

Meeting of the Great Lakes Panel on Aquatic Nuisance Species

November 2-3, 2016
Ann Arbor, Michigan

Meeting Summary

Additional meeting information including a final agenda and presentations are available on the Great Lakes Panel website (<http://glc.org/projects/invasive/panel/glp-meetings/>).

Wednesday, November 2, 2016

Call to Order

Bob Wakeman, Wisconsin Department of Natural Resources (DNR), Great Lakes Panel (GLP) Chair

- Wakeman called the meeting to order.
- GLP members and observers introduced themselves and a quorum was confirmed.
- Wakeman reviewed the agenda and there were no changes.

GLP Business

Bob Wakeman, Wisconsin DNR, GLP Chair

Erika Jensen, Great Lakes Commission (GLC), GLP Coordinator

Old Business:

- May 2016 meeting summary:
 - Comments and edits were previously received and included, and the GLP unanimously approved the revised May 2016 meeting summary presented by voice vote.
- Report on action items:
 - Jensen provided a report on the action items from the May 2016 meeting (refer to <http://glc.org/files/JENSEN-GLP-Update-GLP-Meet-Nov-2016.pdf>).
- Implementing GLP Work Plan:
 - The work plan was approved following the previous GLP meeting and is being used to guide meeting planning and committee activities.
 - Ad hoc committees are being used to address priority issues and will meet in-person during GLP meetings.
 - Standing committees will convene via conference call/webinar as needed to continue to track progress on priorities and report to the full GLP.
- Committee updates:
 - Information/Education Committee
 - Development of the *Great Lakes Aquatic Invasions* booklet is on temporary hold due to GLC staff transitions and funding capacity and will resume later in 2016.
 - Policy Coordination Committee
 - No additional policy committee update was provided.
 - Research Coordination Committee
 - The committee continues to work with the GLC staff on an analysis of aquatic invasive species (AIS) funding in the Great Lakes region and, in September, agreed to a framework and metrics for the analysis.
 - The committee is becoming more engaged in organizing and providing input on sessions at regional and national conferences such as IAGLR.

- Planning for the 2018 UMISC is underway and the committee is invited to submit a session proposal for consideration.
 - The collaborative criteria documents have been tabled amid general consensus that the GLP should not be so prescriptive towards collaboratives. The documents are still available as a reference resource for collaboratives that approach the GLP for support.
- Grass Carp Ad Hoc Committee
 - Committee member updates will be incorporated into the committee worksheet tracking progress on priorities.
 - The Council of Great Lakes Fishery Agencies will be establishing an Invasive Fishes Executive Committee. This committee will be conducting work on grass carp, but will not supersede other organizations working on invasive fish; rather, this new council seeks to compliment other invasive fish activities occurring throughout the region. The terms of reference for the committee will be sent out to the GLP.
 - The Mississippi River Basin Panel on Aquatic Nuisance Species (MRBP) has been working to get member states that stock diploid grass carp to move to stocking triploid grass carp. They have been making some progress, but it will take more time to alter legislation in the region. A committee action item is to draft common language to be used in letters to MRBP member states encouraging them to limit stocking grass carp to triploid only.
 - An alternative method of addressing invasion status and establishment was presented to the ad hoc committee. This method will be presented to the GLP for discussion and potential adoption at a later meeting following further refinement of the definitions.
 - Committee members recognized the public perception issues related to grass carp status in the basin and agreed that agencies should develop common messaging to better communicate activities to the public.
- Risk Assessment Ad Hoc Committee
 - Establishment of this ad hoc committee was approved at the spring GLP meeting
 - The committee was established and met via conference call twice in the period between the spring and fall GLP meetings.
 - Committee members have been working to outline the needs of a risk assessment clearinghouse and producing a scope of work for that clearinghouse.
 - The committee has produced a working document that outlines and summarizes the drivers for the clearinghouse, its audience and end users, specific services and uses, the types of information it will house, and the platforms and functionality that will be required to conduct this work.
 - The committee developed a set of three recommendations to be brought before the GLP for consideration. The recommendations were distributed to GLP members and were discussed the following day.

