Great Lakes Panel on Aquatic Nuisance Species Meeting Summary

National Oceanic and Atmospheric Administration (NOAA) Great Lakes Environmental Research Laboratory (GLERL) 4840 S State Rd, Ann Arbor, MI 48108| December 10-11, 2024

Additional meeting information including a final agenda and presentations are available on the Great Lakes Panel website (https://www.glpanel.org/meetings-admin/past-meetings/)

Welcome and Introductory Remarks

NOAA GLERL Welcome, call to order, roll call, and agenda review

Kelly Pennington, Great Lakes Panel (GLP) Chair, Minnesota Department of Natural Resources (MN DNR); Ashley Elgin, National Oceanic and Atmospheric Association Great Lakes Environmental Research Laboratory (NOAA GLERL); Joe Krieger, NOAA GLERL

- Elgin and Krieger delivered a welcome message on behalf of NOAA GLERL
- Krieger highlighted the history of the aquatic invasive species (AIS) work at NOAA GLERL which was established in 1954 and guided by legislation (e.g., Great Lakes Water Quality Agreement)
- Tank facilitated a roll call of Great Lakes Panel on Aquatic Nuisance Species (GLP) members
    - Quorum was reached
- Pennington reviewed the meeting agenda and no amendments were made

GLP Business Items

Kelly Pennington, GLP Chair, Minnesota DNR; Sam Tank, GLP Coordinator, Great Lakes Commission (GLC)

Approval of June 2024 meeting summary

- The June 2024 meeting summary was approved as presented

Review of June 2024 action items

- Tank reviewed action items from the June 2024 meeting and their status toward completion
    - Action items completed by the GLP Executive Committee (ExCom), GLP staff, and GLP members were reviewed
    - Ongoing action items include updating the GLP work plan and making a recommendation on the proposed Ruffe Control Program archival; both of these action items are discussed later in the business session. Additionally, the ExCom is working to define the GLP's relationship with the ANSTF which will be informed by the spring 2026 ANSTF meeting

2025 – 2028 GLP work plan

- The GLP will initiate the development of its next four-year work plan for 2025-2028 which aligns with the GLRI action plan update timeline
- The GLP ExCom will dedicate a session at the spring 2025 meeting to review progress and update workplan priorities
- The current workplan is on the GLP website for members and committees to review before the spring 2025 meeting

Committee Reports

Committee Charge Update

Sam Tank, GLP Coordinator, GLC

- A standing committee charge template is under development. Charges have never been in place prior for standing committees but are being introduced to help guide committee work. Each standing committee charge is anticipated to be finalized in early 2025
- All committees are currently working on drafting section 5 of the charge which outlines the focus of the specific committee's work for the next 4 years
- Section 6 of the charge outlines the relationship of the GLP to the ANSTF and other regional panels and their standing committees. This section is still in development
    - Tank requested GLP membership input on section 6 of the committee charge by the end of January 2025

Organisms in Trade (OIT) Ad Hoc Committee

Greg Hitzroth, OIT Ad Hoc Co-chair, Illinois-Indiana Sea Grant; Francine MacDonald, OIT Ad Hoc Co-chair, Ontario Ministry of Natural Resources (OMNR)

- Hitzroth provided an update on the OIT Ad Hoc Committee's GLRI Interjurisdictional (IJ) project to engage with the bait industry
    - Pennsylvania Sea Grant has gathered and reviewed bait guides from across the Great Lakes region which will be synthesized into one regional bait guide
    - The Committee is exploring ways to engage with the bait industry in 2025. Hosting a symposium is no longer logistically feasible due limited capacity and desire for the bait industry and law enforcement to effectively communicate with one another
- The Committee supports the GLDIATR project by serving on its advisory committee
- The Committee provided support to the OIT State and Tribal Programmatic Assessment project being led by the GLC. This project utilizes interviews to identify Great Lakes commonalities in OIT work across jurisdictions
- The OIT Ad Hoc Committee meeting held an IJ project brainstorming session at their last meeting and will continue scoping potential projects

Information/Education Committee (I/E Committee)

Doug Jensen, I/E Committee Chair, Minnesota Department of Natural Resources

- The I/E Committee has not met since the spring 2025 GLP meeting
- The Committee has since renamed to the Outreach Coordination Committee. The name was changed to align with other regional panel committees and promote a more action focused approach
- The Committee's next meeting will be on December 18, where they plan to brainstorm potential IJ funding opportunities with a focus on waterfowl hunter outreach
- The Committee's ongoing efforts include finalizing the Committee charge, developing guidelines for Committee work, and brainstorming IJ projects
- The Committee continues to promote new outreach programs through regular member updates

Research Coordination Committee (RCC)

Lindsay Chadderton, RCC Chair, The Nature Conservancy (TNC)

- This Committee is advising ongoing IJ projects including the Invasive Aquatic Plant Research Agenda and Evaluating Control of Priority Establish Species
    - The Invasive Aquatic Plant Research Agenda project established research priorities for the management of aquatic invasive plants, which were recently finalized and are in the process of being published
    - The Committee is working to identify focal established species and identify available management options for the Control of Priority Established Species project
- The Committee is brainstorming new IJ projects focused on better understanding waterfowl hunter behaviors and movement within waterways, understanding the movement of hitchhikers in the live trade pathway, and predicting risk and prioritizing monitoring of small lakes and streams

Policy Coordination Committee (PCC)

