

# Great Lakes Panel on Aquatic Nuisance Species

## Member Updates - Spring 2012

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### U.S. Coast Guard

The Department of Homeland Security, through the U.S. Coast Guard, is authorized by Congress to develop a national regulatory program to prevent the introduction and spread of aquatic nonindigenous species (NIS) into U.S. waters via ballast water discharges from vessels. By direction of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (NANPCA) and the National Invasive Species Act of 1996 (NISA), the Coast Guard has promulgated several regulations and will continue to develop future regulations to address this issue.

The current ballast water management requirements in the Great Lakes and the St. Lawrence Seaway system are among the most stringent in the world. Mandatory ballast water regulations that include saltwater flushing, detailed documentation requirements, increased inspections, and civil penalties provide a comprehensive regulatory enforcement regime to protect the Great Lakes. U.S. and Canadian regulations now require all ships destined for Seaway and Great Lakes ports from beyond the exclusive economic zone to exchange all their ballast tanks at sea or flush their residuals.

In 2011, 100% of vessels bound for the Great Lakes Seaway from outside the Exclusive Economic Zone (EEZ) received ballast tank exams on each Seaway transit. All 7203 ballast tanks, during 396 vessel transits, were assessed. Vessels that did not exchange their ballast water or flush their ballast tanks were required to either retain the ballast water and residuals on board, treat the ballast water in an environmentally sound and approved manner, or return to sea to conduct a ballast water exchange. Vessels that were unable to exchange their ballast water/residuals and that were required to retain them onboard, received a verification boarding during their outbound transit prior to exiting the Seaway. In addition, 100% of ballast water reporting forms were screened to assess ballast water history, compliance, voyage information and proposed discharge location. The BWWG anticipates continued high vessel compliance rates for the 2012 navigation season. Independent research by the Fisheries and Oceans Canada (Science) indicates that the risk of a ballast water mediated introduction of aquatic invasive species into the Great Lakes has been mitigated to extremely low levels.

In addition to the current regulations and policies, the Coast Guard has finally completed the rulemaking that sets a performance standard for the quality of ballast water discharged in U.S. waters. This rulemaking is being carried out under NANPCA and NISA. The Coast Guard established a discharge standard for the allowable concentration of living organisms in ballast water discharged from ships in waters of the United States. The Coast Guard is also amending its regulations for engineering equipment by establishing an approval process for ballast water management systems.

The numerical limits set by the discharge standard in this Final Rule are supported by reports from the National Academy of Sciences and the EPA Science Advisory Board in 2011 as the most stringent that vessels can practicably implement and that the Coast Guard can enforce at this time.

Vessels entering the Great Lakes will still be required to fully exchange or flush their ballast tanks with seawater until they are equipped with the approved ballast water treatments systems that meet the discharge standard. All inbound foreign vessels are examined in Montreal by a working group of U.S. and Canadian agencies, including the Coast Guard, to ensure the ballast tanks are exchanged or flushed as required.

The rulemaking is entitled "Standards for Living Organisms in Ships' Ballast Water Discharged in U.S. Waters," and documents and public comments relating to the rulemaking can be found at <http://dms.dot.gov> \*under docket number USCG-2001-10486.

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## Illinois

### Asian carp

- The team has been very busy. The 2012 Monitoring and Rapid Response Plan (MRRP; outlines plans and procedures for multi-agency work in and around the Chicago area waterways (CAWS)) will be out mid-late April; weekly work on the CAWS includes intense electrofishing, setting nets for Asian carp, eDNA sampling and analysis, working with contracted commercial fishers, and testing new methods. Generally following the 2011 MRRP, the 2012 MRRP outlines research in and around the CAWS as well as efforts downstream.
- As of April 6, we have completed 2 complete weeks of Barrier Defense work, contracted removal of Asian carps below the electric barrier on Upper Illinois Waterway - 120,000 lbs removed to date
- Commercial harvest on the lower Illinois River expected to be higher than past years due to increase in private infrastructure at markets
- Illinois efforts with Asian carp, specific plans, and other agencies' work can be found at <http://asiancarp.us>

### Other ANS

- We reviewed and denied a request for red-claw crayfish aquaculture based on risks to Illinois and surrounding states. This concurred with USFWS rapid screening results.
- Considering request from aquaculture to allow over-the-counter triploid grass carp (currently must be requested and approved before shipment)
- Have issued the last permit to allow live diploid grass carp in Chicago for food, a practice that has been allowed only with dispatch of fish upon sale. Triploid grass carp meet this need better and in a more responsible way.
- Robust ANS Program development looking at modifications to the statewide plan, rebranding of Illinois ANS message, species specific as well as generic EDRR plans are being developed, intensified outreach with this new ANS message via boat washing stations, and multi-media outreach.
- Southern Illinois University is continuing to accept grass carp from around the Great Lakes basin to test for ploidy and environmental history based on otolith microchemistry. For details, email Dr. Whitledge at [gwhit@siu.edu](mailto:gwhit@siu.edu), or [kevin.irons@illinois.gov](mailto:kevin.irons@illinois.gov).