New Business:

- The proposed location for the spring 2017 meeting is Erie, PA.
- Based on input from GLP members, the ideal dates are the week of June 19, 2016, with the weeks of April 24 or May 22, 2017 as alternative options.
- Agenda topic suggestions included:
 - Invasive aquatic plants (priority in the GLP work plan and not addressed by an ad hoc committee)
 - Report from the newly formed Invasive Fish Executive Committee
 - Updates on ballast water regulation

- Update on CAWS-Brandon Road work
- Additional suggestions for topics can be send to the GLP executive committee.

ACTION ITEMS

- Staff will update and post the final May 2016 meeting summary to the GLP website
- Staff will develop and circulate action items and the meeting summary of the November meeting. Staff will post presentations from the meeting to the website.
- Staff will work with the ExCom and GLP Pennsylvania representatives to plan the spring GLP meeting in Erie, PA (tentative meeting dates: week of June 19, 2016, with the weeks of April 24 or May 22, 2017 as alternative options).
 - ExCom and staff will invite the CGLFA to the spring GLP meeting to provide a report on progress being made through the Invasive Fishes Executive Committee
 - GLP Members should send agenda topic ideas to ExCom members

Aquatic Invasive Plant Management Collaborative

Bob Wakeman, Wisconsin DNR

- The Aquatic Invasive Plant Management Collaborative was created in follow-up to the starry stonewort work group session at the fall 2015 GLP meeting. When starry stonewort appeared in Wisconsin, there were many questions, few answers, and a lack of quantifiable information about control efforts.
- Wisconsin DNR incorporated this gap in information into their GLRI proposal, and received funding to create two statewide collaboratives for invasive aquatic plants and phragmites, respectively.
- The Invasive Aquatic Plant Management collaborative shares three goals:
 - To share information about new invasive plants and management techniques for species of concern,
 - To compare monitoring protocols, and
 - To collate data with purpose.
- The first meeting of the collaborative took place on Nov. 1 in Ann Arbor, MI, and focused on sharing information about individual state monitoring protocols and methods and lessons learned from aquatic plant programs. Many GLP members attended.
- Collaborative members discussed specific needs and what the collaborative wants to accomplish; determining a more specific focus for the group will be the first priority moving forward.
- It was suggested that the GLP foster a relationship between the Research Coordination Committee and the Aquatic Invasive Plant Management Collaborative in order to align the work of the collaborative with the priorities of the GLP to move forward collectively.
- Research Coordination Committee members may act as liaisons with the Aquatic Invasive Plant Management Collaborative members to convey the identified needs and priorities of the GLP that this collaborative may help to address.

Opportunities for Measuring and Advancing Progress on AIS Prevention and Control

Moderator: Lindsay Chadderton, The Nature Conservancy (TNC)

Chadderton introduced the session and noted the opportunity to hear from a diverse group of speakers and utilize their lessons learned to improve information sharing and collaboration across the Great Lakes basin.

Applying Collective Impact and Adaptive Management Concepts to Phragmites

Heather Braun, GLC

- Management of non-native phragmites in the Great Lakes region requires a multi-step approach that is often time-intensive and expensive, and requires years of maintenance after management treatment goals have been met to maintain acceptable conditions.

- Prior to the GL Phragmites Collaborative (GLPC), inconsistencies in treatment methods and misinformation was impacting management efforts.
- Following a webinar with key stakeholders, several important needs were identified to more efficiently manage phragmites:
 - More communication,
 - More collaboration with key stakeholders, experts, and the general public,
 - Greater access to research,
 - Better coordination between researchers and managers, and
 - Management that was more adaptive to different communities and changing conditions.
- Collaboration as a science has been studied; well-established protocols exist for collaboration; collective impact is a form of collaboration with a designated organization structure and other components that differentiate it from other, more traditional collaboration efforts.
- The GLPC was established based on the concepts of collective impact, including that serving a common, shared agenda keeps partners accountable and reinforces trust that things are done fairly and equitably.
- Communication is a cornerstone of the success of the collaborative, and keeps the community involved while building trust and ensuring steady progress towards achieving shared goals.
- The GLPC has developed several tools in conjunction with researchers, including an herbicide quick guide; a best practices guide for managing phragmites based on site conditions is also planned.
- These efforts help to mutually reinforce the common agenda and ensures that everybody plays a role in phragmites management by communicating information to land managers and the general public.