Patrick Kočovský, PCC Chair, U.S. Geological Survey (USGS)

- This Committee recently went through a name change that better reflected their scope and provided cohesivity with the other of the standing committees. The Committee shall now be referred to as the Management Coordination Committee
- The Committee will meet next on December 18th to make progress on the Committee charge, scope future Committee work, and brainstorm IJ projects
- Ceci Weibert with Michigan Department of Environment, Great Lakes, and Energy (EGLE) is the new Committee vice chair
- The Committee has focused on recent efforts reducing the risk of diploid Grass Carp to the Great Lakes
    - Kočovský provided a history of the Grass Carp ploidy issue including unsuccessful efforts to prohibit diploid stocking of Grass Carp in the Great Lakes region
    - Law enforcement, Grass Carp producers, and Grass Carp buyers should be included in discussions regarding potentially prohibiting diploid Grass Carp
    - There is evidence that diploid Grass Carp recently captured in Lake Erie may have originated in aquaculture, however their exact origins are unknown
    - Prohibiting Grass Carp may be counterintuitive since they are popular for plant management in some Great Lakes States and people will continue to import diploids for that reason. Instead, it may be more important to focus on only allowing triploids and stopping diploids from getting into the Great Lakes unknowingly or illegally

Programmatic updates

Great Lakes Aquatic Nonindigenous Species Information System (GLANSIS)

Rochelle Sturtevant, GLANSIS Program Manager, Michigan Sea Grant Extension

- Sturtevant introduced GLANSIS team members and announced Ed Rutherford's retirement this past September
- Notable changes have been made to GLANSIS since the Spring 2024 GLP meeting
    - Seven algae species that were misidentified or have had no reports within the last 50 years have been delisted from the Great Lakes Watchlist, and *Sphacelaria fluviatilis* will be placed back on the watchlist

    - The *Barbarea* complex (three watercress species) is being placed onto the Great Lakes Watchlist because its range has expanded into wetland areas
    - Alligator weed (*Alternanthera philoxeroides*) is being added to the watchlist
    - There are some additional species changes in review that will be discussed at the spring 2025 GLP meeting
- This fall, the GLANSIS team lead a pilot project where undergraduate and graduate students helped review and update species profiles. This procedure could be a model moving forward to complete basic literature reviews more quickly. Additional quality control protocols will be completed by the GLANSIS team
- GLANSIS is revamping their overall review processes this year and are planning the first public review of the GLANSIS website. The new review process will include two expert reviewers per species who will receive an honorarium for completing species reviews. Those interested in being a reviewer should contact Rochelle Sturtevant (rochelle.sturtevant@noaa.gov)
- A new project will conduct an invasive species threat assessment to identify at risk habitats for Walleye, Yellow Perch, and Lake Whitefish in the Great Lakes
- An invasive species language workshop was held in Washington D.C. hosted by Sea Grant and the North American Invasive Species Management Association (NAISMA) during National Invasive Species Awareness Week 2024. The workshop brought together researchers and practitioners from across environmental disciplines to address communication needs regarding invasive species. A final report from this workshop can be found here: https://www.michiganseagrant.org/wp-content/uploads/2024/10/Invasive-Species-Language-Workshop-Report.pdf
    - An additional publication from this work will be published in the International Conference on Aquatic Invasive Species (ICAIS) species session in the Management of Biological Invasions journal in 2025
- A project is being completed to understand snail species identification and parasite dispersal via snails. Mystery snail collection work as part of this project was successful in 2024 but researchers are still in need of more mystery snail samples from the Great Lakes region. Those interested in contributing specimens in 2025 should visit: https://www.glerl.noaa.gov/glansis/contributeSnails.html or email to Rochelle Sturtevant (Rochelle.sturtevant@noaa.gov)

Aquatic Nuisance Species Task Force (ANSTF)

Susan Pasko, U.S. Fish and Wildlife Service (USFWS)

- Pasko reviewed the ANSTF's November 2024 meeting outcomes and subcommittee progress
    - The ANSTF supports the development of state and interstate invasive species management plans and recently approved a plan for Delaware, bringing the total approved invasive species management plans up to 47
    - Three items were voted on at the last ANSTF meeting including approval of the Delaware state management plan, approval of the New Zealand Mud Snail Management Plan, and conditionally approving the Joint Invasive Species Advisory Committee / ANSTF Rapid Response Framework Implementation Work Group's recommendations on the National Early Detection Rapid Response Framework
    - Pasko reviewed the actions items from the November ANSTF meeting

