
2006 Summary of Great Lakes Ballast Water Management Exams

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Joint Ballast Water Management Exams

A Successful Bi-national Program between U.S. Coast Guard Ninth District, Transport Canada-Marine Safety, and the St. Lawrence Seaway Corporations

Ballast Water Working Group

The Great Lakes Ballast Water Working Group was formed in January 2006. The mission is to harmonize ballast water management efforts between the U.S. Coast Guard, Transport Canada-Marine Safety, Saint Lawrence Seaway Development Corporation (US) and the Saint Lawrence Seaway Management Corporation (CA). The BW Working Group coordinates enforcement and compliance efforts for reducing aquatic nuisance species invasions via ballast water in the Great Lakes. Over the course of 2006 the BW Working Group developed the Joint Ballast Water Management Exam Program for targeting and inspecting foreign vessels entering the Great Lakes. The BW Working Group shared resources using an inspection matrix, developed common job aides and inspection reports, and tracked the results.

Ballast Water Management Exams

The Joint Ballast Water Management Exam Program uses a comprehensive approach to vessel inspections. The inspection begins with a review of ballast water reports, logs, records and ballast water management plans. The crew is interviewed to assess their understanding of the requirements and the ship's Ballast Water Management Plan as well as answer questions on actual practices. Finally, ballast tanks are sampled for salinity.

Inspection Matrix

The following inspection matrix has been agreed to by Transport Canada Marine Safety (TCMS) Quebec Region Office, St. Lawrence Seaway Management Corporation, St. Lawrence Seaway Development Corporation, USCG Marine Safety Detachment (MSD) Massena and USCG District Nine (dpw-1) through the cooperation of the Great Lakes Ballast Water Working Group. Hereafter these members are referred to as "partner agencies." The matrix was developed to capitalize on existing inspection protocols such as the Enhanced Seaway Inspection (ESI) led by the St. Lawrence Seaway Management Corporation and the Joint Initial Verification Team led by Transport Canada-Marine Security. The ESI is a Seaway compliance inspection and safety examination conducted by inspectors from the St. Lawrence Seaway Development Corporation and Management Corporation during a vessel's first trip into the Seaway. Under a Memorandum of Understanding (MOU) with USCG, the ESI has historically included sampling of ballasted tanks on behalf of USCG. Under a separate MOU between Canada and USCG, a joint team of inspectors examine foreign vessels for compliance with International Ship and Port Facility Security Code (ISPS). The matrix builds on these existing agreements and protocols.

Targeting and scheduling of vessels are coordinated by MSD Massena and TCMS Quebec Region Office 12-24 hours prior to the vessel's arrival in Montreal. The scheduling of examination for vessels follows Table 1 below. Any vessel not examined as outlined in the table below due to scheduling conflicts will be targeted at the first U.S. or Canadian port of call, after entering the GL system, by the respective enforcement agencies.

• Table 1 Inspection Matrix

Vessel	Location	Inspection Type	Ballast Tank Salinity Testing	Joint Agency BWM Exam Report (Questionnaire)	Lead Agency Sends Documents
1 st trip Ballast	Prior to Seaway	ESI and Ballast Water Exam	SLSDC	SLSDC	SLSDC
1 st trip NOBOB	Prior to Seaway	ESI and Ballast Tank Exam	TC/USCG Joint Team	TC/USCG Joint Team	TC
2 nd trip NOBOB with stop prior to Seaway	Prior to Seaway	Ballast Tank Exam	TC/USCG Joint Team	TC/USCG Joint Team	TC
2 nd trip Ballast	Massena, NY Snell Lock	Ballast Water Exam	USCG SLSDC	Follow-up Only	USCG
2 nd trip NOBOB missed or without stop prior to Seaway	Port of Arrival or Port of Opportunity	Ballast Tank Exam	TC or USCG	Follow-up Only	TC or USCG

Joint Ballast Water Management Exam Questionnaire

The first hurdle to building a joint inspection program was to conduct cross training on the regulations for each jurisdiction. As the BWWG began to do so, a series of regulations developed that were similar and another set developed that were different. The BWWG created a 25 question report that addresses the priority issues pertaining to ballast water management for all jurisdictions. The questionnaire is used as a job aide by inspectors from all of the agencies during a vessel's first trip into the Great Lakes each season. The results are shared with each agency for follow up and enforcement as needed.