GLANSIS Updates

Felix Martinez and Rochelle Sturtevant, NOAA

- The GLANSIS program has been working to update fact sheets and data points for species already included in the database.
- NOAA will publish a technical memo discussing the results of recent risk assessments for potential Great Lakes invaders; this document will be posted to the NOAA GLERL website.
- GLANSIS will be examining the current watch list species to add new species and amend species designations based on new information about native ranges and areas of establishment.
- Funding has been secured to develop improvements to the system, designed to make GLANSIS a more useful tool beyond a list of species and geographic records. These improvements will include a new habitat mapping tool designed to identify habitat preferences of species and classify other geographic areas that may be susceptible to establishment, and a refinement of distribution data to HUC 8 watersheds.
- NOAA would like the GLP to provide guidance and feedback at regular intervals on GLANSIS developments, via GLP meetings and committees.

Great Lakes Blue Accounting

Steve Cole, GLC, Erika Jensen, GLC, and Lindsay Chadderton, TNC

- Blue Accounting is a joint initiative originating from a request of the Great Lakes Governors and Premiers and managed and developed by the GLC and TNC.
- The purpose of the Blue Accounting program is to create a strategic approach to measure progress toward a set of shared desired goals, and to develop an information system to deliver information about this progress. To measure progress, a set of metrics appropriate to the objectives must be developed collaboratively with the subject matter expert community.
- Blue Accounting is launching a set of issue-specific pilots, guided by collaborative work groups, and has identified AIS as a potential pilot issue.

- There is already excellent collaboration within the AIS community, however, there may be opportunity to more consistently report on progress toward regionally agreed upon goals for AIS.
- The Blue Accounting program is approaching the GLP to serve as the collaborative working group for the AIS pilot to assist in identifying goals, metrics and data. No financial support is being asked of the GLP; if approved, the GLP would allow Blue Accounting to work with leaders and members on existing GLP projects.
- Many of the projects that the GLP is currently working on, including the Research Coordination Committee funding gap analysis and the Risk Assessment ad hoc committee clearinghouse, fit within the Blue Accounting vision of measuring progress, and the Blue Accounting program can improve upon these projects by providing additional resources and value.

Discussion on the role of GLP in Blue Accounting

- GLP involvement with the pilot program can be as big or small as the GLP foresees.
- A potential conflict of interest is recognized between the supporters of Blue Accounting, GLC and TNC, and the involvement of the GLP. However, BA leaders assured GLP members that they will work transparently and in the best interests of BA and GLP.
- Tracking metrics on a basin-wide level is a long-term commitment that may result in metric overload for state agencies.
- Blue Accounting is intended to provide information on progress towards achieving regional AIS goals without passing judgment on work being done.
- The GLP is tasked with sharing information and coordinating regional AIS activities; these mandates fit within the scope of Blue Accounting.
- The GLP brings together many different representatives from different types of organizations, who may not share the same missions and roles in AIS work. It would be important to gather information for the pilot program consistently, which may be a challenge but provide opportunities for entities that operate on different levels.
- The program is not exclusive to the U.S., and Canadian data and involvement is welcome.
- The pilot programs are designed to be launched with support of experts in order to ensure that programs are aligned with regional goals, and that metrics and objectives are well-defined collaboratively. The Blue Accounting project is not assuming that progress isn't being made in the pilot areas; rather, the pilot programs are designed to make progress quickly towards realizing regional goals, and to utilize adaptive management to improve the way the AIS community address regional challenges and opportunities.
- If the GLP votes against "sponsoring" the AIS pilot program, the Blue Accounting project will continue. Resources for the AIS pilot program may be allocated to a different pilot program, or the AIS pilot program may continue, but in a different capacity than is currently envisioned.