        - The Early Detection Rapid Response Subcommittee will share a recently developed rapid response template to regional panels for comment
        - The Outreach Subcommittee will develop guidance on best practices for inclusive language in invasive species management
        - ANSTF members and regional panels will provide input on the USFWS strategic plan
        - The Executive Secretary will share the ongoing moss ball rapid response summary report as well as schedule a regional panel principal meeting to discuss next steps for the Ruffe Management Plan
        - The Rapid Response Fund Working Group will work to streamline the review process to accommodate urgent priorities
        - The Control Subcommittee will distribute the Guidance for Aquatic Nuisance Species Control and Management Plans to the ANSTF and Regional Panels for review
- The Prevention Subcommittee identified sea planes as a risk for spreading invasive species which led to a risk assessment to identify recommendations to make to pilots and manufactures. More can be viewed on this work at: https://www.seaplaneandais.com/. This work will be completed in February 2025
- The Outreach Subcommittee held a National Outreach Summit at the 2024 North American Invasive Species Management Association (NAISMA) conference
- The ANSTF is trialing a modernized and expanded Invasive Species Experts Database (https://siren.fort.usgs.gov/findexperts)
- There are two newly formed ANSTF working groups. The VIDA ANS Risk Response Framework Work Group is so-led by the U.S. Coast Guard EPA and aims to develop a framework for responding to new aquatic invasive species introductions, including but not limited to ballast-water mediated introductions. The Invasive Coral Working Group is a joint initiative with U.S. Coral Reef Task Force working to mitigate recent Pacific and Caribbean invasions
- The Ruffe Control Program is currently being evaluated by the regional panels and a decision to archive is likely to be made in 2025
- Planned ANSTF activities for 2025 include:
    - Better support and track existing national species control and management plans,
    - Updating the National AIS Research Priorities List,
    - Implementing recommendations from the after-action report on the moss ball response,
    - Developing a report that identifies legislative, programmatic, and regulatory gaps for AIS,
    - Writing a memorandum of understanding revitalizing the Habitattitude campaign, and
    - Restarting a weekly ANSTF newsletter

Invasive Carp eDNA

Amy McGovern, USFWS

- From 2013-2014, the USFWS took over environmental DNA (eDNA) surveillance of bighead and silver carp from the U.S. Army Corps of Engineers (USACE) in the Great Lakes and surrounding watersheds. The Whitney Genetics Laboratory in Wisconsin processes these genetic samples using quantitative PCR (qPCR)

    - While originally supported by GLRI funding, eDNA surveillance is now funded and facilitated by USFWS base fishery survey
- The USFWS annually surveys 16 tributaries in the Chicago waterway system and have optimized their sampling to occur in the spring and fall when the eDNA is most detectable
- USFWS processes close to 10,000 samples every year and have trained teams for eDNA sample collection in several field offices across the Great Lakes basin
    - The USFWS has developed protocols for eDNA sample field collection and laboratory analysis, which have been refined over the past decade to increase efficiency of detection
- Detecting eDNA does not confirm the presence of a live fish and should be used as a monitoring and early detection tool in addition to traditional sampling methods
- As part of USFWS eDNA communication plan, USFWS has a filterable dashboard of all collected eDNA data: https://www.arcgis.com/apps/dashboards/52b22abe9c4d4575adfe851a946f444d
- USFWS continues to lead research and development on eDNA collection and processing methodologies to optimize protocols and reduce costs
    - USFWS recently completed testing in the upper Mississippi River on the efficacy and feasibility of using backpack eDNA processing gear
    - USFWS is developing methods using environmental RNA (eRNA), which theoretically can indicate live fish presence
    - USFWS wants to support jurisdictions with grass carp monitoring, which could lead to a more formal grass carp eDNA surveillance program in addition to the ongoing bighead and silver carp surveillance
    - USFWS is also developing high throughput metabarcoding sampling and analysis protocols with the goal of combining qPCR surveillance with metabarcoding
- Jurisdictions are responsible for developing their own eDNA detection communications response plans, however the Council of Great Lakes Fisheries has communications protocols that jurisdictions can use

Brandon Road update

Scott Whitney, USACE

- The Brandon Road Lock and Dam Project takes place in Joliet, Illinois along the Des Plains River. This infrastructure project was designed to prevent the spread of invasive carp and other aquatic nuisance species into the Great Lakes. The project involves a multi-faceted approach, including automated systems, acoustic deterrents, and other technologies to prevent the upstream movement of invasive carp.
- For Increment 1 of the project, the first construction contract was awarded to begin rock removal and site preparation. Work is anticipated to be underway from January - April 2025. A groundbreaking ceremony will occur on February 11, 2025
    - Solicitation of contractors to develop the leading-edge deterrents will occur in January 2025 with the hope of selection in summer 2025
- For Increment 2, the solicitation of contractors to design the larger hydro-electric and acoustic barriers will occur in January 2025 with mobilization in summer 2025

- USACE continues to send regular newsletters and host webinars to share project updates with stakeholders. More information on this work can be found at: https://www.mvr.usace.army.mil/Missions/Environmental-Stewardship/BR-Interbasin-Project/
- Important considerations for this work include gaining stakeholder support, minimizing impacts on navigation, chronological barrier design completion, invasive carp detections, ensuring the product is safe and operable will all intents and purposes, and streamlining contractual and real estate progression
- Whitney displayed images of the various deterrents that will be implemented in the project including a bubble curtain, acoustic deterrence, electric deterrence, physical channelization, flushing mechanism, and a turbulence creating system that carries fish and other floating materials downstream
- In 2023, a single Bighead carp was detected above the Brandon Road Lock and Dam initiating a rapid response effort. No other individuals have been detected since that time