Ballast Tank Sampling

Ballast water is typically found in wing tanks, double bottom tanks, peak tanks, and cargo holds. Access to these tanks is normally gained through vents, sounding tubes or hatches. Normal procedure calls for the inspector to utilize the sounding tube or vent for primary access, and access manhole covers and hatches if unable to gain access via a primary means. Ballast water salinity is checked using a handheld salinity refractometer (Vee Gee Model A366ATC or Fisher 13-946-27) or with an electronic meter; such as, the YSI meter. The results of the sampling are captured on a sampling report form created by the BW Working Group. If a sample is grabbed the salinity is recorded, as well as the following alternatives: dry tank, mud, or not accessible.

Results of Ballast Water Management Exams

Ship Inspection Totals

Table 2 below summarizes the total inspections completed by the joint USCG/TCMS team and the St. Lawrence Seaway Corporations for 2006. The "INSPECTED" column summarizes the number of vessels inspected by a joint team of any combination. "MISSED" vessels indicate the number of vessels that stopped in the Seaway for port operations but were not inspected. The "MISSED" vessels are generally vessels that have been inspected during the first trip into the system and are on a subsequent trip. "NO-STOP" indicates the number of vessels that did not stop in the Seaway while enroute to a Great Lakes port during a second or subsequent voyage. The "SEAWAY" column indicates the inspections that were conducted without the assistance of the joint team during the Enhanced Seaway Inspection. This table does not differentiate between vessels with ballast and no ballast on board (NOBOB) vessels.

Table 2

Ballast Tank Exams FOREIGN SHIPS - BOUND FOR GREAT LAKES SYSTEM / MONTHLY 2006					
	TCMS-USCG	TCMS-USCG	TCMS-USCG	SEAWAY	TOTAL
	INSPECTED	MISSED	NO-STOP	SLS	Number of Vessels
April	38	17	0	13	68
May	37	5	2	9	53
June	34	2	10	7	53
July	31	11	11	10	63
August	18	2	19	6	45
September	20	3	17	13	53
October	30	6	13	10	59
November	37	5	19	8	69
December	10	3	10	0	23
Total 2006	255	54	101	76	486
Percent	52.5%	11.1%	20.8%	15.6%	100%

Results of Joint BWM Exam Questionnaire

Table 3

Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7 (1)	43 (24)	46	28	25	7	18	25	12	5

Table 3 above summarizes the number of vessels per month that underwent a review of plans, records and ballast reports by either the joint USCG/TCMS team or the St. Lawrence Seaway Development Corporation inspectors using the Joint Ballast Water Management Exam Report questionnaire. The numbers in parenthesis for March and April indicate the number of vessels that had their plans and records reviewed by

USCG prior to the implementation of the new joint report. Total number management exams completed equals 241, or 98% of first trip vessels. The exam is not repeated on 2nd or subsequent trips for the calendar year unless the vessel had deficiencies that required follow-up.

Vessels with deficiencies in their plans or record-keeping equaled 86 or 36%. Vessels without copies of applicable regulations were given copies on a CD and instructed accordingly.