Thursday, November 3, 2016

Agenda Review

Bob Wakeman, Wisconsin DNR and GLP Chair

- The agenda was amended to allow more discussion time for the Blue Accounting decision item.
- The benthic mat presentation – a late addition to the agenda to replace an earlier cancellation – was postponed to the spring meeting.

OIT Regional Project Updates

Moderator: Doug Jensen, Minnesota Sea Grant

GLSGN Habitattitude Surrender Network

Doug Jensen, Minnesota Sea Grant

- The Habitattitude Collaborative is forming networks that are providing convenient return options for unwanted pets and prevents releases into the environment. Many pet owners were aware of the issue of AIS but do not necessarily relate pet ownership to the potential problems with release into the environment.
- Through GLRI funding, Minnesota Sea Grant has led efforts to reinvigorate the Habitattitude campaign, leading to increases of public exposure and awareness of the campaign and its messaging.
- Surrender events have been held in partnership with local organizations and businesses to provide a rehoming option for pets, primarily fish and reptiles.
- The unexpected demand for such surrender events was widely illustrated through media coverage and social media exposure that grew well beyond the initial marketing efforts of the first surrender event, which drew 200 people.
- Over 100 reptiles and fish were rehomed before, during and after the Duluth event.

AIS HACCP Update

Chris Weeks, Michigan State University

- The AIS Hazard Analysis and Critical Control Point (HACCP) plan, based on seafood HACCP principles, was developed as a response to concerns that the wild bait fish harvest would be shut down following designation of AIS infested waters by natural resource management agencies.
- A HACCP plan consists of a flow diagram listing major operations and product activities. For each activity, any potential hazards are listed along with associated control points.
- Critical control points are controls essential to reduce significant risk of AIS contamination to an acceptable level. One critical control point may control more than one hazard, and one hazard may be control by multiple critical control points.
- Recently a feasibility study was conducted in conjunction with the state of Michigan to determine the practicability of developing a HACCP verification program for the bait industry.
- The proposed verification program would likely be a 3-year verification, with a verification body to award verification status and a training program to instruct bait harvesters and shop owners about correct implementation of a HACCP plan.
- A baitfish industry workshop indicated that industry would be likely to participate in a verification program because they are worried about adhering to all applicable regulations, but that they would be willing to pay less than \$1,000 for such a verification program. The feasibility study estimated that actual cost of a verification program would likely be between \$2,300-\$4,300 per year.

GLDIATR & Internet Trade Update

Erika Jensen, GLC

- GLDIATR is a software tool that performs automated searches of the internet via search engines using a watch list of species names. When the tool identifies a page containing a set of search terms, it downloads the page and scans for other terms on the page that confirm the page is a sale page.
- Phase I findings included 58 species found in trade in the first 30 days of the launch of the tool, of which 92% were plants. 63% of sellers were located in the United States.
- 162 retailers were contacted about their inventory; 14 retailers made updates to shipping restrictions, 14 sites removed the species in question from their inventory, and 11 firms responded asking for further information.
- GLDIATR is entering Phase II of development, which will enhance the tool and add functionality above the Phase I demonstration tool.
- The GLC has also established a GLDIATR advisory board to track updates to the system and provide feedback. This advisory board will be the first users to integrate the GLDIATR tool into state activities and will help to report on any impacts the tool has contributed to in online trade.

Developing Scientifically-Based Ecosystem Report Cards

Bill Dennison, University of Maryland Center for Environmental Science

- Environmental report cards serve as a tool for integrating data, categorizing actions, and engaging stakeholders.
- The report card system was developed for the Chesapeake Bay, and was expanded for development in the Mississippi River basin, where over 700 participants and stakeholders were engaged in the creation of a Mississippi River basin report card. This work included a regional workshop to identify key values and threats within the system, indicators to track values and threats, and to help develop a conceptual model for the report card.
- Report card development follows five steps:
 - Create a conceptual model,
 - Identify key indicators based on best available data, science, technology, and stakeholder input,
 - Define thresholds for indicator scores based on best available data, science, and technology,
 - Calculate scores, and
 - Communicate those scores to the broader community.
- The goals by which basins are “graded” on are individualized to each region to remain consistent with community priorities. The Mississippi River basin ecosystem goal includes AIS indicators.
- Data for a Great Lakes basin report card largely already exists due to monitoring and modeling efforts of the region.
- Management agencies have typically initially greeted the idea of a basin report card with trepidation, but including a set of diverse stakeholders provides momentum to move forward and overcome that fear. Recognizing existing efforts and where more resources could be invested is a primary goal.
- The report card system adds value to the U.S. Environmental Protection Agency (EPA) State of the Great Lakes report by incorporating a more comprehensive review of factors outside of ecosystems, including water supply, recreation value, and transportation. Further, creating supporting graphs and maps for all data included in the reports communicates the information more effectively.

