

Best practices from the interjurisdictional “Evaluate data sharing options for watercraft pathway” project

August 2024

1 INTRODUCTION

In 2022, an interjurisdictional project funded by the Great Lakes Restoration Initiative was initiated to identify what watercraft data sharing options exist across Great Lakes jurisdictions and the benefits and barriers of implementing a data-sharing process. At the conclusion of this interjurisdictional ground-truthing project, the Great Lakes Commission and associated project team members generated a list of best practices that can be implemented by jurisdictions to enhance their watercraft data collection process and facilitate data sharing among jurisdictions.

2 BEST PRACTICES

The benefits of sharing watercraft data across jurisdictions

There are clear advantages to exchanging watercraft data across jurisdictional boundaries, including:

- Quantifying boater movement, helping drive resource allocation, and helping address questions such as:
 - Are there lakes boaters move between the most?
 - Where does large-scale boater movement in/out of state or Tribal lands occur?
 - Which lakes are at risk for new aquatic invasive species (AIS) invasions?
 - Can AIS invasion risk be mitigated by adding stewards, inspection officers, volunteers, etc. to a new location?
- Increasing our awareness of AIS movement and ever-changing risks. For example, if a lake-to-lake connection is revealed between a lake in Jurisdiction A with a parrot feather infestation and a lake in Jurisdiction B without parrot feather, boats coming from Jurisdiction A may have an increased risk of transporting parrot feather and potentially introducing it to Jurisdiction B.
- Increasing basin-wide coordination. Shared data can reduce redundancy in effort, leading to increased efficiency and efficacy, as well as showcase the value of watercraft data collection and individual programs.
- Providing smaller jurisdictions or those just starting a watercraft data collection program a starting place to identify valuable data to collect, and how to use it. A large amount of data is already at their disposal to use to their advantage.

Best practices for future watercraft data summarization and sharing

After completion of this project’s objectives and with consultation with the project team, it is concluded that proper basin-wide watercraft data sharing is only feasible through a designated set of core

questions. From the first project workshop held in June 2023, it became clear that standardizing certain data would be critically important; this was the advice received from recommended by maintainers of the Western Regional Watercraft Inspection and Decontamination (WID) Data Sharing System used in the western United States. Using core questions allows for baseline coordination between jurisdictions on data that are most valuable to regional prioritization and decision-making, while allowing jurisdictions to ask additional questions that are valuable within their jurisdiction beyond the set of core questions.

Prior to this summary, in the project's interview phase, eleven Great Lakes jurisdictions provided copies of their watercraft data collection forms. To understand the diversity of watercraft data that is being collected among Great Lake jurisdictions, the number of survey questions that were identical, or highly similar, were tallied to illustrate how many jurisdictions are collecting the same or similar data. Some data fields were notably prevalent within the data collection sheets, while others were unique to a single jurisdiction. The most commonly collected metrics were: the last water body visited by the boat/watercraft, the boat/watercraft type, the launch name/waterbody where at the survey occurred, and if materials such as plants, animals, or mud were observed on the boat or trailer. We used these similarities to guide the selection of the proposed core questions.

For the future of watercraft data-sharing in the Great Lakes region, we suggest the adoption of five core questions that are collected in a standardized manner across participating jurisdictions. The five core questions (listed below) were selected due to their ability to garner the most valuable data-sharing information combined with a high frequency of use within in the basin. Standardization of the questions is key; responses should be submitted using the same field formatting and/or domain values (i.e., predefined options for each question). From a pilot summary using 2023 watercraft data from around the Great Lakes basin (available upon request), we have learned that even if the questions being asked by different jurisdictions are the same, if the field formatting or domain values differ between jurisdictions, proper summarization of the data is difficult, time consuming, and sometimes impossible. **Therefore, summarization of watercraft data without requiring participating jurisdictions to update their data collection questions is not a viable path forward.** For existing watercraft data collection programs, this process would involve adopting core questions while continuing to collect and report data that is unique to their jurisdiction. For new watercraft data collection programs, these core questions would serve as a pre-established data collection and reporting minimum.

