

Great Lakes Panel Member Updates

Fall 2024

Meeting of the Great Lakes Panel on Aquatic Nuisance Species
December 10 - 11, 2024 | Ann Arbor, Michigan

U.S. Federal

U.S. Fish and Wildlife Service

No update provided.

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National Oceanic and Atmospheric Administration

NOAA GLERL conducted multiple studies in Lake Michigan and one in Lake Erie focused on invasive quagga mussels.

- 1) Developing underwater vehicle technology for invasive mussel control and monitoring. We conducted our first pilot trials to use a tracked underwater vehicle to displace quagga mussels in soft sediments at 45m depth.
- 2) Sampling mussel veligers frequently to assess growth, timing, and distribution nearshore to offshore. The work conducted in 2024 is being used to design more intensive studies to be conducted in 2025 for the Lake Michigan Cooperative Science and Monitoring Initiative.
- 3) Seasonal assessments of invasive quagga mussel body condition and reproductive status are revealing depth-specific reproductive trends that provide insight into dreissenid mussel distributions.
- 4) Tracking quagga mussel growth in a long-term field experiment. Results from the first two years suggest some inter-annual variation in addition to the expected depth differences in growth.
- 5) Lake-wide assessments of quagga and zebra mussel body condition and reproductive status in Lake Erie as a part of the 2024 Cooperative Science and Monitoring Initiative. The Lake Ontario 2023 CSMI quagga mussel length-weight dataset is archived with NCEI (<https://www.ncei.noaa.gov/archive/accession/0287067>) and the Lake Erie 2024 data will be available soon.

GLERL also has two projects, funded by GLRI, for understanding the spread, impacts and control of grass carp in the Great Lakes.

- 1) A continuing project that has developed, and is currently modifying, an Individually-based community model (IBM) for Lake Erie that explicitly models grass carp reproductive success in the Maumee and Sandusky Rivers, movement patterns, population growth and impacts on key species in western Lake Erie.
- 2) A new project funded by GLRI to develop an IBM for Lake St Clair, for understanding the population expansion, growth, impacts and ultimately control of grass carp in Lake St Clair.

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National Park Service

No update provided.

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U.S. Army Corps of Engineers

No update provided.

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U.S. Coast Guard

No update provided.

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U.S. Forest Service

No update provided.

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U.S. Department of Agriculture-APHIS

No update provided.

Contact: Vacant

U.S. Department of State

No update provided.

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U.S. Environmental Protection Agency

No update provided.

Contact: Vacant

U.S. Geological Survey**Invasive Mussels****Spawning Whitefish and Invasive Mussel (SWIM) experimental project**

- This new GLRI Experimental Mussel Control Project is facilitated through a partnership between USGS, NOAA, NPS, and U.S. EPA with backbone support from the Great Lakes Commission. USGS-UMESC is leading the Mussel Control Implementation Team for the project. The team is tasked with developing and evaluating a tool that can kill invasive mussels on a sizeable area of select whitefish spawning reefs in Lake Michigan and Lake Huron.

- Research in experimental ponds and inland lakes compared benthic mat materials and infusion of carbon dioxide under a mat for killing invasive mussels. This was the first application of carbon dioxide in open water for invasive mussel control.
- In collaboration with university and industrial partners we are evaluating new formulations of existing molluscicides that can deliver a more lethal dose of the toxicant to the bottom of the lake where mussels reside.

Refining the use of copper toxicants for control of invasive mussels

- Copper based molluscicides are registered for control of invasive mussels and are currently used hydropower and industrial facilities to prevent biofouling and in open water to kill adult mussels. USGS – UMESC has been investigating lower doses of copper molluscicides to minimize invasive mussel impacts while decreasing the economic and ecological impacts of copper treatments.
- We completed a 5-year study with the University of Minnesota to determine the short and long-term effects of low dose copper treatments on zebra mussel and native populations. The results provide managers with information on the effectiveness of the copper and expected effects on native communities when used at 6-8% of the maximum allowed on the label.
- Seasonal differences in the sensitivity of adult zebra mussels to copper treatments were determined and can be used by managers to identify the time of year to optimize mussel control and minimize the amount of copper applied in open water.
- In collaboration with Army Corps of Engineers and Bureau of Reclamation we are evaluating various treatment schedules (low dose, intermittent) of two copper molluscicides to reduce biofouling by invasive mussels in hydropower facilities. Results will help reduce mitigation costs of biofouling in municipal and industrial facilities with mussel-infested raw water.

Using Structured-Decision Making for invasive mussel management

- Management agencies may be hesitant to implement broad invasive mussel control programs when eradication is highly unlikely. Alternatively, population suppression can produce similar ecological recovery to eradication. A Structured Decision Making (SDM) process and implementation of integrated pest management practices can help define management goals for invasive species beyond numeric eradication and shift focus to recovering ecosystem function. The SDM process was undertaken with partner and stakeholder groups to use science-based models for management decisions on invasive mussels.
- State of Minnesota SDM: Development of a decision support to inform management actions for established populations of invasive mussels in Minnesota water bodies.
- National Park Service SDM: Development of a decision support tool to assist in prioritizing dreissenid monitoring locations and identifying practical management options in Sleeping Bear Dunes National Lakeshore.

Grass Carp research

Early life history

- Surveyed six Great Lakes tributaries (Cuyahoga, Grand, Huron, Maumee, and Sandusky rivers in Ohio; St. Joseph River in Michigan) for Grass Carp early life stages in 2024.
- Grass Carp eggs were observed in the Sandusky River on May 1, 2024, marking the earliest known Grass Carp spawning in the Great Lakes. This collection makes the known spawning period in the Sandusky River: May 1 to August 25. Larval fish sample identification from 2024 is on-going.
- In 2024, we published a paper describing the collection of Grass Carp eggs from the Huron River in Ohio in 2022. The Huron River is now the third Great Lakes tributary known to support Grass Carp spawning and the first tributary to the Central Basin of Lake Erie. The paper is available at <https://doi.org/10.1016/j.jglr.2024.102350>
- We had a paper accepted describing a study examining Grass Carp egg captures in relation to electrofishing removal efforts (Brown et al.). We found that egg captures are less likely during periods when electrofishing occurs in known spawning areas of the Sandusky River. The research suggests that electrofishing could have an added benefit beyond physical removal of adult fish by disrupting spawning activity. We anticipate the paper will be available online in December 2024.
- We collected water samples from Sandusky Bay on three occasions to quantify strontium to calcium ratios, as well as strontium isotope ratios. These data will provide useful comparisons to otolith microchemistry data to assess hatching locations for captured adult Grass Carp. Sample processing is on-going.
- We combined Grass Carp early life history collection information (i.e., confirmed spawning events) with telemetry data to understand spawning cues, understand behavior surrounding spawning events, and aid interpretation of ichthyoplankton survey results. A manuscript is in preparation which identifies movement patterns during known spawning events, probable spawning events, and non-spawning periods.

