

(the Act), 33 U.S.C. 2732, to foster a long-term partnership among industry, government, and local communities in overseeing compliance with environmental concerns in the operation of crude oil terminals and oil tankers.

On October 18, 1991, the President delegated his authority under 33 U.S.C. 2732(o) to the Secretary of Transportation in Executive Order 12777, section 8(g) (see 56 FR 54757; October 22, 1991) for purposes of certifying advisory councils, or groups, subject to the Act. On March 3, 1992, the Secretary redelegated that authority to the Commandant of the USCG (see 57 FR 8582; March 11, 1992). The Commandant redelegated that authority to the Chief, Office of Marine Safety, Security and Environmental Protection (G-M) on March 19, 1992 (letter #5402).

On July 7, 1993, the USCG published a policy statement, 58 FR 36504, to clarify the factors that shall be considered in making the determination as to whether advisory councils, or groups, should be certified in accordance with the Act.

The Assistant Commandant for Marine Safety and Environmental Protection (G-M), redelegated recertification authority for advisory councils, or groups, to the Commander, Seventeenth Coast Guard District on February 26, 1999 (letter #16450).

On September 16, 2002, the USCG published a policy statement, 67 FR 58440, that changed the recertification procedures such that applicants are required to provide the USCG with comprehensive information every three years (triennially). For each of the two years between the triennial application procedure, applicants submit a letter requesting recertification that includes a description of any substantive changes to the information provided at the previous triennial recertification. Further, public comment is not solicited prior to recertification during streamlined years, only during the triennial comprehensive review.

#### Recertification

By letter dated March 2, 2006, the Commander, Seventeenth Coast Guard certified that the PWSRCAC qualifies as an alternative voluntary advisory group under 33 U.S.C. 2732(o). This recertification terminates on February 28, 2007.

Dated: March 24, 2006.

**James C. Olson,**

*Rear Admiral, U.S. Coast Guard, Commander, Seventeenth Coast Guard District.*

[FR Doc. E6-5604 Filed 4-14-06; 8:45 am]

BILLING CODE 4910-15-P

## DEPARTMENT OF HOMELAND SECURITY

### Coast Guard

[USCG-2006-24443]

#### Ballast Water Reporting by Foreign-flag Vessels Bound for the Great Lakes.

**AGENCY:** Coast Guard, DHS.

**ACTION:** Notice.

**SUMMARY:** The Coast Guard announces this notice as clarification of the ballast water reporting requirements for foreign-flag vessels bound for the Great Lakes from outside the U.S. Exclusive Economic Zone (EEZ).

**DATES:** This notice is effective on April 17, 2006.

**FOR FURTHER INFORMATION CONTACT:** If you have questions about this notice, contact LT Keith Donohue, Environmental Standards Division, Coast Guard, telephone 202-267-0500, e-mail: [kdonohue@comdt.uscg.mil](mailto:kdonohue@comdt.uscg.mil). If you have questions about viewing material on the docket, call Ms. Renee V. Wright, Program Manager, Docket Operations, telephone 202-493-0402.

#### SUPPLEMENTARY INFORMATION:

##### Background and Purpose

The reporting requirements of 33 CFR 151.2041 apply to all foreign-flag vessels with ballast water tanks that are bound for the Great Lakes, unless exempted by 33 CFR 151.2010 and 151.2015. Foreign-flag vessels do not include U.S. and Canadian-flag vessels. These requirements were amended by the final rule entitled "Penalties for Non-Submission of Ballast Water Management Reports," published in the *Federal Register* on June 14, 2004. See 69 FR 32864. That final rule mandated that all foreign-flag vessels must provide the complete information required in 33 CFR 151.2045 when bound for the Great Lakes from beyond the EEZ, and gave these vessels two options for doing so.

The first option allows reports to be sent to the appropriate authority established in 33 CFR 151.2041(b)(1)(i) using the Coast Guard Ballast Water Reporting Form, OMB form Control No. 1625-0069.

As an alternative, 33 CFR 151.2041(b)(1)(ii) allows foreign-flag vessels to complete the ballast water information section of the St. Lawrence Seaway "Pre-entry Information from Foreign Flagged Vessels Form" and submit it in accordance with the applicable Seaway Notice. However, the Coast Guard highlights through this notice that, if this second option is used,

the owners and operators of these vessels must still ensure they provide all the information required by 33 CFR 151.2045 to be in compliance with the ballast water reporting requirements. If the Pre-entry form used to make the applicable Seaway Notice does not provide ample space for all the information required by 33 CFR 151.2045, the information must still be provided. This can be accomplished either with an annotated version of the Pre-entry form or an accompanying Coast Guard Ballast Water Reporting Form. Also, if the information required by 33 CFR 151.2041 is submitted within the Seaway Notice 96 hours prior to arrival and the vessel's ballast information subsequently changes, an amended form must be submitted before the vessel departs the waters of the United States.

In addition, the Coast Guard published a Notice of Policy entitled "Ballast Water Management for Vessels Entering the Great Lakes that Declare No Ballast Onboard" in the *Federal Register* on August 31, 2005. See 70 FR 51831. The Coast Guard Ballast Water Reporting Form, with sections 4 and 5 properly completed, is the only means of documenting a vessel's implementation of the voluntary best management practices described in the August 31, 2005 Notice of Policy. See 70 FR 51831.

Finally, to further avoid confusion and reporting submission issues, the Coast Guard recommends each foreign-flag vessel that enters the Great Lakes from outside the EEZ should submit the required information using the Coast Guard Ballast Water Reporting Form to either the Coast Guard Captain of the Port Buffalo, Massena Detachment or the Saint Lawrence Seaway Development Corporation, at least 24 hours before the vessel arrives in Montreal, Quebec, in addition to the Pre-entry form required by the applicable Seaway Notice. The fax number for the Coast Guard Captain of the Port Buffalo, Massena Detachment is 315-769-5032, and the fax number for the Saint Lawrence Seaway Development Corporation is 315-764-3250.

Dated: April 5, 2006.