Next steps for national Ruffe Control Program Archival

Lindsay Chadderton, TNC and Mike Rucinski, USFWS

- Chadderton and Rucinski reviewed the timeline and process of the GLP response to USFWS memo to archive the Ruffe Control Program
    - The ANSTF Control subcommittee asked USFWS to serve as the plan manager for the Ruffe Control Program, under the new system of plan maintenance outlined in their Guidance for Aquatic Nuisance Species Control and Management Plans. In response, the USFWS conducted a thorough review of the plan and recommended archival of the Ruffe Control Program to the ANSTF. USFWS consulted with the GLP throughout their review process, and invited the GLP to provide their own recommendation to the ANSTF in response to the USFWS recommendation to archive
    - The GLP did not come to consensus regarding Ruffe Control Program archival and submitted a memorandum to the ANSTF that captured member discussions and priorities
    - The ANSTF is requesting all regional panels provide input on potential archival, with a tentative vote planned for ANSTF members at the spring 2025 meeting
- Chadderton asked GLP members if they would like to provide additional input on the existing Ruffe Control Program
    - Previous GLP discussions were in response to the USFWS recommendation to archive, rather than more generally on the future of the plan. GLP membership was split in their vote in support of archival
    - Additional input is likely needed from the GLP and other regional panels by April 2025
    - In prior discussion, GLP representatives stated that the current Ruffe plan is not relevant to current day management, but archival is also not desired by all members
    - To keep the Ruffe plan active, USFWS needs support from a majority states and a volunteer plan liaison
    - The ANSTF Control Subcommittee discussed development of national vs regional control plans. National plans are strongly encouraged to seek ANSTF approval, but other regional plans may not need to involve the ANSTF
    - There is much uncertainty with plan archival and what support (e.g., financial, logistical, etc.) would be available if a major range expansion should occur in absence of an active plan. The ANSTF has assured members that archival can be reversed at any time

    - The ANSTF has never archived a species control plan and are developing and refining the archival process as we work through questions with the Ruffe Control Program
- Chadderton inquired how to get input and better represent Native Nations in this work and plan moving forward
    - The Chippewa Ottawa Resources Authority would have interest in being part of this work
- A small GLP working group will be organized to discuss what is still relevant or needed within the Ruffe Control Program
    - Participation from GLP members is encouraged

GLP Member announcements and updates

- Jensen thanked everyone for attending the 2025 Upper Midwest Invasive Species Conference (UMISC) in Duluth, MN
    - The next UMISC will be October 6-8, 2026 in Lacrosse, WI
- The Invasive Species Centre (ISC) is hosting their annual virtual invasive species forum in February 2025. Registration is free (https://www.invasivespeciescentre.ca/event/2025-invasive-species-forum/)
    - The ISC's Invasive Species Action Fund and *Phragmites* Control Fund are both open for applications
    - The International Conference on Aquatic Invasive Species (ICAIS) will be held in Belfast, Ireland, in August 23-27, 2026

Public comment period

- There were no public comments or final remarks

Adjourn Business session

- Pennington made a motion to adjourn the business meeting

GLRI Interjurisdictional Projects Plenary Session

Welcome and Introductory Remarks

Patrick Kočovský, USGS

- Kočovský called the session to order and provided an introduction
- Interjurisdictional projects are those funded by the Great Lakes Restoration Initiative (GLRI) through the U.S. Fish and Wildlife Service. State and Tribal AIS managers provide input on which projects receive funding in a competitive process

Aquatic Plant Survey Implementation

Julianne Heinlein, Great Lakes Environmental Center (GLEC)

- Heinlein shared results from early detection plant surveys of three priority surveillance sites completed in 2024 and discussed plans for 2025 sampling efforts
- Point intercept surveys for aquatic macrophytes were conducted in Lake St. Clair, Michigan, the lower St. Joseph River in Michigan, and the St. Louis River in Duluth, Minnesota and Superior, Wisconsin. Surveys focused on detection of the top 25 plant species from *The Nature Conservancy*'s surveillance species list

    - No new invasive species were detected; notable existing invasive species included starry stonewort and flowering rush in Lake St. Clair, *Cabomba caroliniana* in the St. Joseph River, and Eurasian watermilfoil in the St. Louis River. Survey methods used focused on aquatic macrophytes and may not have captured incidences of emergent plants
    - Heinlein provides species data to the Midwest Invasive Species Information Network (MISIN), USGS Nonindigenous Aquatic Species (NAS), and GLANSIS. Contact Julianne Heinlein at jheinlein@glec.com if interested in more detailed survey result data
- Preliminary sites chosen for sampling in 2025/2026 include those in Michigan (Detroit and Rouge rivers), Wisconsin (Sturgeon Bay), Pennsylvania (Erie/Presque Isle), Ohio (Toledo/Maumee River, West Harbor/Marblehead/Lake Erie), and Illinois (Chicago/Chicago River mouth) and are based on priority sites identified by TNC
    - In the past 3 years, GLEC has sampled sites in Michigan (Lake St. Clair, Grand Haven, St. Joseph), Ohio (along Lake Erie), Indiana (along Lake Michigan), Wisconsin (Green Bay) and Minnesota (St. Louis River area) focusing on TNC priority sites
    - Discussion focused on potential 2025/2026 sampling sites, including the St. Marys River and Chicago harbors. It was suggested that Sturgeon Bay may not be a priority due to recent plant surveys
    - Contact Julianne Heinlein at jheinlein@glec.com with any recommendations for sites to sample or for plant biologists to hire. Site selection must be completed by February 2025

Interstate Early Detection & Rapid Response

Lindsay Chadderton, The Nature Conservancy (TNC)