Acoustic telemetry

- Created and maintained a tiered array of acoustic telemetry receivers that tracks the movements, behaviors, and habitat use of invasive Grass Carp in Lake Erie at the basin-wide scale, within important tributaries, and provides real-time alerts.
- We worked with removal crews to help focus their efforts using detections of tagged fish, which specifically included understanding habitat use in the Lower Sandusky River and how to target fish in these areas with gill nets.
- Released 10 fish with satellite tags which provide real-time updates of fish locations when individual Grass Carp are close to the surface of the water. This tagging technology is novel to the Great Lakes and provides further information to removal crews on where to focus their efforts including when a tagged fish is outside of the established receiver array.
- Contributed to a published manuscript that examined Grass Carp catchability which combined telemetry detections and capture data from removal crews to understand how vulnerable Grass Carp are to capture by removal crews and examined variation in these patterns over space and time within the Sandusky River.
- We combined Grass Carp telemetry data with early life history collection information (i.e., confirmed spawning events) to understand spawning cues, understand behavior surrounding spawning events, and aid in allocating removal efforts during spawning. A manuscript is in

preparation which identifies movement patterns during known spawning events, probable spawning events, and non-spawning periods.

Phragmites research

Great Lakes Phragmites Collaborative

The GLC and USGS are jointly leading a regional partnership – the Great Lakes Phragmites Collaborative (GLPC) – to improve communication and collaboration leading to more coordinated, efficient and strategic approaches to managing non-native Phragmites across the Great Lakes basin. The GLPC provides educational resources tailored to diverse interest groups, connects invasive species managers with the latest research and technology, encourages the use of adaptive management, and facilitates alignment of partner efforts across jurisdictional barriers.

- Continued to provide information via the high-traffic website www.greatlakesphragmites.net
- Hosted several webinars in 2024, including overviews of developing technology to map Phragmites using unmanned aircraft systems and the cut-to-drown method of Phragmites management
- Continued to draft audience-specific outreach materials across various multi-media formats, including social media, email newsletters, and listserv.
- Maintained a database and dynamic map of regional organizations (including CISMAs, CWMAs and PRISMs) working on invasive species in the Great Lakes
- Hosted over 20 case studies of Phragmites management in both Canada and the U.S.
- Shared the work of the GLPC at many national and international conferences
- The GLPC Advisory Committee and GLC staff have continued to make progress on the four guidance documents (Monitoring and reporting, Funding, Restoration, and Program development and evaluation) and plan to have the four guidance documents drafted within the next funding year

Phragmites Adaptive Management Framework (PAMF)

The GLC and USGS are working to promote effective *Phragmites* management and track the effectiveness and resource efficiency of management activities through the PAMF program (<http://www.greatlakesphragmites.net/pamf/>). PAMF engages a variety of land managers across the basin, from state and federal employees to private citizens, in a strategic attempt to help and learn from people actively managing *Phragmites*. The program needs your participation to develop data-driven best management practices as quickly as possible.

- In 2021, leadership of PAMF transitioned to the GLC, which continues to work daily with PAMF participants (representing over 68 different organizations) to coordinate efforts effectively
- Since 2017, PAMF conducted 40 training sessions reaching over 475 people across the Great Lakes basin to educate *Phragmites* managers about PAMF and encourage their participation. In response to the COVID-19 pandemic, PAMF hosted live virtual trainings in summers 2020-2024, and it introduced self-paced online training courses through the Moodle platform. In 2022, PAMF reinstated in-field trainings for the first time since 2019.

- Increased total enrolled management units to 311 across all eight Great Lake states and Ontario; provided management guidance to 92 enrolled management units for the 2023/24 cycle
- During 2020-2023, PAMF staff assisted with monitoring 43 management units that managers were unable to monitor due to COVID-19 travel or budget restrictions
- Since 2018, PAMF staff promoted PAMF or presented at dozens of scientific meetings or conferences
- The animation “[Phragmites Adaptive Management Framework: Participation Cycle](#)” won a USGS Shoemaker Award for Communications Product Excellence in 2019
- Developed the PAMF Strategic Plan to guide successful implementation of PAMF by setting program-specific goals, objectives, and measures for five years (2020-2026)
- In 2022 and 2023, PAMF added voluntary monitoring for invasive European Frog-bit to its monitoring protocol, providing 180 survey results to the European Frog-bit Collaborative
- In 2023, PAMF staff conducted an expert elicitation exercise to inform the PAMF predictive model. This and other improvements to the model were reflected in management guidance starting with the 2023/24 cycle.
- Currently enrolling new management units for the 2024/2025 PAMF cycle year – contact the PAMF Coordinator at pamf@glc.org

PAMF Active Adaptive Management Program (AAMP)

As of 2024, the GLC is initiating AAMP (<https://www.greatlakesphragmites.net/pamf/aamp-funding/>). AAMP is an ‘active’ adaptive management extension of the *Phragmites* Adaptive Management Framework where, to speed model learning, grant funding is used to support *Phragmites* managers’ implementation of specific management combinations. Out of the 16 management combinations that PAMF tracks, 12 combinations were identified as priority combinations for which to seek additional data through AAMP during the 2024/2025 season.

- Established a task force of regional *Phragmites* management experts to aid in creating and promoting the RFP for *Phragmites* management through AAMP as well as reviewing applications
- Provided resources for applicants including a dedicated webpage on the GLPC website and an AAMP-specific training course on the Moodle online learning platform
- Held an informational webinar and two Q&A periods for interested applicants
- Established a contract with Oakland University to provide genetic testing services to funding recipients
- Received 21 AAMP applicants and anticipate funding 20

Research update

The USGS Great Lakes Science Center is conducting research into innovative control measures for non-native *Phragmites australis* (common reed), a highly invasive species with wide-ranging social, economic, and ecological impacts, based on the bacteria, fungi, and other microbes that it supports. A USGS-led group developed a science agenda (Kowalski et al 2015, <https://pubs.er.usgs.gov/publication/70147339>) that is guiding a nation-wide effort to develop new management approaches that promote the microbes that are harmful to this invasive plant and inhibit those that help it outcompete native plants. There have been many publications on this topic since 2015, all of which are highlighted in the Published *Phragmites* Research section of the GLPC web site (<https://www.greatlakesphragmites.net/research/>).

Close partnerships with the University of Michigan, Rutgers University, Tulane University, Louisiana State University, and other organizations are identifying the key microbes and microbial processes to target for manipulation as a form of plant control. Field and greenhouse studies over the past few years have tested the virulence of harmful microbes on *Phragmites* plants, cataloged the microbes associated with this invasive plant, and evaluated how the application of non-toxic antimicrobial treatments affect plant growth. These and other studies are helping identify the mechanisms associated with plant-microbe mutualisms and leading to the development of new management tools for managers of *Phragmites* and other non-native plant species. Field studies were initiated in Michigan and New Jersey to test potential treatments and patented technologies.