**H.L. Hime,**

*Acting Director of Standards, Assistant Commandant for Prevention, U.S. Coast Guard.*

[FR Doc. E6-5652 Filed 4-14-06; 8:45 am]

BILLING CODE 4910-15-P

## Ballast Water

### [Introduction](#)

### [Links to Ballast Water Regulations](#)

### [Links to Ballast Water-Related U.S. Legislation Introduced in the 110<sup>th</sup> Congress](#)

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## INTRODUCTION

### **What is Ballast Water and Why Ships Carry Ballast Water**

Ballast water is carried in ships to provide stability and trim. A ship's ability to take on and discharge ballast water is fundamental to its safe operation. As a ship loads or unloads cargo or takes on or consumes fuel, the ship must accommodate changes to its displacement and trim by taking on or discharging ballast water. Ballast water is taken on through openings near or on the bottom of a ship's hull and is pumped in or out of a ship through piping connected to ballast pumps which are located in the ship's lower machinery space. Without these ballast water operations, ships cannot be operated safely: ballast water intake and discharge provides proper stability and trim, minimizes hull stress, aids or allows maneuvering, and reduces ship motions of roll and pitch. The water pumped into a ship's ballast tanks must inevitably be pumped out when the ship takes on cargo. Ballast uptake and discharge most often occurs in port during cargo operations, but may also occur while the ship is in transit on the open lake or through connecting waterways to maintain proper trim and stability.

### **Ballast Water is a Global Issue**

Ballast water has received considerable attention globally over the past several years. When ships uptake ballast water, small marine organisms and sediment suspended in the water can be captured in the ballast water. Ships could then transport these organisms, often in a viable condition, across natural biological barriers to other areas where they are released and may become invasive. Efforts to prevent and curb the introduction of aquatic nuisance species (ANS) are taking place at international, national and local levels.

The Marine Environment Protection Committee (MEPC) at the International Maritime Organization (IMO) and other related subcommittees have made significant progress toward an international ballast water management policy which includes a ballast water discharge standard.

Even when fully loaded with cargo, ships commonly referred to as NOBOB's (No Ballast on Board) are rarely completely empty of ballast water. There is clearance below the bell mouths of the ballast lines in the ballast tanks to avoid clogging that makes some water un-pumpable using standard ballast pumps. This residual ballast water can be a mixture of water and sediment from ports recently visited around the globe. The residuals may be transported to the next port of call and become resuspended in the ballast water during subsequent ballast uptake.

### **Ballast Water Management on the Great Lakes Seaway System**

When ships declare "Ballast Water on Board" (BOB ships) they are inspected during each Seaway/Great Lakes transit. BOB ships are inspected prior to entering the Seaway/Great Lakes on their initial transit each shipping season. The inspection is done before the ship is granted permission to transit the Seaway/Great Lakes system. Every subsequent transit of a BOB ship that does not intend on stopping at a St. Lawrence River port is inspected between the two US Locks (Snell and Eisenhower) to ensure compliance with ballast water regulations.

Regulatory bodies test the salinity in certain ballast tanks in order to confirm that the salinity meets the minimum required salinity of 30 ppt (parts per thousand). Ships that do not comply with the minimum salinity of 30 ppt are required to retain all non-compliant ballast water onboard, return to sea and conduct a full ballast water exchange or treat the non-compliant ballast water with an approved treatment.

On arrival in the Great Lakes Seaway System, ships declaring "No Ballast on Board" generally off-load cargo in ports in the lower lakes and thereafter take on ballast water and proceed to a series of Great Lakes ports in the upper lakes to pick up and/or off-load additional cargo (and ballast water). During these short voyages, the residual un-pumpable ballast water from overseas ports is mixed with Great Lakes ballast water and can be discharged into the ports of call in the upper lakes where cargo is generally loaded.

The trading patterns of transoceanic ships ("salties") to the Seaway reveal a possible route for the introduction of ANS. For example, cargoes such as iron and steel products carried by "salties" generally arrive from ports in Belgium, the Netherlands, Brazil, France, Germany, Russia, Poland, Spain, Turkey, and the United Kingdom.

It is common for ships to discharge part of their cargo at lower-lakes ports as they travel farther west in the Great Lakes basin, taking on more ballast water as they unload cargo. From their final discharge port, the "salties" normally transit in a ballast condition to pick up cargo for their outgoing voyage. The cargo is then transported to overseas ports, in Belgium, the Netherlands, Algeria, Italy, Spain, Venezuela, and the United Kingdom, amongst others.

**Ballast Water Regulations for the Great Lakes Seaway System** Today, ballast water management requirements in the Great Lakes St. Lawrence Seaway System are the most stringent in the world. U.S. Coast Guard regulations and Transport Canada's "Ballast Water Control and Management Regulations" with "Canadian Guidelines for Ballast Water Management" require all ships destined for Great Lakes ports from beyond the exclusive economic zone (EEZ) to exchange their ballast at sea. If the ships have not complied, they are required to retain the ballast water on board, pump the ballast water ashore, treat the ballast water in an environmentally sound manner or return to sea to conduct a ballast water exchange.

As part of the Enhanced Seaway Inspection (ESI) program for foreign-flagged vessels, the SLSDC, U.S. Coast Guard, Transport Canada Marine Safety and/or their contractors verify a vessel's successful ballast water exchange through its boarding program, which includes measuring the salinity of on board ballast. Ballast with a salinity of at least 30 ppt is considered evidence that the tanks have been adequately exchanged with seawater, providing a reasonably harsh environment for any remaining organisms.

The Seaway Corporations have required ships transiting the Seaway to comply with the above mentioned standards. In addition, ships that do not operate beyond the EEZ but do operate within the Great Lakes and Seaway (i.e., lakers) must agree to comply with the "Voluntary Management Practices to Reduce the Transfer of Aquatic Nuisance Species within the Great Lakes by U.S. and Canadian Domestic Shipping", dated January 26, 2001". These voluntary management practices require ships to agree to regular inspections of ballast tanks and regular removal of sediment.

Additionally ships coming from outside waters under Canadian jurisdiction, declaring 'no ballast on board', must ensure that the residual ballast water in tanks has been exposed to salinity conditions equivalent to ballast water exchange by complying with one of the following options:

1. The residual ballast water came from ballast water that was properly exchanged at sea;
2. The residual ballast water meets the international standard for treated ballast water;
3. The ship complies with sections 1, 2, 6 and 7 of the "Code of Best Practices for Ballast Water Management"

- of the Shipping Federation of Canada dated September 28, 2000, or;
4. The ship conducted a saltwater flushing at least 200 nautical miles from shore.

**Shipping Federation of Canada (SFC) and Lake Carriers' Association (LCA)/Canadian Shipowners Association (CSA) Committed to Reducing the Introduction of ANS**

The SFC and the LCA/CSA have taken a pro-active stance to the matter of introduction and/or transfer of ANS via ballast water and in 2000/2001 voluntarily agreed to certain preventive measures to reduce the spread of ANS. The above mentioned associations have tabled a series of "ballast water management practices" that their membership companies have agreed to conduct prior to obtaining clearance to transit the Great Lakes Seaway System in order to prevent the introduction and/or transfer of ANS.

