



GLERL

Great Lakes Environmental Research Laboratory



Established in 1974 in Ann Arbor, Michigan, NOAA's Great Lakes Environmental Research Laboratory (GLERL) conducts scientific research on the Great Lakes and coastal ecosystems; develops and transition products and services; and shares knowledge and information to advance science, service and stewardship.

GLERL is a federal laboratory that provides coastal constituents and federal, state, and international decision- and policy-makers with scientific understanding of natural hazards such as severe waves, storm surges, and ice; harmful algal blooms; ecosystem and foodweb interactions including threat and impact of aquatic invasive species; changes in lake water levels; and regional effects related to global climate change.

GLERL science helps protect life and property, economic well-being, and sustained ecosystem health of the Great Lakes and other U.S. coastal ecosystems.

Integrated Scientific Research on the Great Lakes and Coastal Ecosystems

GLERL researchers possess a wide range of scientific disciplines and expertise, allowing them to pursue a unique, multidisciplinary, ecosystem research approach. This focus has advanced our understanding of the underlying physical, chemical, and biological processes in the lakes, and how they affect ecosystem dynamics. GLERL is organized into three cross-cutting research programs:

Observing Systems and Advanced Technology

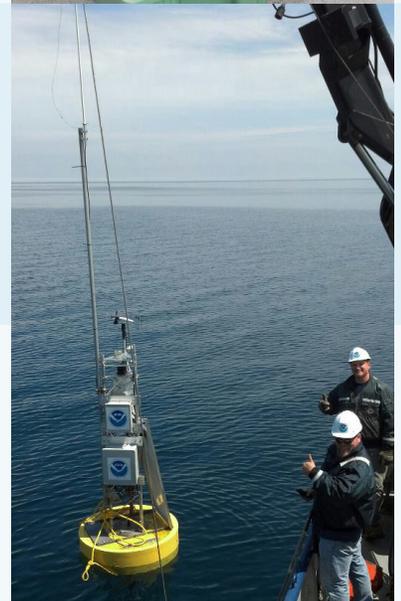
Through the development of cutting-edge instrumentation, observing, and remote sensing technologies, the Observing Systems and Advanced Technology (OSAT) branch acquires the data and develop information products needed to improve understanding of the Great Lakes and coastal ecosystems and support decision-making for resource managers and other stakeholders. In addition, OSAT programs help provide the real-time and historical data necessary to increase the reliability of Great Lakes forecasting on environmental conditions such as hypoxia (reduced oxygen levels) and harmful algal blooms. OSAT also provides vessel and engineering support for GLERL and its partners.

Ecosystem Dynamics

The EcoDyn branch strives to anticipate, monitor, analyze, understand, and forecast changes in the Great Lakes and coastal ecosystems through long-term ecological observations, targeted fundamental research on ecological processes, and data used to develop models critical to understanding ecosystem structure and function. EcoDyn observations, laboratory, and field experiments support the development of new concepts, models, forecasting tools and applications to evaluate and forecast impacts of, and mitigation strategies for, present and future stressors such as invasive species, climate, and nutrients on Great Lakes water quality, food webs and fisheries.

Integrated Physical and Ecological Modeling and Forecasting

The Integrated Physical and Ecological Modeling and Forecasting (IPEMF) branch develops, evaluates, and applies models for use in testing scientific hypotheses and predicting the effects of natural and human-generated changes on the Great Lakes environment. The approach to IPEMF research provides information used to forecast environmental conditions at different points in time and geographic location, and to increase knowledge of the interactions between the components of the complex physical and ecological systems in the Great Lakes basin.



GLERL Facilities



Ann Arbor Laboratory

GLERL leases a customized 45,000 square foot facility in Ann Arbor, Michigan which houses:

- 101 offices
- 5 conference spaces (including a 150-seat lecture hall)
- 17 laboratories (11 wet labs, 6 dry labs)
- 2 computer labs
- 14 storage areas
- 10,000 square foot outdoor wareyard

Shared office space serves as a base for staff from NOAA's Great Lakes Cooperative Institute as well as partner agencies including NOAA National Ocean Service (NOS) Marine Sanctuary Program, NOAA National Marine Fisheries Service (NMFS) Habitat Restoration Program, NOAA Great Lakes Regional Collaboration Team, Great Lakes Sea Grant, and the International Association for Great Lakes Research. The facility also serves as a physical hub for regional collaboration within its conference spaces

The laboratories—managed and coordinated by the GLERL lab team—house instrumentation and equipment for use by GLERL and NOAA Cooperative Institute and visiting scientists. The facilities design allows for both dedicated and flexible lab spaces.



Lake Michigan Field Station

Located on Lake Michigan's Muskegon Channel, GLERL's field station occupies three buildings. The main building was originally built in 1905 to serve the U.S. Life Saving Service. It was restored in 2005 to mark the 100th anniversary.

The LMFS is strategically positioned on Lake Michigan to provide support to the local and regional community by further developing NOAA's role in freshwater ecology, ecosystems management, coastal management, and water-based commerce. This field station promotes long-term observations, field work, and process studies essential for understanding and developing future ecological services. Additionally, the proximity of the field station to Lake Michigan provides a unique opportunity for engagement with tourists, recreational users, and members of the community.

Vessel operations, based at the LMFS, support GLERL science branches by providing a safe and secure work environment in the conduct of scientific research. Additionally, vessel operations provide expertise to NOAA in small research vessel (SRV) operations. The mobility of GLERL vessels offers unique place-based opportunities for communications and education at Great Lakes Ports of Call.



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