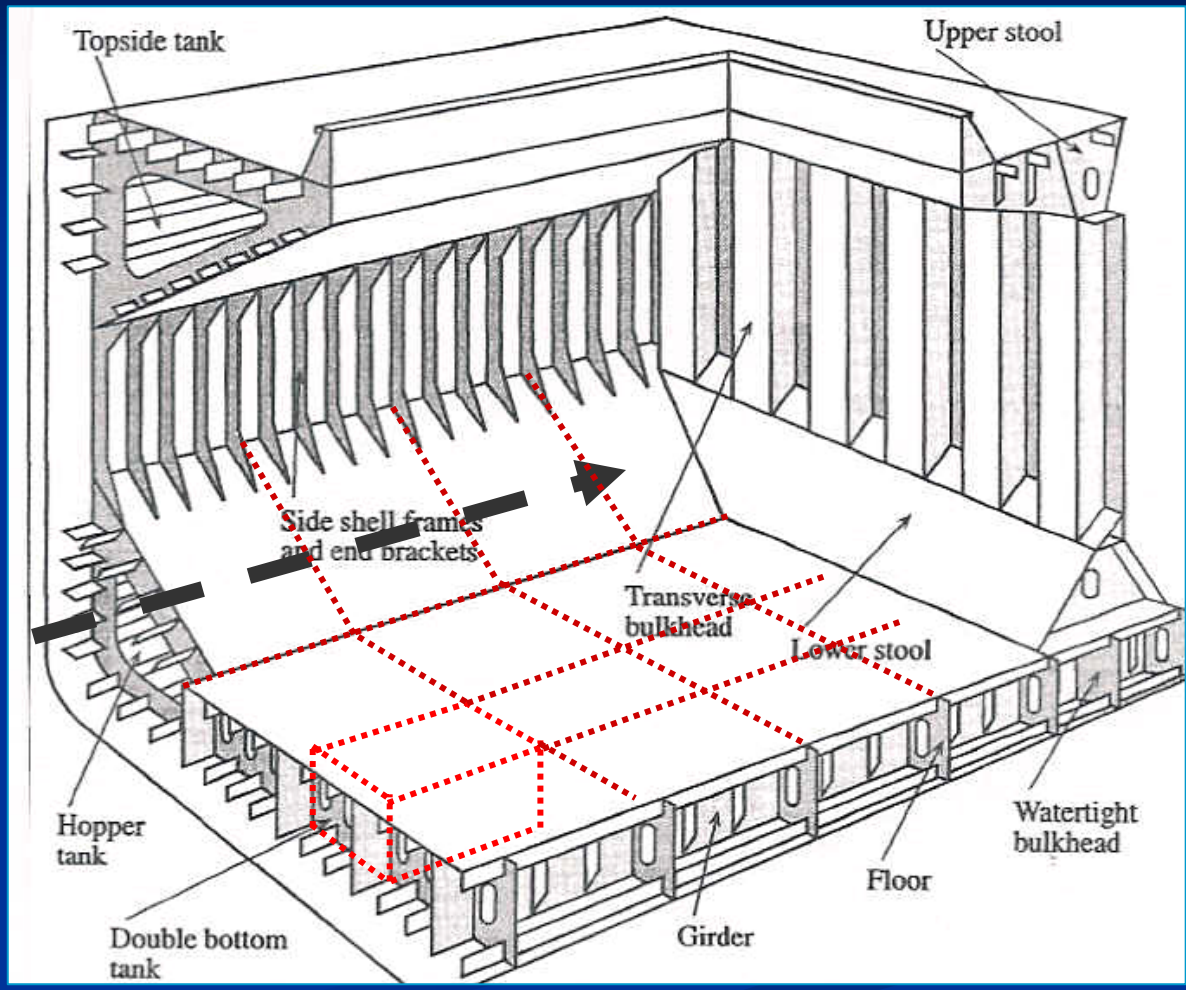
Ballast Water is Critical for Safe Operation of Ships

Ballast used to control and maintain:

Trim
Stability
Draft
Stress

What are ballast tanks like?