The Shipping Federations of Canada's membership has agreed to comply with the SFC "Code of Best Practices for Ballast Water Management", dated September 28, 2000, when operating beyond the EEZ and while operating anywhere within the Great Lakes Seaway System.

The LCA/CSA's membership has also agreed to comply with the LCA/CSA "Voluntary Management Practices to Reduce the Transfer of Aquatic Nuisance Species within the Great Lakes by U.S. and Canadian Domestic Shipping", dated January 26, 2001, while operating anywhere within the Great Lakes Seaway System.

**LINKS TO BALLAST WATER REGULATIONS**

- [Seaway Regulations - Practices and Procedures Section 30 \(2\)](#)
- [Shipping Federation of Canada Code of Best Practices for Ballast Water Management dated September 28, 2000](#)
- [Lake Carriers Association's and Canadian Shipping Association's Voluntary Management Practices to Reduce the Transfer of Aquatic Nuisance Species within the Great Lakes by U.S. and Canadian Domestic Shipping dated January 26, 2001](#)
- [Part 151--Vessels Carrying Oil, Noxious Liquid Substances, Garbage, Municipal Or Commercial Waste, And Ballast Water](#)
- [U.S. Coast Guard regulations](#)
- [USCG Ballast Water Reporting Form \(must be submitted 24 hours prior to ocean vessel's arrival at Montreal\)](#)
- [Transport Canada, Ballast Water Control and Management Regulations \(Master of ships should take note of Canadian Reporting requirements of section 13](#)

& 14).

- [Transport Canada, TP 13617E, A Guide to Canada's Ballast Water Control and Management Regulations](#)
- [IMO Guidelines Resolution A.868\(20\)](#)
- [Conversion of Specific Gravity to Salinity for Ballast Water Regulatory Management](#)
- [Michigan's New Ballast Water Regime](#)

### **LINKS TO BALLAST WATER-RELATED U.S. LEGISLATION INTRODUCED IN THE 110<sup>TH</sup> CONGRESS**

- [Aquatic Invasive Species Research Act \(H.R. 260\) \(Introduced 1/5/07\)](#)
- [Great Lakes Invasive Species Control Act \(H.R. 801\) \(Introduced 2/5/07\)](#)
- [Prevention of Aquatic Invasive Species Act of 2007 \(H.R. 889\) \(Introduced 2/7/07\)](#)
- [National Aquatic Invasive Species Act of 2007 \(S. 725\) \(Introduced 3/1/07\)](#)
- [Great Lakes Collaboration Implementation Act \(H.R. 1350\) \(Introduced 3/6/07\)](#)

### **LINKS TO BALLAST WATER-RELATED U.S. CONGRESSIONAL HEARINGS AND TESTIMONY**

Background Information on the House Transportation and Infrastructure Committee / Water Resources and the Environment Subcommittee Hearing on the Impact of Aquatic Invasive Species on the Great Lakes, March 7, 2007

- <http://transportation.house.gov/hearings/hearingdetail.aspx?NewsID=75>

SLSDC Administrator Johnson's Written Statement for House Transportation and Infrastructure Committee / Water Resources and the Environment Subcommittee Hearing on the Impact of Aquatic Invasive Species on the Great Lakes, March 7, 2007

- [SLSDC Written Statement for 3-7-07 TI Hearing](#)

### **U.S. AND CANADIAN BALLAST WATER INITIATIVES**

#### **Bi-National Ballast Water Working Group**

The agencies that inspect, test, and monitor ballast water saw a need to standardize commonly needed information such as ballast water inspections, verifications, testing, sampling, reports and data collection. The various agencies in 2005 combined their efforts and collaborated in a joint venture where testing, sampling and inspection can be done simultaneously at locations/ports prior to entering the Great Lakes Seaway System.

As a result of these discussions a U.S./Canadian Ballast Water Working Group (BWWG) was formed in January 2006. The BWWG is comprised of representatives from Transport Canada Marine Safety, U.S. Coast Guard, the U.S. Saint Lawrence Seaway Development Corporation, and the Canadian St. Lawrence Seaway Management Corporation.

The BWWG's mission is to coordinate regulatory, compliance and research efforts among the group's membership for reducing aquatic nuisance species invasions via ballast water in the Great Lakes.

The results to date noted from the BWWG have been positive. The ballast water compliance rate of ships entering the Great Lakes Seaway System has increased since joint targeting was introduced during the 2005 and 2006 navigation seasons.

In 2006, the BWWG accomplished the following initiatives: (1) developed a Standardized Ballast Water Reporting Form; (2) developed and coordinated a Memorandum of Understanding signed by Transport Canada and U.S. Coast Guard setting out procedures and parameters to conduct Joint Vessel Exams in Montreal, Quebec, Canada; (3) developed and implemented a standardized Great Lakes / St. Lawrence Seaway System Joint Agency Ballast Water Management Inspection Report which captures each agency's inspection needs; and (4) presented results of the 2006 testing program through July 2006 at the 1st Annual Ballast Water Conference in Cleveland, Ohio.

In 2007, the BWWG will continue to work to finalize plans for a bi-national data base to be used for input and data management by the four agencies, track progress of International Ballast Water Standard, and compile and review end of year data on the Ballast Water Tank Exam program.

#### **Great Ships Initiative**

The Northeast-Midwest Institute, in collaboration with the American Great Lakes Ports Association, the National Fish and Wildlife Foundation, the University of Wisconsin-Superior and relevant federal, state and provincial agencies, and interested carriers, launched a "Great Ships Initiative" (GSI) in July 2006 to focus resources and expertise on producing solutions to the problem of ship-mediated invasive species in the Great Lakes. It plans to do so in a way that offers a possible model and structure for similar action by other regions and nationally.

The primary objectives of the GSI program are: (1) solicit and identify promising treatment systems most relevant to Seaway-sized transoceanic vessels; (2) provide technical support through operational and biological testing and expert review of findings to accelerate effective research and development of promising systems; and (3) facilitate

successful evaluation and approval by regulators of any promising treatment alternatives. Research capabilities at three scales - bench scale (laboratory at UW-Superior); pilot scale (barge-based); and shipboard scale - activate a set of "technology incubators" to accelerate the identification and verification of treatment tools to stop organism introductions by Seaway-size ships.

