

Meeting of the Great Lakes Panel on Aquatic Nuisance Species

November 28-29, 2007

Ann Arbor—Ypsilanti Marriot at Eagle Crest
Ypsilanti, Michigan

Great Lakes Panel Member Updates

FEDERAL (U.S. / Canada)

U.S. EPA – Great Lakes National Program Office

GLRC Invasive Species Rapid Response Communication Protocol: The Great Lakes Regional Collaboration (GLRC) Strategy recognizes that early detection and rapid response efforts increase the likelihood that invasions will be addressed successfully while populations are still localized and can be contained and eradicated. On March 2, 2007, the GLRC Executive Committee endorsed the formation of an Aquatic Invasive Species Rapid Response Initiative which would improve coordination in the event that a new species is detected in the Great Lakes. A Communication Protocol was developed at the direction of the GLRC Executive Committee and, on August 9, 2007, the GLRC Executive Committee requested agencies participating in the GLRC to provide points of contact by September 15, 2007. The above request above was also used to identify state public points of contact and taxonomic experts for inclusion in the ANSTF Expert Database. The identified points of contact are currently being compiled. A workgroup will test the Communication Protocol in a mock exercise by spring 2008.

Recommendations/sponsors for a mock exercise are currently being solicited. **Contact:** James Schardt, U.S. EPA – GLNPO, 312-353-5085, schardt.james@epa.gov

U.S. Coast Guard – District 9

The U.S. Coast Guard is engaged in a rulemaking that would set a performance standard for the quality of ballast water discharged in U.S. waters. This rulemaking is being carried out under the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (NANPCA) and the National Invasive Species Act of 1996 (NISA), which authorize the Coast Guard to approve alternative ballast water management systems. The Coast guard is finalizing the Draft Programmatic Environmental Impact Statement (DPEIS), which the Coast Guard is developing in conjunction with the Notice of Proposed Rulemaking (NPRM). The Coast Guard is working to publish these documents as soon as possible.

The Coast Guard continues to actively enforce current ballast water regulations through the Joint Ballast Water Management Exam Program. Along with our partners: Transport Canada, the St. Lawrence Seaway Management Corporation, and the St. Lawrence Seaway Development Corporation, we work to harmonize our efforts to eliminate AIS introduction through ballast water into the Great Lakes system. Our 2006 Summary of Great Lakes Ballast Water Management Exams was released in May 2007 with a 2007 summary to be distributed early next year.

The Coast Guard continues to investigate other potential sources of AIS introduction with a goal of eliminating further introductions. A workshop to discuss vessels classified as No Ballast on Board (NOBOB) was held this fall in Chicago to summarize and further understand scientific/logistical issues surrounding this topic. As a result, the Coast Guard is considering establishing regulations that would require NOBOB vessels to conduct specific management practices to reduce the risk of introducing NIS into the Great Lakes. **Contact:** CDR Timothy Cummins, 216-902-6049, Timothy.M.Cummins@uscg.mil

U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers (Corps) continues to be engaged in two aquatic nuisance species control programs in the Great Lakes Basin. The Sea Lamprey Barrier Program is authorized by Section 1135 of the Water Resources Development Act and carried out in partnership with the Great Lakes Fishery Commission. Work on this program during the period was limited to continuing real estate acquisition for construction of a barrier on the South Branch of the Galien River in Michigan's Lower Peninsula. Future efforts related to lamprey barriers are expected to focus on preventing lamprey passage at sites where dams currently exist.

The second major activity is the continuing effort to provide an effective barrier on the Chicago Sanitary and Ship Canal (CSSC) to prevent the movement of invasive species between the Mississippi River and Great Lakes basins. The demonstration barrier (Barrier I) remains in continuous operation. Recent evaluations indicate no decline in performance. However, due to its age the Corps will continue to closely monitor the barrier performance. The first half of the second barrier (Barrier IIA) is still not operational due to ongoing safety evaluations. Additional field safety tests were completed in partnership with the U.S. Coast Guard and test results are under review. It is anticipated the barrier will become operational in FY08. WRDA 2007 made both barriers a combined project at 100% federal funding and authorizes construction of the second half of Barrier II (IIB), but work is on hold pending appropriation of sufficient funds to finalize design and construct. WRDA also authorizes upgrading of the demonstration barrier to permanent status. The Corps, Coast Guard and representatives of the navigation industry signed a memorandum of agreement that will allow the Corps to operate Barrier IIA if Barrier I has operational problems that render it ineffective before all Barrier II safety testing is completed. However, until all safety testing is completed, Barrier II is only available as a backup while repairs are made to Barrier I. The Corps' priority is to safely and continuously maintain at least one operating barrier. The intent is to operate the demonstration barrier until Barrier II is operational, and then upgrade the demonstration barrier to permanent status as funding allows.

Contact: Jim Galloway, 313-226-6760, jim.e.galloway@usace.army.mil

National Oceanic and Atmospheric Administration

NOAA Great Lakes related activities occur primarily in two arenas – research on the ballast vector to the Great Lakes and research on food web interactions and impacts of ANS in the Great Lakes. In addition, this year NOAA also sponsored a web site for reporting locations of *Hemimysis anomala* in the Great Lakes, see <http://www.glerl.noaa.gov/hemimysis/index.html>.

