GLASS – Great Lakes Association of Science Ships

Fleet Management and Science Support Webinar Notes

April 17, 2026

January GLASS workshop recap (Mary Sabuda & Amanda Grimm, GLC)

- Reviewed outcomes from the January vessel coordination workshop in Traverse City which had presentations on acoustic telemetry, habitat mapping, shipwreck mapping, ship operations issues, and the Freshwater Research and Innovation Center, among others, that highlighted coordination on large interagency projects and outcomes from research onboard vessels.
- Highlighted strong interest in expanding the GLASS steering committee and broadening participation.
- Identified information sharing as the top need, including vessel information, meeting announcements, event calendars, and website resources.
- Noted continued interest in training, workforce development, internships, recruitment, and retention.

Great Lakes Commission perspective (Josh Miller, GLC)

- Josh introduced his role and described the Commission's basin-wide program portfolio.
- Emphasized that science-based, objective decision-making is a core value in the Commission's strategic plan.
- Explained that science coordination is a standing priority area, including research and monitoring coordination across the basin.
- Stressed that field operations and vessel-based science support are as important as broader research coordination.
- Reinforced the Commission's continued support for GLASS and related science coordination efforts.

Ontario MECP Great Lakes Monitoring Program (Kraig Kavanagh, OMECP)

- Kraig described Ontario's Great Lakes Monitoring Program and its vessel operations across Lakes Ontario, Erie, Huron, Superior, connecting channels, tributaries, Lake St. Clair, and Lake Simcoe.
- Outlined long-term nearshore monitoring to assess the state of the Great Lakes nearshore environment and trends over time, real-time buoys, area-of-concern work, nuisance algae instrumentation, and occasional winter operations.
    - Monitoring surveys conducted in one of the Great Lakes each year on 3-year or 6-year cycle - every 6 years in Superior and Huron, every 3 years in Ontario and Erie: ~ 80 sites
    - Sampling conducted in spring, summer and fall
        - water, sediment, biota/benthos, phytoplankton along with instrumentation profiles at each site
    - Buoys measure temperature, conductivity, dissolved oxygen, turbidity, chlorophyll, phycocyanin and currents. They include:
        - Central Lake Ontario (Ajax).
        - Western Lake Ontario (Etobicoke).
        - Central Lake Erie (Port Glasgow).

        - Western Lake Erie (Leamington).
    - AOC work - surveys to assess the effectiveness of remediation actions and beneficial uses (e.g. sediment cores, water quality samples, contaminants in fish tissue)
    - Nuisance algae – Cladophora monitoring
    - Winter Science - Fall deployments, Spring retrievals: Lake Ontario 2021/22, 2023/24, 2024/25 and 2025/26 - temperature chains, fluorometers, ADCPs.
- Explained the use of trailered vessels to improve flexibility, reduce transit time on the water, and support multi-lake operations from a Toronto-area base.
- Highlighted operational priorities including safety drills, crew training, monthly inspections, certifications, and coordination with Coast Guard and port authorities.
- Discussed challenges such as ramp access, weather delays, commercial driving restrictions, wide-load permits, and reliance on acoustic releases for instrument recovery.
- Noted future interest in technologies such as ROVs to improve recovery options and reduce dependence on divers.

Center for Great Lakes and Watershed Studies Fleet Management and Science Planning (George Bullerjahn, Bowling Green State University)

- George described long-term weekly monitoring in Sandusky Bay as part of restoration and harmful algal bloom response efforts.
- Explained that the team maintains a public data hub and monitors multiple sites using boats, sondes, and molecular tools.
- Showed how Sandusky Bay historically experienced Planktothrix-dominated toxic blooms rather than the Microcystis blooms more typical elsewhere in western Lake Erie.
- Described a major ecological shift following removal of the Ballville Dam, including a decline in Planktothrix and microcystin.
- Reported that Microcystis and microcystin reappeared in 2025, raising new questions about whether the bay is shifting again.
- Emphasized the value of baseline monitoring, adaptive management, and deeper analysis of microbial community dynamics going forward.