#### **LINKS TO BALLAST WATER INITIATIVES**

- [USCG Shipboard Technology Evaluation Program](#)
- [Naval Research Laboratory \(Key West, Florida\)](#)
- [ANS Task Force](#)
- [IMO GloBallast Program](#)

#### **BALLAST WATER TECHNOLOGIES AND PRESENTATIONS**

- [Instrumented Ballast Tank Studies to Examine Ballast Management Practices](#)
- [Two Ballast Water Treatment Technologies – Hyde Marine Inc.](#)
- [Binational Ballast water Working Group-2006 Great Lakes Ballast Water Management Exam Program](#)
- [FedNav's Testing of OceanSaver® Technology](#)
- [The Great Ships Initiative-Northeast/Midwest Institute](#)
- [BalPure Electrolytic Ballast Water Treatment System-Severn Trent De Nora](#)
- [PERACLEAN® Ocean Ballast Water Treatment-Degussa Corporation](#)
- [Ballast Water Technology Demonstration Program-National Oceanic and Atmospheric Administration, U.S. Fish and Wildlife Service U.S. Maritime Administration](#)
- [Venturi Oxygen Stripping TM-NEI Treatment Systems](#)
- [Best Management Practices – Philip T. Jenkins & Associates Ltd.](#)

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**Ballast Water Management Program**

Ballast water discharged from ships is one of the largest pathways for the introduction and spread of aquatic nuisance species (ANS). In response to national concern regarding ANS, the National Invasive Species Act of 1996 (NISA) was enacted which reauthorized and amended the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (NANPCA). NISA required the Coast Guard to establish national voluntary ballast water management guidelines. If the guidelines were deemed inadequate, NISA directed the Coast Guard to convert them into a mandatory national program. To comply with NISA, the Coast Guard has established both regulations and guidelines to prevent the introduction of ANS.

Under the initial nationwide program which began in 1998, a self-policing program was established where ballast water management (BWM) was initially voluntary for a period of 24-30 months. However, the rate of compliance was found to be inadequate, and vessel operators often failed to submit mandatory ballast water reports to the Coast Guard during this timeframe. The voluntary program has become mandatory under the rules found in 33 CFR 151.

**Penalties for Non-submittal of Ballast Water Reports**

On June 14, 2004, the Coast Guard published regulations establishing penalties for ships headed to the U.S. that fail to submit a ballast water management reporting form, as well as vessels bound for the Great Lakes or portions of the Hudson River that violate mandatory ballast water management requirements. These regulations also increase the number of vessels subject to these provisions by expanding the reporting and the recordkeeping requirements on ships, increasing the Coast Guard's ability to determine the patterns of ballast water movement as required by NISA. The Coast Guard may now impose a civil penalty of up to \$27,500 per day or Class C Felony charge for non-submittal. Vessels are strongly encouraged to electronically submit ballast water management reporting forms via email and/or web-based methods available at the National Ballast Information Clearinghouse web site: <http://invasions.si.edu/nbic/submit.html>.

**Mandatory Ballast Water Management Program for U.S. Waters**

On July 28, 2004, the U.S. Coast Guard published regulations establishing a national mandatory ballast water management program for all vessels equipped with ballast water tanks that enter or operate within U.S. waters. These regulations also require vessels to maintain a ballast water management plan that is specific for that vessel and assigns responsibility to the master or appropriate official to understand and execute the ballast water management strategy for that vessel.

**Compliance Guidance**

On October 29, 2004, the U.S. Coast Guard (USCG) issued Change-1 to the Navigation and Vessel Inspection Circular (NVIC) 07-04, titled "Ballast Water Management for the Control of Aquatic Nuisance Species in the Waters of the United States." The NVIC provides guidance for USCG personnel, vessel owners and operators, masters, shipping agents, and persons-in-charge

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concerning compliance with and enforcement of the USCG's Ballast Water Management (BWM) Program.

### **Ballast Water Management Equivalent Reporting Program**

The Coast Guard and the National Ballast Information Clearinghouse (NBIC) have launched the new Equivalent Reporting Program for vessels operating exclusively in the U.S. Exclusive Economic Zone (EEZ). This program offers an alternative for an Owner, Operator, Master, Agent, Person-in-Charge or Charterer of a vessel to submit required Ballast Water Management (BWM) Reports in a single batch report on a monthly basis, instead of on a port-to-port, pre-arrival schedule as required under 33 CFR 151.204 (b). To be accepted into this program, a BWM Equivalent Reporting Program Application must be filled out and emailed as an attachment to the Coast Guard's Environmental Standards Division: [environmentalstandards@comdt.uscg.mil](mailto:environmentalstandards@comdt.uscg.mil). Each applicant vessel must operate exclusively within the EEZ or Canadian equivalent; must not have ever been listed on a Coast Guard Lookout List for failing to submit a BWM report or for submitting incomplete or inaccurate reports; have suitable capability for emailing the form as an attachment; and either make 10 or more BWM reports per calendar month or be part of a fleet of applicant vessels, owned by the same company, who make 50 or more BWM reports per calendar month. To learn more about this program and download a BWM Equivalent Program Application and submission information, visit: <http://invasions.si.edu/nbic/equivalentprogram.html>.

### **Other BWM Information:**

[33 CFR 151, Subpart C](#)  
[33 CFR 151, Subpart D](#)  
[Navigation and Vessel Inspection Circular 07-04, Change 1](#)  
[National Ballast Information Clearinghouse \(NBIC\) Ballast Water Reporting by Foreign flag Vessels Bound for the Great Lakes](#)  
[Naval Research Lab, Key West Ballast Water Treatment Facility](#)  
[Report to Congress on Voluntary National Guidelines for BWM](#)  
[NOAA Great Lakes Environmental Research Laboratory](#)  
[Ballast Water Management Examination](#)

### **IMO Guidelines:**

[G3: Ballast Water Management Equivalent Compliance](#)  
[G4: Ballast Water Management and Management Plans](#)  
[G6: Ballast Water Exchange](#)  
[G8: Approval of Ballast Water Management Systems](#)  
[G9: Approval of Ballast Water Systems Utilizing Active Substances](#)

### **BWM Compliance and Enforcement (USCG INTRANET ONLY)**

[Vessel Ballast Water Reporting Histories](#)

**United States Coast Guard  
Environmental Standards Information Line:  
Tel. 202-372-1402**

Email: [environmentalstandards@comdt.uscg.mil](mailto:environmentalstandards@comdt.uscg.mil)

### **For More Program Information, Click on the Following Links:**

<a href="#">Ballast Water Management (BWM)</a>	<a href="#">Environmental Standards Newsroom</a>
<a href="#">Ballast Water Brochure Information</a>	<a href="#">ANS Photo Gallery</a>

[Ballast Water Sampling](#)  
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# PureBallast



## **The Alfa Laval PureBallast System**

Alfa Laval, the market leader in separation, heat transfer and freshwater generation, is widening its offering of solutions for environmental protection. Environmental friendliness is already a key aspect of many Alfa Laval products. Now, Alfa Laval is developing a range of products whose sole purpose is to reduce environmental impact.