USGS continues to work closely with colleagues at the U.S. Army Corps of Engineers Engineer Research and Development Center (ERDC) to develop genetic biocontrol treatments for non-native *Phragmites australis*. Based on the natural plant process of RNA interference, the research team is developing species-specific treatments that limit the expression of plant traits (e.g., high growth) and offer managers additional treatment options. This work is being informed by genomic and transcriptomic analyses by USGS, Louisiana State University, and Tulane University, including the first published full genome description of non-native *Phragmites*. Additionally, we are working to describe the genome of the North American native *Phragmites* to be able to take a comparative genomics approach to understand the genetic underpinnings of *Phragmites* invasiveness and identify more specific and effective targets for genetic control.

The USGS Great Lakes Science Center is partnering with the U.S. Fish and Wildlife Service to explore the impacts of Great Lakes water levels on the growth, spread, and management of *Phragmites*. After several years of prolonged high water, many existing *Phragmites* populations in the coastal zone of the Great Lakes are being stressed or drowned. Additionally, land managers are taking advantage of the high water and cutting *Phragmites* below water to drown the plant as a control strategy. However, very little data have been collected on the viability of rhizomes following natural drowning or the efficacy of cut-to-drown management. We are combining field and greenhouse studies as well as cataloging geographic zones where retreat or expansion may occur under future water-level patterns. This work is funded by the USGS-FWS Science Support Partnership Program.

As Great Lakes water levels are predicted to fluctuate more rapidly and produce more frequent extreme high and low water events, the USGS Great lakes Science Center is partnering with the USGS Upper Midwest Environmental Science Center to develop a decision support and management prioritization tool to help guide managers to control *Phragmites* stands that are either most at risk of expansion in low water periods or most easily drowned in high water periods. This work will produce a user-friendly, public webtool designed to guide high-impact decisions. This work is funded by the USGS Midwest Climate Adaptation Science Center.

European frog-bit research

The USGS Great Lakes Science Center is working with the USFWS Shiawassee National Wildlife refuge, ERDC, and Louisiana State University (LSU) to develop species-specific control measures for the non-native *Hydrocharis morsus-ranae* (European frog-bit), an invasive floating leaf plant species spreading westward through the Great Lakes region. The RNA interference approaches being developed for non-native *Phragmites* will be adapted for application to European frog-bit. The first step in this process is to

sequence and analyze the genome and transcriptome of the plant. LSU will initiate this analysis in FY23 to provide the foundation for ERDC to design gene silencing agents in FY24 and beyond. Lab, greenhouse, and ultimately field testing of treatments will be initiated after promising gene silencing agents are identified.

Carbon dioxide as a secondary deterrent in the Chicago Area Waterway System

Project: Feasibility of CO₂ in the Chicago Area Waterway System

Overview: Partners from US Geological Survey (USGS), US Army Corps of Engineers (USACE) – Chicago District and Engineer Research and Development Center (ERDC) are evaluating the feasibility of carbon dioxide (CO₂) as an invasive carp deterrent method in the Chicago Area Waterway System (CAWS). The ongoing project is evaluating the engineering designs, costs, and expected efficiency of CO₂ as a backup invasive carp deterrent at the electric fish dispersal barrier system (EDBS). This project is evaluating for CO₂ applications during planned or unplanned outages at the EDBS to mitigate the risk of invasive carp swimming from the Illinois River into Lake Michigan via the CAWS hydrologic connection.

Links:

- [US Environmental Project Agency Pesticide Label \(Carbon Dioxide-Carp, EPA Reg. 6704-95\)](#)
- [Politano et al. \(2024\) Evaluation of a carbon dioxide fish barrier through numerical modeling. Meccanica \(open access\)](#)

References

Acre, M. R., T. M. Hessler, S. M. Bonjour, **J. J. Roberts**, S. F. Colborne, T. O. Brenden, L. R. Nathan, D. W. Broaddus, C. S. Vandergoot, C. M. Mayer, S. S. Qian, R. D. Hunter, R. E. Brown, R. D. Calfee. 2024, Capturing potential: Leveraging grass carp *Ctenopharyngodon idella* behavior for enhanced removal. Journal of Great Lakes Research, 50 (4), <https://doi.org/10.1016/j.jglr.2024.102373>.

Barbour, M.T., Meulemans, M.J., Severson, T.J., Wise, J.K. and Waller, D.L. (2024), Carbon Dioxide Toxicity to Zebra Mussels (*Dreissena polymorpha*) is Dependent on Water Chemistry. Environ Toxicol Chem, 43: 1312-1319.

Brown, R. E., C. M. Mayer, C. D. Hilling, S. S. Qian, J. J. Roberts. *In press*. Electrofishing Sandusky River grass carp spawning grounds may disrupt spawning. Management of Biological Invasions.

[Webinar: Invasive mussel treatment efficacy under different environmental conditions - Invasive Mussel Collaborative](#)

USGS centers involved in research on aquatic invasive species in the Great Lakes Region include:

- Central Midwest Water Science Center, Champaign, IL
- Columbia Environmental Research Center, Columbia, MO
- Eastern Ecological Science Center, Leetown, W

- Great Lakes Science Center, Ann Arbor, MI
- Midwest Climate Adaptation Science Center, St. Paul, MN
- Upper Midwest Environmental Sciences Center, LaCrosse, WI

Contact: Patrick M. Kočovský, U.S. Geological Survey, 419-625-1976, pkocovsky@usgs.gov

State/Provincial

Illinois

No update provided.

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Indiana

No update provided.

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Michigan

No update provided.

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Minnesota

Regulation:

The Minnesota Department of Natural Resources completed the rulemaking process and classified 13 high-risk invasive aquatic plants, fish and invertebrate species and species groups as prohibited invasive species. It is unlawful to possess, import, purchase, transport or introduce prohibited invasive species, except under a DNR-issued permit for disposal, decontamination, control, research, or education. The species now prohibited are jumping worms, non-native *Phragmites*, mitten crabs, Nile perch, snakehead fish, walking catfish, yellow floating heart, tench, golden mussels, marbled crayfish, golden clams, tubenose gobies, and eastern mosquitofish. All of the Great Lakes and St. Lawrence Governors and Premiers “least wanted” AIS species are now prohibited invasive species in Minnesota.

Outreach about jumping worms:

The invasive species program worked to provide information and resources so that people could better understand the regulation and prevent the spread of jumping worms. The program created a new webpage with jumping worm information for businesses answering frequently asked questions and providing guidance documents on disposal, working with homeowners, and working with vendors. The program also coordinated with the Minnesota Department of Agriculture nursery inspectors, the Minnesota Pollution Control Agency, the DNR’s Enforcement division, and University of Minnesota researchers to provide additional jumping worm training and guidance on the new regulation.

