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GLANSIS GREAT LAKES AQUATIC NONINDIGENOUS SPECIES INFORMATION SYSTEM

Using GLANSIS as an Information Resource and AIS Update

Rochelle Sturtevant, GLANSIS Program Manager

Ohio State Advisory Committee

Columbus, OH

May 24, 2019

NOAA National Oceanic and Atmospheric Administration U.S. Department of Commerce | GLERL | Sea Grant Michigan | Cooperative Institute for Great Lakes Research CIGLR Great Lakes Science for Society | GLAHF Great Lakes Aquatic Habitat Framework | USGS science for a changing world | Great Lakes RESTORATION

GLANSIS GREAT LAKES AQUATIC NONINDIGENOUS SPECIES INFORMATION SYSTEM

https://www.glerl.noaa.gov/glansis/

GLANSIS is:

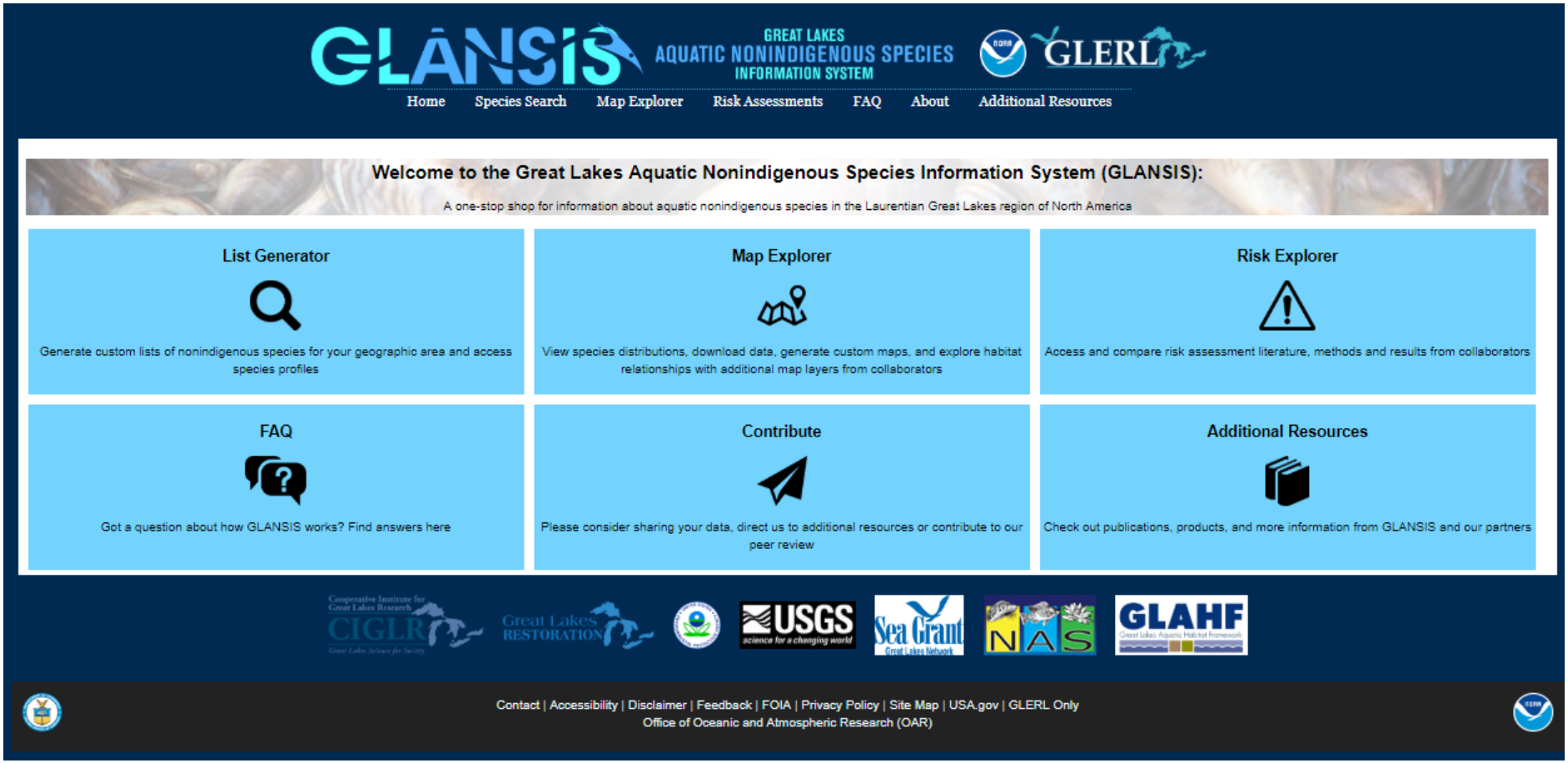
- A Great Lakes-specific **node** of the USGS Nonindigenous Aquatic Species (NAS) database
- A NOAA-led interagency **project** to enhance access to ANS information

GLANSIS provides:

- Simple interface to access GLs specific content
- Advanced search capacity

GLANSIS contains:

- Comprehensive technical profiles on non-native species
- Detailed collection records of 1000s of reports of non-native species


GLANSIS
GREAT LAKES AQUATIC NONINDIGENOUS SPECIES INFORMATION SYSTEM
GLERL
Home
Species Search
Map Explorer
Risk Assessments
FAQ
About
Additional Resources
Welcome to the Great Lakes Aquatic Nonindigenous Species Information System (GLANSIS):
A one-stop shop for information about aquatic nonindigenous species in the Laurentian Great Lakes region of North America
List Generator
Generate custom lists of nonindigenous species for your geographic area and access species profiles
Map Explorer
View species distributions, download data, generate custom maps, and explore habitat relationships with additional map layers from collaborators
Risk Explorer
Access and compare risk assessment literature, methods and results from collaborators
FAQ
Got a question about how GLANSIS works? Find answers here
Contribute
Please consider sharing your data, direct us to additional resources or contribute to our peer review
Additional Resources
Check out publications, products, and more information from GLANSIS and our partners
Cooperative Institute for Great Lakes Research
CIGLR
Great Lakes RESTORATION
USGS
science for a changing world
Sea Grant
Great Lakes Network
NAS
GLAHF
Great Lakes Aquatic Habitat Framework
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GLANSIS List Generator

List Generator

GLERL Great Lakes RESTORATION

GLANSIS Home | About the Database | Search the Database | Additional Resources

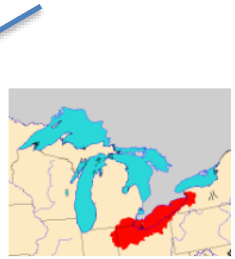
GLANSIS Home, GLANSIS Search Portal

Generate a customized non-indigenous species list and access profiles

Guidance on using this tool

NOTE: all results must be interpreted as a minimum, and no query will return a list of all nonindigenous species in the Great Lakes.