- Chadderton discussed Phase 4 of the Interstate Early Detection & Rapid Response (IEDRR) project and plans for the upcoming Phase 4.5
- Phase 4 accomplishments included facilitating the annual regional surveillance meetings, improving and refining invasion risk models from the Great Lakes, creating invasion risk models for inland lakes across the Great Lakes states, and developing best practices for plant surveillance methods in inland lakes
    - Improvements to the Great Lakes model included enlarging the size of the map's grid cells to 15x15 km, which allowed better representation of narrow geographical features like bays. The team is working on adding an empirical model of fish richness as a predictor
    - The inland lakes invasion risk model used machine learning to develop site prioritization maps for three taxa (plants, fish, and invertebrates) for all inland lakes and reservoirs >5 acres across the Great Lakes states. Invasive species risk is higher when closer to known AIS populations, closer to urban areas, and at more disturbed sites. The web app to view this data is now online. Taxa-based results can be disaggregated to species, but the data may not be very informative due to low observations of some species
    - The team developed best practices for plant surveillance methods in inlands lakes through a technical workshop, and produced a best management practices guidance document

- Plans for Phase 4.5 include revising and updating the regional communication plan, aligning the Great Lakes and inland lakes surveillance data and models, and improving the models by adding connectivity between lakes. There are also plans to update the communication plans for novel species detections through environmental DNA
- The team is also working with the National EDRR Framework to trial a project in the Great lakes which will include collecting water samples for metabarcoding

Invasive Crayfish Early Detection and Surveillance

Brian Roth, Michigan State University

- Roth displayed a newly published almanac to invasive crayfish
- Roth's team conducted a literature search to identify invasion pathways for non-native crayfish and plan to publish their findings in a manuscript
    - The literature search focused on published papers from 2000-2024 and included 4,800 papers, only 48 of which were relevant to the Great Lakes
    - The literature focused on two main species, rusty crayfish and red swamp crayfish, and the most common invasion pathways identified were release (e.g., bait buckets), escaped pets, escaped from aquaculture, and misidentification
    - Future goals include efforts to limit the release pathway through public engagement and standardizing invasive crayfish introductory laws around the Great Lakes
- Roth discussed the next steps for improving stakeholder relationship and educational outreach, including:
    - Engaging with live trade retailers and creating a regional brochure with regulations to be distributed
    - Conducting training sessions for natural resource professionals focused on how to identify crayfish and who to call if invasive species are found. If there are ideas for where to hold workshops or who to engage, email Brian Roth at rothbri@msu.edu. GLP suggestions for groups to engage with were lake associations in Minnesota who are working to monitor and identify rusty crayfish
    - Documenting current sampling for crayfish to determine where sampling is needed

Exploring Stakeholder and Community Perspectives on Genetic Biocontrol for Invasive Species

Jason Delborne, North Carolina State University

- This project focuses on perceptions surrounding genetic biocontrol in the Great Lakes. Delborne provided background on his role as a social scientist thinking about controversies surrounding biotechnology. His research has found that public engagement around these issues cannot be an afterthought, and that often encouraging and conducting stakeholder engagement is just as important and developing the science
- Delborne provided an overview of the interviews his team conducted with resource managers about genetic biocontrol projects in the Great Lakes. Results will eventually be published in a white paper

    - Challenges and concerns identified from interviews included long development timelines, high research and development costs, unintended movement of modified species, modified species survival, and public opposition
    - Interviewees also were concerned about regulations, including a lack of current regulations and lack of clarity on agency jurisdiction
    - Through the interview process, Delborne found that including RNA interference (RNAi) and other genetic biocontrol tools in the same category of methods may not be productive since RNAi will likely have a different regulatory process (i.e., it is similar to herbicide application where only a single generation of a population is impacted) and fewer potential ecological impacts than other methods of genetic biocontrol, where a species is genetically modified and released into the population. The GLP discussed this distinction at length, and there were concerns that the two technologies might not differ from the public's perspective, or that some agencies might not distinguish the difference. It was suggested that future interviews could focus on this question
- In the future, Delborne's team will conduct workshops focusing on 1-2 species and involving states and local partners
- Delborne's team is planning Tribal cooperative projects that are co-produced with Tribal members. Projects are focused on two-eyed seeing and ethical space; not simply taking Tribal knowledge but considering genetic biocontrol technologies with different worldviews. They are hoping to create projects that will be valuable to the Tribes and are forming a Tribal steering committee to develop research questions
- Contact Jason Delborne delborne@wisc.edu with any suggestions for stakeholders to interview in phase 2, any known genetic biocontrol projects not already discussed, potential advisory board members, and partners and locations for workshops

Control of Priority Established Species

Lindsay Chadderton, TNC and Alisha Davidson, GLC Contractor

- Chadderton provided a review of past work, including preparation of a manuscript and assessing GLRI site-based AIS control efforts
    - Analysis of the publicly-available GLRI project data did not yield information needed to accurately map or describe the extent of invasive species control. More information is needed from the Environmental Protection Agency (EPA) to continue this work
    - The team may pivot to an expert-driven assessment of which species to manage and where, which will require agreement on critical habitats and scales
    - Chadderton discussed the current development of a decision tree tool to determine the suppression methods that have the highest probability of success for each priority species
        - This process will use decision analysis techniques to evaluate the feasible control strategies that may exist in each habitat x species scenario
        - Next steps will involve asking experts to help identify a list of priority species for management and determining which species x habitat combinations should be targeted for the most ecological benefit

Closing remarks
Patrick Kočovský, USGS

- *Kočovský* thanked the speakers for their presentations and the attendees for their attention

