

## Ballast Water Management and Aquatic Nuisance Species: A Research Agenda for the Great Lakes

By: Matt Doss, Project Manager, Great Lakes Commission

The Great Lakes Panel on Aquatic Nuisance Species has released findings and recommendations associated with its 1999 symposium titled *Ballast Water Management and Aquatic Nuisance Species: Setting a Research Agenda for the Great Lakes*. The symposium grew from consensus on the need to prevent new aquatic nuisance species (ANS) introductions and a recognition that ballast water is a leading source of such introductions in the Great Lakes basin. The symposium was funded by the U.S. Environmental Protection Agency, Great Lakes National Program Office.

Symposium participants reviewed current approaches to ballast water management, assessed prospective technologies and management approaches, and established associated research priorities. Using this input, Panel staff at the Great Lakes Commission developed detailed findings and recommendations as summarized below.

**Ballast Exchange:** Open-ocean ballast exchange currently is the primary approach to preventing ANS introductions via ballast water. It has proven inadequate, however, and also poses serious safety concerns for some vessels. Symposium participants recognized that it will likely remain in use for some time and may ultimately be combined with other management approaches and technologies. The impacts, effectiveness and safety of ballast exchange need to be better understood. The effects of exchange on different classes of ships must be assessed and design standards are needed to ensure it can be conducted safely.

**NOBOBs:** Most vessels entering the Great Lakes report no ballast on board (NOBOB) and are not required to conduct open-ocean ballast exchange. They still carry residual slop and sediment that may be a source of ANS introductions. The risk posed by NOBOBs must be better understood, including the suite of organisms that remain in their ballast tanks. Among others, treatment options to be explored include shoreside facilities, chemical and heat treatment, and partial exchange. Environmental and safety impacts from chemicals

must be carefully evaluated.

**Evaluating Research Proposals:** Ballast water research and development activities are being conducted by numerous public and private entities. Consensus is needed on criteria to guide and evaluate these efforts. Some specific issues that research projects should address include operational feasibility, safety, costs, environmental impacts, and biological effectiveness.

**Pathogens in Ballast Water:** The presence of pathogens (disease-producing organisms) in ballast water and their potential threat to public health merit greater attention. The nature and scope of the risk should be assessed, along with the risk that fish pathogens may pose to Great Lakes fishery resources.

**Ballast Water Standards:** Standards, criteria and regulatory guidance for ballast water management options are needed to guide policy makers, industry and the research community. Some critical issues are safety, biological effectiveness, operational feasibility and costs. Improved methods for ensuring compliance are needed as well as protocols for assessing the biological effectiveness of treatment technologies and management approaches.

**Costs and Economic Impacts:** Substantial uncertainty exists concerning costs and economic impacts of alternative ballast water technologies. These costs must be balanced against ANS impacts, however. The potential costs of ballast management technologies need to be documented both for new vessels and for retrofitting existing vessels. Impacts to Great Lakes maritime commerce should also be evaluated along with options for mitigating ballast water costs to the shipping industry.

**Communication, Coordination and Collaboration:** The ballast water "community" is large and diverse and ongoing communication and coordination among all parties is critical. Stakeholders involved in ANS prevention and control should build relationships with the shipping industry and take advantage of resources available in universities and government laboratories to

evaluate ballast management technologies. A stronger understanding of ballast management and associated problems must also be cultivated among elected officials in efforts to promote support for further research. Finally, the Great Lakes region, and the U.S. and Canada generally, should participate in the International Maritime Organization's policy work on ballast water management.

The findings and recommendations from the ballast water symposium are being broadly disseminated to the many agencies, organizations and advisory bodies working on ballast water and related ANS issues. The full document is available online at: <http://www.glc.org/ans/anspubs.html>.