Species Category: Nonindigenous+Range Expanders
Group: All
Lake (HUC): Lake Erie Drainage
Genus:
Species:
Common Name:
Status: All
Pathway: All
Sort by: Taxonomic Group
Reset Submit



Lake (HUC): Custom (experimental)
7-digit HUC-8: 0000000

Cooperative Institute for Great Lakes Research CIGLR Great Lakes Science for Society | Sea Grant Great Lakes Network | USGS science for a changing world | NAS | GLAHF Great Lakes Aquatic Habitat Framework

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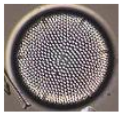
GLANSIS GREAT LAKES AQUATIC NONINDIGENOUS SPECIES INFORMATION SYSTEM

Results also available in CSV (click to export table to spreadsheet)
Click on a column header to sort by that column.

Total of 149 records

Photo	Taxonomic Group	Family	Scientific Name (click for technical species profile)	Common Name (click for nontechnical species profile)	Continent of Origin	Year First Collected	Status (in selected HUCs)	Category
	Algae	Hemidiscaceae	*Actinocyclus normanii f. subsalsa*	A centric diatom	Europe	1985	established	Nonindigenous
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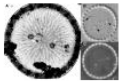
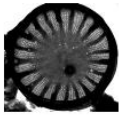
	Algae	Thalassiosiraceae	*Conticribra guillardii*	A centric diatom	Europe	1973	established	Nonindigenous
	Algae	Stephanodiscaceae	*Cyclotella atomus*	A centric diatom	Unknown	1976	established	Nonindigenous
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	Algae	Nostocaceae	*Cylindrospermopsis raciborskii*	Cylindro		1971	established	Nonindigenous
								

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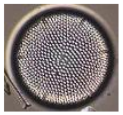	Algae	Hemidiscaceae	*Actinocyclus normanii f. subsalsa*	A centric diatom	Europe	1985	established	Nonindigenous
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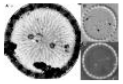
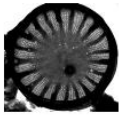
	Algae	Thalassiosiraceae	*Conticribra guillardii*	A centric diatom	Europe	1973	established	Nonindigenous
	Algae	Stephanodiscaceae	*Cyclotella atomus*	A centric diatom	Unknown	1976	established	Nonindigenous
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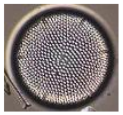	Algae	Hemidiscaceae	*Actinocyclus normanii f. subsalsa*	A centric diatom	Europe	1985	established	Nonindigenous
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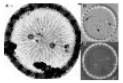
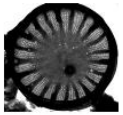
	Algae	Thalassiosiraceae	*Conticribra guillardii*	A centric diatom	Europe	1973	established	Nonindigenous
	Algae	Stephanodiscaceae	*Cyclotella atomus*	A centric diatom	Unknown	1976	established	Nonindigenous
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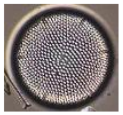	Algae	Hemidiscaceae	*Actinocyclus normanii f. subsalsa*	A centric diatom	Europe	1985	established	Nonindigenous
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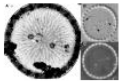
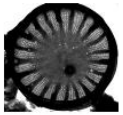
	Algae	Thalassiosiraceae	*Conticribra guillardii*	A centric diatom	Europe	1973	established	Nonindigenous
	Algae	Stephanodiscaceae	*Cyclotella atomus*	A centric diatom	Unknown	1976	established	Nonindigenous
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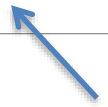


Scientific Name
Common Name
Synonyms and Other Names
Identification
Size
Native Range
Map
*Great Lakes Nonindigenous Occurrences
Table
Ecology
Means of Introduction
Status
*Great Lakes Impacts
*Management
Remarks
References**
Other Resources
Author
Contributing Agencies
Revision Date (***)
Citation

This map only depicts Great Lakes introductions.
Click here for Great Lakes region collection information
Click here for the national map

Table 1. Great Lakes region nonindigenous occurrences, the earliest and latest observations in each state/province, and the tally and names of HUCs with observations†. Names and dates are hyperlinked to their relevant specimen records. The list of references for all nonindigenous occurrences of *Carassius auratus* are found here.

Full list of USGS occurrences

State/Province	Year of earliest observation	Year of last observation	Total HUCs with observations†	HUCs with observations†
Illinois	1917	2001	3	Lake Michigan; Little Calumet-Galien; Pike-Root
Indiana	1999	2004	1	Little Calumet-Galien
Michigan	1880	2017	18	Au Gres-Rifle; Black-Macatawa; Clinton; Detroit; Great Lakes Region; Huron; Kalamazoo; Lake Erie; Lake Huron; Lake St. Clair; Lower Grand; Muskegon; Ottawa-Stony; Raisin; Saginaw; St. Clair; Tittabawassee; Upper Grand
Minnesota	1975	2004	2	Lake Superior; St. Louis
New York	1982	2016	16	Ausable River; Buffalo-Eighteenmile; Cattaraugus; Chaumont-Perch; Eastern Lake Erie; Great Lakes Region; Irondequoit-Ninemile; Lake Erie; Lake Ontario; Lower Genesee; Niagara; Oak Orchard-Twelvemile; Oneida; Raisin River-St. Lawrence River; Salmon-Sandy; Seneca
Ohio	1981	2017	4	Cedar-Portage; Huron-Vermilion; Lake Erie; Sandusky
Ontario	1925	2016	*	
Pennsylvania	1982	2014	2	Chautauqua-Conneaut; Lake Erie
Vermont	1992	1992	1	Mettawee River
Wisconsin	1969	2013	7	Duck-Pensaukee; Lake Michigan; Lower Fox; Manitowoc-Sheboygan; Milwaukee; Pike-Root; Wolf

Table last updated 11/16/2018

† Populations may not be currently present.

* HUCs are not listed for areas where the observation(s) cannot be approximated to a HUC (e.g. state centroids or Canadian provinces).