### AIS Outreach

- Illinois-Indiana Sea Grant (IISG) hosted an AIS outreach table at the NOAA Booth at the National Science Teacher Association conference in Indianapolis, IN (March). Teachers were able to see many aquatic invasive specimens and receive a poster/tip card educating them on the safe disposal of classroom organisms.
- IISG is creating an organism in trade (OIT) website, which will include more user-friendly access to the IISG database of state and federal regulations for aquatic organisms. If your state has any new or revised AIS regulations please send us your updates.
- IISG will be conducting focus groups of OIT users and creating a new logo and slogan for non-aquarium OIT.

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## New York

A Council, comprising 9 agencies, and an Advisory Committee, comprising 25 NGOs, are charged with implementing New York State's invasive species program. The NY Invasive Species Research Institute was created in collaboration with Cornell University. An Invasive Species Clearinghouse web site has been developed by New York Sea Grant to provide species-specific information and an iMap Invasives GIS database has been created in collaboration with NY Natural Heritage Program. Training session for iMap Invasives have been scheduled throughout the state. Four Partnerships for Invasive Species Management now receive major support from New York State; staff are working to contract with the four remaining regional partnerships. A comprehensive education and outreach program is being developed under a partnership with Cornell University. Certification conditions are being developed for the draft EPA's Vessel General Permit in order to meet NY's water quality standards. Management of a large hydrilla infestation in the Cayuga Lake Inlet has been ongoing, in collaboration with a local initiative, since 2011. Major funding sources include FWS GLRI ANS and FWS ANS, as well as the Environmental Protection Fund. Aquatic plant ID sessions have been held or scheduled for the 2012 season. Monitoring and management for EAB continues with fourteen counties now under quarantine.

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## Great Lakes Commission

### ***Restoring the Natural Divide: Separating the Great Lakes and Mississippi River Basins in the Chicago Waterway System:***

A final report was released Jan. 31 by the Great Lakes Commission and the Great Lakes and St. Lawrence Cities Initiative identifying options for separating the Great Lakes and Mississippi River watersheds as a way to control aquatic invasive species and to improve transportation, water quality and flood control. Promotion of the report included a satellite media tour, which generated TV coverage in 27 regional markets, reaching nearly 5 million viewers. Coverage of the story was picked up by the AP and Reuters news wires, resulting in coverage in more than 500 publications. The report and supporting materials can be viewed at [www.glc.org/caws](http://www.glc.org/caws).

***Phragmites Invasions in Michigan: A Symposium to Build Capacity for Management:*** Staff completed the *Strategic Framework for Coordinated Management and Control of Invasive Phragmites in Michigan* based on outcomes from a project public stakeholder meeting held in August 2011. Distribution of the strategic framework to project participants for final review/comment is currently in process. Further information on this project is available online at [www.glc.org/ans/phragmites/symposium2011-recap.html](http://www.glc.org/ans/phragmites/symposium2011-recap.html).

***Great Lakes and St. Lawrence Governors and Premiers Aquatic Invasive Initiative:*** The GLC is supported the Governors and Premiers in their efforts to advance coordinated strategy to address AIS that includes prevention, early detection, rapid response, and management.

***Organisms in Trade:*** The GLC developed a fact sheet on recommendations to strengthen regulations against the importation of injurious wildlife. The fact sheet was distributed during Great Lakes Day events in Washington, DC in February 2012. A copy of the fact sheet is available at [http://glc.org/restore/pdf/2012/GLC\\_AISOIT\\_2012PriorityFactSheet\\_final.pdf](http://glc.org/restore/pdf/2012/GLC_AISOIT_2012PriorityFactSheet_final.pdf).