Invasive carp:

The Minnesota Legislature appropriated \$12 million, as recommended by the Lessard-Sams Outdoor Heritage Council, to the DNR to design, construct, and begin operating and maintaining a structural

deterrent for invasive carp at Lock and Dam No. 5 on the Mississippi River to protect Minnesota's aquatic habitat through an adaptive management approach. The DNR is partnering with agencies with relevant expertise and jurisdiction to begin scoping this project in 2024. The DNR also published an update to the statewide Invasive Carp Action Plan in 2024, which describes Minnesota's approach to prevention and management of invasive carp. The key purpose of this plan is to slow the spread of invasive carp, minimize their impact, and reduce the likelihood of invasive carp reproducing in Minnesota waters.

Starry Trek surveillance event:

The DNR partnered with the Minnesota AIS Research Center (MAISRC), University of Minnesota Extension and many counties and local partners on an annual statewide search for new populations of starry stonewort, called "Starry Trek." In 2024, 194 volunteers searched 252 Minnesota waterbodies, including 297 public water accesses. No new starry stonewort populations were found during the 2024 Starry Trek.

Invasive Aquatic Plant Management:

Invasive Species Program staff issued 422 permits to manage invasive aquatic plants, and the DNR Aquatic Invasive Species (AIS) Management Grant Program funded 125 invasive aquatic plant treatments through 99 grants, totaling \$409,600. More information is online (https://www.dnr.state.mn.us/grants/aquatic_invasive/control-projects.html).

Signal crayfish response:

Since the state's first known occurrence of signal crayfish (*Pacifastacus leniusculus*) was reported in October 2023 in Lake Winona (Douglas County), no additional signal crayfish have been captured during intensive collaborative trapping efforts by DNR staff, MAISRC researchers, and a commercial crayfish harvester contracted by Douglas County. To support this response, the DNR received a Rapid Response grant through a new funding opportunity approved by the federal Aquatic Nuisance Species Task Force.

Nonnative Phragmites:

The DNR continued to work with partners throughout the state to implement a coordinated response to nonnative Phragmites (*Phragmites australis* subsp. *australis*) in Minnesota. In 2024, CCMI staff visited 700 previously treated sites prior to the 2024 treatment season. Nonnative Phragmites was not detected at 280 of those sites. DNR contractors visited 607 nonnative Phragmites sites in 41 counties. Most of the treated sites were very small. Of the 544 sites where treatment occurred, 447 of them were one tenth of an acre or less.

Presentations:

Invasive species program staff presented at conferences, including the North American Invasive Species Management Association's (NAISMA) AIS Outreach Workshop and the Upper Midwest Invasive Species Conference (UMISC), which was held in Duluth, MN, in November.

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New York

Prevention

- NYS Watercraft Inspection Steward Program (WISP) surveyed 214,846 recreationists and intercepted 9,956 AIS.

- NYS WISP also participated in the Great Lakes and Northeast Landing Blitz from June 29-July 6.
- NYSDEC, USFWS, USGS, and Farmingdale State College are working together on a pilot live market education and outreach program in NYC metro area.
- NYSDEC is continuing its pilot life release education and outreach program in the NYC metro area.
- NYSDEC has retrieved moss balls tainted with zebra mussels from select distributors as per USDA APHIS PPQ instructions.
- NYSDEC is currently developing AIS spread prevention education and outreach products for divers and dive shops.

Monitoring & Detection

- The first confirmed infestation of water soldier (*Stratiotes aloides*) in the United States and New York was found in Putnam County close to the eastern shore of the Hudson River. NYSDEC is working to delineate the infestation and develop a treatment plan.
- Frogbit was also found at two new locations in Sullivan County, in the Delaware watershed. We're working with the lake association to educate their members and prevent it from spreading to surrounding lakes. The one location is a mix of water chestnut and European frogbit and almost completely covers the ~20ac lake.
- Red swamp crayfish were found within Two-Mile Creek, which is a tributary of the Niagara River. This new site is approximately 6.5 miles from the only other known population within the WNY PRISM region.
- In spring of 2024 NYSDEC began biweekly backpack electrofishing surveys to monitor upstream invasion front of round goby (RG) in the Hudson River/Champlain Canal, taking over from USGS (2022-2023).
- Survey area: Focus on seven sites from Lock C2 in Mechanicville to Peebles Island, with particular attention to the area up- and downstream of C1.
- Results to date: Since April 2024, these sites have been surveyed eleven times and no RG have been found upstream of C1.
- In June 2024 an eDNA sample (USGS) from jetty upstream of Lock C2 tested positive for RG DNA. Follow-up electrofishing (DEC) and further eDNA tests (DEC & USGS) returned negative results.
- In August 2024 Another eDNA sample (USGS) at jetty upstream of C2 showed weakly positive detection. Further upstream sampling (electrofishing and eDNA by DEC) yielded no RG or DNA detections.
- Monthly eDNA sampling at multiple sites in Lower Mechanicville (C2-C3) pool through November.
- Monthly backpack electrofishing at jetty above Lock C2, where positive RG eDNA samples were collected.
- Expanding sampling efforts and identifying new potential RG habitat in Champlain Canal pools above Lock C2 for future surveys and for updating Rapid Response protocols in RRP.
- Working with DEC partners (USGS, USFWS, LCBP, VT Fish & Wildlife) to implement coordinated sampling in northern Lake Champlain in response to positive RG eDNA detection in Richelieu River near US/Canada border. USGS, USFWS, and VT are conducting eDNA sampling and NYSDEC will follow up with traditional sampling methods if eDNA samples test positive for RG DNA.
- Continuing biweekly electrofishing surveys between Lock C2 and Peebles Island through November.

- A population of brittle naiad was found in East Sidney Reservoir which is the second population found in the Catskill Region. It's widespread throughout the waterbody and the campgrounds staff said they have been seeing it for a few years now but it went unreported.
- Monitoring for hydrilla with point intercept surveys in the Susquehanna River upstream and downstream of known populations found no additional hydrilla outside the mouth of the Owego Creek.