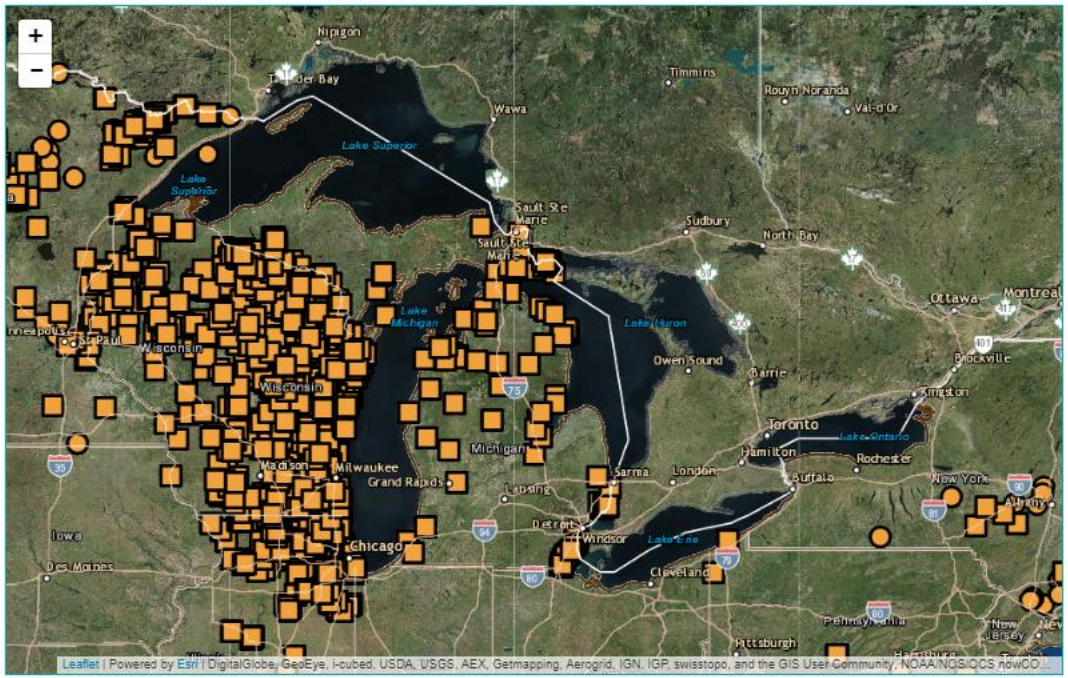
GLANSIS GREAT LAKES AQUATIC NONINDIGENOUS SPECIES INFORMATION SYSTEM

Map Explorer

GLANSIS Map Explorer

Guidance on using this tool

This search interface is designed to provide direct access to the USGS NAS species database and allow species' locations to be easily compared with habitat layers provided by the Great Lakes Aquatic Habitat Framework or downloaded to your own GIS. You may select GLAHF layers, and scroll down to select species (up to 3 species may be displayed at once, select them sequentially).



GLAHF Great Lakes Aquatic Habitat Framework

Surface Layers: None

Shoreline Layers: None

Basemap: Imagery

Mapped Species (Click for USGS and GLANSIS profiles)

Faxonius rusticus (USGS, GLANSIS)

None

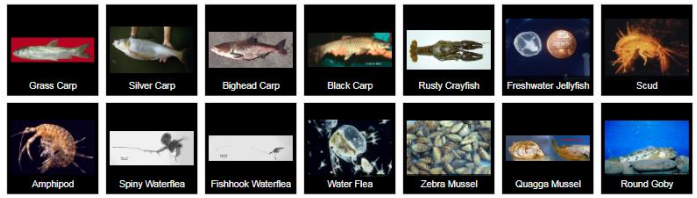
None

Start Over

Show Basemap Labels (if applicable)

Show Political Boundaries

Quick map species: *Click any of the 'hot button' species below to plot their extent across the US Great Lakes and St. Lawrence states. If you would like to perform a search for a species in a specific area or collected at a certain time, click 'Start Over', select your search region and year below, and then click 'Search'.*



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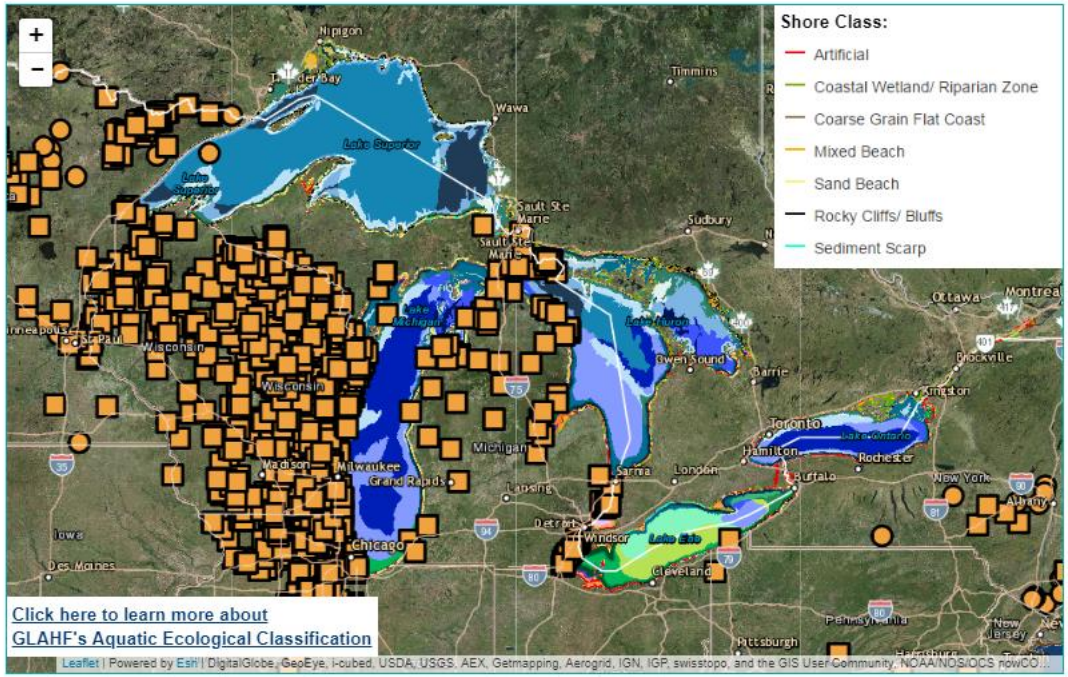

GLAHF Great Lakes Aquatic Habitat Framework

Surface Layers: Aquatic Ecological Units

Shoreline Layers: Classification

Basemap: Imagery

Mapped Species (Click for USGS and GLANSIS profiles)

Faxonius rusticus (USGS, GLANSIS)

None

None

Start Over

Show Basemap Labels (if applicable)

Show Political Boundaries

Shoreline Layers:

- None
- Classification
- Sinuosity

Surface Layers:

General

- Geomorphology Depth
- Geomorphology Substrate
- Spring Surface Temperatures
- Summer Surface Temperatures
- Cumulative Degree Days
- Ice Duration
- Upwelling

Ecological Classification

- Aquatic Ecological Units
- Depth
- Thermal Regime
- Mechanical Energy
- Tributary Influence

