

# GREAT LAKES TO GULF

## VIRTUAL OBSERVATORY

INTERPRETIVE OUTLINE



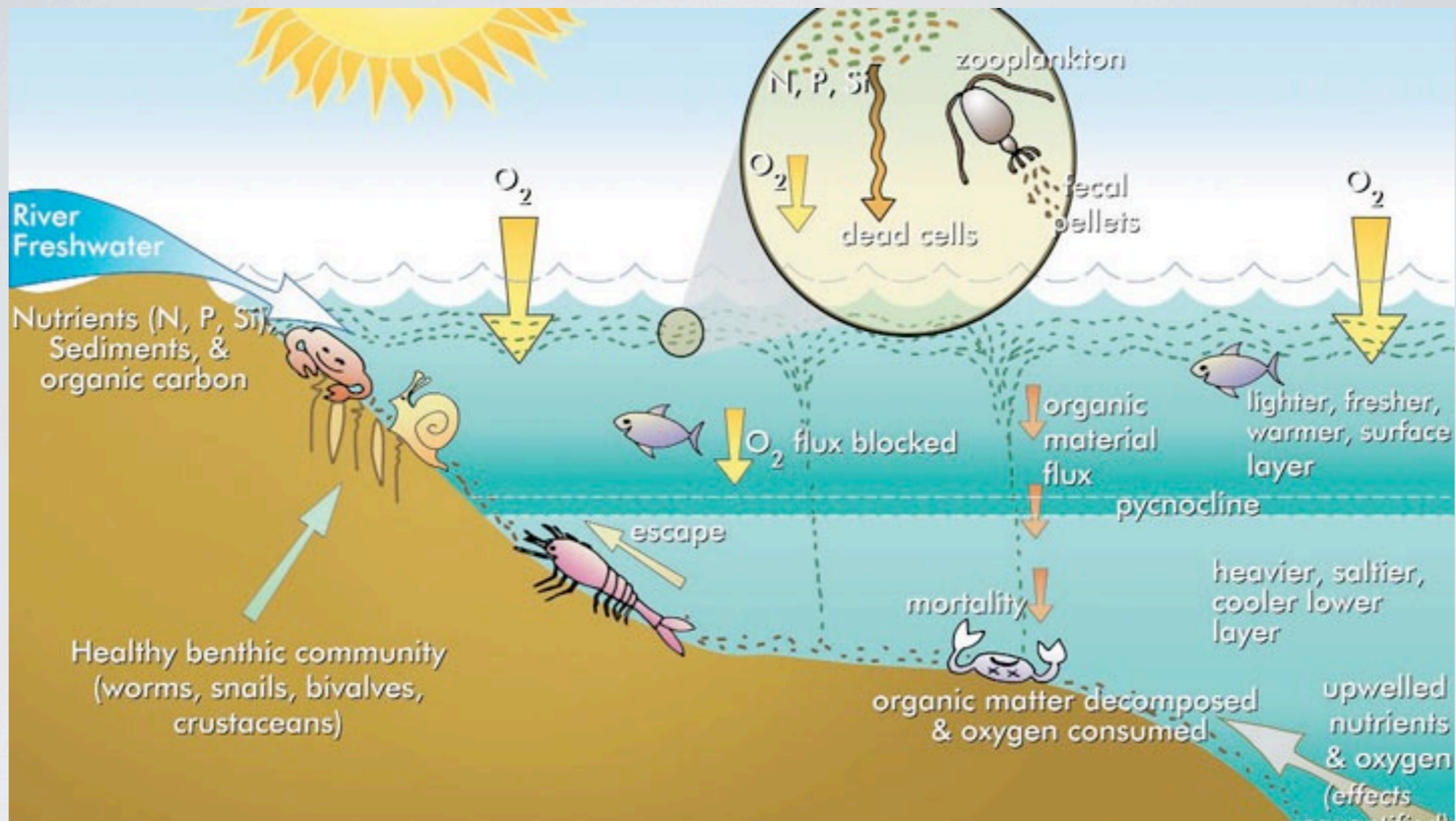
# THE RIVER

Flowing from the Great Lakes to the Gulf of Mexico, the Mississippi River is relied on for its environmental, ecological and economic benefits.



# THE WATERSHED

92% of the nation's agricultural exports are produced in the basin and moved through the river's 9 foot navigation channel.



# THE CHALLENGES

Multiple functions, from agriculture to transportation, served by the river combine to help degrade the water quality.