Special Topic: Hydrilla

Welcome and Introductory Remarks, Overview of Special Topic
Doug Jensen, MN DNR

- Jensen provided opening remarks
- *Hydrilla verticillata* (Hydrilla) is an invasive aquatic plant, usually found in shallow waters
- Hydrilla was first detected in the Midwest beginning with Indiana in 2006
- Hydrilla is typically spread through sales of aquatic plants contaminated with Hydrilla or through unintentional transfer of aquatic plant fragments from infested water bodies, such as through boats and other watercraft

Ontario
Francine MacDonald, OMNR

- Ontario detected Hydrilla in the province June 30, 2024, as part of a separate monitoring effort. This was the first detection of Hydrilla in Canada
- Hydrilla is regulated under Ontario's Invasive Species Act of 2018
- The relationships established through the GLP enabled quick communication with other agencies experienced in hydrilla management
    - Official notifications went out within three weeks of detection through multiple channels to the public, key stakeholders, and First Nations
- The initial detection occurred at Hillman Marsh Conservation Area, which is managed for waterfowl hunting by Essex Region Conservation Authority (ERCA), a regional government agency that works with the municipalities
    - The University of Waterloo Wetland Laboratory was contracted to conduct pre-treatment vegetation surveys to establish a baseline of the Hydrilla population within Hillman Marsh. Hydrilla was not detected at any other monitoring locations, leading to the assumption that the Hydrilla is contained and has not spread into Lake Erie
    - Due to the limited public access to Hillman Marsh and that the most infested areas surround duck blinds, it is likely that Hydrilla spread to this area from waterfowl hunters. Public access and a waterfowl hunt in the area were disallowed to prevent further spread
    - The infestation appears to be in relatively early stages of invasion
- Due to the ongoing restoration efforts at Hillman Marsh, a well-defined and actively engaged group of partners established a Hydrilla response plan and working group, made up of federal and provincial agencies and U.S. technical experts
- The project received in-year funding to begin treatment with ProcellaCOR application in October 2024

- Next steps include seeking multi-year funding for future long-term management, engaging key stakeholders in prevention, management, and detection, and investigating the waterfowl hunter pathway

Michigan

Billy Keiper, Michigan Department of Environment, Great Lakes, and Energy (EGLE)

- The first and only Michigan Hydrilla detection occurred in September 2023. The detection was made late in the growing season but aligned well with grant funding timelines for local Cooperative Invasive Species Management Areas (CISMA) which helped secure response funding
- The detection was made in two landscaping ponds, so the response goal is eradication
    - The site where Hydrilla was detected was already being monitored and treated for parrot feather. There is evidence that Hydrilla had been present for some time in low abundance
    - The ponds are connected to a tributary that flows into the St. Joseph River, leading to an aggressive and immediate treatment response
    - The assumption is that Hydrilla entered these pond systems through ornamental aquarium planting. Hydrilla was found in the same patches where pink waterlilies were planted and parrot feather was detected
- Initial treatment occurred in Fall 2023 using a combination of ProCellaCOR and Aquathol K. Fluridone was used to treat the ponds in 2024 and subsequent monitoring indicated high levels of suppression with no live Hydrilla found
    - Tuber sampling indicated tubers are present in the soil; eradication of the tuber bank would require multiple years of chemical treatment
    - Rather than continuing chemical treatment of the ponds, the state of Michigan will be dredging the ponds to physically remove plant fragments and the entirety of the tuber bank
- The next step for the response is to drain and excavate the two ponds to remove the tuber bank. Excavation is a viable option because the ponds are a small system, the property owners did not want the ponds filled, and aquatic plant restoration is possible following treatment
    - The excavated material from one pond will be buried on site, but the second pond has arsenic levels that require the excavated materials to be disposed offsite creating additional complications and costs.
    - The two dredges for this project cost roughly $280K USD and will begin in January 2025. Most of this cost is material handling due to the smaller pond arsenic levels
    - The landowner response to treatment activities has been positive. EGLE has been working with them for several years, but since the project is voluntary it is important to maintain communication and landowner satisfaction
- As a result of the Hydrilla detection, surveillance efforts are increasing for nearby inland lakes led by EGLE and the local CISMA
    - To date, Hydrilla has not been detected beyond the original ponds

- Due to the nearby Hydrilla detection in Ontario and the high likelihood of Hydrilla spread being linked to waterfowl hunters, EGLE is concerned about additional introductions into Michigan waters
    - The surveillance area was expanded to include main waterfowl hunting access sites in southeast Michigan nearest to the Ontario detection and therefore most likely to be contaminated
- EGLE initiated direct outreach to waterfowl and duck hunters and is working with Ducks Unlimited to develop messaging and reach hunters

<u>New York</u>

Lindsay Yoder, New York State Department of Environmental Conservation (NYDEC)