Management

- Fanwort removal at Black Creek (Mexico NY) dam removal site with SLELO PRISM and Region 7 Fisheries staff. Efforts are underway to determine how far it has spread beyond the pond and extensive community outreach is planned to reduce spread to other areas as it is not yet in Lake Ontario / Great Lakes ecosystems.
- Region 9 AIS coordinator is Cat 5A certified and began first season of new management of the Erie Canal Hydrilla Control Project using a 90-day metered injection of Sonar Genesis. Seeing promising results of the sporadic patches of hydrilla that remain in the canal. Treatment is not having any observable non-target impacts to native vegetation, which appears to be growing at higher densities this season under the new treatment. Point-intercept plant monitoring is completed with one previously unrecorded patch of hydrilla found outside of fluridone exposure area. Tuber sampling and manual removal of one remaining patch as well as installation of benthic mats at the two small patches not impacted by treatment. Other control projects include European frogbit at Green Lake in Erie County, water chestnut in the Erie Canal and New Albion Lake in Cattaraugus County.
- Removed water chestnut from Lake Alice and Lake Champlain
- Removed Eurasian watermilfoil at three boat launches in Lake Champlain (Port Douglas, Willsboro, Port Henry) as part of research project on spread prevention.
- NYSDEC worked with US FWS to remove Water chestnut at Montezuma wildlife refuge. On workdays that NYS DEC participated, over 5000 lbs. of Water chestnut were removed.
- Assisted Region 8 wildlife staff with water chestnut removal and harvesting on the Seneca River.
- Continuation of monitoring and management efforts in the Sheldrake area, Ladoga Bay/Myers park, and the south Aurora area (Cayuga Lake).
- R7 coordinator oversaw hydrilla treatments of 127 acres using Sonar H4C by Little Bear Environmental (Subcontract Tigris) in the South Aurora area of Cayuga Lake
- NYSDEC continuing to work with USACE, USFWS, and FL PRISM on the large-scale Aurora and Ithaca point intercept monitoring efforts (Cayuga Lake).
- Hydrilla was detected outside of current treatment areas near known populations at Sheldrake, South Aurora, and Ladoga Bay.
- Management and monitoring of hydrilla in a private pond (Spencer Pond), Little Nanticoke Creek, and Owego Creek using Sonar H4C.
- Currently working on NYS Hydrilla Management Plan, Hudson River Water Chestnut Management Plan, and Region 7 Water Chestnut Management Plan

Research

- DEC Region 9 Grass Carp eDNA sampling planned in several lakes in the next two weeks as a result of a connectivity mapping assessment conducted by AIS Coordinator and seasonal staff from 2022-2023, where all Region 9 stock locations of grass carp were mapped and assessed for connectivity to wild lakes and rivers via stream intersections. The goal of the project is to narrow down potential sites for traditional fish sampling (efishing, etc.) in search of wild/escaped grass

carp, as sites with connectivity to stocked lakes would be more likely to have occurrences of escaped (and possibly non-sterile) grass carp.

- APIPP worked with Paul Smith's College Adirondack Watershed Institute and Protect the Adirondacks to coordinate 5 lakes that are managing invasive milfoils in the Adirondack Lake Assessment Program (ALAP) to monitor water quality. Collected samples on Middle Saranac Lake and Follensby Pond.
- APIPP continued the second year of monitoring and management on the Lake Champlain boat launch AIS removal project that was funded by the LCBP.
- SUNY Albany intern is wrapping up data collection for a comparative study of AIS burdens in waterbodies with and without public access.
- NSYDEC is working with the Long Island Invasive Species Management Area, NYS Department of Health, and University of Georgia to streamline detection of the cyanobacteria *Aetokthonos hydrillicola*.

Restoration

- Piloting Region 9 Aquatic Plant Restoration Program which includes wild stock collection, greenhouse cultivation, and installation of restoration plots (currently testing four locations in the Erie Canal). Primarily focusing on *Vallisneria americana*, which has been planted and monitored since June as well as grown in the greenhouse to monitor and collect turions for future growing seasons, but also testing cultivation of other native species including several large-leaf pondweeds, *Stuckenia* spp., and water stargrass. *Vallisneria* that has been planted has grown 200-500% in height throughout the restoration plots and has begun spreading throughout and outside of cages. We were also able to work with a local girl scout troupe to have them learn about the importance of native plants, design their own restoration plots and install them in the canal.
- Restoration efforts in St. Lawrence-Eastern Lake Ontario PRISM continue in riparian areas where phragmites and knotweed have been chemically treated, and yellow iris is being manually removed. Monitoring is being conducted to determine successful/unsuccessful treatment methods, planting methods, and which species are growing best in these habitats in our region. Plans for additional restoration efforts in 2025 are underway with hopes to expand waterfront property owner engagement.
- *Vallisneria* plantings in the Croton River and Croton Bay have been successful but are experiencing a lot of herbivory.

Capacity:

- NYSDEC now has Regional AIS Coordinators in Regions 1, 3, 5, 6, 7, and 9.

Contact: Catherine McGlynn, New York State Department of Environmental Conservation, 518-408-0436, catherine.mcglynn@dec.ny.gov

Ohio

- Continued following the Lake Erie Grass Carp Adaptive Response Strategy 2024-2028 with the deployment of multiple Grass Carp Strike Teams through the University of Toledo and USFWS dedicated to the eradication of Grass Carp from the western basin of Lake Erie. Over 1,000 adult Grass Carp have been removed to date. We continue to track tagged Grass Carp with the GLATOS system and real-time receivers, and we are working through the University of Toledo to

determine Grass Carp catchability and population size. Partners also include Michigan DNR, GLFC, USFWS, and USGS.

- Working with the GLFC, Michigan DNR, USACE, and USGS to develop a seasonal Grass Carp behavioral barrier on the Sandusky River to prevent their movement to spawning habitat. Because of high projected cost and unknowns related to effectiveness and the contribution of other tributaries to the population, the project is on hold.
- Continue closure efforts for the two medium risk Great Lakes Mississippi River Interbasin Study connections in Ohio at the Ohio Erie Canal and Little Killbuck Creek 1) The USACE completed the closure of the Ohio Erie Canal connection in March 2020 and ODNR is maintaining the deterrents; 2) Phase 1 construction for the Little Killbuck Creek closure was initiated in October 2024 and will be completed in the spring 2025.
- Continue the surveillance of Ohio's bait supply chain to determine if AIS, including Bighead and Silver Carp, are being transported through the bait trade. To date, no high-risk AIS have been detected.
- Continue to work with Cleveland MetroParks on invasive plant EDRR in the Lake Erie watershed. Partnering with ODNR Parks and USACE on control efforts on Hydrilla just outside the Lake Erie basin at Pymatuning Lake and Mosquito Creek Lake.
- Continue the AIS outreach campaign through Wildlife Forever to target anglers moving bait. This outreach program includes billboards, print media, and items for distribution at events with the slogan "Trash Unused Bait".
- In partnership with Ohio Sea Grant, The Ohio State University, and Cleveland Metroparks, completed the second addition of the Ohio Field Guide to Aquatic Invasive Species: https://dam.assets.ohio.gov/image/upload/ohiodnr.gov/documents/wildlife/fish-management/OSU_AIS_FieldGuide_Web.pdf
- Participated in the following groups: Great Lakes Panel, Ohio Aquatic Invasive Species Committee, and Invasive Carp Regional Coordinating Committee.

Contact: John Navarro, Ohio DNR Division of Wildlife, 614-265-6346, john.navarro@dnr.state.oh.us

Ontario

No update provided.