In line with these efforts, Alfa Laval has announced that it will meet the urgent need for ballast water treatment well before IMO regulations for ballast water take effect in 2009. A complete Alfa Laval system, already in full-scale trials aboard a transoceanic car carrier since September 2003, is planned to be commercial available in 2006.

This effective solution to the problem of invasive species is based on the patented Benrad AOT (Advanced Oxidation Technology).

### Key benefits of the Alfa Laval Ballast Water Treatment System

- No chemicals added or unwanted residuals created by the process
- Low operating cost - the operating cost for electricity and cleaning is less than 0.01 €/m<sup>3</sup>
- Automated and marine adapted
- Sales, local presence and service worldwide



### Working principles of the PureBallast concept

Water is treated at intake and once again at discharge. The treatment on intake ensures that only a minimal number of viable organisms enter into the vessel and reduces sediment build-up in the ballast water tanks. The water is treated again at discharge to ensure that any potential growth of organisms in the tanks is eliminated.

The system can be adapted for different system requirements (different vessel types) and will be available in several different sizes. It will cover a flow range of 250-5000 m<sup>3</sup>/h.

The treatment system is robust and well prepared for the harsh practicalities of the marine environment and will not require more skill for service and maintenance than other standard marine equipment. The lifetime of the system corresponds to the lifetime of the ship. The process will not affect the corrosion rates in the ballast water system.

The in-line Ballast Water Treatment (BWT) system consist of the following main components:

- Filter - for removal of larger organisms and particles
- Benrad AOT unit (modular) - treatment without additives or chemicals
- Cleaning system for the Benrad AOT unit
- Control system for automatic operation of the complete BWT system

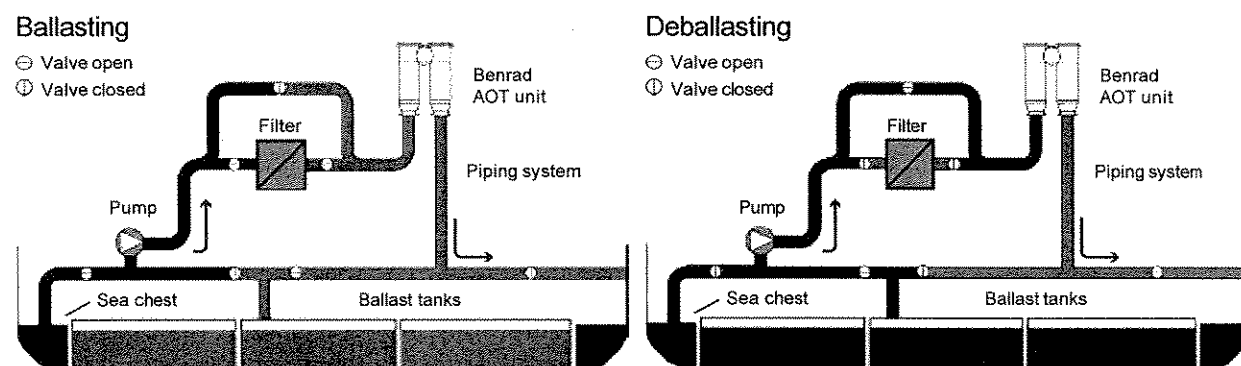


Figure 1. Principle layout and operation of the treatment system

#### The filter

The filter is used to prevent larger organisms and particles from entering into the vessel. It is automatically self-cleaning and will be installed on the discharge side of the ballast water pumps. During ballasting, the back-flushing water from the filter is returned to the ocean. During deballasting, the filter is bypassed. This way there is no risk of contamination at the deballasting site.

#### The Benrad AOT treatment process

Benrad AOT is a patented process in which hydroxyl radicals are generated. Hydroxyl radicals efficiently break down microorganisms and bacteria by causing the decomposition of the organisms' cell membranes.

There are no substances added to the process and there are no residuals created. The hydroxyl radicals have a very short lifetime (in the magnitude of a few nanoseconds) and are totally decomposed before leaving the closed unit where they are generated. The level of hydroxyl radicals generated is enough to sterilize the water but does not change the properties of the water. Moreover, the amount of energy required by the process is very low. A system size of 1000 m<sup>3</sup>/h has a total power consumption of 25 kW.

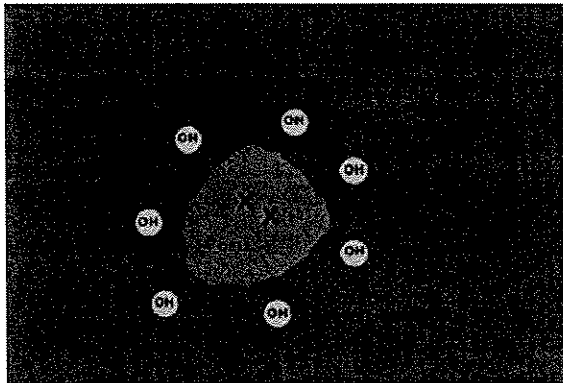


Figure 2. The Benrad AOT process permanently damages the cell membrane of the marine organisms.

**The cleaning system for the Benrad AOT unit**

In order to prevent reduced performance due to scaling of the Benrad AOT unit from seawater contaminants, the unit is automatically cleaned by a cleaning device (CIP – Cleaning in Place). The cleaning system uses an environmentally friendly cleaning solution, which is reused until it is consumed. The cleaning solution is biodegradable and can be discharged either into the tanks or into the sea without any environmental concerns.

**The automation**

The system is totally automated and can be operated either locally or remotely. The ballast water treatment system can be integrated into the control system of the vessel and thus be operated from the machine control room, from the bridge or from any other place according to the request of the ship owner.

**Biological treatment efficiency**

The IMO convention regulates the maximum number of viable organisms per volume of discharged ballast water.

Numerous biological analyses of the system have been carried out, in both land-based and onboard environments. The results of the tests have been compared with the IMO requirements, which has given true confidence for the future.

The test results simulate the treatment at ballasting and have been analysed according to the categories specified by IMO, which can be found in Figure 3. The treatment efficiency was more than 99.5 % for all IMO categories. With these results, together with the principle of treatment during both ballasting and deballasting, the treatment system will meet the IMO requirements.

IMO class	Efficiency (%)
Zooplankton (> 50 µm)	99.7
Zooplankton (10 - 50 µm)	99.6
Bacteria, E. coli	99.9

Figure 3. Test results on natural seawater in shore-based tests.



Figure 4 shows organisms before and after treatment. The viability can easily be determined through the decolouration of organisms in the treated samples. Through the treatment, these organisms have had their cell membranes disrupted and have lost their chlorophyll, which makes them unable to reproduce. Thus they are no longer considered viable.