# WQP

## Water Quality Data

[WQP Home](#) [Download Data](#) [How to use the WQP -](#) [National Results Coverage](#) [About the WQP -](#)

### LOCATION

Place:

Country:

State:

County:

Point Location: ?

Bounding Box: ?

Within   
miles of  
Lat:   
Long:

North:   
South:   
East:   
West:

# WATER QUALITY MONITORING

Multiple state and federal agencies conduct regular water quality monitoring and data collection. The data is made available to the public through multiple databases and websites.



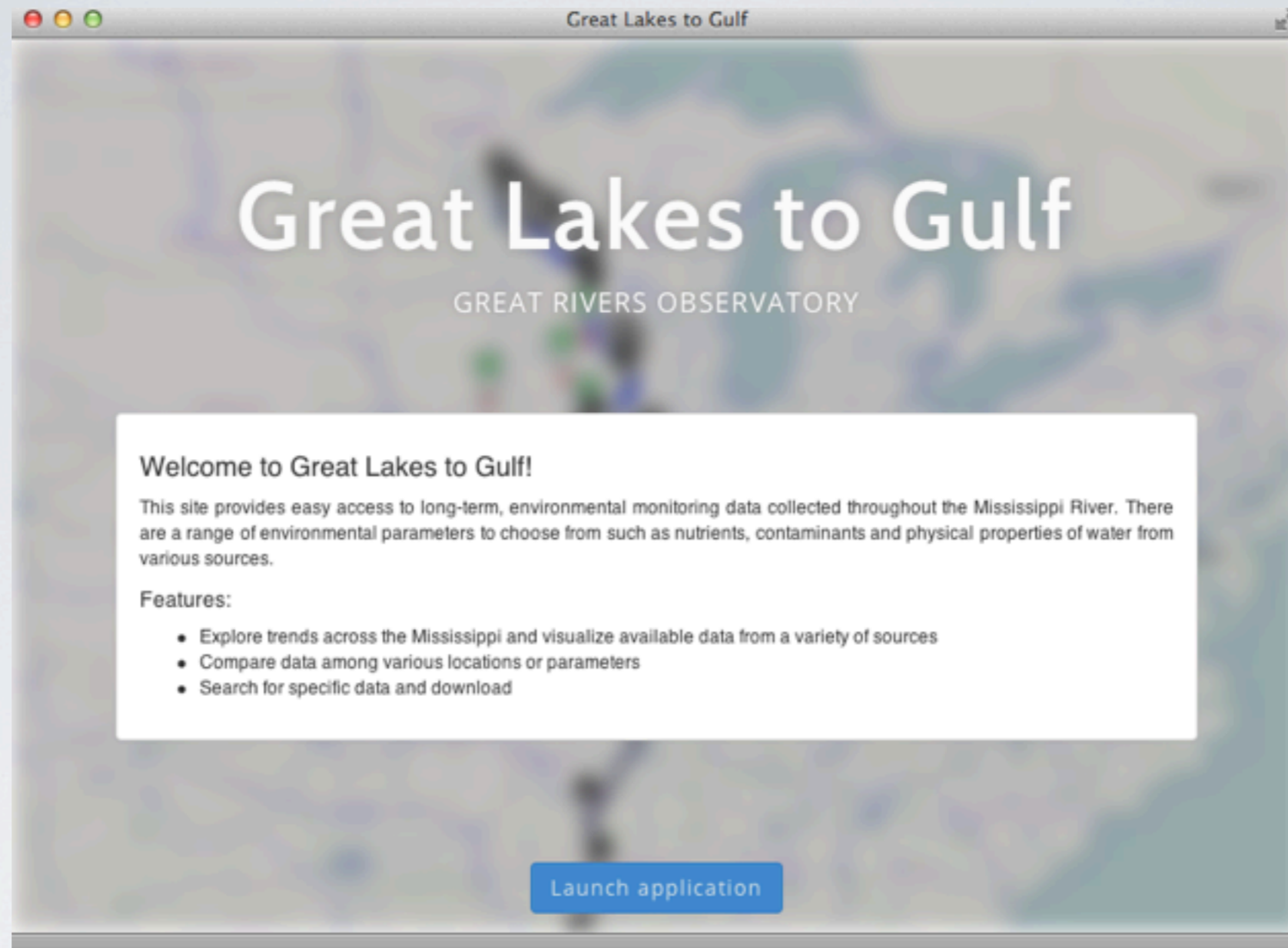
# THE RESPONSE

Identifying a need to consolidate the available data, the National Great Rivers Research and Education Center partnered with the University of Illinois' National Center for Supercomputing Applications and Illinois-Indiana Sea Grant to develop the Great Lakes to Gulf Virtual Observatory.