- Hydrilla was first detected in New York (NY) in 2008. Since then, detections have been reported across the state in 12 counties with management for eradication as the long-term goal for each of these sites. There were no new Hydrilla infestations found in 2024
- Hydrilla is classified as tier 2 regulated species in NY, categorizing it as an emerging threat where eradication is the target management goal
- Herbicide is the primary tool for management of Hydrilla in NY. However, combinations of management actions are being used at various sites, including no management, either for research purposes or primarily due to management challenges at Long Island locations
- Cayuga Lake was one of the first large infestation sites, with first detections in 2008, and management has been primarily led by the U.S. Army Corps of Engineers (USACE) and NYSDEC
    - In 2024, treatments occurred at four areas of the lake using fluridone. Three sites within Cayuga Lake with previous detections did not have any detections in 2024
- The Erie Canal Hydrilla control project began in 2014, led by USACE and NYSDEC, after USFWS detected Hydrilla throughout the Erie Canal. USACE has primarily used endothall, chelated copper, and some benthic barriers with significant reductions from initial detections
    - NYDEC took over as the project lead for this location in 2024. Native plant restoration is ongoing at four sites, in addition to sustained injection of liquid Fluridone in combination with ProcellaCOR and different follow-up management techniques throughout the first 14 miles of the canal
    - Between 2019 to 2023, native plant vegetation declined due to nontarget impacts of herbicide treatment. However, in 2024 there was an increase in native plant vegetation towards the end of the season after the injection and no documented significant impact on native plants
- Hydrilla control in the Niagara River is being led by USACE. Treatments began in 2020 across six known locations. The high flow system characteristics of the Niagara River have made it difficult to maintain concentrations of chemical treatments with a population expansion in 2022
    - The population expansion triggered a point intercept mapping project. The east side of the river was completed in 2023, and the west side was completed in 2024 which revealed no additional Hydrilla beyond the known locations

- A new Croton Reservoir infestation is located upstream of the Croton River infestation that was successfully treated from 2017-2022. This project is managed by the New York City Department of Environmental Protections as it is one of the city's drinking water reservoirs
- Lake Sebago has the only Hydrilla population detected in bloom. The site was first treated in 2023 with high success, and received follow up treatment in 2024
    - This site holds the first documented occurrence north of Virginia of *Aetokthonos hydrillicola*, a toxin-harboring cyanobacteria found on Hydrilla and some other aquatic plants. The cyanobacteria was found in 2013 but not the toxin
- NYDEC will remain flexible regarding control methods and will continue to focus on prevention and early detection

<u>Ohio</u>

John Navarro, Ohio DNR

- Ohio DNR's relationship with Cleveland Metroparks began with funding in 2011 for Hydrilla eradication efforts in their Metroparks. The partnerships developed into funding Cleveland Metroparks to do invasive plant work throughout the Lake Erie watershed
    - Eradication is defined at 8 years with no reemergence
- The Ohio River is a problem area for Hydrilla, as it is a large open river and serves as a vector for other infestation locations to downstream areas
- Through the work of Cleveland Metroparks, Hydrilla eradication was achieved in several Lake Erie watershed sites with many others under active management, not including the Ohio River
    - Three of the locations are USACE managed lakes including Mosquito Creek, Seneca, and Alum, which all have state parks and Ohio DNR managed fisheries
- Having local advocates such as the county tourism board has been helpful for Mosquito Creek Lake, and resulted in legislative support through the governor's office and additional $300,000 of funding over two years
- Cleveland Metroparks put together kits that contain everything needed for Hydrilla detection and surveying, and have been provided to districts and state parks
    - The two main Hydrilla treatments being used in Ohio are Grass Carp in smaller ponds in combination with herbicide treatment, and drawdowns, though there is expert debate on whether drawdowns are effective for Hydrilla as it may provide it an advantage and tubers/turions may survive
    - In Seneca Lake, there is a lower-than-normal drawdown for current work on a dam, during which the team plans to treat Hydrilla with herbicide on the exposed mud flats
- Ohio DNR is pursuing this quarter's ANSTF Rapid Response funding that would be available in May for Alum Creek management
- Ohio DNR has been working with Pennsylvania on Lake Pymatuning Hydrilla control, which has generated a lot of interest from the USACE and local entities
    - Ohio DNR is now shifting their funding away from Lake Pymatuning and Mosquito Creek Lake towards Alum Lake, which is in an earlier phase of infestation and just outside the outer belt of Columbus

Illinois

Alana Bartolai, Lake County Health Department; Claire Snyder, Illinois DNR

- Illinois (IL) created the IL Hydrilla Task Force 2012 for if/when Hydrilla was detected within the state and completed an early detection and rapid response plan in 2014
- The first Hydrilla detection occurred in 2019 by a commercial applicator in a small Lake County detention pond along with other non-natives, leaving the suspected source of Hydrilla as aquarium/water garden trade
    - The convenient location, size, ability to screen off the outlet of this village-owned site, and proximity to Bartolai's team in Lake County allowed for the resources to do on-site monitoring and quick response, with no Hydrilla re-observed after 2020
    - The site continues surveys and resident outreach
- Hydrilla in Ginger Creek Lake, located within a private neighborhood in DuPage County, was reported and verified by IL DNR in October 2024. The infestation spans 10.5 acres of the 26-acre lake
    - The IL Hydrilla Task Force has tools for decision management including established early detection and rapid response plan flowcharts
    - During follow up surveillance, Hydrilla was found downstream of Ginger Creek Lake, making the spread larger than originally suspected. Additional surveillance is needed due to the rapid nature of first-round assessments
    - The suspected source is an aquarium or water garden release
    - Outreach efforts include targeted communication to property owners and other stakeholders and press releases published by IL DNR, which have received traction. Original Hydrilla Task Force outreach materials are also being adapted by local agencies for tailored messaging to specific counties
- Treatment at Ginger Creek HOA Lake is planned for Spring 2025 and will treat the downstream section even though no Hydrilla was detected
    - Aquatic plant surveys, inlet/creek monitoring, and tuber and sediment monitoring need to be completed prior to the next round of treatment
- Bartolai reviewed the challenges encountered within the Ginger Creek Lake system when planning for treatment, including flow dynamics, large acreage, multiple landowners, time, and money
- The Lake County Health Department is unique in that it has an ecological services group with the primary function of monitoring the lakes within the county