GLP Decisions Items: Blue Accounting

Bob Wakeman, Wisconsin DNR and GLP Chair

- As proposed, the Blue Accounting AIS pilot program would center on two existing GLP initiatives: the Risk Assessment Ad Hoc Committee clearinghouse, and the Research Coordination Committee AIS funding gap analysis. For these initiatives, Blue Accounting would provide facilitation and add technical support to provided added value above what the GLP can accomplish on its own. The vision for the clearinghouse is to create the value-added components to complement GLANSIS’s database, while the priority for the AIS funding gap analysis would augment funding for this initiative to provide added support for staff in order to make the analysis as comprehensive as possible.
- The GLP would make decisions regarding intellectual property, as well as work focus. There may be other GLP initiatives that can benefit from inclusion in the AIS pilot project.
- The support of the Governors has helped to secure funding and support for the Blue Accounting initiative, but they will not be directly overseeing implementation.
- A dramatic increase in workload is not expected for GLP if the GLP agrees to engage with Blue Accounting. The projects that the AIS pilot will assist on will continue to operate as usual with conference calls, webinars, and face to face meetings in conjunction with GLP meetings.
- The broader impact of a collaborative are the products it produces; if there is not a community want or need for the product, the impact of a collaborative effort is lessened. This is why engaging the GLP was a high priority for the AIS pilot project, in order to be responsive to the needs of the AIS community.
- Following discussion, the GLP recommendation is for the GLP executive committee to continue to work with the Blue Accounting team, to assess opportunities for GLP involvement in the AIS pilot project. The executive committee will focus on the risk assessment clearinghouse and request a proposal of what Blue Accounting can develop and provide beyond the capacity of GLANSIS. This proposal will be brought back to the full GLP for direction and decision.

ACTION ITEMS

- ExCom (or a subset) will convene to consider options for the GLP to engage in Blue Accounting.
- The Risk Assessment ad hoc committee has a draft set of recommendations that will be refined based on the outcomes of the Blue Accounting discussion.

Advancements in Species Management and Control

Moderator: Sarah LeSage, GLP Vice Chair, Michigan Department of Environmental Quality (DEQ)

Understanding the hydrodynamics and mixing characteristics in the Brandon Road Lock and approach channel

Frank Engel, U.S. Geological Survey (USGS)

- USGS activities at Brandon Road operate within an integrated pest management framework focused on understanding the life history of carp, baseline channel characteristics, and risk assessments to ensure that control methods will work within a complex system.
- USGS has five gauges running within the channel to measure water chemistry and dissolved CO₂. Bottom gauges measure 2-D velocity when the lock is releasing water and flow is downstream, and when the lock is closed and flow is upstream.
- To understand the mixing of lock constituents under varying environments, USGS conducted a dye study, injecting dye into the lock and tracing dye activity in the lock and approach channel as the lock operates.
- The dye confirmed that when the lock was full, discharge was leaking from the lock. This is a typical problem with older structures and an engineering design for a bypass case is currently being investigated by the U.S. Army Corps of Engineers.
- When the lock is filling, there is a high velocity of water and mixing is good. However, non-dissolved particulate matter floating in the channel was not mixed and floated upstream.
- When the lock is being emptied, dyes moved downstream, but remained within the approach channel rather than mixing and drifting further downstream. The flowout of the spillway creates a situation where water is pushed back into the approach channel, concentrating discharge in this area.
- The U.S. Army Corps of Engineers, in an effort to identify alternate methods to flush the lock, opened gates downstream and opened valves upstream; however, the dye remained within the lock.
- New technologies currently being test for carp control include hot water and chlorine treatments, and sound control. Hearing range is currently being investigated in the lab with field trials.