# THE MISSION

The GLTG Virtual Observatory's mission is to assist our understanding of large river ecology and facilitate decision making through an interactive geospatial application that integrates and synthesizes relevant data from respected sources.



### Welcome to Great Lakes to Gulf!

This site provides easy access to long-term, environmental monitoring data collected throughout the Mississippi River. There are a range of environmental parameters to choose from such as nutrients, contaminants and physical properties of water from various sources.

#### Features:

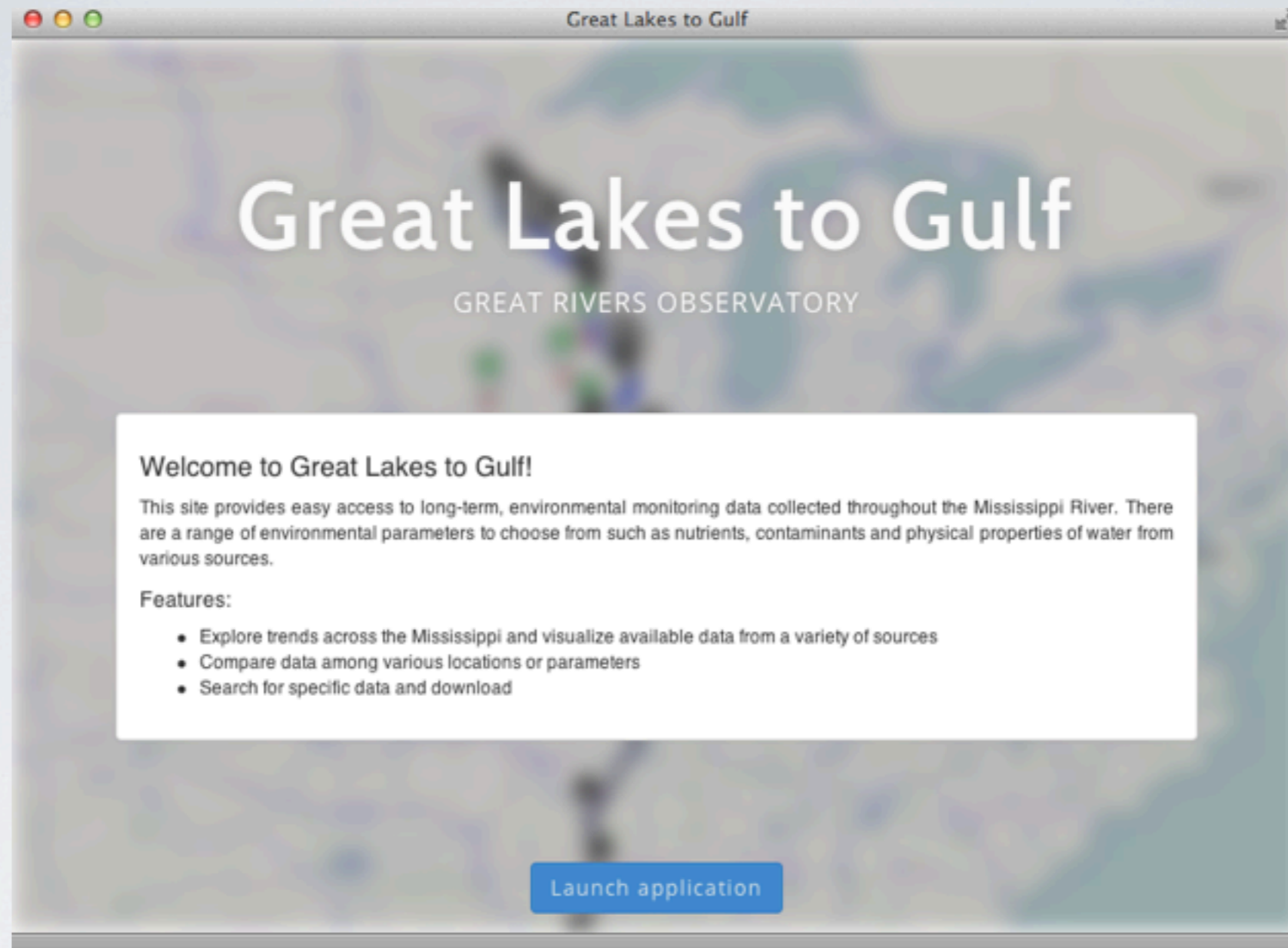
- Explore trends across the Mississippi and visualize available data from a variety of sources
- Compare data among various locations or parameters
- Search for specific data and download

