Notes from Great Lakes Fleet Assessment, Management and Science Support Discussion
February 17, 2021
Virtual Meeting

Attendees: Dennis Donahue, NOAA; Rual Lee, University of Minnesota-Duluth - RV Blue Heron; Joe Walters, USGS; Tom Crane, GLC; Kris Snyder, Michigan DNR; Gord Ives, Ontario MNRF; Russell Strach, USGS; Leon Carl, USGS; Brandon Perry, Ontario MNRF; Beth Hinchey-Malloy, USEPA-GLNPO; Roy Beasley, Michigan DNR; Mark Burrows, IJC; Chad Meckley, NOAA; Jeff Tyson, GLFC; Val Klump, UWM-School of Freshwater Sciences; Katherine Mullett, USFWS; Justin Chaffin, Ohio Sea Grant – Stone Laboratory; Tyler Genereaux, Ontario MNRF; Pat O'Neil, Michigan DNR; Chris Gignac, Ontario MNRF; Erin Brown, Ontario MNRF; Todd Nettesheim, USEPA-GLNPO; Dave Clapp, Michigan DNR; Chris Davis, Ontario MNRF; Craig McDonald, Ontario MNRF; David Montgomery, Ontario MNRF; Chris Johnson, Ontario MNRF; Debbie Lee, NOAA; Andrew Barnard, MTU; and Ken Gibbons, GLC.

Recording- https://thegreatlakescommission-my.sharepoint.com/:v:/g/personal/kgibbons_glc_org/ERSc9frJPyVMsazRgzzBGMEB6-vv9ia_jFGWcC0NCD5WBA?e=kI6bJZ

Welcome and Introductions – Review Agenda

Tom Crane, Great Lakes Commission (GLC) and Mark Burrows, International Joint Commission (IJC) welcomed attendees to the 2021 Great Lakes Fleet Assessment, Management and Science Support Discussion. On behalf of the IJC's Science Advisory Board, Mark thanked everyone for participating in the meeting.

NOAA Fleet Recap and Sustainment Report – CDR Chad Meckley, NOAA Office of Marine and Aviation Operations

Commander Meckley provided an overview of NOAA's Small Boat Recapitalization and Sustainment Plan. The focus of the plan was on complex/high-cost vessels since that portion of the small vessel fleet accounts for a considerable amount of the fleets cost. Meckley stated that the purpose of the report is to determine the current status of the small vessel fleet and provide a strategic approach to maintaining small boats. In total, NOAA's line offices own 431 boats with a value of more than $115 million. As mentioned, the study narrowed the scope to complex/high-cost vessels, which was defined as vessels that were over $400,000 and classified as one of the following: Science Research Vessels (SRV), Class III, and Complex Class II vessels. After narrowing the scope even further, the report focused on 54 vessels, which accounted for over 2/3rds of the total fleets cost. One recommendation from the report was to create a pool budget for the replacement and enhancement of the high-cost vessels. Additionally, the report suggests reenforcing and enhancing strengths of the small boat safety plans.

Congressional Science Data Gaps Report—Leon Carl, USGS

Leon Carl presented an update on the Great Lakes Science Gaps Report to Congress. In 2019, the U.S. House requested the USGS host a forum on science needs and gaps. The USGS has written a draft reply that addresses the Congressional instructions and incorporates partner forum feedback. The 2021 House Report Language requests reports within 30 days of Appropriation Act enactment, which makes the report due imminently. The 2021 language also asks if a study by the National Academy of Sciences

is needed to supplement the survey report to identify research and infrastructure needs and make recommendations for federal investments. A response to that question was not included in the report since the report was already completed when that language was added. The draft reply has been reviewed by the Bureau of Indiana Affairs – PIA conference, researchers within the basin, HOW, GLC, IJC, and GLFC. The report's findings and recommendations fall into three categories: 1) creation of new science and exploration of advanced technology, 2) addressing fundamental deficiencies (e.g. expand data collection), and 3) Develop and test better/new models, decision support tools, and improved data management. The report will be submitted to Congress very soon, but until then the report is not available for public review.

Informal updates from participants (USFWS, USEPA, OMNR; others) regarding vessel ops and use of new technology, and IJC Science Advisory board work on science plan. – Moderated by Deborah Lee, NOAA- Great Lakes Environmental Research Lab

Deborah Lee led the group through a series of informal updates by prompting the group with questions and then allowed participants to respond. The questions focused on emerging science and emerging observing capabilities and what that would look like for the future fleet.