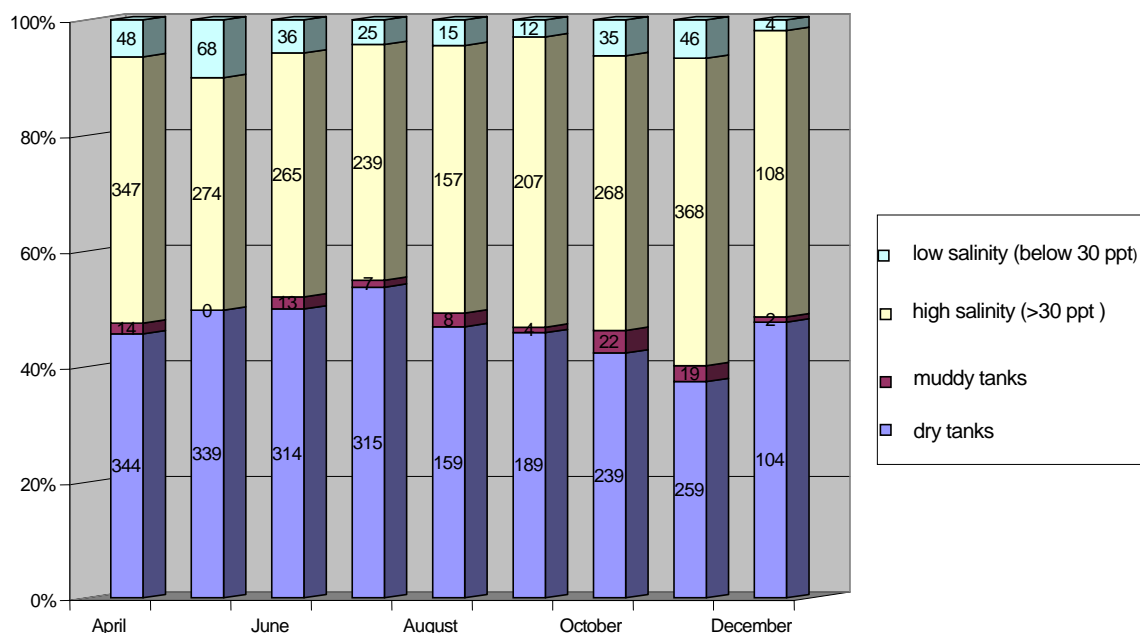
NOBOB Tank Sampling Results

Efforts to sample tanks with no pumpable ballast on board (NOBOB) yields results approximately 50% of the time. The reason is simple: the tank is essentially empty, and grabbing a sample of water from the deck is difficult. Unpumpable ballast may pool anywhere in the tank. The ships trim, list, steel construction, location of suction piping and sediment accumulation will determine the location of residual water. The only easy access to the tank bottom is through a 2 inch (50 mm) sounding tube. The results of sampling ballast tanks with no pumpable ballast are in Figure 1. Overall, the average results are as follows:

Low salinity = 6%, High salinity = 46%, Dry tanks = 46% and Muddy tanks averaged less than 2%

Figure 1

2006 NOBOB Tank Sampling Summary



Best Management Practices for NOBOB Vessels

The regulations protecting the Great Lakes in 2006 included voluntary Best Management Practices for NOBOB vessels entering the U.S. and the introduction of new regulations for Canada. After Canada published new regulations in June, Transport Canada inspectors began educating ship operators on new Canadian ballast water regulations and mandatory best management practices. Best management practices call for vessels to conduct mid-ocean ballast water exchange during ballast laden voyages in an area 200 nm from any shore, whenever possible. For vessels unable to conduct mid-ocean ballast exchange due to cargo,

they are asked to conduct saltwater flushing of their empty ballast water tanks in an area 200 nm from any shore whenever possible. Salt water flushing is defined in U.S. policy as the addition of mid-ocean water to empty ballast water tanks; the mixing of the flush water with the residual water and sediment through the motion of the vessel; and the discharge of the mixed water, such that the resultant residual water is as high salinity as possible, preferably greater than 30 parts per thousand (ppt).

Because of the difficulty in testing empty ballast tanks, the joint inspection program established a scoring for assessing adherence to best management practices. The scoring categories included:

- “Highly Evident”
- “Somewhat Evident” and
- “Little to No Evidence.”