Habitat Suitability …

Grass Carp Habitat Suitability map

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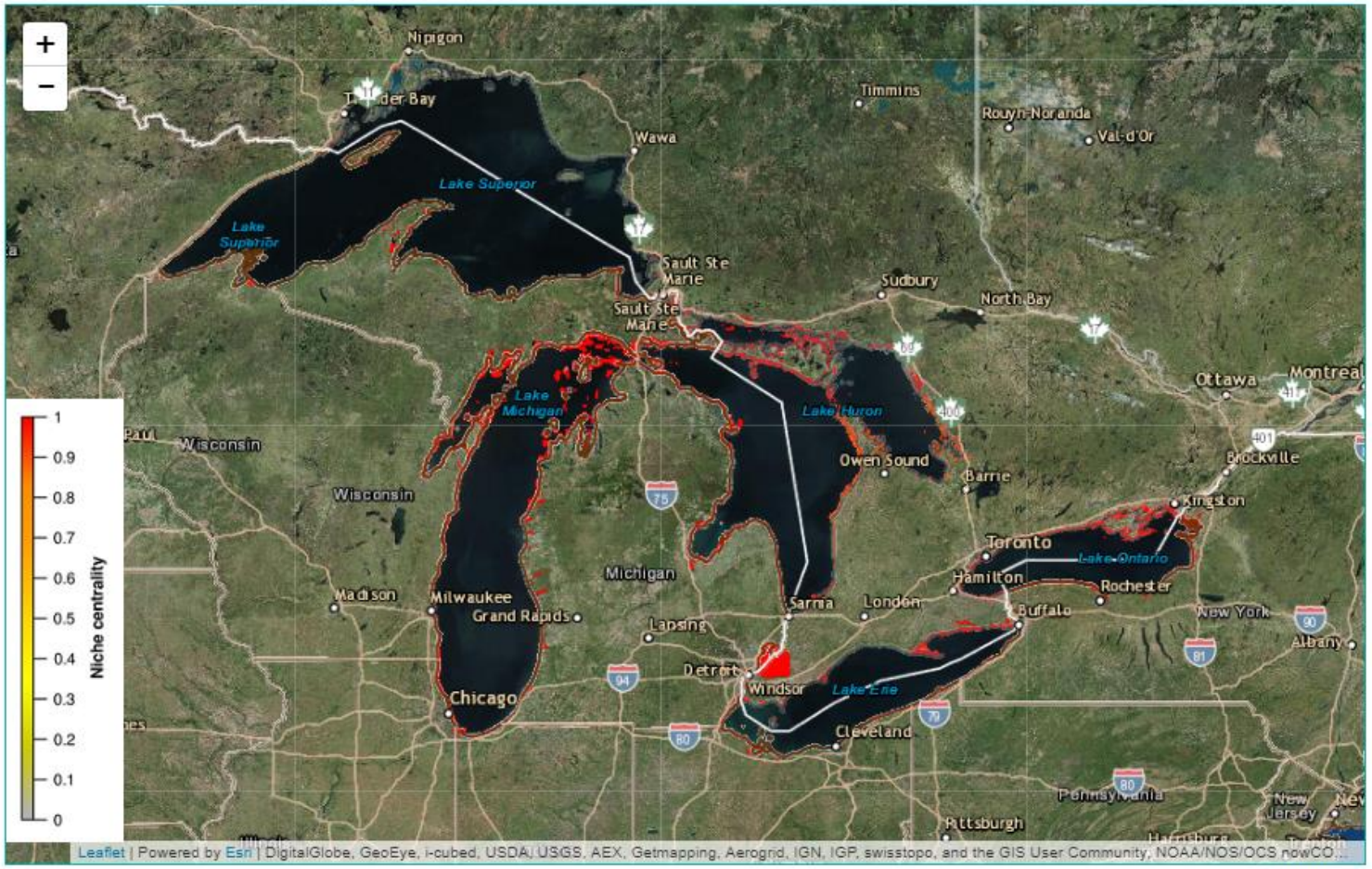


GLAHF
Great Lakes Aquatic Habitat Framework

Surface Layers:
Grass Carp restricted SAV & Wetlands

Shoreline Layers:
None

Basemap:
Imagery

Mapped Species (Click for USGS and GLANSIS profiles)