Proposed core questions:

1. **Geographic location of launch where survey is taking place.** This is an important metric to get an overall understanding of where inspections or boater interaction events are taking place across the basin. This metric should be collected as latitude and longitude in a standard format (e.g., WGS 1984 decimal degrees).
2. **Previous or most recent waterbody visited (waterbody name, county, state or province).** Understanding boater movement helps identify regional patterns and quantify potential risk of AIS. Most jurisdictions already collect some variation of this metric as part of their data collection programs. Through the creation of the 2023 Great Lakes Watercraft Survey Data Summary (available upon request), it became clear that this metric is incredibly difficult to summarize unless data is standardized. That is why, as a core question, it is suggested that the entry requirements for this metric would include waterbody name, county of launch location,

and state or province of launch location. The period of what is considered “recent” (e.g., within two weeks, within two months, etc.) would have to be agreed upon by participating jurisdictions prior to adoption as a core question.

3. **Next/future waterbody launch location (Waterbody name, county, state or province).** Similar to proposed core question 2, understanding where boaters may be planning on launching next can help identify regional patterns and highlight potential links for the spread of certain invasive species. This metric can provide valuable information without “tracking” movements of individual boaters. Some jurisdictions may still wish to collect boater zip codes, license plates, or vehicle identification numbers, but for jurisdictions that do not, questions 2 and 3 together can still generate a great deal of useful data. Being able to assess boater movement rates and patterns can benefit grant funding opportunities, help prioritize inspection/outreach locations and identify gaps in effort, guide conversational points/strategies with local boaters, guide exploratory AIS surveillance/searches, and guide future research needs (see the work of the Minnesota Aquatic Invasive Species Research Center, that tracks [network connectivity between Minnesota waterbodies](#)). It is important that this core question includes an “Unknown” and “Prefers not to answer” response option to accommodate boaters who may not know their next launch location.
4. **Watercraft type (Due to the numerous ways watercraft can be categorized, the exact breakdown of categorization should be discussed and decided upon by a relevant stakeholder group).** This core question was added due to the potential risk watercraft type plays in the movement of AIS. It has been documented, both through literature and anecdotally, that some watercraft types pose an increased risk of unintentionally moving AIS (e.g. vessels with live wells, bilges, ballast tanks and/or inboard motors are known for having an increased risk of transporting dreissenid larvae and veligers due to an increase in standing water; Campbell et al. 2015 & Johnson et al. 2001). While there is some hard data on the relationship between AIS movement and watercraft type, there are still many research gaps regarding what species are most likely to be moved with varying watercraft. With standardized collection of this core question across the basin, there would be an opportunity to learn more about these connections. While watercraft or vessel type is a category many Great Lakes jurisdictions already collect in one form or another, it was made clear in the creation of the 2023 Great Lakes Watercraft Survey Data Summary (available upon request) that any type of summarization of watercraft type is near impossible without clear standardization.
5. **Are any AIS/mud/vegetation visible on watercraft or trailer? (Yes/No). Identify species if possible.** For many jurisdictions, a watercraft data collection program is a vital component in preventing the spread of AIS through the recreational boating pathway. That is why the last core question collects data on AIS, potential AIS, or AIS-containing substrates observed on boats. This is also a question that many jurisdictions independently collect in some form or another. As with the other proposed core questions, a standardized set of predefined options is vital to allow for any type of summarization (e.g., a list of frequently found invasive species with scientific and common names). Because staff or volunteers collecting watercraft data may not be trained to identify specific species, the answer to the first part of the question is a simple “Yes/No.” If the data collector can identify the species, space should be provided for them to do so.

Lastly, successful data sharing across jurisdictions will not be possible unless there is a tool to view and/or submit data that is accessible to all participating jurisdictions. From the initial interview portion of this project, it was noted that many jurisdictions already use some form of Esri-based survey tool (e.g., Survey123, Field Maps) and found the functionality useful. If watercraft data sharing across jurisdictions is implemented, it is proposed that data collected from the above core questions be collated into an online data dashboard. Ideally, data would be submitted directly through a standardized data collection application in real time by the participating jurisdiction, but the core questions could also be submitted (in the form of a CSV file) to the organization directly hosting the dashboard at regular, pre-defined intervals (e.g., at the end of the field season). Using a platform like this would allow data to be accessible but only to those enrolled in the program.