Ballast tanks are a honeycomb of individual bays or cells with lots of places to trap sediment and restrict water flow velocity



A ship can have over 20 ballast tanks

Authority for this Rulemaking

Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990

- USCG directed to develop a program of specific regulations and guidelines for the Great Lakes.
- Prevent or reduce the introduction and control the spread of NIS via the discharge of ballast water from those vessels entering U.S. waters of Great Lakes after operating outside the exclusive economic zone (EEZ).
- First voluntary, then mandatory.

National Invasive Species Act 1996

- Extend Great Lakes regime to the nation.
- First voluntary for 2 years.
- Then mandatory if voluntary compliance insufficient.
  - Specific practices directed:
    - BWE Mid-ocean.
    - Retention.
    - Alternative BWE areas.
    - USCG-approved, environmentally sound alternatives.

Why a discharge standard?

Photo courtesy of SERC.

- In U.S. waters, over 60% of vessels can not exchange appropriately due to their routes (< 200 nm).
- Effectiveness of ballast water exchange varies.
- Provides a clearly defined benchmark for treatment technology development.
- Aids in verifying compliance with BWM requirements.

Ballast Water Discharge Standard

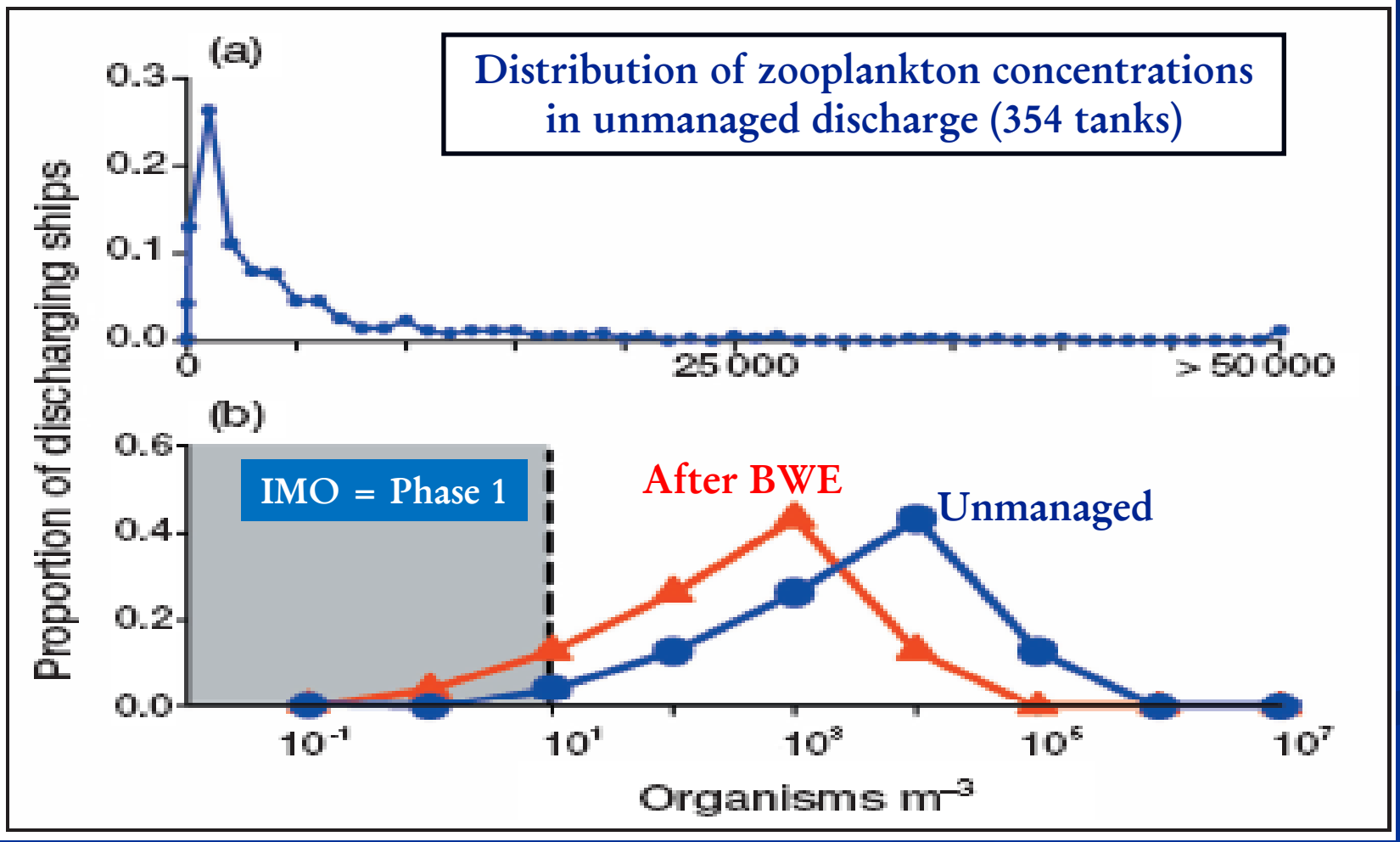
BWDS NPRM establishes:

- Phased Approach
  - IMO Standard initially
  - 1000 times more stringent than IMO after 2016
    - Practicability Review will determine if 1000x standard can be met.
    - If Practicability Review determines 1000x cannot be met, then intermediary standards established.
- Type Approval Process

Phased Approach

- Significant improvement over BWE
  - Minimizes introductions through environmentally sound technologies
- Standard is achievable and verifiable
- Technology presently under development can likely meet the standard by implementation date
- Consistent with international community
  - System developers have targeted IMO std – standardized testing/verification protocols

The Phase One Standard will be a Significant Increase in Protection Over BWE



Minton et al., 2005

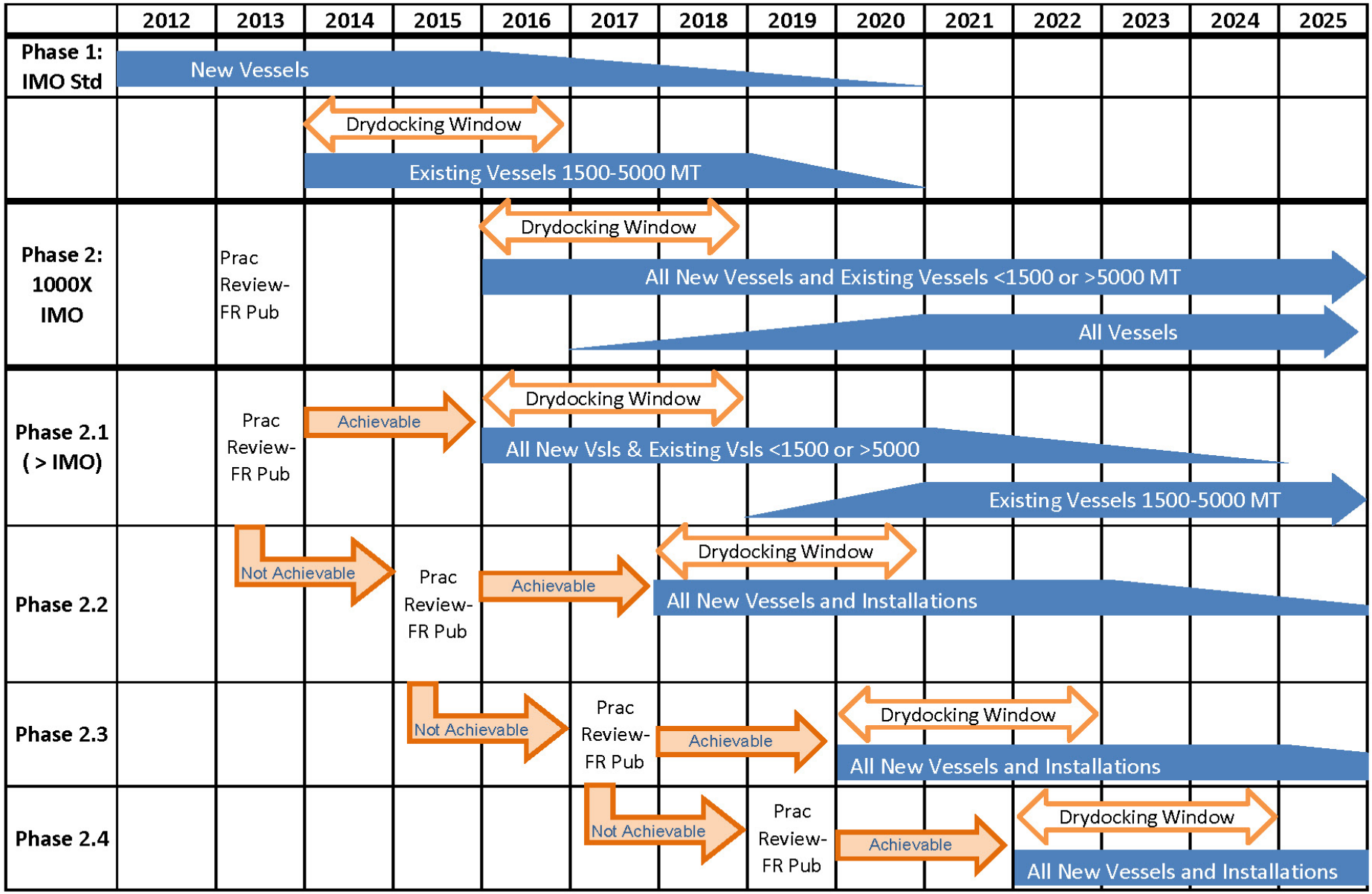
Table 1. Comparison Between Phase One and Phase Two Discharge Standards