None

None

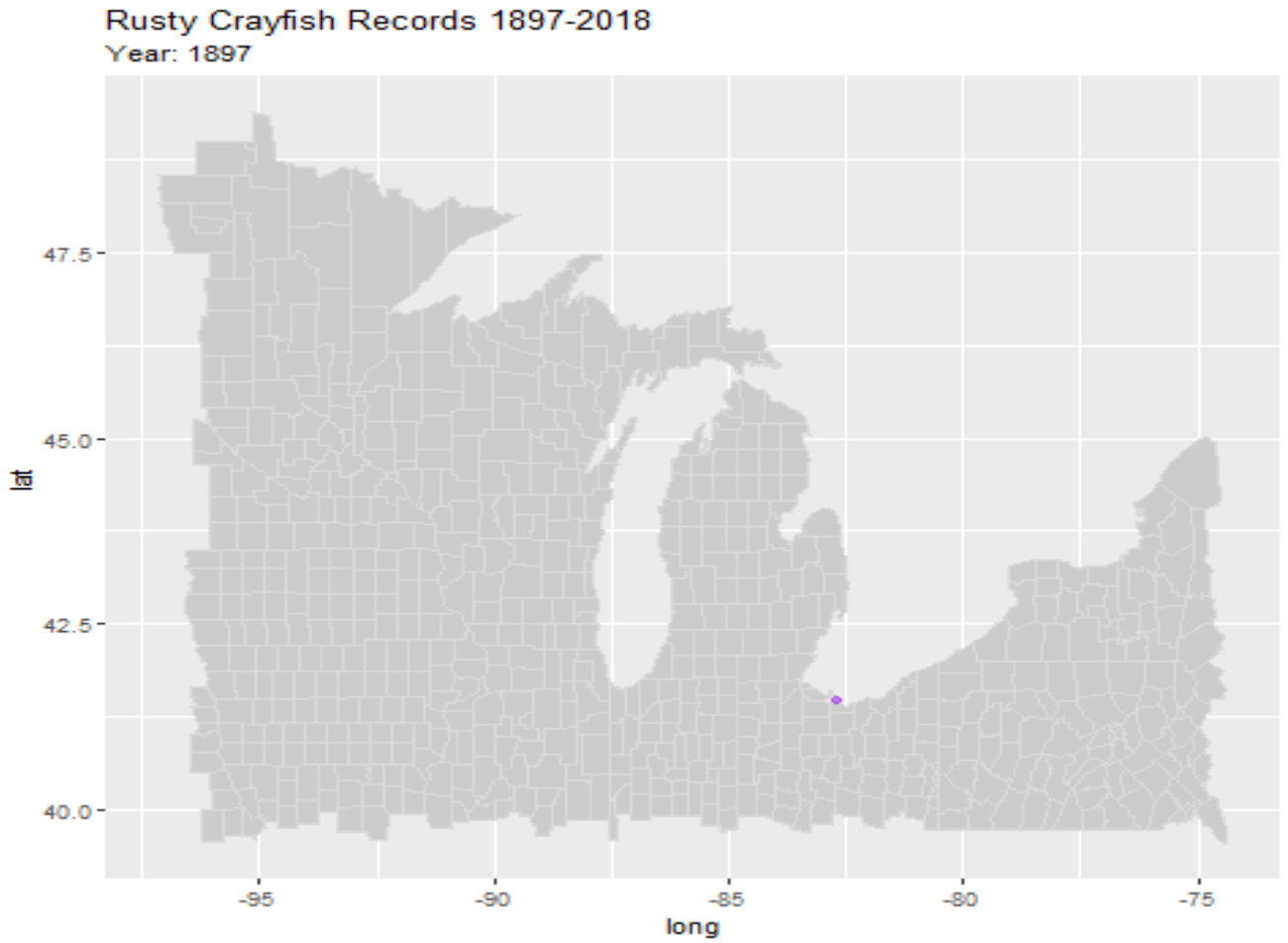
None

Start Over

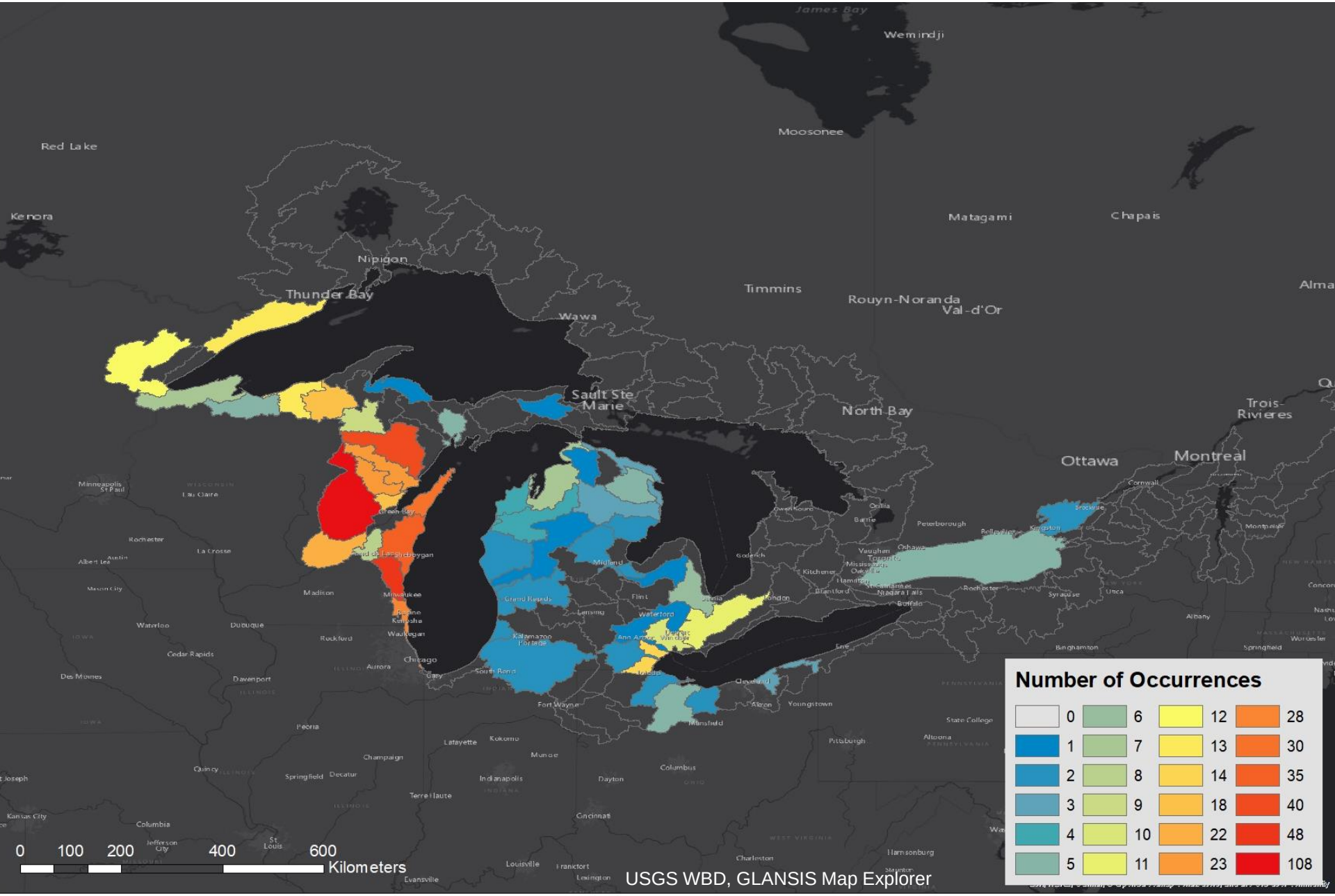
Show Basemap Labels (if applicable)

Show Political Boundaries

Rusty Crayfish *(Faxonius rusticus):* occurrences over time



Occurrence Records by HUC8



Risk Assessment Clearinghouse

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GLANSIS GREAT LAKES AQUATIC NONINDIGENOUS SPECIES INFORMATION SYSTEM

Risk Explorer

GLANSIS GREAT LAKES AQUATIC NONINDIGENOUS SPECIES INFORMATION SYSTEM

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GLANSIS Risk Assessment Clearinghouse

About

The GLANSIS team is currently working with the Great Lakes Panel on Aquatic Nuisance Species' Risk Assessment Ad hoc Committee to scope regional needs for risk assessment information and coordinate with other regional entities in developing an information clearinghouse to meet those needs. We are committed to developing a web-based interface that provides:

- Summary descriptions of applicable risk assessment protocols
- Completed risk assessments that have been conducted by agencies within the Great Lakes region
- Completed risk assessments that have been conducted by jurisdictions outside the Great Lakes for species of interest

Resources

- About risk assessments
- Risk Assessment Literature
- Risk assessment methods
- Species Risk Assessments

Species Level Risk Assessments Explorer

You may search the risk assessments by either specifying the full species name directly from the first drop-down menu, or perform a taxonomic search. To learn more about the methods behind each species' risk assessment, click the method title for an entry.

Full species name:
None specific

Method:
None specific

Group:
None specific

Family:
None specific

Genus:
None specific

Species:
None specific

Search

Side-by-side comparison

Click the check box directly beneath the species name of up to two species-level risk assessments to compare them. Once you click a second, you will be directed to a table which will appear here.

Perform different comparison

Download data

Below are the results of your most recent query in **tab delimited** format. Copy, paste into a text editor, and save as 'insert_file_name.txt'. You should then be able to open it in your favorite spreadsheet program.

Cherax destructor

Click to compare with up to one other species' risk assessment

- Method: NOAA GLANSIS Watchlist
- Citation: https://www.glerl.noaa.gov//pubs/tech_reports/glerl-169/tm-169.pdf
- Geographic scope of assessment: Great Lakes
- Status: Not established in North America
- Introduction: Low probability of introduction via unauthorized intentional release (Confidence high)
- Establishment: Moderate probability of Establishment (Confidence High)
- Impact/Invasive Status: Moderate probability of environmental and beneficial impact. There is little to no evidence for significant socio-economic impact.