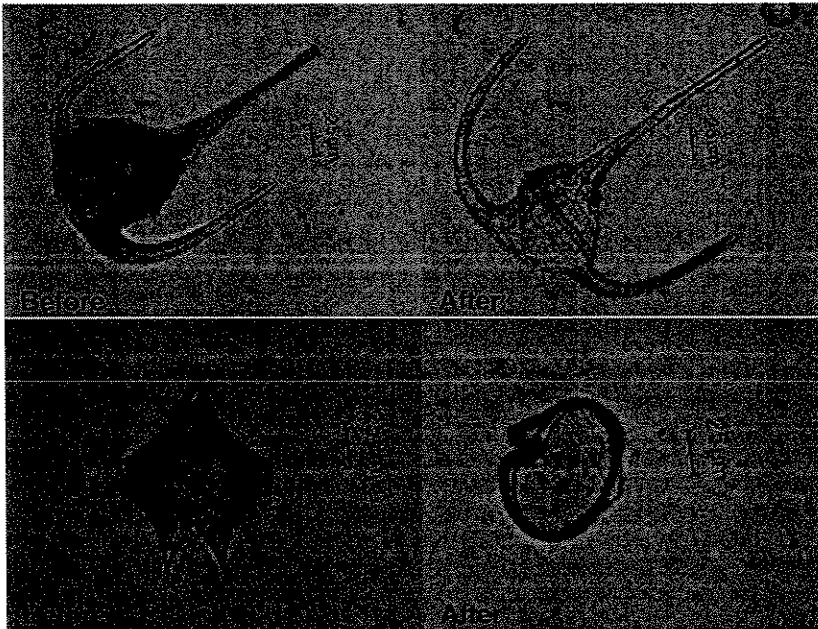


Figure 4. Two planktonic dinoflagellates before and directly (~20min) after passage through the PureBallast system. From top: *Ceratium tripos* and *Protoperidinium* sp.

Onboard tests have demonstrated that the biological efficiency is just as good at sea. The biological efficiency was tested in an initial onboard test program in August 2004 during a European route. These tests were performed both with and without the treatment system in operation in order to see the treatment efficiency of the PureBallast system. Measurements were taken both during ballasting and during deballasting in order to learn the effects of the treatment on the organisms in an onboard environment.

The system efficiency was more than 99% with regard to both phyto- and zooplankton in these initial tests and the system has been further upgraded and improved in order to make sure that the system lives up to the IMO requirements.

#### **No toxic residuals**

Toxicological effects have been measured using several test methods, together with analyses of any chemical compounds that could potentially be generated in the process. Through these tests, it has been clearly shown that no remaining toxicity or other unwanted residuals in the treated water are generated by passage through the system.



### Onboard installation

A full-scale prototype system has been in operation on board the Wallenius vessel M/V Don Quijote since September 2003. The system is integrated with the ship's ordinary ballast water system and can be operated during all ballasting and deballasting operations without affecting the ballast operation procedure.

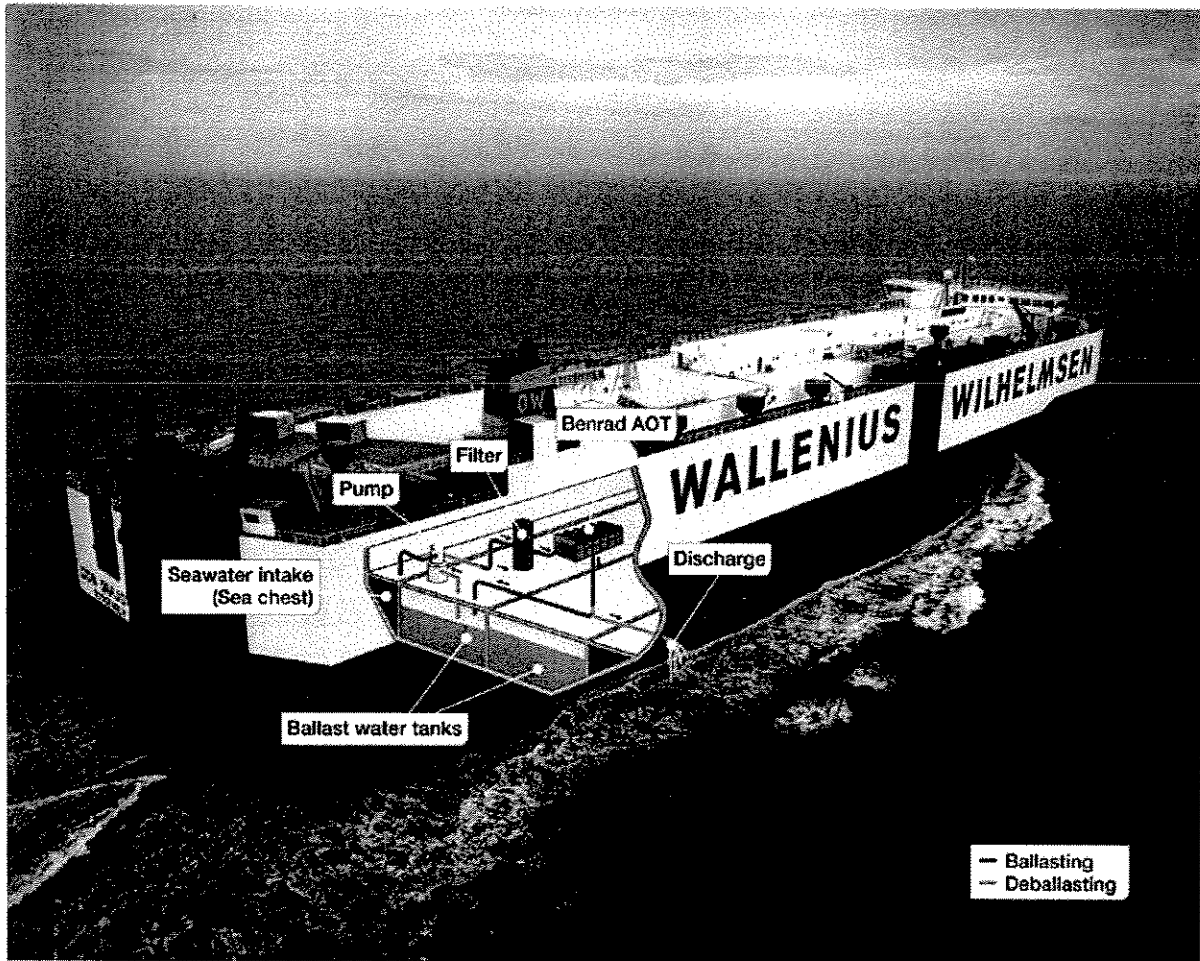


Figure 5. The Wallenius Lines vessel M/V Don Quijote where the Ballast Water Treatment System is installed.