The Great Lakes NOBOB Team, consisting of NOAA-GLERL, University of Michigan-CILER, University of Windsor, Old Dominion University, Smithsonian Environmental Research Center and Philip T. Jenkins and Associates Ltd (Ontario) completed and published a final report assessing best management practices for NOBOB ships and examining salinity tolerances of freshwater and estuarine zooplankton (NOBOB-B, available at http://www.glerl.noaa.gov/res/Task_rpts/2004/aisreid04-1.html).

Fieldwork and lab experiments for a new project on the effects of saltwater and brine exposure on invertebrates was completed and will be published in 2008. A NOAA Technical Memorandum evaluating the effectiveness of ballast water exchange was also published in collaboration with the Smithsonian Environmental Research Center and is available at ftp://ftp.glerl.noaa.gov/publications/tech_reports/glerl-142/tm-142.pdf.

NOAA is developing the Great Lakes Aquatic Nonindigenous Species Information System (GLANSIS) in conjunction with the US Geological Survey Nonindigenous Aquatic Species (NAS) database (housed at the Florida Integrated Science Center, Gainesville) and Prof. Anthony Ricciardi at McGill University (Montreal). The goal is to provide a “one-stop” information source for established non-indigenous aquatic species in the Great Lakes. A search framework for GLANSIS that is linked to NAS was completed and is being populated with information and fact sheets provided primarily by Prof. Ricciardi and his assistant, Rebekah M. Kipp. The current search engine is available at: http://www.glerl.noaa.gov/res/Programs/ncrais/nas_database.html.

NOAA's Great Lakes ecosystem research activities included multiple projects targeting the effects of dreissenids, Bythotrephes, and Cercopagis on various food web components. Fieldwork in Saginaw Bay and Lake Erie and mesocosm experiments in Gull Lake were conducted to examine the connection between dreissenid populations and Microcystis blooms, which are linked through nutrient cycling. Research was carried out to examine and assess the effects of the replacement of zebra mussels by quagga mussels on the spring diatom bloom in Lake Michigan. Results of research to examine evolution of traits in Bythotrephes showed that certain traits can reduce its exposure to predation by large fish, but these same traits also reduce its effectiveness as a predator of smaller zooplankton. Field and lab experiments showed that adult planktivores appear to regulate the population of Bythotrephes. As Bythotrephes populations decrease due to fish predation pressure, Cercopagis populations increase due to reduced Bythotrephes predation pressure.

A new project was initiated with major NOAA funding to examine the synergistic effects of multiple stressors on the Great Lakes food web, with nonindigenous species being one of the primary stressors that will be targeted.

The NOAA Center for Sponsored Coastal Ocean Research (CSCOR) issued a Federal Funding Opportunity solicitation for proposals for a regional-scale ecosystem research study investigating recent and future changes in

Great Lakes water quality, habitats and populations of living resources in the context of invasive species. Proposals were due by October 1, 2007. Final recommendations for funding under this announcement are expected by April 2008. **Contact:** David Reid, Ph.D., 734-741-2019, david.reid@noaa.gov

Transport Canada / DFO

Ship Source - Ballast Water: Canada continues to actively enforce the Canadian Ballast Water Control and Management Regulations. These came into effect in June of 2006 and cover both vessels containing ballast as well as those with residuals entering the Great Lakes from anywhere outside Canada's EEZ. This includes vessels entering from the Coastal trade on the East Coast.

The USCG, Transport Canada, and both Seaways have partnered to inspect vessels entering the Seaway. Vessels are boarded in Montreal or the St Lawrence River and are inspected under the laws and regulations for each agency. Documents are inspected and salinity samples are taken to ensure compliance. Vessels not in compliance are treated under the requirements of the agencies responsible. Options for vessels not in compliance for the Canadian Regulations are to return and do ballast exchange / flushing outside the EEZ, or Laurentian channel when applicable, Pump ashore, retain on board or treat water to IMO standard. Treatment options approved by TC, DFO, EC and or the USCG may be allowed on a case by case basis. This season vessels were treated with Brine and Salt. Results were very promising and DFO / NOAA are undertaking further studies to test the effectiveness of this treatment option.

DFO Science has presented Transport Canada with advice based on two scientific studies on ballast water. The first study looked at the effectiveness of the current Canadian regulations based on random biological sampling of vessels. Recommendations were made to improve the system but the conclusion overall was that enforcement of the regulation can be effective in protecting the Great Lakes. The second looked at the applicability of the IMO treatment discharge standards for the Great Lakes. Overall the IMO standard seems to offer sufficient protection but further study is required. The results were presented at the International Aquatic Invasive Species Conference (ICAIS) in September held in Nijmegen Netherlands. DFO / TC and NOAA / USCG are cooperating in a number of ongoing studies examining the role of the domestic fleet in the transfer of AIS, and or VHS. Further studies are ongoing on the use of brine.

Transport Canada has recently upgraded the Globallast Risk Assessment software and as part of its role to provide technical cooperation the IMO has given the upgraded software to IMO for the Globallast II program. It is currently in use by TC Inspectors. Transport Canada has support four promising ship board ballast water technologies in a two year program. Three out of four look to have the potential to be developed commercially. Results should be available by April 2008. Transport Canada and DFO have implemented a National Ballast Water Database. Data is now in place for the previous two years and the database is expected to be merged with Transport Canada's Port State Control database by Jan 2008. Two vessels have entered Canadian water this Seaway Season with Ballast Water technologies aboard that have received IMO Basic approval. While both did exchange prior to entering the Seaway, both were boarded by DFO and EC scientists to perform tests of system reliability and efficacy.

