

Great Lakes RESTORATION



2012

at the *National Oceanic and Atmospheric Administration*

The Great Lakes comprise the largest freshwater ecosystem on Earth. The restoration and protection of the Great Lakes is vital as they contain 95 percent of the surface freshwater in the United States and more coastline than the entire east coast. To contribute to the restoration of the Great Lakes, \$300 million was invested in the region in 2012 by means of the Great Lakes Restoration Initiative (GLRI). As one of 15 Federal Agencies collaborating with U.S. EPA to implement this effort, the National Oceanic and Atmospheric Administration (NOAA) was allocated \$14.5 million in 2012 to help accomplish restoration goals using its ground-breaking science, data products and services, predictive capabilities, and partnerships.

NOAA is making significant contributions to the restoration of the Great Lakes through the GLRI by expanding and enhancing many existing programs and implementing new innovative projects that address the GLRI Action Plan.

2012 Funded Projects

Toxic Substances & Areas of Concern

- Expanded Long-term Great Lakes Contaminant Monitoring
- Modeling Atmospheric Deposition to the Great Lakes
- Great Lakes Watershed Environmental Contamination Database Expansion
- Manistique AOC: Mussel Bioaccumulation Study
- Manistique AOC: Debris Removal FS and Design

Nearshore Health and Nonpoint Source Pollution

- Decision Support Tool for Nearshore Water Quality Prediction*
- Identifying Land Use Indicators and Tipping Points that Threaten Great Lakes Ecosystems*
- LaMPs and Land Cover Assessment



Aquatic Invasive Species

- Regional Ecosystem Prediction - Aquatic Invasive Species in the Great Lakes
- Sea Grant Outreach and Education

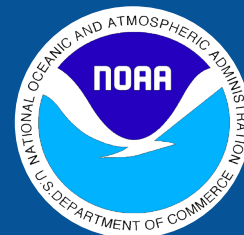
Habitat and Wildlife Protection and Restoration

- Coastal and Estuarine Land Conservation Grant Program
- Area of Concern Land Acquisition
- Area of Concern Project Design and Implementation
- Habitat Restoration Partnerships

Accountability, Education, Monitoring, Evaluation, Communication, and Partnership

- Great Lakes Observing System Implementation and Enhancement*
- Coordination and Prioritization of Great Lakes Climate Change Activities
- Establishment of a Bay Watershed Education and Training (B-WET) Program in the Great Lakes
- Assessment of Lake Ontario Benthic Macroinvertebrates*

*GLERL Project



[www.regions.noaa.gov/
great_lakes/gl_restoration.
html](http://www.regions.noaa.gov/great_lakes/gl_restoration.html)

U.S. Department of Commerce

National Oceanic and
Atmospheric Administration

Great Lakes Environmental
Research Laboratory
4840 S. State Rd.
Ann Arbor, MI 48108
734-741-2235

For more info:

Rebecca Held
NOAA GLRI Program
Coordinator
734.741.2339
rebecca.held@noaa.gov

"We must leave the Great Lakes better for the next generation than the condition in which we inherited them"

- Great Lakes
Restoration Initiative
Action Plan



As a hub for regional science expertise, scientific products, and coordination, the Great Lakes Environmental Research Laboratory (GLERL), led by Dr. Marie Colton, is directing NOAA's implementation of the Great Lakes Restoration Initiative. In addition to administration of the effort, GLERL is conducting the following scientific research projects:

Nearshore Health and Nonpoint Source Pollution
Improve Coastal Human Health and Develop Beach Forecasting Models



Implement techniques for predicting water quality at beaches up to two days in advance, and forecasting the trajectory and fate of harmful algal blooms in the Great Lakes. Improve models by using remote sensing, in-lake monitoring, and confirmation of blooms, and transition these improved hydrodynamic models to an operational status.

Identify Land Use Tipping Points that Threaten Great Lakes Ecosystems and Land Use Change and Agricultural Lands Indicator Development

Create science-based measures to assess the state of the Great Lakes ecosystem and identify tipping points in Great Lakes nearshore areas. The indicators will be used at the *State of the Lake Ecosystem Conference*, as a science-based mechanism to strengthen decision making and management in developing policies, ordinances, and land protection programs, and identify restoration priorities needed to sustain Great Lakes ecosystems.

Invasive Species

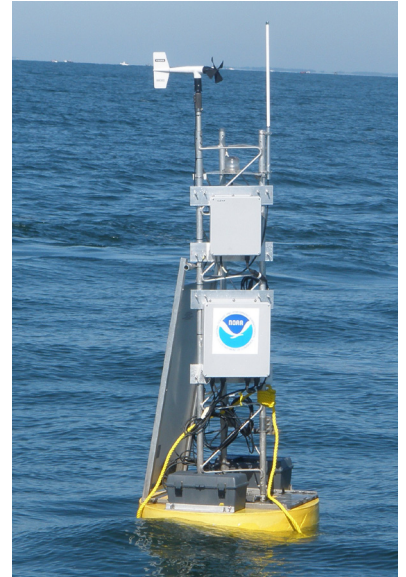
Great Lakes Aquatic Nuisance Species Information System (GLANSIS) Database

Expansion of the database will enhance and improve information on aquatic invaders in the Great Lakes available through GLANSIS online (www.glerl.noaa.gov/res/Programs/glansis/glansis.html). Improvements will include the addition of range-expansion species and high-risk potential invaders that have been identified in the scientific literature and also the addition of new, simplified fact sheets. These enhancements will also improve consistency within the database with respect to the way that the impacts of each invader are described.

Accountability, Education, Monitoring, Evaluation, Communication, & Partnership

The Great Lakes Observing System Implementation and Enhancement

Provide a comprehensive near-term design for a coastal observing system that will provide data on the physical, chemical, and biological parameters necessary for the effective management of nearshore aquatic resources to support remediation, restoration, and conservation actions.



Regional Climate Research for Application to Decision Making

To determine the best course of action for decision-makers, several models have stood out in the Great Lakes region for creating a downscaled climate model. These methods include climate parameters that are unique to the Great Lakes and are important to provide answers and form conclusions about future climate scenarios. NOAA will provide the single authoritative prediction of future climate in the region to direct the focus of restoration efforts.

