

Janus: Data-Sharing Tool to Enhance Research, Management & Ecosystem Service Sustainability in the Great Lakes

What is Janus?

- *Janus* (after the deity for past & present) is a **data-sharing platform** being developed to facilitate the sharing of, access to, and usability of existing databases within the Great Lakes Basin, with the goal of enhancing research and management in an **ecosystem context**.
- It will be **coproduced** with input from management agencies, non-governmental organizations (NGOs), researchers, and rightsholders from across the Basin.

Why Is Janus Needed?

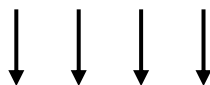
- The call for better **data access** within the Great Lakes has existed for > 40 years.
- Data critical to characterizing the Great Lakes ecosystems are scattered, often difficult to access, and uncurated when accessible, making it difficult to do research that can benefit management at the ecosystem level.
- The need for accessible data is greater than ever given the many interdisciplinary management problems that exist due to human-driven ecosystem change.
- *Janus* offers an **integrative approach** to organize, catalog, share, and curate data to support research and management, which in turn can help the push for ecosystem-based approaches to management in the Basin.

How Does Ecosystem Science Benefit the Great Lakes?

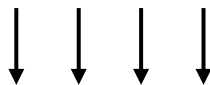
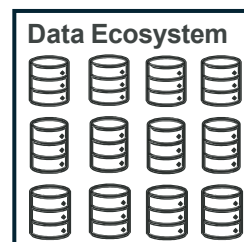
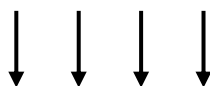
- Interactions and synergies caused by nutrient pollution, invasive species, habitat modification, and climate change are causing unanticipated, irregular, and novel environmental conditions in the Great Lakes that make traditional (e.g., single-sector, single-species) management approaches difficult and even incompatible.
- Broader (ecosystem-based) science approaches consider different management sectors, like water quality, fisheries, climate, energy, and economics, using interdisciplinary data to help identify management actions.
- Consideration of the ecosystem in research can benefit management by helping anticipate, avoid, and properly react to environmental change so that valued ecosystem services (e.g., clean water, food, recreation, tourism) can be restored, maintained, and sustained for future generations.
- Unfortunately, a lack of data accessibility and usability in the Basin has limited our capacity to conduct research and manage resources in an ecosystem context.

How are we approaching the development of Janus?

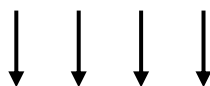
- We are **learning** how successful data-sharing tools across varied disciplines have been planned, designed, implemented, managed, maintained, and used.
- We will **collaborate** with management agencies, NGOs, researchers, and rightsholders to identify data needs and design features for *Janus*' success.
- We will **develop** an implementation strategy to maximize widespread adoption.
- We will **ensure** *Janus*' use, value, and longevity via routine assessment.



Data pipelines
Metadata
Data curation
Data cataloging



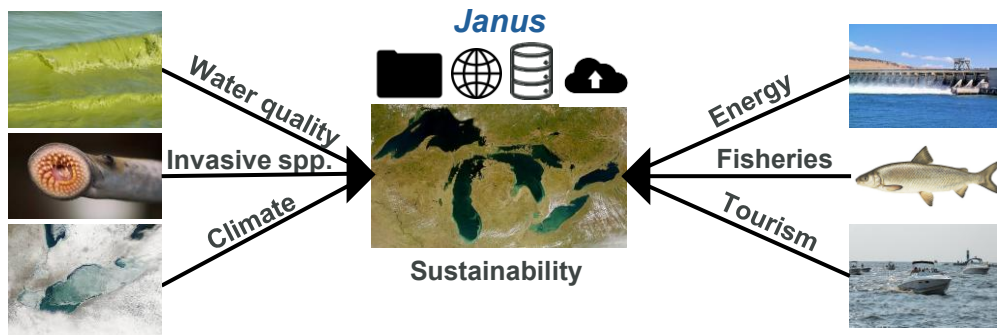
Analytics tools
Data cloud
Dedicated AI tools
Cloud workspaces
Data attribution



Researchers Managers



NGOs Rightsholders



Project Janus Organizers:

- Dr. Stuart Ludsins
ludsins.1@osu.edu
- Dr. Zachary Steele
steele.1185@osu.edu
- Dr. Andrew Muir
amuir@glfc.org