TrackdAT: An acoustic telemetry metadata portal to connect fish tracking research in the Great Lakes and beyond

Jordan K Matley[1], Natalie V Klinard[2], Ana Barbosa Martins[2], Aaron T Fisk[3], Christopher S Vandergoot[4]

1 College of Science and Engineering, Flinders University, Bedford Park, SA, Australia 5042

2 Department of Biology, Dalhousie University, Halifax, NS, Canada B3H 4R2

3 Great Lakes Institute for Environment Research, University of Windsor, Windsor, ON, Canada, N9B 3P4

4 Department of Fisheries and Wildlife, Michigan State University, East Lansing, MI, USA, 48824

March 2024

ABSTRACT:

Acoustic telemetry (AT) is an increasingly popular tool to examine the spatial ecology of fishes producing critical information for effective management. While numerous repositories exist allowing users to access or share their tracking data (e.g., GLATOS – Great Lakes Acoustic Telemetry Observation System), there is not a centralized database that enables researchers and other stakeholders to obtain standardized information about study parameters (i.e., metadata) from research in the Great Lakes. This project aimed to create an open-access online metadata portal serving as a global gateway to explore existing research and plan for future projects, while also encouraging collaboration across academic and government organizations, a demonstrated gap in the application of AT research. Acoustic telemetry metadata, encompassing key information about biological and technical aspects of research, were extracted from 2457 peer-reviewed articles published between 1969 and 2022. The information was collated in an online database (www.trackdat.org), which also offers various tools to download and visualize data, as well as search for articles of interest and educate users about AT, the Great Lakes, and the project. Additionally, users are instructed about how the TrackdAT database can be used to develop and strengthen the application of AT in the field of movement ecology and bridge knowledge-actions gaps between science and management. This research project provides a novel gateway for academics, managers, the public, and other stakeholders to access often restricted or disparate information about a critical research tool increasingly being used across management agencies in the Great Lakes and worldwide.