“Highly Evident” is defined as those vessels that have evidence of high salinity tanks, good records of exchange and flushing, have no evidence of mud, possess a ship-specific comprehensive ballast water management plan, and have a crew that demonstrates working knowledge of the plan. In 2006, 150 ships or 55% of those scored, received this designation.

“Somewhat Evident” is defined as those vessels that show some evidence of best management practices but lack in completeness such as incomplete flushing of unpumpable ballast, incomplete records or logs, ballast water management plan missing information, lack of crew understanding, or a Retention Letter was issued. In 2006, 42 ships or 15% of those scored, received this designation.

“Little to No Evidence” is defined as those vessels that show little to no evidence of best management practices as found in low salinity tanks, reporting no treatment (flushing) of unpumpable ballast, inconsistent or missing reports and records, muddy samples, missing ballast water management plans, poor maintenance of ballast equipment, or poorly trained crew. Most vessels in this category received a Letter of Warning or Notice of Correction. In 2006, 82 ships or 30% of those scored, received this designation.

Figure 2 shows a summary of Adherence to Best Management Practices for 2006.



• **Figure 2**

Summary of Enforcement and Regulatory Action

Regulatory Action

Regulatory action is limited to the jurisdiction of each agency. Hence if a vessel is found with a deficiency but is only calling on a Canadian port, the USCG may or may not take any regulatory action. The various tools commonly used for discrepancies include education, a Letter of Warning, a fine issued through a Notice of Violation, a Notice of Correction which requires correction prior to the next trip, and for ballast water - a Retention Letter.

Retention Letters

In accordance with 33 CFR 151.1510, the master of a vessel must employ one of three ballast water management practices. These methods include conducting an exchange at sea more than 200 nautical miles from shore in water great than 2,000 meters deep, retain the ballast water on board for the entire voyage, or use an alternative environmentally sound method approved by the Commandant of the Coast Guard. Since there are no alternative methods approved by USCG, vessels that fail to conduct proper ballast water exchange must retain the ballast water on board or return to sea to conduct exchange. Seven vessels elected to retain ballast during the 2006 shipping season. If the vessel agrees to retain ballast water, a Letter of Retention is placed aboard the vessel. When the vessel departs the system the USCG inspects the ballast tank to ensure compliance and removes the Retention Letter. In 2006 the USCG issued 7 Retention Letters for vessels going to U.S. ports. Transport Canada issued 25 Retention Letters for vessels going to Canadian ports.

Letters of Warning and Letters of Correction

A Letter of Warning is issued by USCG when a vessel is found with discrepancies in its ballast water management plan, records or reports. It is used for minor first time offenses with a warning of possible assessment of fine if not corrected. In 2006, the USCG issued 7 Letters of Warning.

A Letter of Correction is used by the St. Lawrence Seaway Management Corporation to instruct the ship's operator to correct a discrepancy. The St. Lawrence Seaway Management Corporation issued 58 Letters of Correction in 2006. Transport Canada issued 27 Letters of Correction.

Notices of Violation

A Notice of Violation imposes a fine on a vessel for failure to comply with U.S. regulations. Fines associated with ballast water vary from \$500 to \$1000 for the first offense and may reach \$6,000 for repeated offenses. A \$1,000 fine was issued to one vessel during the 2006 shipping season for a missing ballast water plan.

Contributions

Members of the Ballast Water Working Group

U.S. Coast Guard, Ninth District would like to thank the following members of the Great Lakes Ballast Water Working Group and all the inspectors who contributed to the 2006 Joint Ballast Water Management Exam Program and to this final report.

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For further information

For further information on the Great Lakes Ballast Water Program, please visit the following:

The Seaway website: http://www.greatlakes-seaway.com/en/navigation/ballast_water.html

The NBIC website: <http://www.hrw.com/science/si-science/biology/animals/marineinvasions/ballast.html>

The USCG website: <http://cgweb.comdt.uscg.mil/g-ms/g-mso/estandards.htm>

Transport Canada's website: <http://www.tc.gc.ca/en/menu.htm>