Closing Remarks

Doug Jensen, MN DNR

- The case studies shared are evidence that Hydrilla eradication is possible
- As the detection of Hydrilla within Michigan and Ontario are monoecious or clonal strains, it leaves scientists unable to trace detections back to source populations to identify whether populations are closely related or not

    - All northern populations are monoecious to current knowledge
    - New York funded a project last year that was able to identify specific genetic clusters for native range origin rather than spread

Special Topic: Vessel Incidental Discharge Act (VIDA) U.S. Environmental Protection Agency (EPA) Final Rule

Welcome and Introductory Remarks, Overview of Special Topic

Mike Langendorf, GLP Vice Chair, Chippewa Ottawa Resource Authority

- Langendorf provided opening remarks

EPA's Final Rule

Nick Rosenau, U.S. EPA

- Rosenau provided an overview of the 2018 Vessel Incidental Discharge Act (VIDA)
    - The EPA and the U.S. Coast Guard (USCG) were directed to develop and harmonize new standards of performance at a national level
    - Since the EPA published their final rule in October 2024, the USCG has until October 2026 to complete their regulation implementation which replaces the existing requirements
- The Proposed Rule in 2020 included general standards for three groups with additional specific standards for 20 different equipment/systems
    - The 2023 Supplemental Notice incorporated comments, feedback, and evaluation of new data with additional regulatory options the EPA was seeking feedback on before the 2024 publication of the Final Rule
- The EPA is required to review the standards every five years to make sure they are up to date and incorporate any new data
- Six discharge types were examined more closely in the Supplemental Notice primarily due to an abundance of public feedback and outstanding issues that needed to be addressed, resulting in minor to significant changes from the proposals to the final version
- The EPA found there was not sufficient data to revise the ballast tanks Numeric Discharge Standards
- After many discussions between EPA and USCG on the Uptake Best Management Practices, they found it was difficult and impractical to enforce the specific language of "to minimize or avoid uptake in certain situations" for ballast tanks, so the language was not included in the Final Rule
- The Final Rule regulates and defines passive and active discharge biofouling for the cleaning of hull and niche areas
    - Public comments guided the addition of many definitions and background information
- Until the USCG regulations are final, the interim requirements are applicable to state and local governments. There is not a timeline for when the final regulations will be complete, and EPA is supporting USCG during the process to finalize the corresponding implementing regulations under VIDA

- The USCG is doing more outreach and state engagement meetings on how best to enforce these regulations
- Through the next steps and implementation some GLP members and the ANSTF may be engaged in assessing risks and providing feedback on implementation
    - The VIDA ANS Risk Response Framework Work Group established by the ANS Task Force is assisting EPA and USCG with the Intergovernmental Risk Response Framework for ANS as called for in VIDA

<u>Great Lakes Petition Process for Enhanced Standards</u>

Eric Brown, GLC

- Great Lakes governors have additional authorities regarding VIDA and may submit petitions to update best management practices and discharge standards within the Great Lakes
- A petition process can start with a single governor from the eight Great Lakes states with notifications submitted to the GLC Executive Director and the director of the EPA Great Lakes National Program Office (GLNPO)
    - There is a following step that allows the GLC and the GLP to develop a preliminary assessment with specific attributes that the law sets forth, but it is not required
- To maintain greater consistency in the interpretation, enforcement, and petition process of VIDA , there are now more stringent requirements of approval for Great Lakes governors
- There are some time-bound requirements tied to various steps of the petition process that should be considered as part of the petition-planning process
- Given the appropriations timeline being lengthier than what is outlined by the petition process, it is advised that the GLC or GLP evaluate the cost estimate of a petition process, to better prepare ahead of the timebound requirements for the petition process
    - This would also require a process to work through the Appropriations Committee in the U.S. House and Senate to spend those funds, which would require an act of Congress to allocate those funds
- During the petition process there is uncertainty on consultation with the Canadian provinces, and what role, if any, the GLP has in that process
    - The law only states that a consultation must occur but is not directive of how
- Since the GLP is best positioned within the Great Lakes to understand the potential risks of invasive species regarding ballast or other water discharges, the GLP is likely to be the best venue of discussion regarding the regulations
    - It would be worthwhile for the GLP to determine guidelines or boundaries to what “extent practicable” means regarding the GLP’s role in a preliminary assessment, such as costs, time allocations, and relevant expertise to influence what that process looks like

<u>Discussion and Q&A</u>

GLP Members

- A next step for EPA is to consider guidance on the petition process which would include engaging states, but this work currently has no timeline

Great Lakes Panel Closing Session

Spring 2025 meeting plans

Sam Tank, GLP Coordinator, GLC

- The Executive Committee has proposed that the Spring 2025 Panel meeting will be held in Buffalo, New York, within the timeframe of May
- The ANSTF meeting is scheduled May 13-15th, and the IAGLR Conference is June 2nd-6th

Final Comments and Meeting Adjournment

Kelly Pennington, GLP Chair, Minnesota DNR

- Pennington recognized the past GLP Chair, Eric Fischer and presented him with a gift
    - Fischer was the longest serving consecutive GLP chair
- Pennington thanked the GLP for a successful meeting
- Tank reminded attendees to join the two Committee sessions happening next week and the Interjurisdictional session
- The meeting was adjourned