- <u>If we do receive new investments, would we be ready to define the capabilities, the configuration, and design of the fleet needed to address new science?</u>
    - Russ Strach: We're not necessarily as a group ready but we have a lot of ideas that are being pursued. A lot of convergence around underwater autonomous vehicles. USGS is spending time with other entities to determine what sensors we should apply, routes and transects. Additionally, there are a lot of attempts to conduct science autonomously under the ice.
- <u>DNR, research platforms: what are the capabilities of the state platforms to provide resources?</u>
    - Dave Clapp: their main role is to research fish, but certainly collaborate with people who are involved in other areas of research. Looking forward, important advances in vessels (quieter vessels for acoustics, clean diesel) and ongoing need for vessels independent of what happens with UAVs.
    - Val Klump: The academic research fleet is a crucial component of the fleet due to the size and complexity of lakes, but overall the fleet is underutilized. There is a need for larger vessels (oceanographic scale vessels) and currently there are only a few. There is very little research that occurs in the winter; however the Great Lakes are ideal for cabled observatories due to the small distance to shore. Overall the fleet is fairly small and old.
    - Rual Lee: academic boats wouldn't have a problem helping with work/research. A lot of opportunity to cross train the groups. Having a more acoustically capable vessel and one with ice abilities would greatly enhance their abilities.
    - Andrew Barnard: Overall, the fleet is aging. Important to maintain larger and newer fleet. When thinking of creating a new fleet, it important to think of launching and recovering autonomous vessels. Large, coordinated efforts with many autonomous vessels would help with science, however we're unable to accommodate that without the right support.
    - Justin Chaffin- It is important to note that some vessels are too large for the western basin of Lake Erie. We cannot lose sight that small boats are a vital portion of the fleet.

From the university perspective, we have small boats but are lacking funding to operate boats.

- Do people see a need to coordinate operations more closely and how would we do that?
    - Beth Hinchey-Malloy: EPA is looking to coordinate with other agencies on new technology on procurement and benefiting from investments already made (e.g. buying compatible sensors to what is already out there). Also, need to manage very large datasets. GLRI, CSMI, are helping coordination among researchers.
    - Chris Davis from Ontario – From the Lake Huron perspective, we have no "large" vessel capacity. Our largest is a 63' fishing tug. Primarily used for gill netting and fish stocking but can do hydroacoustics and trawling as well. Things I see coming include those mentioned: remote, unmanned vessels, remote monitoring stations and it would be nice to think we could participate with a larger vessel that has those things mentioned but it seems very unlikely on our side of the border. Another thing high on my list is a vessel to manage our receivers for acoustic telemetry, likely a mid-range vessel for more fishing and more "traditional" sampling but would really like to be able to contribute to the collaborative work."
- Also seeing more sophisticated systems like the Great Lakes Acoustic Telemetry Observation System (GLATOS). Do we see that coming into play in other lakes? Continuous monitoring system in the lakes.
    - Jeff Tyson: The GLATOS program (GLATOS (glos.us)) is being integrated with other programs, for example, GLATOS is being integrated with RAEON technology [Real-Time Aquatic Ecosystem Observation Network (**RAEON)**; https://raeon.org/]. The GLATOS network is getting larger with a significant expansion in northern Lake Michigan. There are plans to couple environmental information with GLATOS. Additionally, there is an array of small vessels that could collect information in a passive way that could supplement the need for additional data. The biggest gap would be to have a central coordinating body to handle the information. This could be an area the GLFC may be able to help.
- Next generation of vessel operators and technicians. Do we see that we're training that group?
    - The group discussed the challenges of finding vessel operators and technicians. Overall, the concern was that as boats become more sophisticated the skillset needed to operate the vessels will increase. There are a variety of programs that are training technicians, however it was noted that some of these positions are very well paid and finding the funding to staff these vessels will increase. Additionally, on smaller vessels finding an operator that can also help process samples is ideal.

Discussion – Does the Great Lakes have the Vessel Capacity and technology required to support science needs?

Overall, the group stressed the importance of keeping this group together. It is helpful to have a platform to discuss operations and share ideas across vessels. Ideally, this group would be able to continue the conversation throughout the year and keep operators engaged. To better engage the Canadian partners, the group should consider hosting an event in Canada.

Workshop Wrap Up and Action Items – Tom Crane, GLC

Tom Crane, GLC closed the group and thanked everyone for their participation. Tom acknowledged that doing the virtual format has allowed for individuals who have not participated previously were able to participate. Tom provided a preview of the February 18th workshop and encouraged participants to attend.

TC/KG