Sea Lamprey control program research update

Tyler Buchinger, Michigan State University

- Current lamprey control efforts focus on the larvae and adult life stages; lampricides are used to control larvae, while physical barriers are in place to prevent upstream migration by adults to natal areas.
- Populations are declining, but remain above target levels for Lake Huron, Lakes Superior, and Lake Erie.
- There is a continuing search for alternative cost-effective treatment methods for areas where it may be more difficult to treat populations. There are concerns about non-target effect of lampricides, connectivity issues related to barriers, and the potential for larvae to develop resistance to lampricides.
- Sterile male release is an option that is currently being explored. Traps are deployed to catch adults; females are released while males are sterilized and released back into the water body.
- The sterile male approach was used in the St. Mary's River where it appeared to be successful, but was discontinued because it was difficult to assess if the reduced recruitment levels were aligned with the sterilized male ratio. The sterile male release program will be continued on an experimental basis in the upper Cheboygan River (Pigeon, Sturgeon, and Maple rivers, Northern Lower Peninsula of Michigan) during 2017, 2018, and 2019. Because this watershed contains very few spawning adult sea lamprey, a very high ratios of sterile males to normal males should be achievable and nearly eliminate all reproduction.
- Sterile male release will be used in the Cheboygan River where a higher sterile male ratio can be achieved.
- Pheromone testing is ongoing. Pheromones currently being tested are:

- migratory pheromones that are associated with spawning areas and attract adults
- alarm pheromones that indicate the presence of dead adults and/or larvae in the water column and cause lampreys to avoid that area
- mating pheromones used to attract females
- antagonist pheromones used to block mating pheromone receptors in adult females
- Pheromone baited traps are in use already at some dams; management-scale testing of pheromone-baited traps showed a modest increase in catch in the pheromones trap, which would likely increase if baited with a full pheromone mix, rather than just one.
- Electrical guidance is another potential control method and utilizes vertical electrode pulsing DC fields. These fields do not induce mortality and are highly portable and cheap to install. They are currently being tested as temporary, rather than fixed, barriers to prevent upstream migration.
- Adult lamprey trapping is being expanded from assessment trials to commercial control mechanisms.
- Pheromones and electrical guidance can be used in conjunction with traps to reduce the need for physical stream barriers, increasing connectivity. The electrical guidance impacts non-target migrating fish by guiding and blocking their movement, but injury and mortality of non-target fish are low and they may pass through the barriers freely during the day when the electricity is deactivated. The electricity can be turned off during the day because lamprey are primarily active at night.
- Genetic tools are emerging with potential for use as control mechanisms. The genome of the sea lamprey has been recently described, presenting an opportunity to begin exploring gene silencing mechanisms and biased gene inheritance, which can be utilized to create daughter-less populations or sterile offspring.

Other Business

Public Comment

- The floor was opened for public comments; none were received.

Announcements

- Doug Jensen, Minnesota Sea Grant, noted that Upper Midwest Invasive Species Conference 2016 conference program and abstract booklet are now available online.
- Jen Read, University of Michigan Water Center, provided a brief update on a project funded by the Great Lakes Fishery Trust aimed at applying sea lamprey governance and policy to other AIS threatening fisheries.
- Nick Popoff, Michigan DNR, announced that Michigan Governor Rick Snyder had allocated \$1 million in the state budget for an invasive carp challenge to find innovative solutions to the issue. Michigan DNR staff will be unable to dedicate the time run this challenge, and so will be putting out an RFP for companies to run this challenge and work with state employees to identify issues and utilize global marketing to find solutions.
- Jamie Schardt announced that he is happy to serve as a point of reference for any questions regarding the recent U.S. EPA announcement of the discovery of a new species, *Thermocyclops crassus*, in Lake Erie.
- Gavin Christie announced that the International Conference of Aquatic Invasive Species call for abstracts deadline is December 15.

The GLP meeting was adjourned.