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## Transport Canada / Fisheries and Oceans Canada

### **Ballast Water Activities:**

Transport Canada (TC) and Fisheries and Oceans Canada (DFO) continue to collaborate on a number of ongoing AIS projects in relation to Ballast Water. Recently completed research projects include:

- A risk assessment for ship-mediated introductions of aquatic nonindigenous species (ANS) to the Great Lakes and freshwater St. Lawrence River to evaluate the relative importance of transoceanic, coastal, and domestic shipping pathways [DFO Can. Sci. Adv. Sec. Res. Doc 2011/104]; [http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2011/2011\\_104-eng.html](http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2011/2011_104-eng.html)
- Evaluation of the efficacy of NaCl brine for treatment of ballast water against freshwater invasions [J. Great Lakes Res. 38:72-77]; <http://www.sciencedirect.com/science/article/pii/S0380133011002176>
- Comparative assessment of invasion risk by invertebrates and their dormant eggs in ballast sediments of ships arriving to the Canadian coasts and the Laurentian Great Lakes [Limnol. Oceanogr. 56:1929-1939]; [http://www.aslo.org/lo/toc/vol\\_56/issue\\_5/1929.html](http://www.aslo.org/lo/toc/vol_56/issue_5/1929.html)

On-going research projects include:

- Evaluation of a combination ballast water management strategy (exchange + treatment) for protection of fresh waters
- Evaluation of filtration technology as a mitigation measure to reduce spread of ANS via domestic ships on the Great Lakes
- Examination of St. Lawrence River ports as a potential source of ballast-mediated ANS to the Great Lakes
- Development of early detection and rapid response strategies, evaluation of ANS as part of multiple stressors, and reducing uncertainty in prediction and management of ANS, as part of the renewed NSERC Canadian Aquatic Invasive Species Network; <http://caisn.ca>
- Modelling the secondary spread of AIS through Laker ballast

Furthermore, TC, the USCG, and both Seaway Corporations continue to cooperate in the joint enforcement program in Montreal. In 2011, 100% of vessels bound for the Great Lakes Seaway from outside the exclusive economic zone received

ballast management exams. 7098 ballast tanks (98.5%), during 396 vessel transits, were physically sampled. Vessel compliance rates remained high in 2011 (96.9% of all ballast tanks in compliance). Vessels with non-compliant tanks were required to either retain the ballast water and residuals on board, treat the ballast water in an environmentally sound and approved manner, or return to sea to conduct a ballast water exchange. Vessels that were unable to exchange their ballast water/residuals and that were required to retain them onboard, received a verification boarding during their outbound transit prior to exiting the Seaway.

**Non-Ballast Water AIS Activities:**

DFO, in collaboration with the Ontario Ministry of Natural Resources, McGill University, University of Waterloo, St. Lawrence River Institute and Environment Canada, is conducting research activities in the nearshore of Lake Ontario and the St. Lawrence River to better understand the distribution, abundance, predators, and impacts of the bloody red shrimp (*Hemimysis anomala*) a recent invader of the Great Lakes. Sampling will also be conducted at a known lake trout spawning reef in Lake Ontario where goby predation on *Hemimysis* has been documented to evaluate patterns of seasonal and temporal variation of *Hemimysis* and to make estimates of 'emergent' *Hemimysis* at this reef. *Hemimysis* has had significant impacts in invaded ecosystems in Europe, however, these are very different ecosystems from the Great Lakes. Current research is aimed at determining if ecological processes in the Great Lakes will moderate previously observed impacts.

In 2011, DFO undertook a preliminary assessment of the movement of fishes and aquatic invertebrates through the Welland Canal. Fish movement is being studied using remote hydroacoustic surveys of the lock chambers. Aquatic invertebrate movement was examined by plankton net tows in and around lock chambers. In 2012, DFO plans to track fish movement through the Welland Canal using acoustic telemetry and continue examining aquatic invertebrate movement pending funding.

In 2011, DFO continued its monitoring of the spread and impact of Round Goby in tributaries in southern Ontario.

In 2011, DFO sampled a Toronto-area tributary for adult and larval Blue Crab after several adults had been reported. No crabs were detected.

**Centre of Expertise for Aquatic Risk Assessment (CEARA):**

DFO's CEARA plans to continue with several pathway risk assessments: aquarium, water garden, baitfish, live food, ballast water and recreational boating, pending funding. The ship-mediated risk assessments for the Great Lakes and Arctic were completed and peer reviewed Spring 2011, while the risk assessments for the Pacific and Atlantic coasts were peer reviewed March 2012. The information from all four areas will feed into a national assessment of the ship-mediated pathway in 2013. A report was published for the Biological Supply House project led by Oregon Sea Grant (the Great Lakes is one of the focus areas of that project). The report characterizes this pathway for BC. A biological synopsis was drafted, and is currently in review, for *Membranipora membranacea*, the coffin box bryozoan. A report summarizing the results of an angler use of live bait survey was also completed. Work continues to complete a national recreational boating pathway, including the Great Lakes, with an aim to have a peer review in the fall of 2013. CEARA led a bi-national risk assessment for Asian carps which will target the Great Lakes to provide advice on key questions to inform prevention, monitoring and control actions. Other work to be conducted this year will be determined shortly upon receiving budget information. All completed documents associated with CEARA are available at: <http://www.dfo-mpo.gc.ca/science/coe-cde/ceara/index-eng.htm>.

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