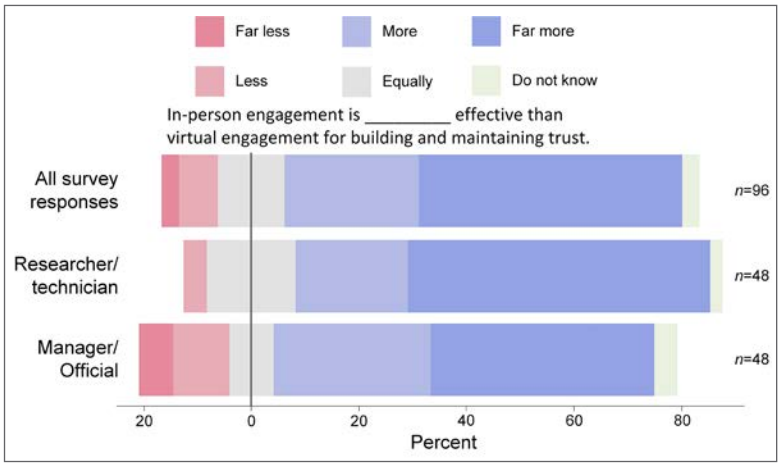
Trust-based social networks & collaboration in a post-pandemic world

Working arrangements have been fundamentally transformed during the COVID-19 pandemic. These new arrangements have the potential to affect trust-based social networks foundational to collaborative resource management and transboundary governance. The governance structure for Great Lakes fisheries has weathered the storm associated with two years of remote working conditions; but it is unknown how long trust-based relationships can persevere without refreshed commitment to in-person engagement.

A recent survey of fishery professionals throughout the Great Lakes network provided insights into how trust-based relationships have been affected during the pandemic. Eighty three percent of fishery managers and scientists surveyed (n=117) indicated that virtual engagement was effective for maintaining well-established relationships during the pandemic; however, 76.7% of respondents indicated in-person engagement to be more effective than virtual engagement for building and maintaining trust. Only 26.5% of respondents were able to establish trust as part of new relationships through virtual engagement, and only 7.7% of respondents strongly agreed with this sentiment.



A literature synthesis revealed threats and opportunities to resource management as a post-pandemic new normal emerges. Despite shortcomings, virtual engagement presents opportunities such as nurturing of well-established long-term relationships; short-term trust maintenance; peer-peer coordination; knowledge dissemination; and potentially enhancing diversity, equity, and inclusion.

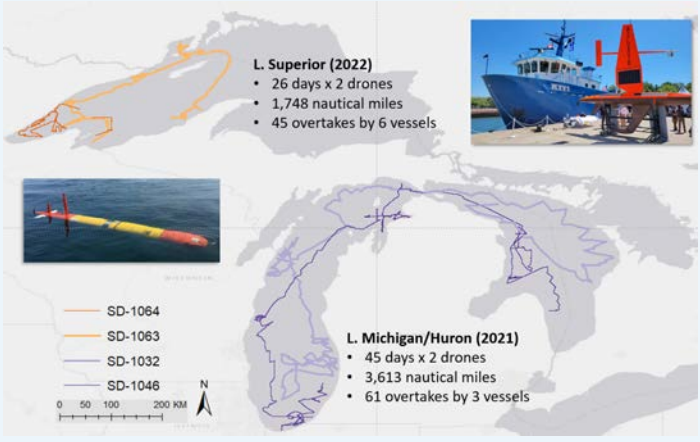
Governments are urged to prioritize informal interactions and communications fostered by in-person meetings while also recognizing the importance of virtual meetings to conduct business in a cost-effective manner. Without renewed commitment to in-person engagement, pre-pandemic trust-based relationships foundational to cooperative, multinational resource management are under threat.

For a further discussion of survey results, please see the article in the Journal of Environmental Management. Authors include A.M. Muir, J.R. Bernhardt, N.W. Boucher, C. Cvitanovic, J.M. Dettmers, M. Gaden, J.L.M. Hinderer, B. Locke, K.F. Robinson, M.J. Siefkes, N. Young, and S.J. Cooke.

Regional fisheries agencies collaborate to improve prey fish assessments through adoption of advanced survey technologies

Accurate estimates of prey fish abundances are critical to supporting the $7 billion annual Great Lakes fishery, because prey fish feed the economically valuable predators. Inaccuracies in annual estimates of prey fish abundance can have big consequences for decisions about harvest and stocking. In 2020, the U.S. Geological Survey (USGS) launched a study with 12 other agencies to evaluate the accuracy of prey fish estimates gathered with sonar from conventional research vessels. Prior findings suggests that sonar surveys from research vessels can (1) scare fish away by engine noise from the research vessel and (2) undercount fishes near the lake surface and lakebed.

To quantify these biases, USGS brought two new technologies to the lakes—Saildrones and long-range autonomous underwater vehicles (LRAUVs). Saildrone® is a remotely helmed sailboat that collects sonar data without producing engine noise. LRAUVs fly in the middle of the water column collecting up- and down-looking sonar data. Since 2021, Saildrone has collected fisheries data across more than 5,000 nautical miles of lakes Superior, Michigan, and Huron. Vessels from nine agencies met Saildrone on the water to collect comparison data in the same water on the same nights. More missions are planned with both platforms in 2023. The comparative data will help to understand whether biases affect lakewide prey fish estimates in the Great Lakes, and if so, by how much. The study aims to provide the best possible prey fish abundance estimates to fisheries managers by correcting for biases and evaluating methods that may improve data quality.



Saildrone (upper right next to R/V Kiyi; credit: A. Miehls-USGS) is well-scaled to the Great Lakes (purple and orange lines), and able to collect fisheries data as it goes. The long-range AUV (left center, credit: P. Esselman-USGS) covered much of western Lake Superior during a single 400 km mission in 2022.

By Peter C. Esselman, research fisheries biologist, US Geological Survey Great Lakes Science Center.