Contact: Francine MacDonald, Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry, 705-755-5136, Francine.macdonald@ontario.ca

Pennsylvania

- The Pennsylvania Invasive Species Council is in the process of updating the Commonwealth's Invasive Species Management Plan, which was last updated in 2016. The Council continues to advocate for the creation of Partnership for Regional Invasive Species Management (PRISM) program in the Commonwealth but has yet to secure funding for the initiative in the state budget.
- AIS outreach efforts this past year included the production of a documentary film entitled Seeing the Unseen: Aquatic Invaders and What's at Stake. The film was produced by Great Lakes Media with funding from the Western Pennsylvania Conservancy. Your favorite Pennsylvania ANS panel members are featured in the film.
- New Zealand Mudsnails (*Potamopyrgus antipodarum*) continue to spread throughout the Commonwealth and are now present in all five major drainage basins, including Lake Erie.

- Pennsylvania Sea Grant is currently working on the development of a Pennsylvania bait identification resource. The Pennsylvania Guide to Identifying Invasive Baitfish is designed to help bait shop owners, dealers, growers, harvesters, anglers, and others quickly identify invasive baitfish species. Knowing how to quickly identify and dispose of aquatic invasive species in bait are vital steps in the effort to protect the Commonwealth's waters from the spread of AIS. The guide is expected to be available by early 2025

Contact: Jim Grazio, Pennsylvania DEP, 814-217-9636, jagrazio@pa.gov

Québec

No update provided

Contact: Annick Drouin, Québec Ministère des Forêts, de la Faune et des Parcs, 418-654-6984
annick.drouin@mffp.gouv.qc.ca

Wisconsin

No update provided.

Contact: Amy Kretlow, Wisconsin DNR, 920-838-2597, Amy.Kretlow@Wisconsin.gov

Regional/Binational

International Joint Commission

No update provided.

Contact: John Wilson, International Joint Commission, 519-257-6700, John.Wilson@ijc.org

Great Lakes Fishery Commission

No update provided.

Contact: Greg McClinchey, Great Lakes Fishery Commission, 226-980-9193, greg@glfc.org

Great Lakes Commission

No update provided.

Contact: Erika Jensen, Great Lakes Commission, 734-971-9135, ejensen@glc.org

Canadian Federal

Fisheries and Oceans Canada

DFO continues to play a significant role in aquatic invasive species research in the Great Lakes and is at the forefront of research to advance our knowledge and understanding of aquatic invasive species spread, establishment and impacts.

Ballast Water and Biofouling Research

- Recent research has demonstrated that new treatment technologies are significantly reducing the number of live organisms introduced by ballast water, though they are not always meeting Canadian and international discharge standards. These results served as a foundational input for a requirement for domestic ships on the Great Lakes to manage ballast water by installing, operating and maintaining suitable treatment technology in the 2021 Canadian Ballast Water Regulations. Current research is focused on examining the influence of harbor water quality on

ballast water treatment efficacy and evaluating methods to monitor compliance. This work will provide important knowledge needed to refine ballast water management requirements and compliance enforcement measures.

- New research was initiated in 2023 and is continuing in 2024 to examine the risk of species introductions by ship biofouling. This research aims to identify determining factors for predicting biofouling risk and will compare results to a similar study conducted more than a decade ago to see if the risk has changed because of international voluntary biofouling management guidelines/improvement in biofouling management. National in scope, this project will look at this important vector in the Great Lakes with Hamilton Harbour being one of the study sites.
- In 2023/2024, Arctic ballast water samples are being collected from ships arriving at Milne Inlet (BIM – Baffinland Iron Mines). This project incorporates Inuit youth and is a joint effort between Ontario & Prairie Region and Arctic Region teams.

Asian Carp Spawning Suitability Research

- Field research and simulation modeling has been conducted to estimate potential spawning locations for Asian carps in the Thames River. A model has been developed to understand how potential reproduction of Asian carps in the Thames River is influenced by flow and temperature. A research document describing the model, its assumptions, and key applications has been developed, and was peer-reviewed during a recent Canadian Science Advisory Secretariat meeting. Results will be publicly available once finalized.
- DFO Science is creating a management tool that predicts the upstream and downstream limits to Asian carp spawning in the Thames based on real-time inputs of river flow and temperature. This tool will help field surveillance teams identify spawning aggregations of Grass Carp, and will further help to understand the potential establishment of Asian carp species in Canada.

Novel Approach to Detect of AIS in Urban Stormwater Management Ponds

- DFO Science is completing a project designed to test and develop eDNA as an early detection tool for aquatic invasive species in urban stormwater management ponds (SWMP). All eDNA laboratory works are in the final stages of processing. The eDNA samples extracted from the ponds will be used to measure the detection efficacy of conventional and eDNA sampling methodologies in small waterbodies and examine the relationship between eDNA concentration and organism abundance. DFO Science has developed a genera-based primer for invasive *Carassius* spp. as a broad-scale screening monitoring tool to detect this high-risk group of species across all regions in Canada.
- Factors contributing to the arrival of Goldfish and their dispersal to proximal natural systems will be assessed during the upcoming year. SWMP managed by the City of Hamilton are present in nine watersheds that drain into lakes Erie and Ontario. DFO Science collaborated with the City of Hamilton to develop Goldfish-specific information placards that have been installed at high risk SWMP.

AIS Monitoring in Lakes Superior and Huron

- DFO Science is the Canadian lead in the Early Detection and Monitoring Program for aquatic invasives species (AIS) conducted by the US Fish and Wildlife Service in the binational St. Marys River, including upper Lake Huron and Eastern Lake Superior. The research is designed as an early detection program to monitor for new AIS species as well as document any range expansion and potential changes in the native fish community once an AIS species is located.

- In 2022, we detected Eurasian Ruffe in Lake George in the St. Marys River for the first time and in 2023 and 2024 we sampled them at multiple new locations within the St. Marys River. This coupled with additional Ruffe samples collected by the USFWS and other partner agencies at additional locations in the St. Marys River are indicative of a spreading population both within upper Lake Huron and Eastern Lake Superior. One Goldfish was collected in Lake George in 2024, the second record of a Goldfish in the River (2014-08-13; lower river). The habitat in the St. Marys River is likely to be favourable for this species and additional surveys are planned for 2025 for tracking their range within the River. Round Goby and Tubenose Goby were also located in the St. Marys River and the upper north channel of Lake Huron, however, their catchment area has not changed over the last four surveys (July 2021 – August 2024).

Perceptions and perspectives on the pathways of freshwater AIS introductions and spread in different regions of Canada

- DFO Science surveyed AIS experts in different governmental agencies to identify and prioritize relevant pathways for the spread of invasive freshwater fishes and invertebrates in Canada. The specific objectives of the study are to: 1) identify different pathways (e.g., live trade, recreational boating) of primary AIS introductions to Canada and the level of confidence (certainty) about the importance of those pathways for transporting AIS; 2) identify and rank different pathways of secondary AIS spread within and among DFO regions and understand the rationale for the importance of those pathways; 3) gather information on emerging pathways of AIS introductions; and 5) identify species whose introductions seem imminent (introduction in next 5-10 years).
- Experts were surveyed during the winter of 2023, and the preliminary results of the survey were presented during the Great Lakes Panel meeting. The final results will be published in the primary scientific literature.