Technical description	Large Organisms (> 50µm)	Small Organisms (>10µ and ≤50 µm)	Very Small Organisms (≤ 10µm)	Bacteria		
				Toxigenic *Vibrio cholerae* (O1 & O139)	*Eschericia coli*	Intestinal enterococci
Phase One	< 10 per m^3	< 10 per ml	N/A	<1 cfu per 100 ml	<250 cfu per 100 ml	<100 cfu per 100 ml
Phase Two	< 1 per 100 m^3	< 1 per 100 ml	< 1000 bacterial cells AND < 10,000 viruses per 100 ml	<1 cfu per 100 ml	<126 cfu per 100 ml	<33 cfu per 100 ml

Sizes and Concentrations

- 50um = approx 0.00197 inches, or 2/1000 of an inch.
- Ten 50um particles equals 1.25 x 10^{-12} M^3:
  - Or, approx 1 trillionth of a M^3.
  - Equivalent to 1 second in 31,700 years.
  - One drop of water in 20 Olympic swimming pools.
- 1 cubic meter of water weighs ~ 2,200 lbs:
  - Approx the weight of a VW Bug (passenger volume: ~ 2 M^3).

Phase 1 and Phase 2 Standards Implemention Schedule (5 year grandfathering)



If Practicability Review determines Phase 2 Standard is not achievable, but a standard which is more stringent than existing (IMO) is achievable, then that standard will be phased in 3 years following FR publication. Practicability reviews will be conducted every 2 years until full Phase 2 is achieved.

Type Approval

- Linchpin of the regulations, yet most overlooked aspect
- Presently reviewing existing guidelines to determine statistical power of type approval volumes and techniques
- Working jointly with NRL, EPA, academia to develop ETV protocols
- Critical role of Independent Labs

Timeline for Implementation

- 2009 Nov: Closure of Public Comment period
  - Review of comments
  - Revision to NPRM, PEIS, Economic Analysis
  - Publication of Final Rule
- Certification of Independent Labs
  - 12-24 month process for 3 existing labs
- Type Approval Testing
  - Land-based testing: 6-8 weeks
  - Shipboard testing: 12 months
  - Review of dossier / Other approvals: 2-6 months

Public Meetings Common Themes

- Standard not stringent enough
- Timeline not aggressive enough
- National Standard issues
  - Pre-emption or not
  - Adoption of state standards
- Niche vessels (tugs, OSV's, barges, Lakers) not adequately addressed
- COTP Zone exemption
- Practicability review

U. S. Coast Guard
Notice of Proposed Rulemaking

- All aspects open for comment
  - Some explicit questions posed.
- To submit your comments online
  - Go to: http://www.regulations.gov .
  - Click on the "submit a comment" box, which will then become highlighted in blue.
  - Insert “USCG-2001-10486” in the Keyword box.
  - Click "Search”.
  - Click on the balloon shape in the Actions column.
- Public meetings
  - West Coast, Gulf Coast, Great Lakes, East Coast.
  - Dates and locations TBA later.