

Alisa Richardson, PE
Office of Water Resources
Rhode Island DEM
August 17, 2012

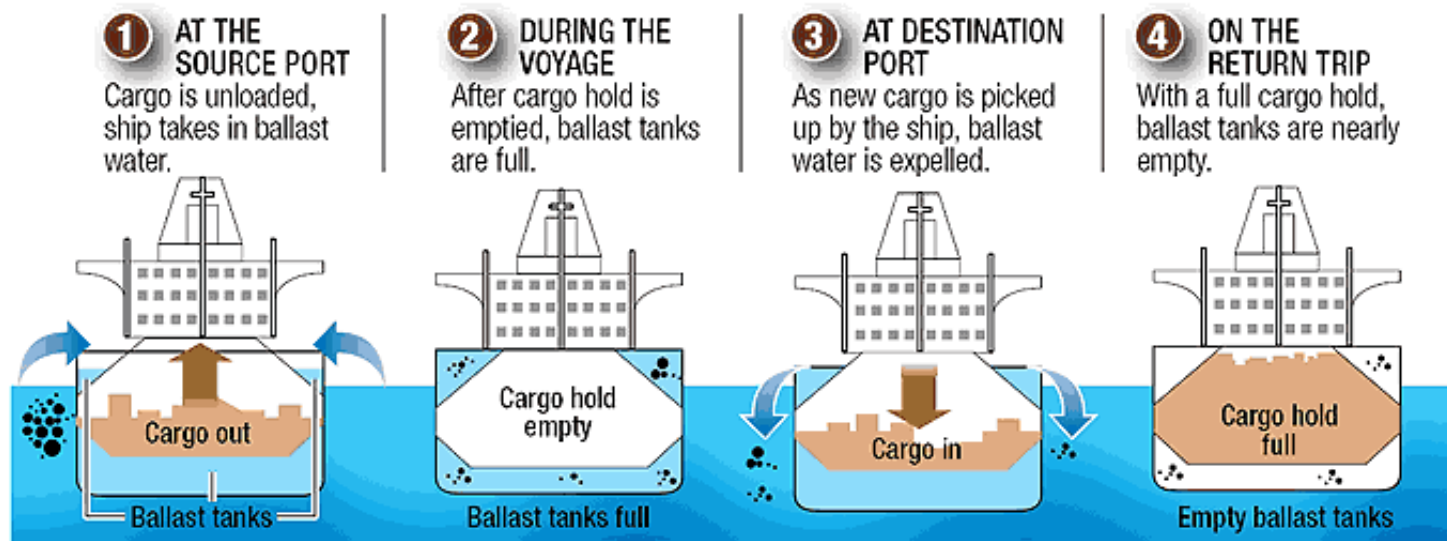


Ballast Water Management and Regulation

THE BALLAST WATER CYCLE

HOW INVASIVE SPECIES ARE INTRODUCED INTO THE GREAT LAKES

Ballast water is required to stabilize an empty ship on the open sea, but those tanks can hold more than water; they often also carry foreign species. The U.S. now requires oceangoing vessels bound for the Great Lakes to exchange their ballast at sea to expel – or kill with saltwater – any freshwater organisms that might have hitched a ride. But most ships that arrive in the lakes are loaded with cargo, don't carry ballast and are therefore exempt from the law. Even "empty" tanks can carry residual puddles and tons of muck, both of which can be teeming with life.



Source: International Maritime Organization

ALFRED ELICIERTO/aelicierto@journal sentinel.com

Ballast Water

- Identified as one of the 4 greatest threats to the world's oceans and to biodiversity globally.
- Shipping moves over 80% of the world's commodities and transfers approximately 3 to 5 billion tons of ballast water internationally each year.
- Ballast water is absolutely essential to the safe and efficient operation of modern shipping, however it may also pose a serious ecological, economic and health threat.

Risk

- Risk is higher for those exporting goods and services where ballast may be discharged to take on products.
- Rhode Island is not currently a large exporter of goods, except for maybe scrap metal.

Background on EPA's Involvement in Regulating Invasives from Ships

- 2005 – The *Northwest Environmental Advocates vs. US EPA* – US district court decision found that:
 - 1- Even though discharge of ballast water is exempt from the CWA/the discharge of biological pollutants within the ballast water is NOT exempt.
 - 2- The NPDES is the responsible program – National Pollutant Discharge Elimination System



Background

- The court ordered USEPA to develop a regulatory scheme by September 30, 2008.
- EPA decided that a national permit would be the best way to maintain consistency EPA would regulate and create the permit and the Coast Guard would enforce the permit on the water.
- EPA NPDES permit will expire in 2013.
- By law each National NPDES Permit must be certified by each State as consistent with the Water Quality Regulations. The permit is National in scope, and there are additional state-specific requirements issued via the 401 certification process.

Background

- 2008 Vessel General Permit (VGP) contains effluent limits applicable to 26 specific discharge streams, narrative water-quality based effluent limits (Ballast and 25 others); inspection, monitoring, recordkeeping, and reporting requirements; and additional requirements applicable to certain vessel types.
- Summer 2008 Congress exempts recreational vessels from NPDES permitting and develops a regulatory regime under Section 312 of the Clean Water Act (regulating marine sanitation devices).
- Summer 2008 Congress created a temporary moratorium for vessels less than 79 feet and commercial fishing vessels regardless of size (except ballast water discharges).