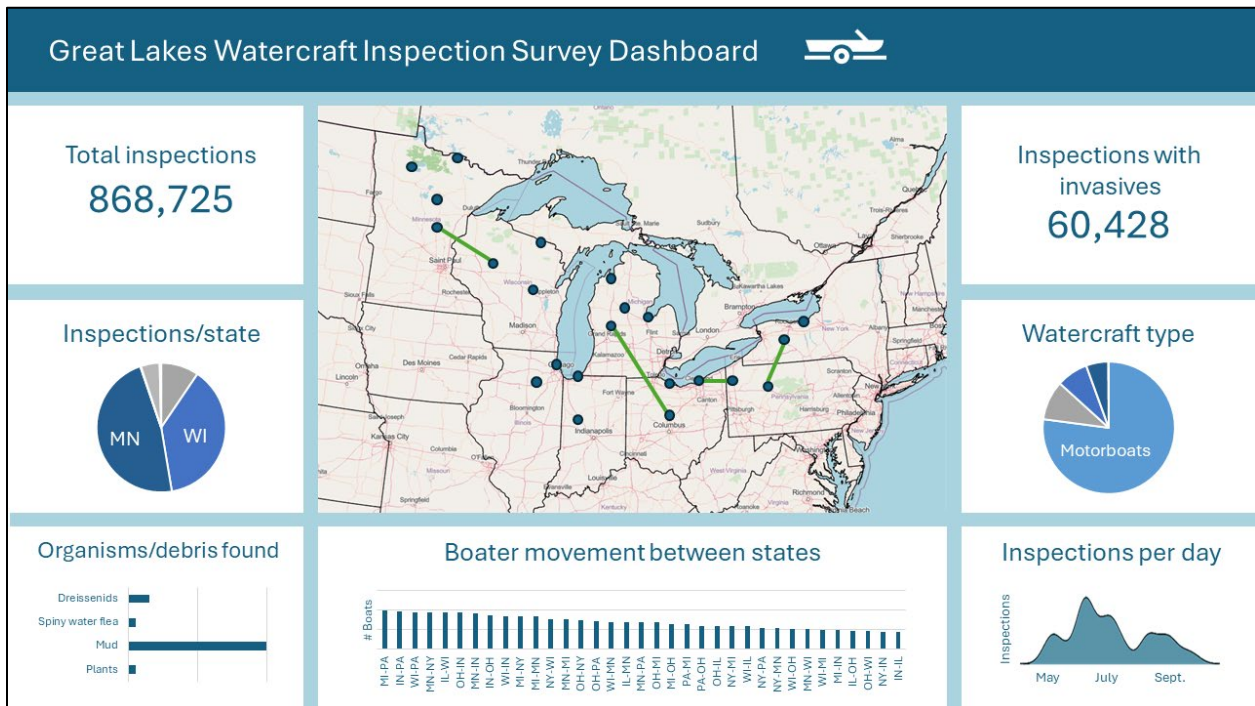


Figure 1. A mockup of what a shared watercraft data dashboard for the Great Lakes basin could look like. All figures and data presented on this graphic are for illustrative purposes only and do not represent actual statistics.

3 CONCLUSION

Given the similarities in types of data collected, but vast differences in how that data are reported, we strongly encourage jurisdictions that may be contemplating sharing watercraft survey data to consider how the shared data may be utilized (e.g., what decisions may be informed) by other jurisdictions. The key to successful watercraft data sharing among Great Lakes jurisdictions will be implementing standardized core questions and ensuring collected data is shared in a way accessible to all participating jurisdictions. Further consideration into how shared data will be utilized by participating jurisdictions is warranted, and we encourage Great Lakes jurisdictions to continue interjurisdictional collaboration on this topic.

4 LITERATURE CITED

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