Cherax destructor

Click to compare with up to one other species' risk assessment

- Method: University of Notre Dame Science-Based Tools for Assessing Invasion Risk (STAIR) -- Crayfish
- Citation: http://takeaim.org/wp-content/uploads/2016/11/10_20_Species_Assessments.pdf
- Geographic scope of assessment: Global
- Status: established and invasive
- Establishment: RFM Probability = 0.742
- Impact/Invasive Status: RFM Probability = 0.583

Cherax destructor

Click to compare with up to one other species' risk assessment

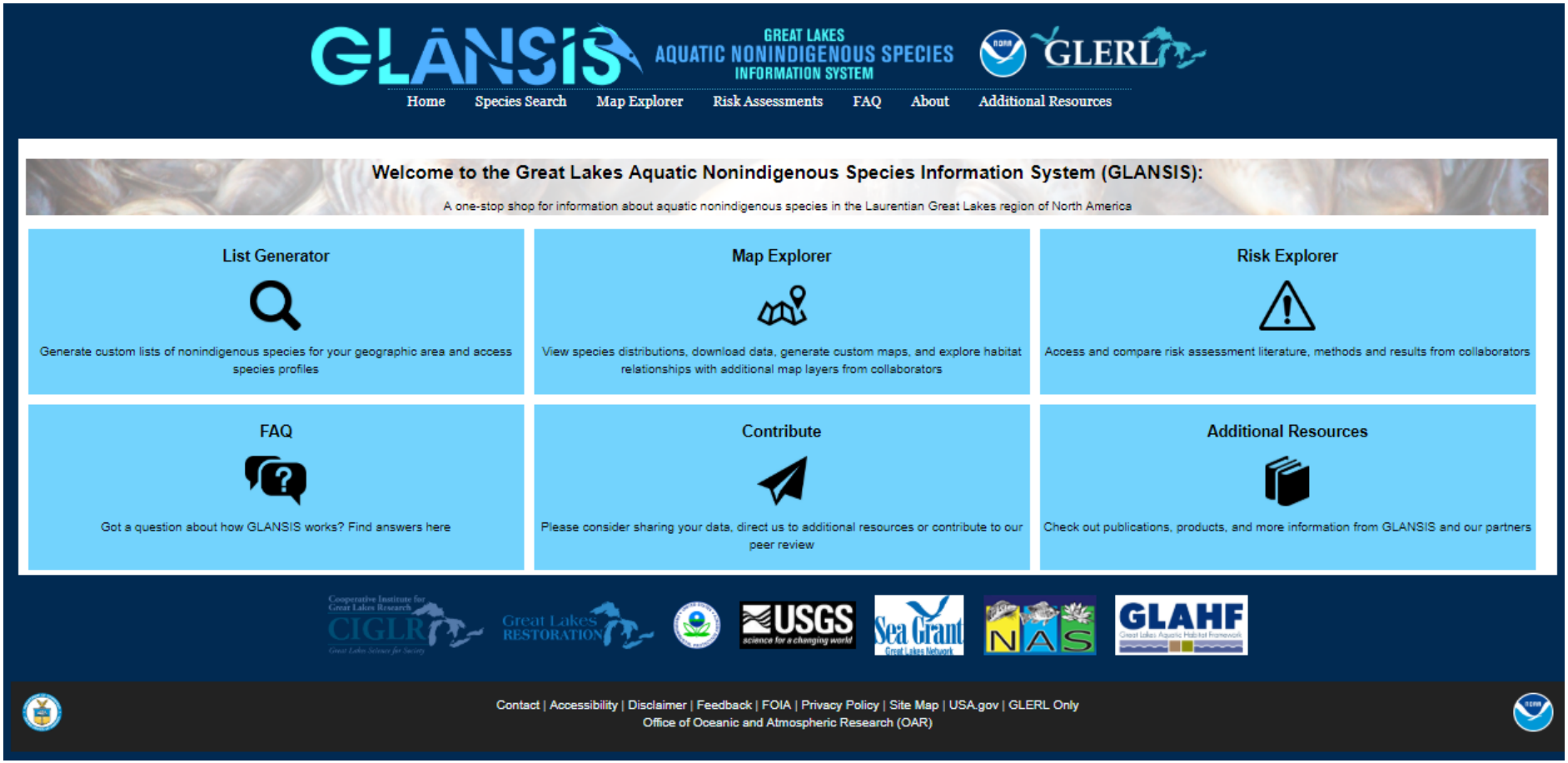
- Method: USFWS Ecological Risk Screen Summaries
- Citation: https://www.fws.gov/fisheries/ans/species_erss_reports.html
- Geographic scope of assessment: US
- Status: Not introduced to US
- Introduction: High history of Invasiveness
- Establishment: High Climate Match
- Overall status: Overall High Risk
- Certainty/Confidence in overall status: High

Side-by-side comparison

Click the check box directly beneath the species name of up to two species-level risk assessments to compare them. Once you click a second, you will be directed to a table which will appear here.

Perform different comparison

Species	Cherax destructor	Cherax destructor
Method	NOAA GLANSIS Watchlist	USFWS Ecological Risk Screen Summaries
Citation		
Geographic scope of assessment	Great Lakes	US
Status	Not established in North America	Not introduced to US
Introduction	Low probability of introduction via unauthorized intentional release (Confidence high)	High history of Invasiveness
Establishment	Moderate probability of Establishment (Confidence High)	High Climate Match
Spread	NA	NA
Impact/Invasive status	Moderate probability of environmental and beneficial impact. There is little to no evidence for significant socio-economic impact.	NA
Overall status	NA	Overall High Risk
Certainty/Confidence in overall status	NA	High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Contribute
Please consider sharing your data, direct us to additional resources or contribute to our peer review
Additional Resources
Check out publications, products, and more information from GLANSIS and our partners
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CIGLR
Great Lakes RESTORATION
USGS
science for a changing world
Sea Grant
Great Lakes Network
NAS
GLAHF
Great Lakes Aquatic Habitat Framework
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Office of Oceanic and Atmospheric Research (OAR)