This prototype installation is continuously evaluated and upgraded. For example, the filter is regularly tested in different waters in order to evaluate its performance in different types of water. The automation of the system has also been upgraded and the system can now be 100% remotely operated from the control system of the vessel.

### System vs types of vessels

Different vessel types will place different requirements on a ballast water treatment system. Tankers, container vessels, bulk carriers, car carriers and cruise vessels all have very different environments and requirements for an installation. The system components are easy to separate for installation with limited space and have no critical requirement in terms of electrical power, space needed or control system interfaces.



# U.S. BOATERS GO BALLAST-IC OVER COURT ORDER

BY MICHAEL FISCHER

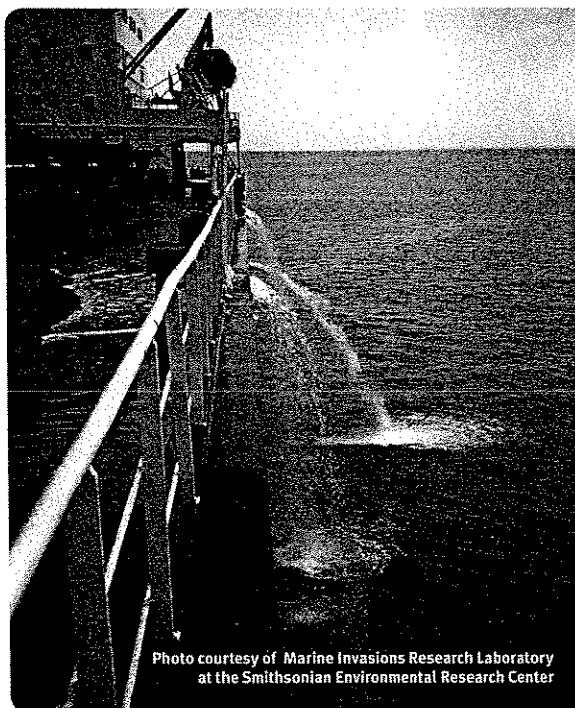


Photo courtesy of Marine Invasions Research Laboratory at the Smithsonian Environmental Research Center

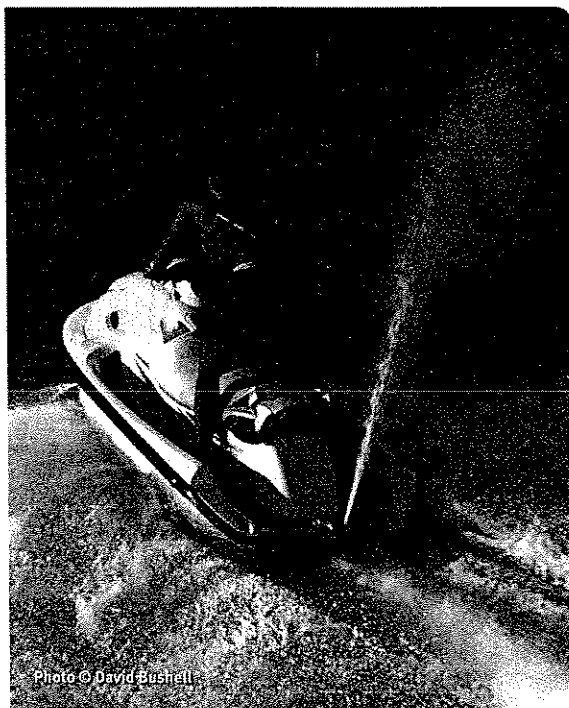


Photo © David Bushnell

**B**oaters on the Great Lakes are menaced more than anyone else by the introduction of invasive species into our nation's waters. All boaters on the Great Lakes feel the impact of these foreign species on their boats and equipment.

However, boaters who fish are jeopardized the most by these new species invading and overtaking the Great Lakes unabated. More than 70 percent of all boat owners are fishermen, and the anglers of our fresh water take the most direct brunt of the havoc created by foreign invaders.

Anglers, in particular those on the Great Lakes, have long suffered from the impacts of invasive species like zebra mussels, round gobies and spiny water fleas.

The populations of the very fish they pursue have declined as direct competition, egg predation and disruptions to the food chain all increase due to these new species. The recent decline in the numbers and size of yellow perch, for example, is likely attributable to the impacts of invasive species. If invasive species go unchecked, there's a chance that favorable sport-fish will be reduced to un-fishable numbers.

Take Asian carp, for example: they migrated into the Illinois River after accidental releases occurred on the Mississippi River in the early 1990s. Now Asian carp comprise 90 percent of the river's fish population, crowding out preferred native gamefish such as walleye and smallmouth bass. A temporary electric fish barrier is now being operated with a permanent one under construction to prevent these menaces from

reaching the waters of the Great Lakes via Chicago's Sanitary and Ship Canal.

Municipalities and industries, in turn, have also had to cope with the destructive nature of many of the invasive species. Zebra mussels, for example, have not only hurt the ecosystem by filter feeding away the plankton that forms the base of the Great Lakes food chain, thereby damaging our fishery, but they have also clogged water intakes needed for drinking water and manufacturing.

With so much at stake, recreational boaters would never stand in the way of any common sense effort meant to curb the introduction and spread of invasive species in our waterways. In fact, the boating community has long strongly advocated for the cause of keeping these invaders out.

That said, a recent federal court decision in California involving invasive species stands to severely harm recreational boaters across our country, sweeping the average boater into the scope of the ruling while trying to address the real culprit: commercial shipping.

To combat this ruling, Great Lakes Boating Federation is moving forward with plans to go to the Ninth Circuit Court of Appeals, a federal appellate court, to fight along side the U.S. EPA to overturn this potentially disastrous decision.

The U.S. District Court in the Northern District of California recently vacated 40 C.F.R. § 122.3(a), a U.S. EPA regulation that exempted incidental vessel discharges from being regulated by U.S. EPA's pollution permit (NPDES) program. The NPDES program is the U.S. EPA's regulatory program that requires "point sources," that is easily identified individual sources of discharged pollution, to apply for permits to discharge allowable levels of a pollutant into our waterways. These are the so-called "end-of-pipe" regulations that pertain in most instances to sewage treatment plants and discharges from factories.

