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## **EFFECTIVE DISSEMINATION OF LAKE ERIE WALLEYE MOVEMENT AND DISTRIBUTION INFORMATION FOR USE BY MANAGERS**

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### **PLAIN LANGUAGE SUMMARY:**

There are many completed, ongoing, and future walleye acoustic telemetry projects on Lake Erie to address various research questions; however, each individual project reports solely on walleye movement information associated with their specific project objectives. Managers recognized that additional information could be gained by combining data across the various research projects to address key questions and this could provide a more robust picture of Lake Erie walleye broad-scale movement patterns. This project combined and updated existing telemetry information across studies in a dynamic, interactive tool to address: 1) what proportion of tagged walleye move into various regions of Lake Erie post-spawning, and 2) how are walleye seasonally distributed in Lake Erie. The primary product developed for this project is a Lake Erie walleye detection summary tool for lake managers, housed on the GLATOS web site. In total, over 50 million detections from 2,450 walleye were consolidated down to just over 730,000 unique fish per day per receiver locations, allowing simple but powerful summary capabilities in the newly developed tool. After choosing one or more spawning basins (west, east, or unknown), detections can be summarized by one or many detection years (2011 through 2021) and one or many seasons (spring, summer, fall, and winter). The primary outputs from the tool are bubble plots and heat maps, and the color schemes and base maps are customizable, along with data outputs that can be utilized in other graphing programs for more complex images. Because the data included in the tool are owned by individual researcher agencies and are not yet all publicly available, there is a password protected login, and

the tool will only be available to Lake Erie Committee representatives and GLATOS walleye data contributors for the foreseeable future.

#### **MAIN MESSAGES:**

- The summary tool developed by this project allows interactive creation of powerful graphics that show the migration patterns of Lake Erie walleye.
- The detection tool is extremely easy to use with an intuitive interface.
- Lake Erie fisheries managers are now able to quickly summarize detection data from multiple projects without directly consulting multiple individual project leaders.
- This tool is a prototype that could be used to inform the development of future tools to summarize other species' detections or detections on other Great Lakes.
- Individual walleye projects housed within GLATOS provide valuable movement information related to the objectives of each project, but detection summaries across projects combine the cumulative benefits of utilizing thousands of tagged walleye and millions of detections across a large spatial landscape.
- While this tool was not designed to directly answer management questions, this tool allows managers to create detection data summaries across projects and will help guide development of future tagging projects.
- Graphics generated from this tool will greatly help managers communicate with stakeholders regarding the ecology and management of Lake Erie walleye and the value of the GLATOS infrastructure.
- Data exports from detection summaries can be utilized in other software tools to create customized graphics (e.g., incorporate auxiliary data) that aren't currently available within the detection tool.