Survival of aquarium, water garden, and live food organisms in Canadian ecosystems under baseline and climate change scenarios

- DFO Science has compiled a list of live aquatic organisms imported to Canada through the aquarium, water garden, and live food trades. An upcoming research project will use climate-matching methods, developed by DFO and the University of Toronto Scarborough, to determine the potential for frequently imported species to survive in Canadian ecosystems as a function of temperature. Survival will be estimated under present-day climate, and climate change scenarios. The results will help determine the overall probability that imported species will survive should they be released to the wild, and will contribute to overall risk assessments by DFO for organisms in trade.

Contact: Becky Cudmore, Fisheries and Oceans Canada, 905-336-4474, becky.cudmore@dfo-mpo.gc.ca

Transport Canada

No update provided.

Contact: Vacant

LOCAL COMMUNITIES

United States

No update provided.

Contact: Vacant

Canada

No update provided.

Contact: Vacant

Environmental/User Groups

The Nature Conservancy

No update provided.

Contact: Lindsay Chadderton, The Nature Conservancy, 574-631-4992, Ichadderton@tnc.org

National Wildlife Federation

No update provided.

Contact: Marc Smith, National Wildlife Federation, 734-887-7116, msmith@nwf.org

Ontario Federation of Anglers and Hunters

No update provided.

Contact: Brook Schryer, Ontario Federation of Anglers and Hunters, 705-748-6324 ext. 227, brook_schryer@ofah.org

Tribal Authorities

Great Lakes Indian Fish & Wildlife Commission

No update provided.

Contact: Miles Falck, Great Lakes Indian Fish & Wildlife Commission, 715-682-2124, miles@glifwc.org

Chippewa Ottawa Resource Authority

No update provided.

Contact: Mike Langendorf, Chippewa Ottawa Resource Authority, 906-632-0043, mlangendorf@chippewaottawa.org

PRIVATE/COMMERCIAL

Lake Carriers' Association

No update provided.

Contact: Debra DiCianna, Lake Carriers' Association, 440-333-9994, dicianna@lcaships.com

University/Research

Great Lakes Sea Grant Network-Research and Extension

Wisconsin Sea Grant Ongoing work

USGS NWRI AIS Funding – AIS Trout Angler Survey in Iowa, Minnesota, and Wisconsin

- Random samples of Wisconsin and Iowa trout anglers, working on getting Minnesota data
- Survey instrument complete
- Survey administration early 2025
- Survey will measure general AIS prevention behaviors and compare two models of human behavior that have been used in previous AIS work. (Theory of Planned Behavior is more social norm based while the Extended Parallel Process Model is more risk/threat/self-efficacy based.

IJ Boater Behavior Project

- Working on seeing if the Theory of Planned Behavior is a useful model for boater behavior and AIS prevention actions across the five project states. Preliminary analyses suggest yes, that it applies to boaters across the basin. Looking at state results and differences now. Will write up into a short paper
- Will follow up with individual states on state-level results in January.

IJ APM Outreach Project

- See new paper below
- Google ads study - we used a variety of theoretically informed headlines along with some practical headlines informed from the search keyword research. A variety of headline frames are needed to reach a broad audience. Negatively framed headlines were cost-effective, but we note that these headlines could have unintended consequences. If used, they should point to more neutral, science-based content.
- Website use study – based on the keyword research we created two sets of APM outreach content – one a “best outreach person effort” and one using more colloquial language and APM keywords – to see how people use them on a website. We had some errors in our google analytics and how we were tracking website use, so will try to do this again over the summer.
- Decision making tool – completed a literature review of herbicide impacts on macrophytes and aquatic organisms. These have been categorized by herbicide and target organism in a spreadsheet. Results will be published as a literature review and the spreadsheet adapted into a usable tool for managers. Future work could turn this information into a webtool for lake organizations to use to explore potential nontarget impacts of herbicides on other parts of their lake .

Stop Aquatic Hitchhikers evaluation paper

- Highlight – awareness of SAH! and Clean Drain Dry were among the most influential aspects of a model to predict AIS prevention behaviors in a national sample of recreational boaters. This suggests that simple efforts to promote SAH! and CDD are useful for AIS managers. First national assessment of its kind.
- Revising this paper for Management of Biological Invasions. Resubmitting by the end of the year

Invasive Species Language and Naming Work

- Working with EI on this, so if EI reported it, no need to duplicate it since I'd say they're lead on it
- Administered a survey to regional ANS panel emails on invasive species language and naming
- Collaborating with Stony Brook social scientist to analyze qualitative survey responses on reactions to militaristic language and place-based naming conventions for invasive species
- Oregon Sea Grant and Portland state leading effort to analyze quantitative data from the survey

New Papers

Manager and waterbody user perspectives on watercraft decontamination and aquatic invasive species prevention actions in Wisconsin

- Highlights – natural resource managers would welcome additional state leadership on decontamination and boat cleaning issues, boaters are receptive to additional AIS prevention measures, there may be space for additional enforcement efforts of existing regulations
- <https://www.tandfonline.com/eprint/MZ9YGIDUNTYNNCH9TY4F/full?target=10.1080/10402381.2024.2414336>

Assessment of Online Search Terms Associated with Aquatic Invasive Species and Plant Management: Implications for Education and Outreach

- Highlights – the words and phrases people use to search for aquatic plant management information are better aligned with the language of commercial websites than the language of institutional websites. To reach people with relevant APM information, state agencies and universities should use more colloquial and plain language on their websites so that active information seekers find their relevant information.
- Accepted November 2024. Not available online yet, but send me an email and I'll share a copy. Will be in the Journal of Aquatic Plant Management.

Comparing a Narrative and Didactic Approach to an Invasive Species Education Video

- Highlights – there are different learning/recall outcomes between didactic (talking at you) and narrative (story) videos. Different communication styles can be useful depending on the desired outcome of the communication.
- <https://open.clemson.edu/joe/vol62/iss3/38/>

Minnesota Sea Grant Ongoing Work

In fall 2024, Minnesota Sea Grant (MNSG) completed year one field work for phase II of our [Invasive Cattail-Dominated Shorelines](#) project in which we are investigating whether small-scale, mechanical harvesting of invasive cattail can improve nearshore water quality and fish habitat with minimal negative effects on other aquatic species. Phase II began in spring 2024. The project was funded by the Environment and Natural Resources Trust Fund through the Minnesota Aquatic Invasive Species Research Center. Contact: Minnesota Sea Grant Extension Program Leader and Fisheries and Aquaculture Extension Educator Amy Schrank, aschrank@umn.edu.