Launch application

# THE OBSERVATORY

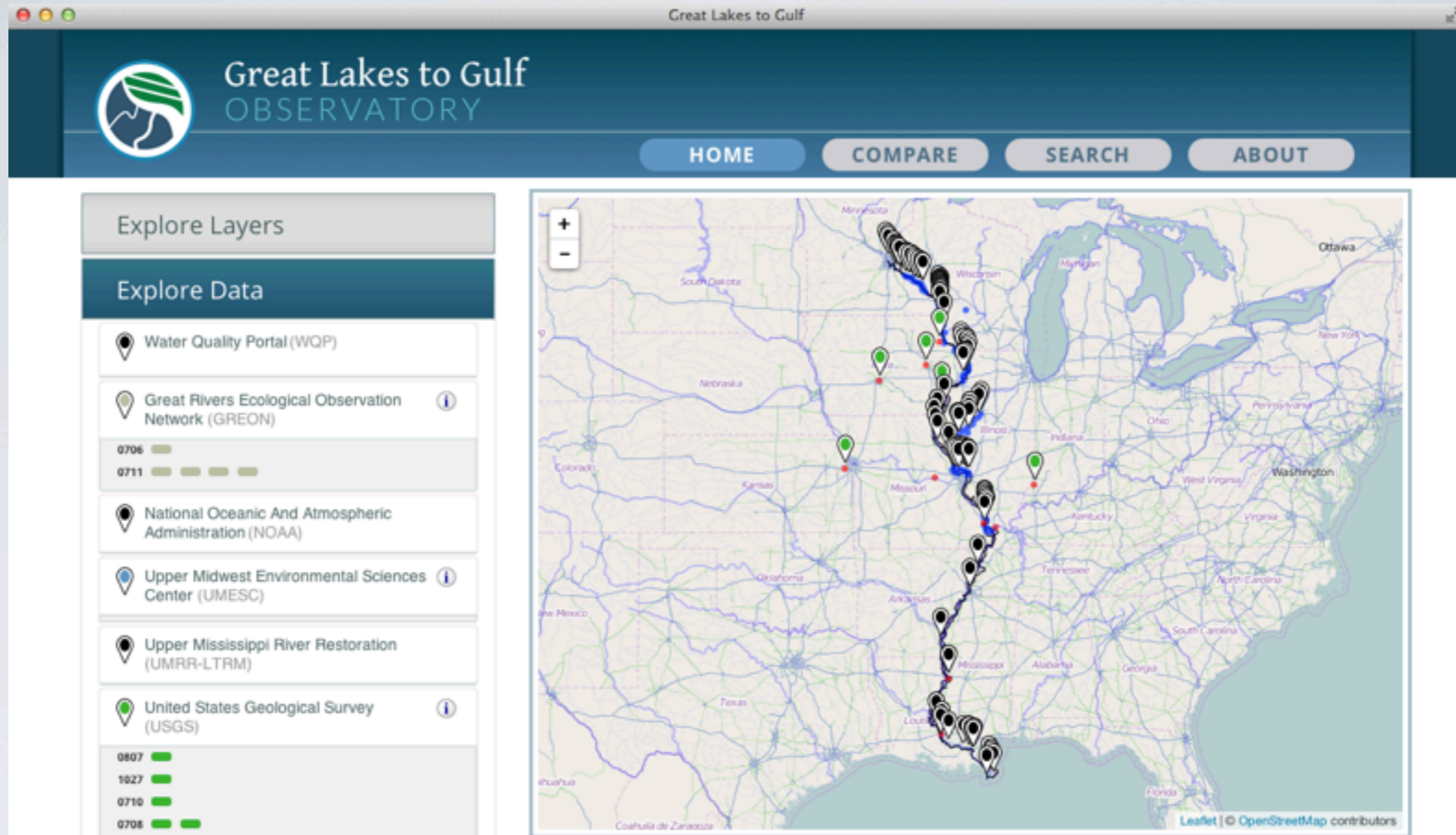
Powered by the NCSA's Geodashboard, the Observatory provides access to environmental monitoring data collected throughout the Mississippi River Watershed.





