



Developing a common language for fleet modernization and enhancement

Great Lakes Fleet Management and Science Support Workshop, January 11, 2024



Summary of Efforts to Recapitalize Vessels to Date

- In 2017, the International Joint Commission, the Great Lakes Commission and the Great Lakes Fishery Commission requested that the Great Lakes Executive Committee under the Great Lakes Water Quality Agreement, undertake a Great Lakes science vessel fleet assessment as vessels across all agencies were aging
- In 2019, the NOAA OMAO Small Boat Recapitalization Plan was begun, involving all line offices, and was concluded in October of 2020
 - the plan recognized the SRV Laurentian as the highest priority for NOAA recapitalization
- 2019 and 2020 House Report Language directed the USGS to conduct a survey with Federal, State, Tribal, academic and interested partners to identify resources needed for a Great Lakes integrated science plan. USGS provided the report February 7, 2020.



Summary of Efforts to Recapitalize Vessels to Date

- In 2019, Congressional direction to Office of Science and Technology Policy (OSTP), via the 2019 Departments of Commerce and Justice, Science, and Related Agencies Appropriations Bill, resulted in OSTP undertaking a study on Great Lakes research infrastructure and small research vessels
 - a final report was completed and submitted to OSTP, having been cleared by NOAA, USGS, EPA and other agencies
 - due to the change in Administrations, the report was never transmitted to Congress
 - NOAA Chief Scientist followed up with OSTP in 2021; OSTP said the report was too dated to submit to Congress



Summary of Efforts to Recapitalize Vessels to Date

- In 2019, the International Joint Commission's Science Advisory Board began the Great Lakes Science Plan Work Group
 - a final report, *Great Lakes Science Strategy for the Next Decade*, was completed and submitted to the International Joint Commission and approved in October 2022
 - “Updating the Great Lakes research fleet and associated platforms is a high priority and represents approximately one-third of this investment to provide for the addition of purpose built, interdisciplinary, all-season state-of-the art platforms including ice-hardened and regional class research vessels capabilities.”
 - in February, 2023 Commissioners approved the project Communication and Engagement Plan.
 - The SAB has developed a work plan to create the science implementation plan. The first meeting of the Science Plan Collaborative is Jan 24-25, 2024.



Summary of Efforts to Recapitalize Vessels to Date

- In 2022, following passage of the Bipartisan Infrastructure Law, the Great Lakes Fishery Commission and the International Joint Commission sent letters to DOC Secretary and NOAA Administrator supporting urgent recapitalization but no funds were allocated in the OMB approved spend plan.
- On October 13, 2022, the Great Lakes Commission adopted a resolution “Improving Capacity for Great Lakes Icebreaking” that encourages Congress to replace the USCG 140-foot icebreaking tugs in the Great Lakes to include research capabilities such as winter ecology and freshwater oil spill response and research.
- The National Defense Authorization Act for FY23 contained the GL Winter Commerce Act (Sec. 11223) authorizing a new USCG ice breaker to include science mission requirements.



Summary of Efforts to Recapitalize Vessels to Date

- In the FY2023 Consolidated Appropriations Act, House Report language: *“...The Committee is concerned that the vessels of the Great Lakes ecosystem Federal research fleet are nearing the end of their useful service lives and are inadequate for the demands of their interdisciplinary research mission. The Committee directs NSF to coordinate with relevant Federal agencies to study and report back to the Committee no later than 180 days after the enactment of this Act on the costs of modernizing the vessels within the Great Lakes Research Fleet.”*
- NSF submitted report to House Committee on Appropriations with input from NSF, NOAA, EPA, USGS, USFWS.
- NSF noted other US federal agencies had vessels but they are not research vessels by build or design (USACE, USCG, NPS).



Next Steps

- Develop a common language to use when talking about the importance of the Great Lakes science vessel fleet to members of Congress, high level agency officials and other audiences.
- What are persuasive key talking points?



The Need for a State-of-the-Art Great Lakes Research Vessel Fleet


What is the problem?

A principal finding from the IJC's Science Advisory Board Science Strategy study (2022) that involved hundreds of scientists from across the basin, is that the research infrastructure needed to carry out the essential components identified in the Science Strategy was deficient. This included having a state-of-the-art research fleet.

The study also found the need for development of highly qualified personnel, expanded analytical capacity, improved laboratory facilities, advanced autonomous and remote sensing technologies and other needs; however, the focus of these talking points is the research vessel fleet. (Science Strategy)

The Need for a State-of-the-Art Great Lakes Research Vessel Fleet

Why is it important?

- Home to 40 million people
 - US \$6T economy, CDN \$7.5T GDP
 - Single source of freshwater on the planet
 - Lakes are vast, highly dynamic, under stress, fragile
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- A photograph showing a sandy beach in the foreground, with several trees and a house in the background. The water is visible on the right side of the image, and the sky is blue with some clouds.
- Fundamental to the growth and knowledge of the region
 - Unique ecological and cultural ecosystem services and robust economy
 - Undergoing change due to warming of their waters and loss of ice cover
 - Research is essential to predict change, manage resources, safeguard coastal communities, advance innovation and scientific knowledge

The Need for a State-of-the-Art Great Lakes Research Vessel Fleet

What services do these vessels provide?

The U.S. Great Lakes Research Fleet enables researchers to access the environments and ecosystems which support many U.S. coastal communities, a bustling center for trade, and precious natural resources. Modernized, reliable, and effective research infrastructure plays a central role in enabling transformative science and innovation at the frontiers of discovery, and in providing unique learning opportunities for current and future generations of researchers and educators. (NSF)



The Need for a State-of-the-Art Great Lakes Research Vessel Fleet

How long do research vessels last?

The typical life for a research vessel is 30-40 years (NSF). Newer Great Lakes research vessels (built within the past 15 years) are being designed for a service life of 40 to 60 years with an engine replacement at 15 to 20 years. (USGS, NSF, State of Michigan).



The Need for a State-of-the-Art Great Lakes Research Vessel Fleet

What is the status of the current Great Lakes fleet?

- 100 active US and Canadian vessels
- 80% less than 20 meters (66 feet)
- Only 5 > 30 meters (98 ft)
- All designed on research vessel standards more than 40 years ago
- US Federally funded fleet
 - 59 vessels (NSF, NOAA, EPA, USGS, USFWS)
 - Only 17 are > 40 feet
 - 5 reach their end of life in the next 10 years (29%)
 - 11 reach end of life by 2040 (65%)
 - No ice class vessels



The Need for a State-of-the-Art Great Lakes Research Vessel Fleet

How many research vessels do we need?

- Little excess capacity and an unexpected outage of a large research vessel can seriously impact field season operations.
- As the fleet ages, engineering and structural failures increase
- Routine inspections and maintenance are essential
- Uncrewed vessels are force multipliers, but also come with a cost, and often require crewed vessel for support
- Current fleet must be maintained in size, incrementally replaced with more modern and capable vessels, supplemented by additional ice-capable vessels





The Need for a State-of-the-Art Great Lakes Research Vessel Fleet

What will it cost?

Updating the Great Lakes research fleet and associated platforms is a high priority and would represent an investment of approximately \$33.3 million US per year/\$41.7 million CDN to provide for the addition of purpose built, interdisciplinary, all-season state-of-the art platforms including ice-hardened and regional class research vessels capabilities. This would be in addition to current funding used for fleet maintenance on existing vessels. (Science Strategy, NSF report for summary of annual maintenance costs)

Request

Please provide us with your feedback on the proposed talking points to mark.burrows@ijc.org and deborah.lee@noaa.gov

