



GLRI Supporting Science

DEREK AGER – USEPA GREAT LAKES NATIONAL PROGRAM OFFICE (GLNPO)

Great Lakes National Program Office

EPA's first geographically-based program office

Established in 1978 to oversee U.S. efforts to implement Great Lakes Water Quality Agreement with Canada

EPA's focal point for Great Lakes coordination and information

Coordinates within EPA and with other federal and state agencies' Great Lakes ecosystem protection and restoration efforts

Implements long-term monitoring programs in all 5 Great Lakes

Implements contaminated sediment cleanups under GL Legacy Act authority

Implements the Great Lakes Restoration Initiative

Provides grants for GLRI implementation and Great Lakes monitoring



2012 Great Lakes Water Quality Agreement

- Great Lakes Areas of Concern (AOCs)
- Lakewide Management
- Chemicals of Mutual Concern (CMCs)
- Nutrients
- Ballast Water
- Aquatic Invasive Species
- Habitat & Species
- Groundwater
- Climate Change Impacts
- Science (CSMI, ecosystem indicators)



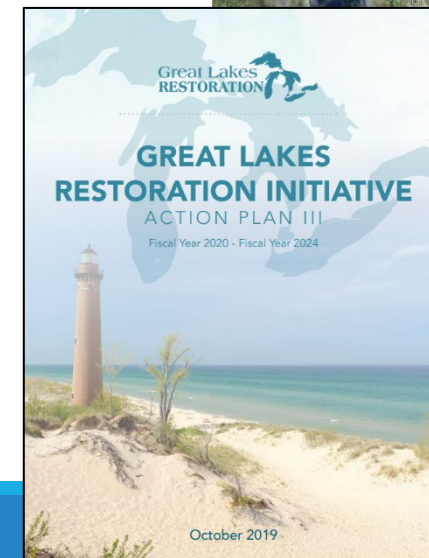
Great Lakes
Water Quality
Agreement

Protocol Amending the Agreement Between Canada and the United States of America
on Great Lakes Water Quality, 1978, as Amended on October 16, 1983,
and on November 18, 1987
Signed September 7, 2012



Great Lakes Restoration Initiative - GLRI

- EPA coordinates GLRI implementation by the Regional Working Group (RWG), comprised of 11 federal cabinet-level departments
- The first GLRI Action Plan was released in 2010
- Current GLRI Action Plan (AP III) released in October 2019 (FY20-24)

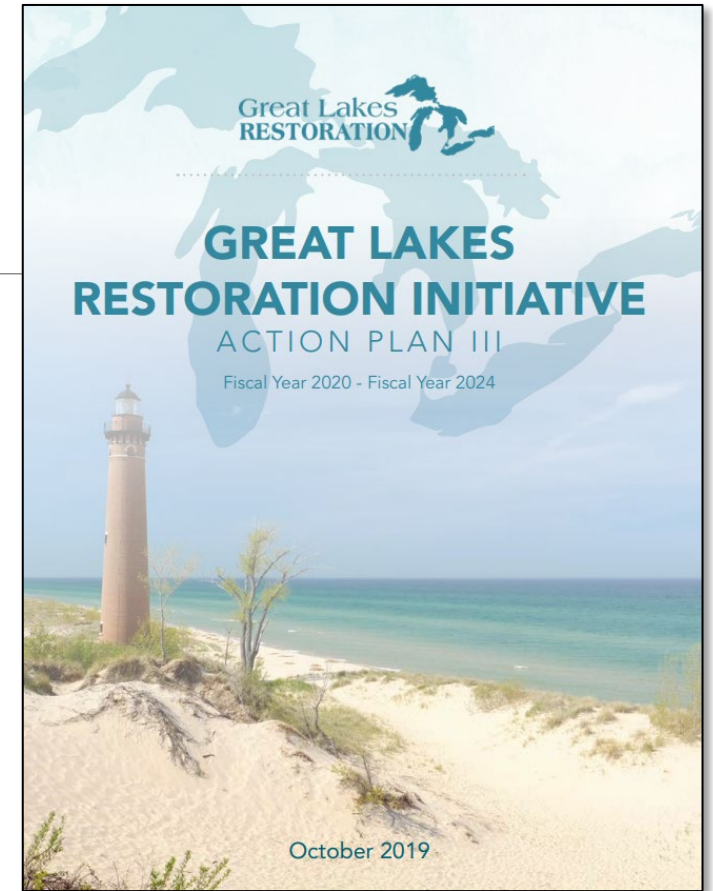


Great Lakes Restoration Initiative Action Plan III

Focus Areas:

1. Toxics Substances and Areas of Concern
2. Invasive Species
3. Nonpoint Source Pollution Impacts on Nearshore Health
4. Habitat and Species
- ★ 5. Foundations for Future Restoration Actions

* GLRI is action-oriented, results focused, and targets the most significant Great Lakes issues.



FOCUS AREA 5

FOUNDATIONS FOR FUTURE RESTORATION ACTIONS

- NOAA
- USGS
- USACE
- USFWS
- USFS
- GLFC

Objective

5.2. Conduct comprehensive science programs and projects.

Commitments

- Assess overall health of the Great Lakes ecosystem and identify the most significant remaining problems.
- Identify cross-cutting science priorities and implement projects to address those priorities.