Other Vectors: Work on risk assessments for Chinese mitten crab and *Hemimysis anomala* (bloody-red shrimp) are ongoing and both will be finalized by March 2008. The peer review of the draft assessments will be held January 2008, for *Hemimysis*, and February 2008 for Chinese mitten crab (in conjunction with green crab, considered not a threat to the Great Lakes). DFO's Centre of Expertise for Aquatic Risk Assessment (CEARA) has been leading a multi-agency project which is currently collecting data for a future risk assessment of freshwater fish pathways (bait, aquarium, water garden and live food). Live fish import data is being compiled and analyzed, port of entry and point of sale inspections have been occurring, and end user surveys are currently online and being completed by the public.

AIS research is being conducted by staff at DFO's Great Lakes Laboratory for Fisheries and Aquatic Sciences. This includes the development of a population ecology-based model to predict the probability of establishment of AIS. Also ecological invader guilds are being researched and developed to predict success and impacts of potential invaders to the Great Lakes.

An Aquatic Invasive Species Monitoring Workshop was held in October 2006 with various agencies from Ontario, Manitoba and Quebec. The goal of the workshop was to identify priority species, locations and pathways for AIS monitoring in DFO's Central and Arctic region. This priority setting exercise helped to focus DFO's monitoring programs in Ontario. One of the recommendations from the workshop and questionnaire was the importance that

field biologists have materials available to them to identify AIS and provide information on how to report these findings. To that end, the Ontario Ministry of Natural Resources (OMNR), with input from DFO, is developing a field guide for Ontario's current and potential AIS. This field guide is currently being finalized. A companion project to this is the development and implementation by OMNR of a workshop to train biologists in the identification and collection of AIS. As the connecting channels of the Great Lakes were identified as one of the priority areas for AIS monitoring from the AIS Monitoring Workshop, the focus for DFO's 2007 AIS monitoring was higher and lower trophic levels (including *Hemimysis anomala*, see below) in the Detroit, St. Clair and St. Marys rivers. Monitoring the current distribution of *Hemimysis anomala* in the Great Lakes by various Canadian (federal/provincial) and American agencies is ongoing and collaborative in nature. DFO sampling in lakes Ontario, Erie, Huron and Michigan, as well as in the Detroit and St. Clair rivers, in summer 2007 added another 4 locations to the previously known locations invaded by *Hemimysis*. **Contact:** Chris Wiley, 519-383-1525, wileyc@dfo-mpo.gc.ca

STATE / PROVINCIAL

Illinois-Indiana Sea Grant

Illinois-Indiana Sea Grant (IISG) had an exhibit at the Illinois State Fair that focused on AIS, and featured the kid's web site, "Nab the Aquatic Invader." Over 2,500 people were reached through this event. IISG also increased the reach of Habitattitude through a mailing to aquarium societies and pond clubs throughout the state. IISG is working on a Hydrilla/Brazilian elodea WATCH card for the spring; more information to come. **Contact:** Pat Charlebois, 847-872-0140, charlebo@uiuc.edu

Indiana Department of Natural Resources

2007 marked the second consecutive year of Brazilian elodea eradication efforts at 109 acre Griffy Lake. Prior to eradication it was easy to fill sampling rakes with Brazilian elodea. In the spring of 2007 only two small sprigs of the plant were found; a hint that continued vigilance was required. During an August 2007 intensive plant survey no Brazilian elodea was found. While it is still too early to claim victory over the species in Griffy Lake, at least the plant is to a non-detectable level and may have been eradicated. Plant surveys will continue in the coming years to determine if there is any re-growth which will force additional treatments.

Hydrilla was discovered in 735 acre Lake Manitou in August 2006. A multi-year eradication plan was developed between DNR and SePRO Corporation. Implementation of that plan began in the spring of 2007. Sonar was immediately applied after hydrilla growth was observed in the spring. The last hydrilla vegetative material observed in Manitou was the middle of June; just one month after treatment began. Lethal fluridone levels were maintained through at least October. The telling sign in determining whether the battle with hydrilla is being won is to watch the tuber bank in the sediment. Pre-treatment versus late summer 2007 tuber densities were compared. It appears as though the tuber bank has been reduced by more than 80% in the first year. While we have made great strides at reducing hydrilla at Lake Manitou in the first year, we still have a long way to go to achieve our goal of zero tubers and complete elimination of hydrilla. At least two more years of whole-lake treatments are anticipated.

Indiana DNR along with IL-IN Sea Grant continue to work with folks in the aquatic plant trade and other interested parties to assess the risk of plants known to occur in trade. Eventually we hope to develop a white and black list of aquatic plants in trade. **Contact:** Doug Keller, 317-234-3883, dkeller@dnr.in.gov

Michigan Department of Environmental Quality – Office of the Great Lakes

As a result of Public Act 33 of 2005, Michigan's Ballast Water Control General Permit became effective January 1, 2007. As of October 2007, MDEQ has issued 83 permits to 28 international shipping companies to conduct port operations in Michigan. A lawsuit was filed in federal court in Detroit by a group of shipping interests, who sought to nullify Public Act 33 of 2005; however, a federal judge dismissed the suit determining the statute was clearly rational and valid due to the fact that Michigan is facing a serious threat to its environment caused by AIS, has determined the likely avenues by which those species are being introduced, and has taken measures to stop this introduction.