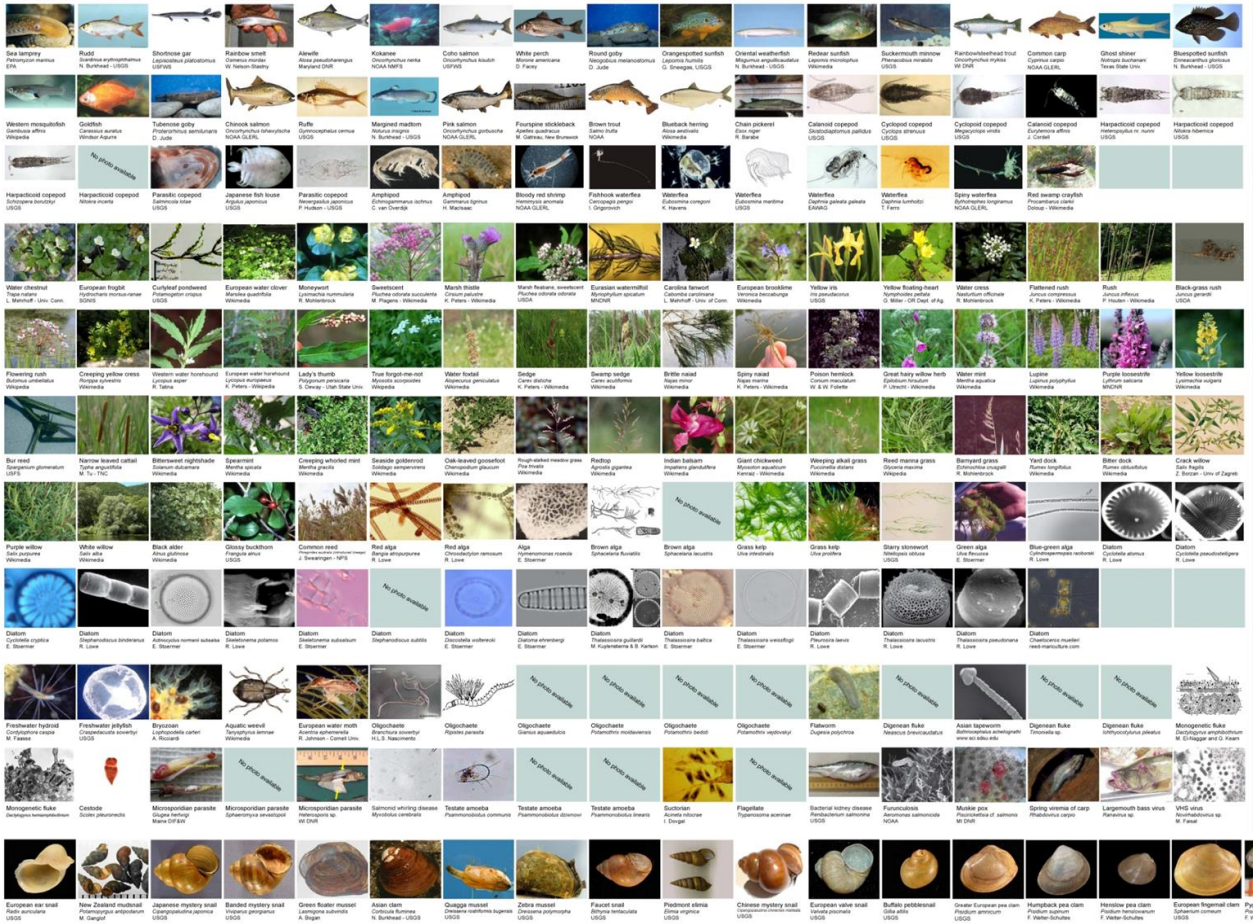
What GLANSIS needs …

- Distribution Data
  - Through USGS-NAS we have data-sharing arrangements with NEMESIS, EddMaps, iMapInvasives, MISIN/GISIN, etc
- Reviewers!
  - Review all or part of any profile or information holding (e.g., we would welcome a review of just the Ohio legislation)
- Additional references – especially grey literature, control case studies, theses/dissertations, etc.
- Photos
- Feedback on the website (useability etc)
- Ideas for new products, analyses, etc.

Questions?

MICHIGAN STATE UNIVERSITY | Extension

Cooperative Institute for Great Lakes Research
CIGLR
Great Lakes Science for Society



NOAA
National Oceanic and Atmospheric Administration
U.S. Department of Commerce

Great Lakes Restoration

NAS

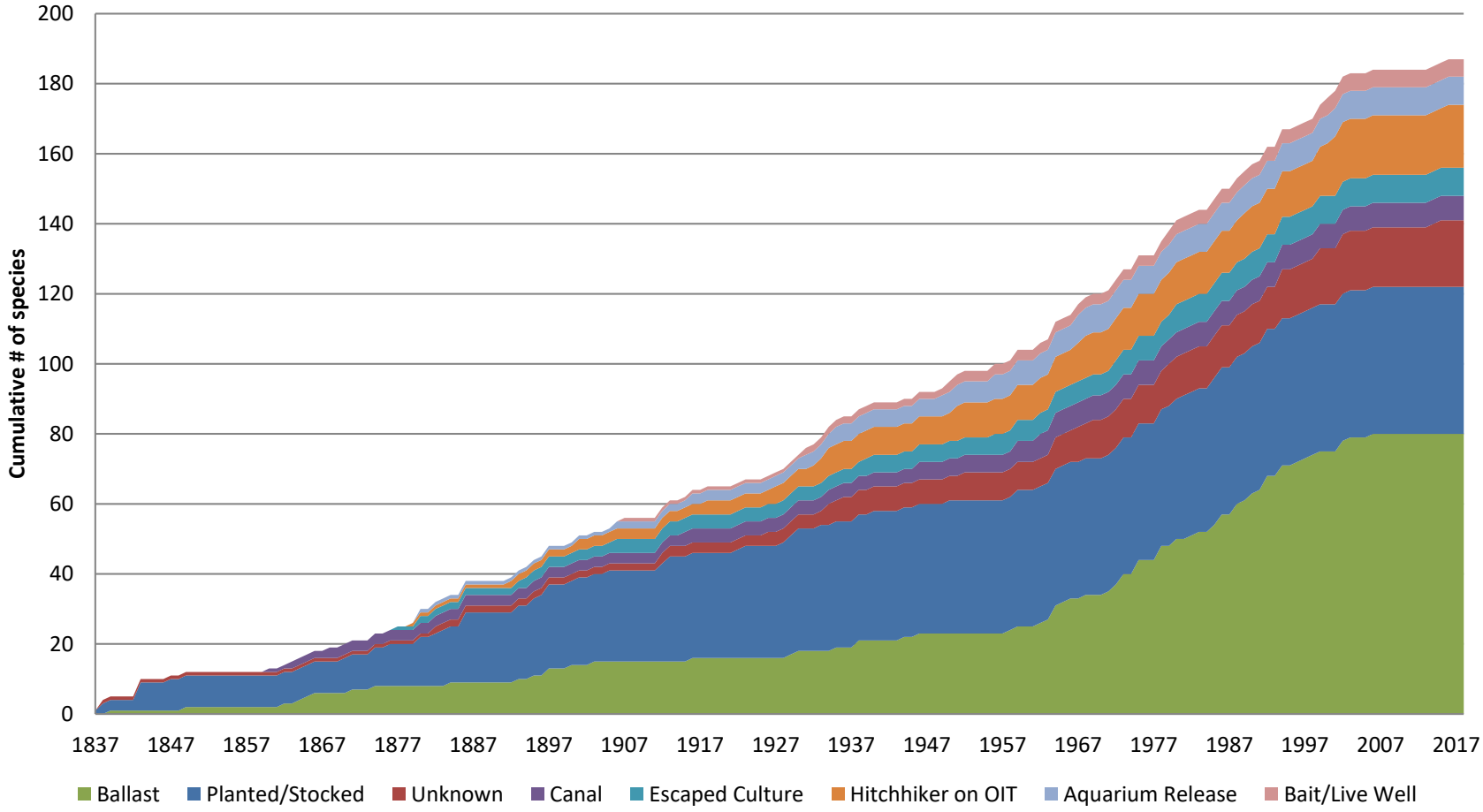
GLAHF
Great Lakes Aquatic Habitat Framework