GLRI agencies use indicators to assess status and trends of the Great Lakes ecosystem.



GLRI agencies assess conditions of nearshore and coastal zones.



GLRI agencies assess the overall health of the Great Lakes.

Assessing the overall health of the Great Lakes

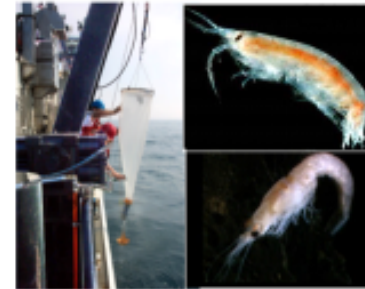
- GLNPO Long-Term Monitoring Programs
- CSMI
- NCCA Support
- HAB Buoy Monitoring

GLNPO Monitoring Programs

Water Quality Monitoring



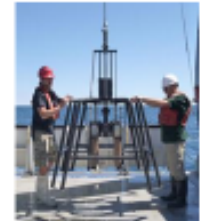
Biology Monitoring



Great Lakes Fish Monitoring and Surveillance Program



Great Lakes Sediment Surveillance Program



Lake Erie Dissolved Oxygen



IADN



Coastal Wetlands



Nearshore (NCCA)



Identify cross-cutting science priorities and implement projects

Science Priorities:

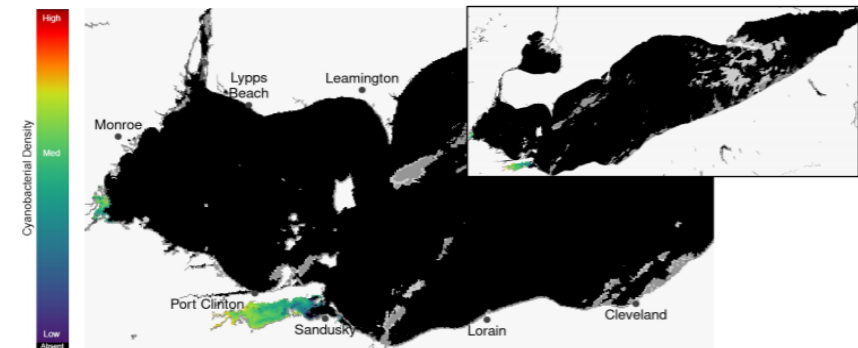
1. Coastal Processes
2. Harmful and Nuisance Algae Blooms



Accomplishments:

- Assessing drivers of Cladophora blooms
- Harmful Algal Bloom forecasting
- Lake bottom mapping
- Hardened shoreline assessment
- Coastal resiliency modeling

Cyanobacterial Index from Copernicus Sentinel-3a collected 2020/06/18 11:00 EDT. Grey indicates clouds or missing data. The estimated threshold of cyanobacteria detection is 20,000 cells/mL.



Forecast Lake Erie Conditions at 2020/06/19 12:00 (EDT) Each point on the map represents a point used by the HAB Tracker Model. Blooms mix through the water column at wind speeds greater than 15 knots (or 7.7 m/s).

New Initiatives – AP III and AP IV

- Framework for resilient GLRI Investments
 - Predictive lake level, storm surges and ice cover model
- Mapping and modeling nearshore changes
 - Utilize coastal mapping to develop tools to predict physical changes in the nearshore (erosion, nearshore sediment movement, etc.)
- Drivers of HAB toxicity
 - Further our understanding of what drives microcystin production in Great Lakes HABs
- Lake Erie hypoxia monitoring
 - Better understand timing, location, and extent of hypoxia events in Lake Erie

For More Information: GLRI Website: <http://glri.us>

The screenshot displays a web browser window with the following elements:

- Browser Tabs:** "Projects | Great Lakes Restoration Initiative" and "Great Lakes Restoration Initiative".
- Address Bar:** `epa.maps.arcgis.com/apps/webappviewer/index.html?id=329f1bb23cc84a65b213d83e64574548`
- Navigation Bar:** "Great Lakes Restoration Initiative Projects" and "Map Information".
- Map Interface:** A search bar with "Find address or place", a search icon, and map controls (zoom in, zoom out, home, refresh). The map shows the Great Lakes region with project locations marked by colored dots. Labels include "Lake Superior", "Lake Michigan", "Lake Huron", "Lake Erie", "Lake Ontario", "St. Lawrence River", "Mississippi River", "Chicago", "Toronto", "Ottawa", "Montréal", "Boston", "New York", "Philadelphia", "Pittsburgh", "Columbus", "Indianapolis", "Cleveland", "Detroit", "Milwaukee", "Minneapolis", "Chicago", "St. Louis", "Cincinnati", "Cleveland", "Pittsburgh", "Philadelphia", "New York", "Boston".
- Footer:** "United States", "100mi", "POWERED BY esri", "Esri, GEBCO, DeLorme, NaturalVue | Esri, GEBCO, IHO-IOC GEBCO, DeLorme, NGS".
- Windows Taskbar:** Search bar "Type here to search", taskbar icons for various applications, and system tray showing "5:07 PM 4/22/2021".

Questions