# THE OBSERVATORY

The GLTG application provides a new resource for stakeholders to inform their research and decisions on how the functions of the river are managed and sustained.



# HOME

On the Home page, users have access to all of the Observatory's available data points. The available data is organized by data source and hydrologic unit code or HUC, a 2-12 digit code assigned to watersheds.



Explore Layers

Explore Data

Water Quality Portal (WQP)

Great Rivers Ecological Observation Network (GREON)

0706  
0711

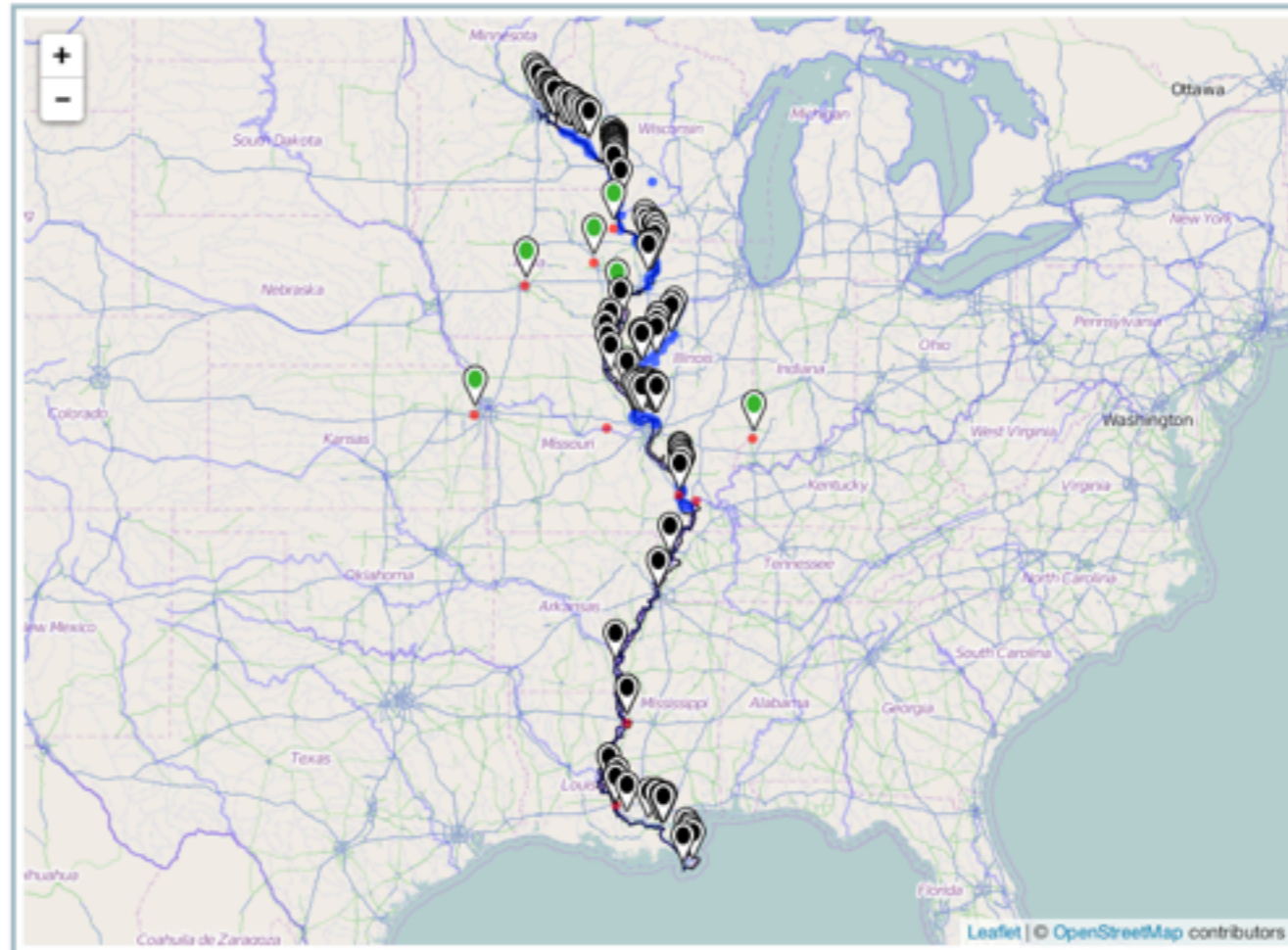
National Oceanic And Atmospheric Administration (NOAA)

Upper Midwest Environmental Sciences Center (UMESC)

Upper Mississippi River Restoration (UMRR-LTRM)

United States Geological Survey (USGS)

0807  
1027  
0710  
0708  
0702



The application uses a combination of data sources including long-term data sets, which provides users with a more comprehensive picture of water quality in the watershed than a single data source typically can.