The Michigan DNR has also developed a process for listing or delisting a species from Michigan's current list of prohibited and restricted species. Under the process, anyone can submit a request to the MDNR proposing to list or delist a species provided they complete the required request form including reasons for the proposal and documentation (scientific studies, expert opinion, etc.) that supports the proposal. The MDNR will then review the information for completeness and then charge a technical review committee with assessing the species. An

opportunity for public input will be offered. The Technical Committee will then provide findings to the MDNR who will then prepare a "Final Species Recommendation" for the MDNR director. Once a decision has been made by the MDNR director, legislative action will be sought.

To address the rapid spread of invasive *Phragmites australis* in Saginaw Bay, and to better communicate effective treatment methods and regulatory requirements to the public, the MDEQ, MDNR and U.S. EPA-GLNPO are cooperating with other agencies and local stakeholders to implement a *Phragmites* control demonstration project along selected reaches of *Phragmites* infested public and private owned shorelines (e.g., Great Lakes coastal wetlands). The MDEQ has received funding from the U.S. EPA-Great Lakes National Program Office for this effort. Other contributors to this project include Ducks Unlimited, Cygnet Enterprises, Consumers Energy and Hampton Township. The project will control *Phragmites* and restore native plant communities along select public and private shoreline sites on Saginaw Bay. The control sites will be chemically or mechanically treated to demonstrate to landowners the effectiveness of the treatment method and the benefits of managing *Phragmites* on their property. The treatment site consists of five demonstration plots including: mowing, treating with the herbicide imazapyr, treating with the herbicide glyphosate, treating with an imazapyr/glyphosate mixture, and comparing treatment sites to an untreated control site. The Office of the Great Lakes has also prepared a brochure for riparian property owners entitled, *A Landowner's Guide to Phragmites Control*. The brochure includes specific information regarding management options for controlling *Phragmites* in shoreline areas of the Great Lakes and Michigan wetlands, associated state permit requirements and benefits to managing *Phragmites*, including the protection and restoration of fish and wildlife habitat and biodiversity. Another publication, *A Guide to the Control and Management of Invasive Phragmites*, developed jointly by MDEQ and MDNR will be released in December 2007. This publication provides technical information for resource managers and applicators about *Phragmites* control. To obtain either publication electronically visit www.michigan.gov/deg/aquaticinvasives. **Contact:** Emily Finnell, 517-241-7927, finnelle@michigan.gov

University of Minnesota Sea Grant & Minnesota Department of Natural Resources

Public awareness: Many efforts to prevent and slow the spread of AIS in Minnesota expanded in 2007. *Stop Aquatic Hitchhikers!* and *Habitattitude* campaigns were promoted through presentations, events and media communications. MNDNR in collaboration with Sea Grant, Extension, U.S. Forest Service, Wildlife Forever, U.S. Fish and Wildlife Service, and others used billboards, radio and newspaper ads, news releases, brochures, stickers, AIS cards, and lawn banners for statewide implementation of the *Stop Aquatic Hitchhikers!*TM campaign. New DNR water access signs with the campaign's logo were produced. MNDNR hired 50 watercraft inspectors statewide. New efforts took place to prevent further spread of spiny waterfleas from border waters with Canada. Several meetings were held in Int'l Falls, Warroad, and Baudette to discuss responses to the new infestations including restrictions on bait harvest and sport gill netting. MNDNR designated several border waters as infested waters. Interagency collaboration by MNDNR, Sea Grant, NPS-Voyageurs National Park, Canadian Fisheries and Oceans, and local groups to raise public awareness featuring the *Stop Aquatic Hitchhikers!*TM logo and messages. A new card explaining state laws that apply to zebra mussel or spiny waterflea infested waters is being distributed.

Species news: In fall 2007, zebra mussels were found in a chain of four lakes, most likely due to water diversion. An adult bighead carp was found in Lake Pepin (Mississippi River). Brazilian elodea was found in a Minneapolis lake, likely the result of an aquarium dumping. Eurasian watermilfoil was discovered in Union Lake, the first infestation in the northwest.

Coordination/planning: A session on AIS was held at the Making a Great Lake Superior Conference in Duluth in October (see <http://www.seagrants.umn.edu/superior2007/>). Sea Grant is collaborating with Michigan DEQ, Ontario Ministry of Natural Resources, National Park Service and others to develop a Lake Superior AIS Prevention Plan. MNDNR and Sea Grant are working with the National Park Service, shipping, ports and other interests on issues related to VHS, viral hemorrhagic septicemia. MNDNR has drafted a VHS plan and developed a state plan to prevent introduction of Asian carp into the state that 'steps down' parts of the national Asian carp plan (see www.dnr.state.mn.us/invasives/aquaticanimals/asiancarp/index.html). MNDNR's Invasive Species Program funding will increase to over \$4 million per year allowing for greatly increased enforcement – adding 5 FTEs in FY09; terrestrial management on DNR lands; prevention grants; and aquatic plant management grants.