In fall 2024, Minnesota Sea Grant (MNSG) was in the final field season of our [Increasing Golden Shiner Bait Production in Minnesota](#) project in which we are comparing ways to increase production of Golden Shiner (an important fish bait species) in Minnesota using four aquaculture strategies. By developing strategies to increase in-state bait production, this project can help alleviate the bait shortage and help avoid the need for importation of out-of-state bait, which increases the potential for introducing invasive species to Minnesota waterways. MNSG developed a [short summary of our project](#) in 2024 to share with interested communities. Funding for this project was provided by the Minnesota Environment and Natural Resources Trust Fund as recommended by the Legislative-Citizen Commission on Minnesota Resources (LCCMR). Contact: Minnesota Sea Grant Fisheries Specialist Don Schreiner, schr0941@d.umn.edu.

In fall 2024, Minnesota Sea Grant (MNSG) is continuing research into the impact of common carp on carbon cycling in lakes and the potential economic benefits of carp removal. The objectives of the [Carp and Carbon: Climate Change and Ecological and Economic Benefits](#) project are to determine how carp affect carbon sequestration and greenhouse gas emissions from 18 Minnesota lakes and determine both the climate change and economic benefits of carp removal. Carp are known to be deleterious to the social value and quality of lake water, but it is quantitatively unknown how carp affect the accumulation of carbon in lake sediment and how carp might exacerbate greenhouse gas emissions. The project was funded by the Environment and Natural Resources Trust Fund through the Minnesota Aquatic Invasive Species Research Center. Contact: John Downing, Director, downing@d.umn.edu.

A Minnesota Sea Grant-funded project by a Science Museum of Minnesota-led team to map the didymo (*Didymosphenia geminata*) distribution along Minnesota's Lake Superior North Shore and pinpoint its geographic origin ended in fall 2024. Key findings from this project were: 1) The North Shore streams identified with didymo have higher density of didymo compared to the lakeshore sites; the highest densities are observed in sites north of the Caribou River, 2) Didymo blooms are most likely to occur in lakeshores and streams between August and October in sites with cobble/boulder/bedrock substrate, low nutrients, and open canopy, 3) North Shore stream *D. geminata* populations are most closely allied with Montana didymo, not with globally distributed invasive strains from Alaska, 4) bacterial populations in high Didymo density mats have greater bacterial diversity and higher similarity compared to low or no didymo mats, 5) invertebrate populations associated with didymo mats are especially dominated by abundant chironomids, and 6) didymo cells are part of invertebrate diets within didymo mats.

Contact: Rochelle Sturtevant, NOAA Great Lakes Sea Grant Network, 734-741-2287, Rochelle.Sturtevant@noaa.gov

Minnesota Aquatic Invasive Species Research Center

No update provided.

Contact: Nick Phelps Minnesota Aquatic Invasive Species Research Center, 612-624-7450
phelp083@umn.edu

Invasive Species Centre

- A wide array of work has focused on Aquatic Invasive Species (AIS) since April, including new detections crisis communications and rollout support for partners. As part of this ISC collaborated with MNR, the Ontario Federation of Anglers and Hunters (OFAH) and other partners on water soldier and hydrilla detections including developing and coordinating crisis communications plans, news releases, digital awareness outreach materials, as well as support with mapping and monitoring initiatives and development of management plans as needed.
- The Invasive Species Centre has continued our work on the Asian Carp Canada program which focuses on education and outreach to prevent Asian carps from establishing in Canadian waters of the Great Lakes. This work uses digital tools such as influencer marketing, social media campaigns, podcasts, and various websites to reach our target audience of anglers. We also host information sessions and webinars annually.
- Additionally, we have continued work in our zooplankton diagnostics lab where we analyze water samples for presence or absence of invasive mussel veligers and spiny waterflea. We are also using eDNA collection through citizen science to test for invasive mussels and plan to use this technique to expand our monitoring to other invaders.

- The ISC continues improving public and private sector knowledge and awareness of Organisms in Trade (OIT) and the threat of AIS. ISC is continuing to work with influencers and attend tradeshow for public outreach and collaborating with municipalities across Canada to implement “Don’t Let It Loose” signage.
- This is the third year for the European Water Chestnut (EWC) Rapid Response Program in the Welland river. The ISC continues its effort to remove all annual growth of EWC and increase monitoring efforts in the Welland river to push to the goal of eradication.
- The Invasive Species Action Fund (ISAF) is a grant program designed to facilitate on-the-ground management and monitoring of invasive species in Ontario. The program is made possible thanks to the support of Ontario’s Ministry of Natural Resources (MNR). The application portal is now open and you can learn more here: <https://www.invasivespeciescentre.ca/take-action/invasive-species-action-fund/>
- Planning is well underway for the 2025 virtual Invasive Species Forum. The Forum will take place from February 18-20, 2025 with the theme “Advancing Community Action”. Attendance is free and you can register here: <https://www.invasivespeciescentre.ca/events/invasive-species-forum/>
- The 24th International Conference on Aquatic Invasive Species is being held from Aug. 23 to 27, 2026 in Belfast, Northern Ireland. The conference is hosted by Queen’s University Belfast alongside the Invasive Species Centre, Conference Secretariat. More information found here: <https://icaais.org/>

Contact: Rebecca D’Orazio, Invasive Species Centre, rdorazio@invasivespeciescentre.ca

At-Large

Doug Jensen- Minnesota DNR

UMISC 2024:

The Upper Midwest Invasive Species Conference held November 12-14, 2024, in Duluth was another success! It featured: three plenaries, nearly 210 presentations and posters, 6 concurrent sessions, 6 field trips showcasing local invasive species management success stories – all addressing over 100 invasive species. Seven workshops were offered including our first ever crayfish ID, woody plant ID, and diversity, equity, inclusion, and accessibility workshops. Nearly 40 exhibitors showcased their products and service. Our *Art as a Voice for Science Exhibition* was expanded to feature local artist’s talents with 21 exhibits from 26 artists. Over 600 attended from 26 states, 3 provinces and 3 countries, which continues to make it the largest invasive species conference in the world! Many thanks to our 21 sponsors, who without their support, this conference would not be possible. <https://www.umisc.net/> Next 2026 UMISC will be October 6-9, 2026, at the recently renovated La Crosse Center, La Crosse, WI. Hope to see you there!

Contact: Doug Jensen, Minnesota DNR, 218-590-7164, doug.jensen@state.mn.us

Great Lakes Saint Lawrence Seaway Development Corporation

No update provided.

Contact: Anthony Fisher, Deputy Administrator, 202-366-0105, Anthony.Fisher@dot.gov

Wildlife Forever

No update provided

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dhuinker@wildlifeforever.org

Wisconsin Sea Grant

No update provided.

Contact: Tim Campbell, Wisconsin Sea Grant, 608-265-3727, Tim.Campbell@wisc.edu

Alliance for the Great Lakes

No update provided

Contact: Molly Flanagan, 614-582-6392, mflanagan@greatlakes.org

Université du Québec à Chicoutimi

No update provided

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