NOAA Voluntary Ship Observing Program & National Weather Service Great Lakes Mission (Josh Sandstrom, NWS)

- Josh presented about NOAA's NWS marine weather program for the Great Lakes.
- Explained the voluntary observing ship program and how vessel observations improve forecasts, weather models, and situational awareness.
- Reviewed services including onboard instrument support, weather briefings, Great Lakes update emails, tactical forecast support, and the Great Lakes weather portal.
- Encouraged vessels to send both real-time and after-the-fact reports, noting that both are useful for forecast improvement.

- Shared evidence that the number of ship observations has grown substantially in recent years, increasing the value of the observing network.
- GLASS will post Josh's slides to the website after the event.

Around the Lakes: updates regarding vessel operations and the use of new technology (Pat O'Neill, MDNR)

- Pat shared progress on Michigan DNR's new Lake Michigan research vessel, the R/V Steelhead.
- Explained that the project benefitted from strong legislative support, but post-COVID shipbuilding inflation required a second appropriation and supplemental Great Lakes Fishery Trust funding for purchase of scientific systems.
- Described the design and contracting process, including hiring a naval architecture firm, retaining it for inspection support, and directly engaging shipyards after the initial bid process.
- Reported that Moran Iron Works and Superior Boat Company are completing the build, with sea trials expected soon and ownership targeted around early June.
- Highlighted vessel features such as a steel displacement hull, similar port access to the previous vessel, upgraded acoustics, a bow thruster, crew room improvements, and a Seakeeper stabilization system.
- Framed the project as a practical example of the costs, delays, and long planning horizons involved in replacing aging fleet infrastructure.

Vessel Fleet Management Discussion and Planning – Mentimeter

The discussion portion of the webinar centered on fleet management challenges, gaps between science needs and vessel capabilities, and practical ways GLASS could help strengthen collaboration across the Great Lakes research vessel community. Several recurring themes emerged from the Mentimeter prompts and live discussion:

- **Funding is the dominant challenge.** Not just capital for replacement vessels, but also ongoing operations, maintenance, repairs, equipment upkeep, and modernization.
- **Science priorities and vessel planning are often out of sync.** Research priorities can shift faster than vessel planning cycles. Replacing or building platforms can take years of design, procurement, and construction.
- **Modernizing long-lived platforms is difficult.** Vessels may remain in service for decades, while electronics, sensors, and other scientific systems become outdated much faster. Several speakers stressed that adapting platforms to new technologies is expensive and often underfunded.
- **Operational crews are under strain.** Small crews often support intense, overlapping field seasons, especially during spring and early-season work. Participants highlighted stress on vessel staff, limited flexibility, and the need for broader workforce support.
- **Moving money across institutions is a major collaboration barrier.** Multiple participants emphasized that the challenge is often not whether funding exists, but whether it can be transferred between universities, states, federal agencies, and other partners in a usable way.

- **Use-rate and administrative rules limit shared vessel access.** University participants noted that establishing internal and external rates for vessels and equipment can be difficult, which complicates cost recovery and external collaboration.
- **Current collaboration often depends on informal relationships.** In some regions, collaboration works well because institutions allow partners to join existing cruises and share access without complicated financial exchanges. Participants suggested this kind of practical cooperation is valuable but uneven across the basin.
- **Training and workforce sharing remain important opportunities.** Participants expressed interest in training topics, workforce development, and potentially sharing crew or expertise across organizations where feasible.
- **GLASS could play a stronger facilitation role.** Suggestions included improving information sharing on the website, posting opportunities and jobs, supporting training, helping connect collaborators, and exploring mechanisms that could reduce administrative barriers to shared vessel use.
- **Structured regional initiatives may help.** The discussion suggested that coordinated efforts such as shared data hubs, organized sampling initiatives, and built-in collaboration funding could make cross-institution work easier and more effective.

Suggested Next Steps

- Continue expanding the GLASS steering committee to include broader representation from universities, educational vessels, agencies, and other operators.
- Prioritize website and communications improvements that make vessel information, events, and opportunities easier to find and use.
- Explore training topics and workforce development activities that support crew recruitment, retention, and cross-institution learning.
- Further examine mechanisms for easing collaboration barriers, especially around transfer of funds, vessel access, and shared staffing.
- Encourage more vessels to participate in NOAA's observing program and use NOAA's marine support resources.
- Use upcoming meetings to continue discussion of vessel design, shipbuilding, technology integration, and other practical fleet management issues.