Great Lakes to Gulf - Compare

**Great Lakes to Gulf**  
OBSERVATORY

HOME COMPARE SEARCH ABOUT

COMPARING PARAMETERS AT MISSISSIPPI RIVER AT LOCK AND DAM 9 LYNXVILLE & MISSISSIPPI RIVER AT LOCK AND DAM #2 AT HASTINGS

Date Range 1970 - 2015 Hide Box Plot

Kjeldahl nitrogen Additional Parameter Additional Parameter

SELECT STATIONS

Water Quality Portal (WQP)

0706 WIDNR\_WQX-123016  
WIDNR\_WQX-633038

0806 USGS-07289000

0803 USGS-07265450  
USGS-322023090544500

0801 USGS-07029150 USGS-07032000

0704 MNPCA-5000-067 MNPCA-5000-132  
USGS-05344880 WIDNR\_WQX-483027

0701 MNPCA-5000-024 MNPCA-5000-025  
MNPCA-5000-053 MNPCA-5000-133  
MNPCA-5000-268 MNPCA-5000-338

Mississippi River at Lock And Dam 9 Lynxville

Kjeldahl nitrogen

0.8 0.98

MISSISSIPPI RIVER AT LOCK AND DAM #2 AT HASTINGS

Time Series

Kjeldahl nitrogen

2.31

Box and Whisker

# COMPARE

The Compare page allows the user to select multiple sites and compare up to three specific parameters over a selected time period.

Great Lakes to Gulf - Search

Great Lakes to Gulf  
OBSERVATORY

HOME COMPARE SEARCH ABOUT

Areas

Pools

Watersheds

Data Sources

- Water Quality Portal (WQP)
- Great Rivers Ecological Observation Network (GREON)
- National Oceanic And Atmospheric Administration (NOAA)
- Upper Midwest Environmental Sciences Center (UMESC)
- Upper Mississippi River Restoration (UMRR-LTRM)
- United States Geological Survey (USGS)

Parameters

Search Results

Download as CSV Download as JSON Permalink Visualize

Reset Search

# SEARCH

On the search page users are able to create unique data sets for the specific sites, sources, and parameters that interest them.

Great Lakes to Gulf - Search

Great Lakes to Gulf  
OBSERVATORY

HOME COMPARE SEARCH ABOUT

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Parameters

Search Results

Download as CSV Download as JSON Permalink Visualize

Reset Search

# SEARCH

Users can then download their selected data sets in common file formats like CSV and JSON.

The screenshot shows a web browser window titled "Great Lakes to Gulf" with the URL "gltg.ncsa.illinois.edu/geodashboard/". The page features a dark blue header with the "Great Lakes to Gulf OBSERVATORY" logo and navigation buttons for "HOME", "COMPARE", "SEARCH", and "ABOUT". On the left, there is a sidebar with "Explore Layers" and "Explore Data" sections. The "Explore Data" section lists several data sources with progress indicators: "Water Quality Portal (WQP)", "Great Rivers Ecological Observation Network (GREON)" (with sub-items 0706 and 0711), "National Oceanic And Atmospheric Administration (NOAA)" (with sub-item 0809), "Upper Midwest Environmental Sciences Center (UMESC)", and "Upper Mississippi River Restoration (UMRR-LTRM)" (with sub-item 0708). The main content area displays a map of the Mississippi River basin. An information window titled "GREON" is overlaid on the map, containing an "OVERVIEW" section. The overview text states: "The GREON program seeks to establish a network of real-time water quality monitoring platforms on great rivers around the world. NGRREC partnered with YSI Inc. to design and launch a monitoring buoy capable of real-time, continuous collection of water quality and phytoplankton data. The first YSI PISCES (Pontoon for In-situ Characterization of Environmental Systems) buoy launched in May 2013 on the Upper Mississippi River System, but the program aims to expand to deploy platforms across the globe on other international great river systems." A link for "More information about GREON" is provided at the bottom of the window.

# ADDITIONAL FEATURES

The site also includes information windows and a glossary that provide definitions for acronyms, data sources and key terms.



# THE FUTURE

After launching with a focus on nutrients and water quality, the Observatory will expand to include additional types of environmental monitoring data in the future.