Publications: Sea Grant released a new pocket guide, *A Field Guide to Fish Invaders of the Great Lakes Region*, which compares invasive fish to native look-a-likes to accompany AIS-HACCP training workshops and materials. Sea Grant also produced a report, *Genetic Methods for Biological Control of Non-Native Fish*, for the U.S. Fish and Wildlife Service that examines the feasibility of using genetic methods to control non-native fish focusing on

environmental risks, regulatory requirements, costs and stakeholder deliberations. Findings focus on the Gila River, Arizona, but are applicable to other parts of the United States. See <http://www.seagrant.umn.edu/publications/>. **Contact:** Doug Jensen, MN Sea Grant, 218-726-8712, djensen1@umn.edu; or Jay Rendall, MNDNR, 651-259-5131, jay.rendall@dnr.state.mn.us

Ohio Department of Natural Resources, Division of Wildlife

Ohio is in the process of forming an AIS Committee to address statewide issues. The committee will be made up of individuals from various industries; state, local, and federal government; as well as private interests. One of the first items that will be addressed by the Committee is the revision of the Ohio's State Management Plan for AIS. Included in this revised plan will be a newly developed Rapid Response Plan (RRP) for Ohio. Ohio continues to work on updating its AIS web page. This site will have information specific to Ohio as well as links to regional and national programs. We helped fund a publication by the Midwest Invasive Plant Network entitled "Why Should I Care about Invasive Plants?" This publication targets different user groups and provides information on why this issue is important to them and how they can help. The state also assisted Division of Wildlife field staff and several Metroparks along Lake Erie with control activities for invasive plants. **Contact:** John Navarro, 614-265-6346, john.navarro@dnr.state.oh.us

Ontario Ministry of Natural Resources & Ontario Federation of Anglers and Hunters

Several research, monitoring, control and awareness projects have been implemented through funding under the Canada-Ontario Agreement respecting the Great Lakes Basin Ecosystem MNR. The outcomes of these projects are consistent with A Canadian Action Plan to Address the Threat of Aquatic Invasive Species and Great Lakes Panel priorities. Projects include development of a model rapid response to invasive fish and a model for invasive plants.

NatureServe Canada has been awarded a contract from the Commission for Environmental Cooperation to undertake an invasive species database. A part of the project involves scoping out other systems in use and making recommendations on a system that could meet objective for the U.S., Mexico and Canada.

Revisions to address some AIS concerns in the Ontario Fishery Regulations will come into effect Jan. 1, 2008 including a modified white list of allowed bait species; restrictions for anglers using crayfish as bait limiting possession to 36 and a requirement that they can only be used in the waters where they are captured; an expended list of invasive fish species and provision to allow for not releasing captured invasive fish (non-listed fish that cannot be possessed (i.e. caught out side of season, over limit etc.) must be returned to the water).

Ministry of Natural Resources' (MNR) field guide for aquatic invasive species is almost ready to go to print. Water proof and designed for field use, it will be distributed to professionals working on the water so they can help monitor for key invasive species including fish, invertebrates, and plants. Training workshops are also being planned by Ontario Federation of Anglers and Hunters (OFAH) and MNR. MNR, OFAH and the Bait Association of Ontario are continuing mandatory HACCP training for bait harvesters and dealers. An additional 175 harvesters were trained this fall and all dealers (~800) will complete MNR approved HACCP plans. Training continues for the next 2 years.

A workshop was held in October engaging over 175 representatives of non-governmental organizations, all levels of government, and community groups to develop the first Terrestrial Invasive Plant Council for Ontario.

Best management practices for invasive species prevention was incorporated in the Ontario Marina Operators Association's Clean Marine Program; an eco-rating program for marinas. 204 lakes were monitored for the presence of zebra mussels and spiny water flea in Ontario's inland waters, with the assistance of volunteers from lake associations and conservation clubs across the province.

Surveys of over 200 nursery and aquarium retailers were completed focusing on the Greater Toronto Area, London, and Ottawa in partnership with OFAH, MNR, Fisheries and Ocean Canada and Environment Canada. A draft summary report has been compiled. Fifteen summer staff were hired between June and August to deliver invasive species outreach and education initiatives in communities across the province in partnership with lake associations, conservation authorities, universities and MNR district offices. New waterproof posters for water garden and aquarium retailers were produced. Work is in progress on the development of a Grade6/7 curriculum package on aquatic invasive species, planned for completion in March 2007. **Contact:** Beth Brownson, MNR, 705-755-1950, beth.brownson@mn.gov.on.ca; or Francine MacDonald, OFAH, 705-748-6324, francinem@ofah.org