Acknowledging that properly functioning vessels were not likely to be sources of pollution and given the tremendous burden of placing federal permitting upon each and every vessel in this country, the U.S. EPA exempted vessels from the NPDES permit program. The vessel exemption found in 40 C.F.R. § 122.3(a) states:

**The following discharges do not require NPDES permits:**

- (a) Any discharge of sewage from vessels, effluent from properly functioning marine

engines, laundry, shower, and galley sink wastes, or any other discharge incidental to the normal operation of a vessel. This exclusion does not apply to rubbish, trash, garbage, or other such materials discharged overboard ....

The plaintiffs in the lawsuit challenging this exemption—Northwest Environmental Advocates, the Ocean Conservancy and Waterkeepers Northern California—sought to have ballast water discharged from ocean-going vessels regulated under the U.S. EPA's pollution discharge (NPDES) program to prevent the introduction of invasive species.

Their aim was a noble one. Invasive species have been deemed a "biological" pollutant, and scientists have concluded that the discharge of foreign ballast water has introduced these foreign species into our waters, like our Great Lakes. For this reason, regulating foreign ballast water discharge does make sense.



Thus, the original thrust behind this lawsuit is something most boaters and Great Lakes communities support. In fact, the states of New York, Illinois, Michigan, Minnesota, Wisconsin and Pennsylvania joined the lawsuit as plaintiff-interveners in an effort to compel the U.S. EPA to regulate ballast water through its pollution discharge permitting system.

However, in its order entered on September 18, 2006, the District Court ruled it would not limit the scope of its previous order granting summary judgment for the plaintiffs, handed down on March 30, 2005. The objective of the plaintiffs was to have U.S. EPA eliminate the release of invasive species from the ballast water of ocean-going cargo ships. However, Judge Susan Illston did not limit her ruling to ballast water, but instead

ruled to eliminate U.S. EPA's entire exemption for all vessels in 40 C.F.R. § 122.3(a).

The court ordered the revocation to take effect on September 30, 2008. If this deadline stands, the U.S. EPA would need to immediately proceed to drafting a replacement regulation consistent with the court's ruling. The sweeping order from the District Court and the judge's unwillingness to limit her ruling to ballast water means that all vessels will become subject to the U.S. EPA's permit requirements. This includes the nation's 13 million registered recreational boats.

The Great Lakes Boating Federation believes that the consequences of this impractical regulation could be disastrous for boating—and it would also impose an insurmountable enforcement burden on the U.S. EPA. In effect, this decision would place each individual recreational watercraft under the same regulatory burden as a sewage treatment plant. This regulatory overkill, the Federation will argue, is unwarranted and unnecessary.

The U.S. EPA was previously joined by the Shipping Industry Ballast Water Coalition as a defendant-intervener during the lower court proceedings. Both the U.S. EPA and the Shipping Coalition timely filed their notices of appeal with the Ninth Circuit Court of Appeals.

The Great Lakes Boating Federation has contacted counsel for the Shipping Coalition. These attorneys believe, contrary to the recently published views of some recreational boating industry officials, that the U.S. EPA has a number of strong grounds for appeal. They expect the U.S. EPA to officially proceed very shortly with the appeal. Once U.S. EPA officially moves forward to appeal, a briefing schedule, the timeline for the filing of written arguments, will be issued by the Ninth Circuit Court of Appeals.

The interests of recreational boaters are distinct from those of commercial navigation represented by the Shipping Coalition. The very fact that recreational vessels never enter overseas ecosystems is one of numerous factors that should be weighed when deciding how to treat the vastly different domestic water discharged from recreational boats and the foreign ballast water dumped from ocean-going cargo ships.

Therefore, as the appeal moves forward as is anticipated by the attorneys for the Shipping Industry Ballast Water Coalition, the Great Lakes Boating Federation will join the appeal as an amicus curiae in support of the U.S. EPA. The federation's amicus brief will support U.S. EPA's effort to preserve the discretion to exempt vessels, a source of *de minimis* pollution, from the NPDES permit regulations, and limit the scope of the lower court's ruling.

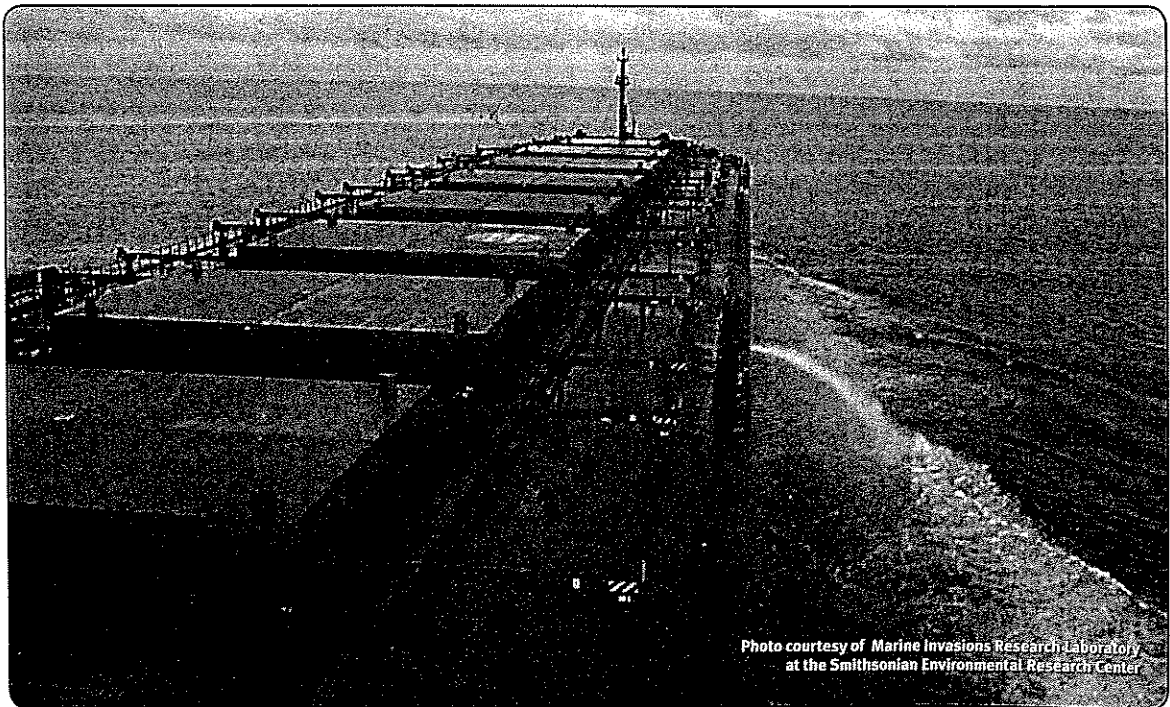


Photo courtesy of Marine Invasions Research Laboratory at the Smithsonian Environmental Research Center