

# Great Lakes Restoration Initiative Collaborative Mapping



**SharedGeo** is a non-profit with a mission to help government, non-profit, educational, and corporate entities share geospatial information for the public good.

We do this by providing technical expertise, research, facilities, education, grants, and products.

Our specialties include web services and open-source development, U.S. National Grid Implementation and aerial imagery management and services.

## GLRI Collaborative Mapping Project

### Funders and Partners

SharedGeo's GLRI collaborative mapping project is funded by the Environmental Protection Agency and administered by the US Fish & Wildlife Service. The project has several partners including the University of Minnesota, St. Mary's University, Michigan Tech Research Institute and Ducks Unlimited.



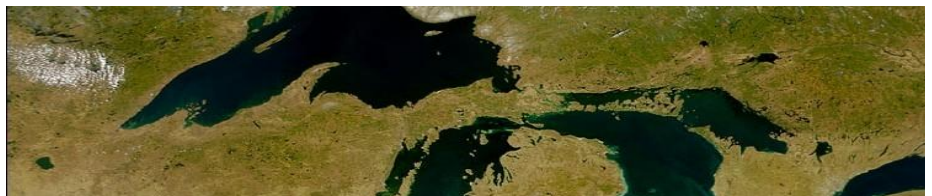
## Great Lakes Restoration Initiative Collaborative Mapping

The Great Lakes Restoration Initiative (GLRI), a taskforce of 11 federal agencies, is investing resources to clean up toxic substances, combat invasive species and restore wetland and shore habitats in the Great Lakes basin. To accomplish these goals, spatial data are needed about current and historical conditions across this large area.

The goal of the SharedGeo GLRI Project is to serve and share current and historical imagery and spatial data that are related to the Great Lakes area, surrounding watersheds and wildlife habitats. The project uses open-source tools to serve, catalog, map and distribute spatial data and has main 3 parts:

- 1) Spatial data web services and data download tools
- 2) A spatial data catalog
- 3) A web map integration tool

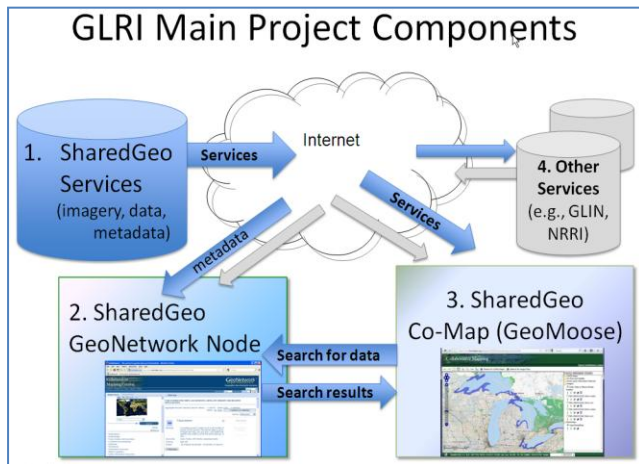
What makes the SharedGeo GLRI project unique is that we host 40+ TB of imagery data that are served in a fast, reliable and scalable manner. These datasets are viewable alongside data from nine US states and the Province of Ontario. The solution is built on Open Source software and standards.



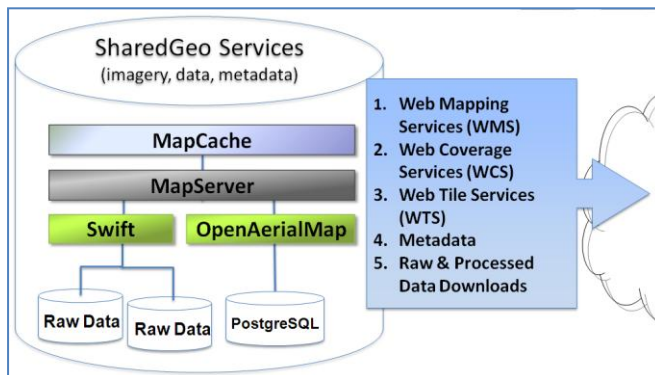
The system is specifically designed to accommodate expansion, or can be easily replicated for use in other scenarios.

## GLRI Co-Map and image services – how it all works

The SharedGeo GLRI solution has three parts. The first part is the SharedGeo Services (item 1 in the figure).



The raw imagery data, including radar, satellite and aerial photography are stored in a *Swift* storage. Then Image, Tile and Coverage services (WMS, WTS and WCS) are created and made available in the cloud. Metadata are also provided as part of these services.

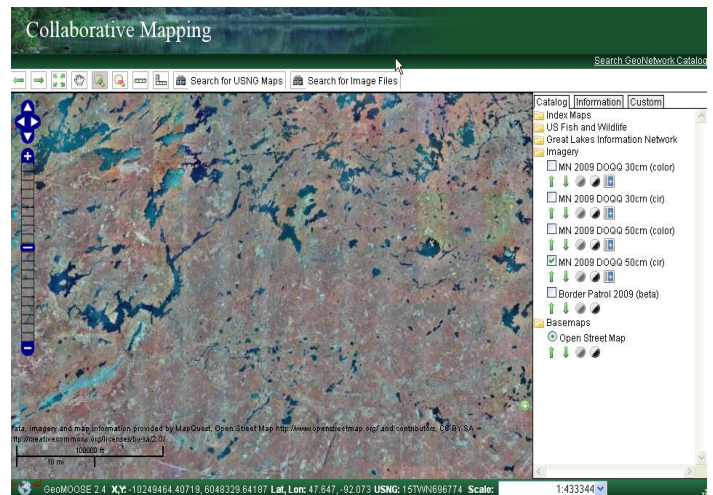


The services are accessible via the web and are harvested by the SharedGeo GeoNetwork instance (Item 2 in top graphic). In addition, metadata and services from other sources (shown in top graphic as item 4) are also available on the web and are harvested by the SharedGeo GeoNetwork node.

The GeoNetwork node contains information about hundreds of data layers in the Great Lakes region. Those layers can be discovered by users by querying for them through the Co-Map web map tool. Co-Map is built with GeoMoose, an open source web map software package.



As an example, a user might want to search for “wetlands” and they can search for this via a query tool in the Co-Map client. This query will send a request to GeoNetwork which will query the metadata and find all wetlands related records. If those records have map layers associated with them that are available via services, the map user will then be able to view them. The map and metadata services may come from the SharedGeo server or from other organizations, but to the user it will be seamless. By using services and not local copies of data in this solution, the user is always assured they have the most up-to-date data and imagery to use in their decision making.



## Contributing to and collaborating with the Great Lakes Restoration Initiative

The most important way SharedGeo is contributing to the Great Lakes Restoration Initiative is by providing fast, reliable and scalable Imagery services to other organizations. These services can be used in web and/or desktop mapping applications. Additionally, SharedGeo’s GeoNetwork catalog can be harvested by others via CSW.

SharedGeo leverages other organizations resources by harvesting their map services and metadata services into the SharedGeo GeoNetwork node and if data are available via map services, the layers can be added to Co-Map to be viewed.

**Learn More** To learn more about the SharedGeo GLRI project and to try out the map services and Co-Map, please visit us at the SharedGeo website, or go directly the project page:

[www.sharedgeo.org](http://www.sharedgeo.org)

<https://hub.sharedgeo.org/projects/GLRI/>