Pennsylvania Department of Environmental Protection

Dreissenid mussels continue to spread to inland portions of the Commonwealth. Quagga mussels were discovered in a diving quarry (Clover Creek Quarry aka Blue Hole Quarry) in Blair County near Williamsburg in March 2007. Zebra mussels were discovered in Cowanesque Lake near Lawrenceville in Tioga County in May 2007 and in the Pennsylvania waters of the Susquehanna River in Susquehanna County near Great Bend in September 2007. The invasive alga Didymo (*Didymosphenia geminata*) was also discovered in September in both the east and west branches of the Delaware River, marking the first occurrence of this bottom-fouling diatom in Pennsylvania. In partnership with PADEP, PA Sea Grant is coordinating the state zebra and quagga mussel monitoring network and has developed an online zebra mussel tracking website at <http://www.pserie.psu.edu/seagrant/zm>. Sea Grant is also producing a training video for volunteers participating in the monitoring network and hosted a well-attended zebra mussel monitoring summit on November 14, 2007 in Harrisburg. Sea Grant has also received funding from the Mid-Atlantic Panel on Aquatic Invasive Species for AIS warning signage at PA boat ramps and to host a mock rapid response exercise and workshop. PADEP has committed to making AIS a funding priority for its 2008 Growing Greener grant program. House Bill 1736 was introduced in the current session of the PA House of Representatives and referred to the House Environmental Resources and Energy Committee on July 13, 2007. The bill was co-sponsored by Representative Michael O'Brien (D-Philadelphia) and 27 other state reps. This ballast water management bill is based closely on Michigan's port discharge permitting legislation and would amend the state Clean Streams Law to require ballast water discharge permits from PADEP for all oceangoing vessels seeking to discharge ballast water into PA Lake Erie ports. **Contact:** Jim Grazio, PADEP, 814-217-9636, jagrazio@state.pa.us

Québec Ministry of the Environment

An international didymo workshop was held in Montreal in August 2007 during the Société Internationale de Limnologie (SIL) congress. It included presentations from experts and stakeholders of Canada, United States, New Zealand and Europe. The Didymo bloom that was reported in the Matapedia River last year occurred again in 2007, but it was less severe. However, small blooms were reported in seven new rivers. Quebec's early detection network of aquatic invasive species captured a Chinese mitten crab specimen this summer in the brackish waters of the St.-Lawrence River. This is the 7th specimen captured during the last four years. A Viral Hemorrhagic Septicemia (VHS) monitoring program was implemented this summer in the St. Lawrence River. Federal and provincial agencies are involved in the monitoring of the virus. To date no cases of VHS have been detected in Québec's waters. **Contact:** Isabelle Simard, MDDEP, 418-521-3907 x4417, isabelle.simard@mddep.gouv.qc.ca

Wisconsin Department of Natural Resources

A Port of Milwaukee onshore ballast water treatment feasibility study report was completed by Brown and Caldwell via a contract with the WDNR. The ballast water would be treated using filtering screens and ultraviolet light to kill organisms. Study results focused on the Port of Milwaukee, but the approach would work in other Great Lakes at a cost of \$1 to \$2 million per port. The onshore treatment offers a less expensive alternative to smaller ships that may find on-board treatment technologies prohibitive.

Hydrilla was discovered in August in a small pond in northeast Wisconsin. The WDNR, the Department of Ag, Trade, and Consumer, local county officials and the landowner developed a plan to eradicate the invasive plant. The pond was chemically treated with an aquatic herbicide and other area waters were surveyed to assure that the plant hadn't spread to nearby waters. The pond has been recently dewatered in preparation for the colder weather with the goal being to hopefully freeze the hydrilla tubers and propagules this winter.

The WDNR has a draft rule completed on invasive species control. The rule classifies existing and new invasive species based on established criteria. The rule places restrictions on the purchase, sale, possession, transportation, and cultivation of invasive species that are classified as prohibited or restricted. It allows for the conditional possession of some invasive species when authorized by a permit from the WDNR. The WDNR will be taking the rule out to public meetings in January to obtain input from stakeholders and interested parties. **Contact:** Ron Martin, WDNR, 608-266-9270, ronald.martin@wisconsin.gov

Wisconsin Sea Grant

Wisconsin Sea Grant conducted an AIS HACCP workshop on October 26 for natural resource managers and fish farmers in Stevens Point, Wisconsin. Ron Kinnunen of Michigan Sea Grant helped teach the course. Wisconsin Sea Grant fielded 5 water craft inspectors this summer; two in the Lake Superior region and three along the Lake

Michigan coast. We're tallying the number of craft inspected and people contacted now. Sea Grant plans to hire seven inspectors next season. As part of the extended Stop Aquatic Hitchhikers project Wisconsin Sea Grant had famed baseball player and personality Bob Uecker record a Stop Aquatic Hitchhikers PSA. The PSA aired this summer on Wisconsin stations. The Wisconsin DNR is working on finalizing a new list of prohibited, restricted, and watch species for organisms in trade and potentially invasive organisms. The extensive list includes taxa from several groups including woody plants and vines, herbaceous plants, aquatic plants and algae, insects, pathogens and invertebrates, fish and aquatic invertebrates and vertebrates. June is Invasive Species Awareness Month in Wisconsin; planning for the 2008 activities will begin soon. **Contact:** Phil Moy, Ph.D., 920-683-4697, pmoy@uwc.edu

TRIBAL AUTHORITIES

Chippewa Ottawa Resource Authority

CORA represents five tribes in Michigan with regard to the tribes' commercial and subsistence fisheries in the 1836 treaty-ceded waters of Lakes Huron, Michigan and Superior. The tribes which are party to the 1836 Treaty are the Bay Mills Indian Community, Grand Traverse Band of Ottawa and Chippewa Indians, Little River Band of Ottawa Indians, Little Traverse Bay Bands of Odawa Indians and Sault Ste. Marie Tribe of Chippewa Indians.