Preventing ANS introductions through enhanced ballast management efforts is among the leading items on the ANS policy agenda in the Great Lakes region and beyond. Numerous research efforts and policy initiatives are proposed or underway throughout the country and the topic will likely be addressed during the process of reauthorizing the National Invasive Species Act, expected to occur in 2001. The Great Lakes Panel continues to focus on this vital issue and will ensure that Great Lakes priorities are addressed at the regional and national levels. **Contact:** Matt Doss, 734-665-9135, [mdoss@glc.org](mailto:mdoss@glc.org).

### Great Lakes Panel Update

The spring meeting of the Great Lakes Panel will be held May 10-11, 2000 in Duluth, Minn. There will be review and discussion on the revision of the Panel's *Information/Education Strategy on Aquatic Nuisance Prevention and Control* and final approval of the Great Lakes Action Plan's addendum (strategic action component). Also on the agenda will be the status of federal ANS legislation, including reauthorization of NISA, and current initiatives addressing the need for ballast water standards. An announcement will be made on the outcome of the election for Panel officers. Significant progress on ANS

prevention and control has been achieved in the region under the leadership of current Chair, Gary Isbell, and Vice Chair, Ron Martin. **Contact:** Kathe Glassner Shwayder, Great Lakes Commission, 734-665-9135, shwayder@glc.org.

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## Washington Watch

The president's budget provides increases for participating agencies to achieve the Executive Order on Invasive Species. However, the total amount provided falls significantly short of the real costs for prevention and control of invasive species with few substantial increases for ANS management.

The Interior Department FY2001 budget provides a 21 percent increase over the amount that the agency spent in FY2000 on invasive species (from \$38.7 million to \$46.8 million). Of the proposed increase, \$2.3 million in new money is directed to the U.S. Fish and Wildlife Service (FWS) for its invasive species programs, a 12 percent increase. Only \$4.6 million of these FWS funds are targeted to ANS problems, level with FY2000 funding. Research by the U.S. Army Corps of Engineers, focusing on development of new technologies in support of ANS control, were generally underfunded in the FY2001 budget. The Corps' aquatic nuisance plant control research program was cut by 25 percent (\$4 million to \$3 million) and Public Facility Research and Development (typically targeted at zebra mussel control technology) was not funded. Funding of \$400,000 was provided for completion of the ANS dispersal barrier in the Chicago Sanitary and Ship Canal.

Within the Agriculture Department, the Animal and Plant Health Inspection Service (APHIS), responsible for preventing the introduction of exotic plant pests and animal diseases, is slated for a large increase from \$307 million to \$434 million. Under the Department of Transportation, the U.S. Coast Guard budget contains \$3.5 million for the ballast management program operations, and \$0.5 million for research and development of new ballast technologies. This represents a substantial increase from the president's budget in the past.

Less fortunate is the National Oceanic and Atmospheric Association, receiving only \$1 million for its research, administration and outreach work on invasive species. The budget cuts support for national Sea Grant College Program research on aquatic nuisance species and ballast treatment technology development. Finally, the budget provides an increase of \$3 million for the Great Lakes Fishery Commission to develop and implement non-chemical alternative controls for sea lamprey, assess and treat in-lake larval lamprey populations and research sustainable fisheries. **Contacts:** Allegra Cangelosi, Northeast-Midwest Institute, 202-544-5200, acangelo@nemw.org and Rochelle

Sturtevant, Senate Great Lakes Task Force, 202-224-1211, rochelle\_sturtevant@levin.senate.gov.

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## News from Around the Basin

**ILLINOIS:** Upon review of the state ANS management plan, regional ANS coordinators of the FWS are recommending approval to the ANS Task Force. An interdisciplinary steering committee will expand the ANS management plan to include all invasive species. A FY2000 appropriation of \$500,000 was split (\$250K each) between the Department of Agriculture (Asian longhorn beetle control) and the DNR, part of which will support FWS registration of a bottom formulation of antimycin for ANS control. **Contact:** Rod Horner, IL-DNR, RHORNER@dnrmail.state.il.us.