Sea Grant

USGS
science for a changing world

https://www.glerl.noaa.gov/glansis/

Cumulative establishment of ANS in the Great Lakes 1837-2018.



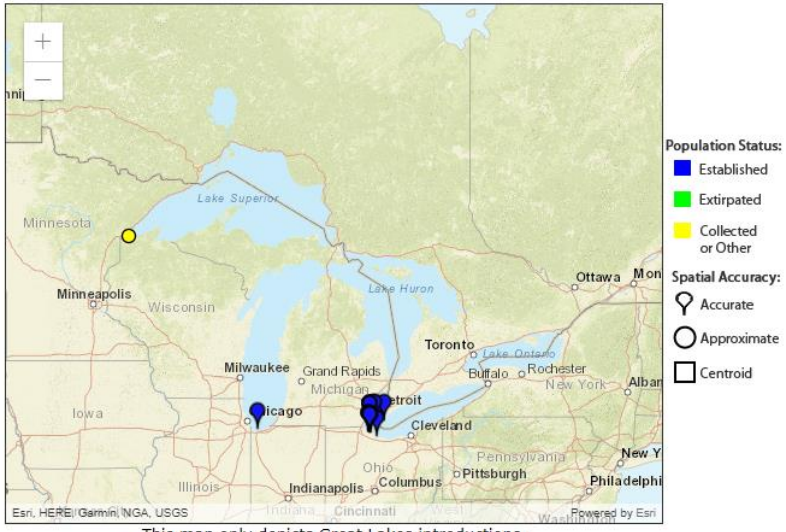
Thermocyclops crassus

Status: Established in Lake Erie 2014. Established southern Lake Michigan 2017. Collected Duluth-Superior Harbor 2018.

Means of Introduction to Great Lakes: Spread from Lake Champlain (1991) - possibly recreational hitchhiker

Current research on the environmental impact of *Thermocyclops crassus* in the Great Lakes is inadequate to support proper assessment.

There is little or no evidence to support that *Thermocyclops crassus* has or will have significant socio-economic impacts or beneficial effects in the Great Lakes.



This map only depicts Great Lakes introductions.
Click here for Great Lakes region collection information
Click here for the national map

Diaphanosoma fluviatile

Status: Established 2015 western basin of Lake Erie. Collected southern Lake Michigan and Buffalo Bay Lake Superior 2018.

Means of Introduction to the Great Lakes: Most likely hitchhiked from southern US populations with recreational boats, gear, bait or ornamentals.

Impact Assessment: Current research is inadequate to support assessment.

This map only depicts Great Lakes introductions.
Click here for Great Lakes region collection information
Click here for the national map

Mesocyclops pehpeiensis

Status: Established western basin of Lake Erie 2016 and Lake St. Clair 2018

Means of Introduction to the Great Lakes: Hitchhiker with aquatic plants.

Current research on the environmental impacts and potential beneficial effects of *Mesocyclops pehpeiensis* is inadequate to support proper assessment.

There is little or no evidence to support that *Mesocyclops pehpeiensis* has or will have significant socio-economic impacts in the Great Lakes.

This map only depicts Great Lakes introductions.
Click here for Great Lakes region collection information
Click here for the national map

Brachionus leydigii

Status: No evidence this species is established in the Great Lakes. Only a single individual was collected in Lake Erie in 2016.

Introduction: High probability of introduction via ballast water

Establishment: Moderate Probability of establishment due to resistant resting eggs and good habitat match to western Lake Erie.

Impact: Little to no evidence of significant potential environmental, socio-economic or beneficial impacts.

Grass carp

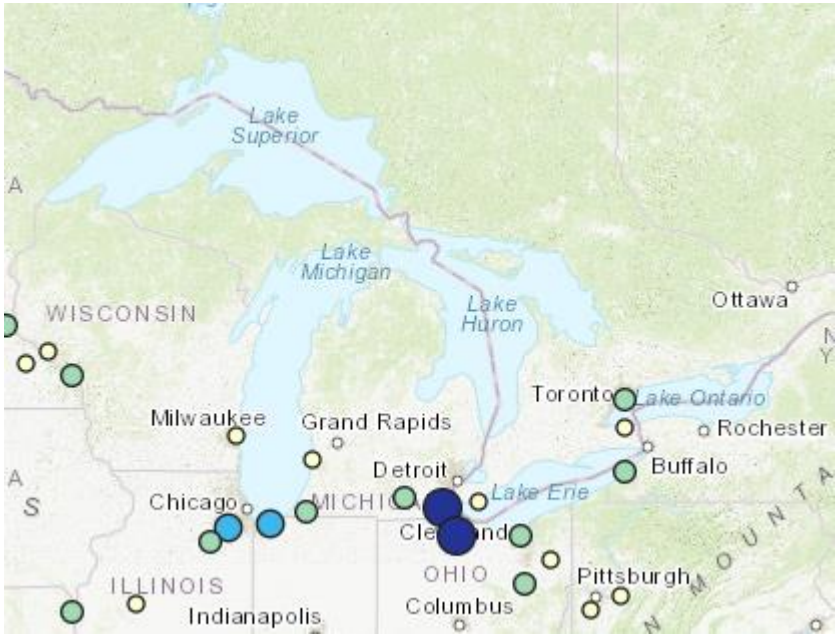
Status: Evidence of reproduction in the Maumee and Sandusky Rivers.

Means of Introduction to the Great Lakes: Authorized and unauthorized stocking

***Ctenopharyngodon idella* has a high potential environmental impact in the Great Lakes.** [overgrazing alteration of habitat structure, water quality changes, known carrier of parasites with the potential to cross species]

***Ctenopharyngodon idella* has a low potential socio-economic impact in the Great Lakes.** [potential indirect impacts of food web disruption]

***Ctenopharyngodon idella* has the potential for high beneficial effects if introduced to the Great Lakes.** [stocked for biocontrol of aquatic plants]



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