The Tribal Chairman for the Waganakising Odawak (Little Traverse Bay Bands of Odawa Indians), Frank Ettawageshik, testified before the House Transportation and Infrastructure Committee in Washington D.C. regarding aquatic invasive species in the Spring of 2007. Chairman Ettawageshik spoke on behalf of CORA and called for immediate action to stop introductions of exotic species through unregulated ballast water discharges. CORA also recently sent letters to the House Committee on Transportation and Infrastructure and the Senate Environment and Public Works Committee, urging them to come to a compromise and pass strong ballast water legislation this year.

CORA, through the Inter-Tribal Fisheries and Assessment Program (ITFAP), also continued Sea Lamprey suppression activities in conjunction with USFWS, MDNR, Canadian DFO and Ontario MNR including a mark and recapture study that consists of placing portable assessment traps in Nunns and Albany Creeks, and fyke nets into the Carp River and Trout Creek to capture upstream migrating sea lampreys. Sea lampreys are given a fin clip and then released back into the river. All marked sea lampreys subsequently recaptured are killed and length, weight and sex of the marked lamprey are recorded. A different fin clip is used each week of tagging. Ultimately, the mark-recapture data is used to estimate the number of spawning-phase sea lampreys ascending each stream that is trapped. Another cooperative project with USFWS Sea Lamprey Control that includes the collection of live and dead sea lamprey from CORA commercial fishers. The live parasitic sea lampreys are used for lake-wide mark and recapture in Lake Huron or they are provided to researchers conducting work on sea lampreys. **Contact:** Mike Ripley, CORA, 906-632-0072, mripley@sault.com

ENVIRONMENTAL / USER GROUPS

Great Lakes United – Québec Office

The Québec office of Great Lakes United has undertaken an awareness campaign targeting professional and amateur gardeners regarding invasive wetlands plants. Many St. Lawrence River ecosystems have been severely impacted - for example, many wetlands have been overtaken by non-native plants constituting over 50% of the area. In Québec, no regulation applies to the production and distribution of most invasive plants. The campaign aims to provide the information necessary to make sound environmental choices when designing landscapes. Great Lakes United organized dozens of workshops attended by hundreds of members of horticultural and environmental associations; produced tens of thousands of information sheets on invasive plants; distributed information at numerous gardening exhibits; and published in targeted media outlets. GLU's Québec office is now launching the project's second phase which consists of developing an education program in conjunction with horticulture schools and the Québec Horticulture Federation. This phase aims to ensure information regarding invasive species will be integrated into curricula. **Contact:** Helene Godmaire, 450-467-6921 or 514-396-3333, godmaire.helene@videotron.ca

Great Lakes Sport Fishing Council

The GLSFC has worked diligently through local groups, individuals and our board members to contact Congress on ballast and invasive species issues and especially WRDA. Obviously, we are pleased with the current results of that water bill, and are now focusing on influencing appropriations committee members on the need for the funding of these projects, especially the Electronic Barrier. We are also working to secure legislation at state levels for ballast and invasive species control issues. Our members were pleased at the recent listing of the Black Carp by USFWS and the related controls that listing represents.

Pressing economic issues are reflected with cyclic low water levels and receding shorelines impacting many shoreline communities. Interest in fishing and the sale of licenses has taken on a greater concern in the region recently. Sagging license fees, declining license sales and related concerns for DNR budgets and stocking regimes, are impacting economics in related businesses as well as the direct impact on charter fishing and sale of licenses. This is a challenging economic spiral...

The GLSFC represents the sport fishing community on many local and regional committees including the Great Lakes Panel, LaMPs, Waukegan Area of Concern, Chicago Waterway Electronic Barrier Committee; various Sea Grant Network Steering Committees, Chicago's Mayor Richard J. Daley Fishing Advisory Committee, etc. The GLSFC recently participated in the Department of Homeland Security's Small Vessel Security Summit, a prelude to an ongoing dialog to improve security with recreational and small commercial vessels on the nation's waterways. We are currently representing the sportfishing and boating communities on the International Joint Commission's Public Interest Advisory Group relating to the International Upper Great Lakes Study Group.

Our communications have been greatly enhanced with electronic outreach. We have been able to reach an ever-widening audience of concerned sportsmen and conservationists as well as the general outdoor community. Our website, which was first posted in 1995 now receives in excess of 2 million hits monthly (or over 500,000 monthly page views) reflecting wide acceptance with our audience. **Contact:** Dan Thomas, 630-941-1351, dan@great-lakes.org

UNIVERSITY / RESEARCH

Great Lakes Sea Grant Network (see also state updates)

Michigan Sea Grant Extension: Clean Boats, Clean Waters – Michigan Sea Grant conducted a second pilot year of this volunteer boater education project. We updated materials and developed a watercraft checkpoint poster. We conducted four training workshops, and a partner organization conducted one. We trained six colleagues to train volunteers. We trained 11 prospective volunteer team leaders, 6 other members of new teams and 3 from an existing team. Dickinson County (in the western Upper Peninsula) trained 8 prospective volunteer team leaders and 5 other members of new teams. Results from this year's volunteer efforts are incomplete, but the Watersmeet Coalition from the U.P. made almost 1,700 contacts at more than 20 locations, including 15 lakes.

Hydrilla – We continued to work with Extension colleagues in western lower Michigan, as well as with CBCW participants, to engage people in looking for this invasive plant species. In August, we reinforced hydrilla awareness efforts in response to the discovery in a border county in northern Wisconsin. Presented papers on rapid response planning, using Michigan's hydrilla case study, at the International Association of Great Lakes Research and the International Conference on AIS.