2008 VGP Ballast Requirements

- Exchange and flushing for voyages originating beyond the EEZ. (If near NY or Pacific must exchange again 50 NM before shore)
- No sediment discharge
- No vessel may discharge unexchanged or untreated water into Federally Protected waters.

2013 VGP

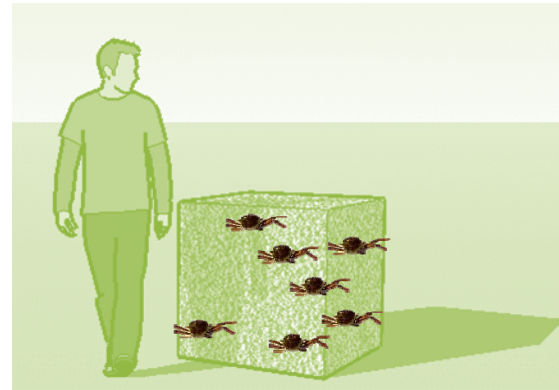
- The national permit last 5 years. The 2008 VGP is nearly expired. Time to reissue.
- EPA has put forward increasing requirements on ships and ballast water discharges
- 2008 VGP required mid-ocean ballast exchange when safe

Overview of the 2013 VGP Ballast Water Requirements

- For the first time EPA is introducing monitoring requirements:
- The EPA Vessel General Permit and the Coast Guard Ballast Water Rules both adopt the IMO DD2 standard.
- International Marine Organization has established a ballast water standard for international shipping. The standard has 5 components.

2 Components of the IMO D2

1. <10 viable organisms $\geq 50 \mu\text{m}$ minimum size per m^3



2. <10 viable organisms $< 50 \mu\text{m}$ and $\geq 10 \mu\text{m}$ per ml

About the thickness of clear tape



How is this measured?

- Very difficult
- There are testing systems available, but they must be near the port in order to maintain viability of the organism.
- The Coast Guard is not taking samples – very specialized

How is this regulated?

The standard is measured based upon compliance of indicators.

Microbes, discharge shall not exceed

Vibrio cholerae less than 1 cfu per 100ml or 1gr
zooplankton

E. Coli Less than 250 cfu per 100 ml

Enterococci less than 100 cfu per 100 ml

Systems

Filters and/or chemical residuals

Exchange ballast at proper time

Increased Management Requirements in the 2013 VGP

- More than just ballast exchange outside of the EEZ – the vessel operator must manage ballast in at least 1 of 4 ways:
 1. Utilize a ballast water treatment system (must perform monitoring to achieve effluent limitations)
 2. Discharge ballast water onshore, if there is a compatible onshore treatment system available
 3. Utilize public water supply as a ballast water source
 4. Do not discharge ballast water

Treatment Systems

- Ballast Water Treatment Systems – for those who cannot use one of those 4 management measures, must install a ballast water treatment system – in a phased approach.
- New Vessels – immediate compliance with a treatment system.
- Existing Vessels – First scheduled dry docking after January 1, 2014 or 2016 depending on ballast containment size.



RI State Certification

- For any Federal Permit, the State must certify that the permit meets State Water Quality Regulations.
- Regulations are generally vague when it comes to biological pollution in order to cover a multitude of conditions.
- RI Water Quality Regulations state: "At a minimum, all waters shall be free of pollutants in concentrations or combinations or from anthropogenic activities subject to these regulations that:
 - Adversely affect the composition of fish and wildlife
 - Adversely alter the life cycle functions, uses, processes and activities of fish and wildlife

Enforcement

- First – All applicable Vessels must apply for coverage under the VGP – called an NOI
- Part of the VGP includes requirements for sampling and submitting the results in the form of a Discharge Monitoring Report
- Coast Guard Inspections

Status

- State Certification is due October 1, 2012
- Evidence to show that these standards may not be protective and alter the natural life cycle functions, uses and processes of fish and wildlife

Status

- Other States (NY included) asserted publicly in a February 21, 2012 letter to EPA that:
 - The proposed IMO D2 standard is insufficient to treat all types of AIS
 - The technology based limits set in the permit should be based on Best Available Technology not common technology
 - Ballast water exchange should be required nationally at all times, in addition to any treatment systems that are ultimately required by the IMO D2 standard

NY also stated that :

- 100x IMO is necessary to protect our waters. Laboratories are not available to do this now, so they are recommending that States require this and defer to 2018 to let technology catch up.
- NAS Studies show that ballast exchange + ballast treatment produces the most effective result.
- Require live organism monitoring as soon as it becomes available.
- Prohibit Bilge discharge

Q & A

A stylized graphic featuring the letters 'Q', '&', and 'A' in a white, 3D-effect font. The letters are set against a light gray circular background. A decorative arc of small dark gray dots is positioned above the 'Q' and '&', and another smaller arc is below the '&' and 'A'. The entire graphic is centered on a white page with a green border.