**MICHIGAN:** Senator Ken Sikkema (R-Grandville) introduced legislation to protect the Great Lakes from further ANS introductions from the discharge of ship ballast water. Senate bill 955 would require sterilization of ballast water before ships enter Michigan's Great Lakes waters. It would also prohibit ships from discharging their ballast water in the state's Great Lakes waters without a permit from the DEQ. Sikkema, chair of the Senate Natural Resources and Environmental Affairs Committee, is holding a series of statewide public hearings to discuss the measure. **Contact:** Brendan Ringlever, Legislative Director of Senator Sikkema's Office, 517-373-0797, bringlever@senate.state.mi.us.

**MINNESOTA:** Sea Grant and the DNR will co-sponsor a series of training workshops for wild baitfish harvesters in April, June and October in the Twin Cities, Brainerd and other locations. State licensees making a request to harvest minnows from waters designated as infested with Eurasian watermilfoil are required to apply for a permit and attend a training workshop. **Contact:** Doug Jensen, MN Sea Grant, 218-726-8712, djensen1@d.umn.edu.

**NEW YORK:** Vermont and New York completed work on an interstate ANS management plan for the Lake Champlain basin. The lake is plagued with numerous harmful species, including zebra mussels, sea lamprey and water chestnut. Vermont initiated the plan, and Quebec also was involved in the process. The plan is awaiting the signature of the governors of New York and Vermont before being forwarded to the ANS Task Force for approval. **Contact:** Bill Culligan, NYS DEC, 716-366-0228, nysdec@netsync.net.

**OHIO:** Ohio continues to revise its current ANS-related administrative rules. Other efforts include the development of a zebra mussel alert card for lake monitoring and signage for boat ramps at lakes with zebra mussels. A grant proposal for the Ohio Coastal Management Program has

been submitted for a non-chemical sea lamprey control program in the Grand River. **Contact:** Randy Sanders, OH DNR, 614-265-6344, randy.sanders@dnr.state.oh.us.

**WISCONSIN:** Monitoring data from 1999 confirmed the Eurasian watermilfoil is present in 319 waterbodies and zebra mussels are present in 16 inland lakes. This compares with data from 1994 showing 200 sites infested with Eurasian watermilfoil and three inland lakes infested with zebra mussels. As part of an education program coordinated by the Lake Pewaukee Sanitary District, a student summit was conducted this winter on invasive species. Participating high school students learned about invasive species and were provided instructions and kits to teach younger students about the ANS problem. **Contact:** Ron Martin, WI DNR, 608-266-9270, martir@dnr.state.wi.us.

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## National ANS Task Force

The ANS Task Force held its spring meeting in Miami, Fla., April 4-5, 2000, at the University of Miami. The meeting began with presentations by invasive species experts on local/regional issues and concerns. The following issues also were covered: development of an Asian Swamp Eel management plan, development of state ANS management plans and review of the Lake Champlain Basin ANS Management Plan, update on the Coast Guard's ballast water program, discussion on the implementation of the Executive Order on Invasive Species, and updates from the regional panels. Joe Starinchak, formerly employed by the Utah Division of Wildlife Resources as an aquatic education specialist, was recently appointed as outreach coordinator for the Task Force. **Contact:** Sharon Gross, Executive Secretary, ANS Task Force, 703-358-2308, Sharon\_Gross@fws.gov.

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## Upcoming Events

- *Meeting of the Great Lakes Panel on Aquatic Nuisance Species* May 10-11, 2000, Duluth, Minn. **Contact:** Kathe Glassner-Shwayder, Great Lakes Commission, 734-665-9135, shwayder@glc.org.

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## On the Bookshelf

- *Stop Exotics, Clean Your Boat* is a new videotape featuring John Ratzenberger (a.k.a. Cliff Clavin, from *Cheers*). **Contact:** Doug Jensen, MN Sea Grant, 218-726-8712, djensen1@d.umn.edu.
- *Harmful Exotic Species of Aquatic Plants and Wild Animals in Minnesota: Annual Report for 1999*. **Contact:** Jay Rendall 651-297-1464 or jay.rendall@dnr.state.mn.us.