State Management Plan Project – consulted with Michigan's Invasive Species Advisory Council at its final meeting about implementing a protocol for developing recommendations to the legislature for species to be added or removed from the state's list of prohibited and restricted species.

VHS – Staff members continued to work with stakeholders affected by new fishing and fish handling regulations imposed as a result of the presence of viral hemorrhagic septicemia. **Contact:** Carol Swinehart, 517-353-9723, cys@msu.edu

Cooperative Institute for Limnology and Ecosystems Research

CILER has continued to foster collaborative research on the ballast water vector for invasive species introductions with a bi-national research team representing federal agencies, academia, and the private sector. Collaborators are currently writing up results of our recently completed study on the efficacy and practicability of best management practices on NOBOB vessels. One component of this study was recently published in *Limnology and*

Oceanography (Gray et al. 2007, Limnol. Oceanogr. 52(6): 2386-2397). In addition we are currently engaged in studies to examine the efficacy of saltwater and brine exposure for killing a variety of zooplankton taxa from various source ports inside and outside the Great Lakes, with an emphasis on previous identified salinity-tolerant species. This work is being led by collaborators at the Smithsonian Environmental Research Center and NOAA-GLERL. **Contact:** Tom Johengen, Ph.D., 734-741-2203, johengen@umich.edu

AT-LARGE

North Central Regional Aquaculture Center, Michigan State University

Since the last meeting of the Panel the North Central Regional Aquaculture Center along with two other of the USDA Cooperative State Research, Education, and Extension Service's (CSREES) five Regional Aquaculture Centers are considering the possibility of funding projects pertaining to viral hemorrhagic septicemia (VHS). These projects if approved wouldn't begin until 2008. CSREES through its Critical Issues: Emerging and New Plant and Animal Pests and Diseases program has funded two VHS project with FY2007 monies. The first, entitled "Investigations into the Emergence and Spread of VHSV IVb in Michigan," is being undertaken by Mohamed Faisal at Michigan State University. The second project is entitled "Viral Hemorrhagic Septicemia in the Great Lakes Basin" and is being undertaken by Paul Bowser at Cornell University. The U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) is making \$1.5 million in contingency funds from their FY2007 budget available for activities related to the control of VHS, including surveillance and compliance, education and outreach, and confirmatory testing. The only other project on VHS that I'm aware of that is being funded by the federal government or some other regional entity is a project entitled "Viral hemorrhagic septicemia virus in the Great Lakes." This project is being funded by the Great Lakes Fishery Trust who has awarded \$500,000 to the U.S. Geological Survey's Western Fisheries Research Center in Seattle, Wash. Finally, on Nov. 8, 2007 APHIS released an amended list of VHS-susceptible species which is available at http://www.aphis.usda.gov/animal_health/animal_dis_spec/aquaculture/downloads/vhs_fed_order.pdf. This new list removed 13 fish species (e.g., coho, chum, and pink salmon) from the original list of 37 species that was issued on October 16, 2006 as well as adding three new species: lake whitefish (*Coregonus clupeaformis*), spottail shiner (*Notropis hudsonius*), and trout-perch (*Percopsis omiscomaycus*). The new list now contains 28 VHS-susceptible fish species. **Contact:** Ted Batterson, Ph.D., 517-353-1962, batters2@msu.edu

Maritime Administration

Great Ships Initiative: The Maritime Administration and NOAA are participating in the Great Ships Initiative (GSI), a partnership of industry, universities, and government in the U.S. and Canada, which is developing laboratory, shore-based pilot and shipboard testing of alternative ballast water treatment solutions. The partnership opened the first freshwater ballast water laboratory testing facility in Superior, WI, in June 2007. The shore-based facility has completing its start up trials. The first large-scale testing began in Fall 2007. Bench scale testing of a treatment system is scheduled for Winter 2007. The testing will contribute to achieving the Ocean Action Plan goal of preventing the spread of invasive species. The initiative will help promising treatment solutions progress quickly to market availability and use on vessels and serve to minimize the presence of live organisms in ballast water discharge from ships. **Contact:** Doris Bautch, 847-995-0122, doris.bautch@dot.gov

National Wildlife Federation

The Healing Our Waters-Great Lakes Coalition 3rd Annual Great Lakes Restoration Conference was held September 6-8 in Chicago, IL, attracting over 250 activists, scientists, business representatives, tribal leaders and policymakers. The event saw the release of the report *America's North Coast: A Benefit-Cost Analysis of a Program to Protect and Restore the Great Lakes*. The report, drafted by researchers at the Brookings Institution and the University of Michigan, assessed the benefits of the proposed measures in the Great Lakes Regional Collaboration report, including those addressing aquatic invasive species. The meeting also included a breakout session on aquatic invasive species, as well as a session on information and indicators, which touched on AIS needs. NWF has also been working both within the HOW Coalition and with an informal national coalition through sign-on letters and other educational and advocacy efforts in support of federal ballast water legislation. On the legal front, NWF and several other conservation groups in June filed a letter of intent to sue several shipping companies alleging violations of the U.S. Clean Water Act prohibition on discharging pollutants without a permit. **Contact:** Michael Murray, Ph.D., 734-887-7110, murray@nwf.org