



Protecting the Great Lakes from Invasive Bighead, Silver, and Black Carp



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October 27, 2023



Great Lakes Resources at Risk

With 4 Great Lakes, more than 3,000 miles of Great Lakes coastline, 11,000 inland lakes and 36,000 miles of rivers and streams -

- Recreational Fishing
- Boating
- State-licensed Commercial Fishing
- Tribal Rights to Fishery
- Inland Rivers and Lakes





Myths to Dispel Today

1. “Stock more predators to eat them all”
2. “Too expensive/complicated”
3. “We can just fish them out”
4. “Stalled population”
5. “Will get here anyhow”
6. “Are already here”



Presentation Overview

- What is the threat?
- Why is urgency needed?
- Brandon Road Project
- Michigan's commitment
- What you can do





Overview

- **What is the threat?**
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Invasive Carps



Bighead Carp



Silver Carp

Common Carp



Black Carp

Grass Carp are also in this category. See previous recordings of NotMiSpecies.



What is the Threat?

- 🐟 Invasive carp have “invasive” qualities
 - high reproductive rate
 - Spread quickly
 - Quick growth*
 - high potential to cause damage
- 🐟 Suited to Great Lakes climate
- 🐟 Compete for food and space





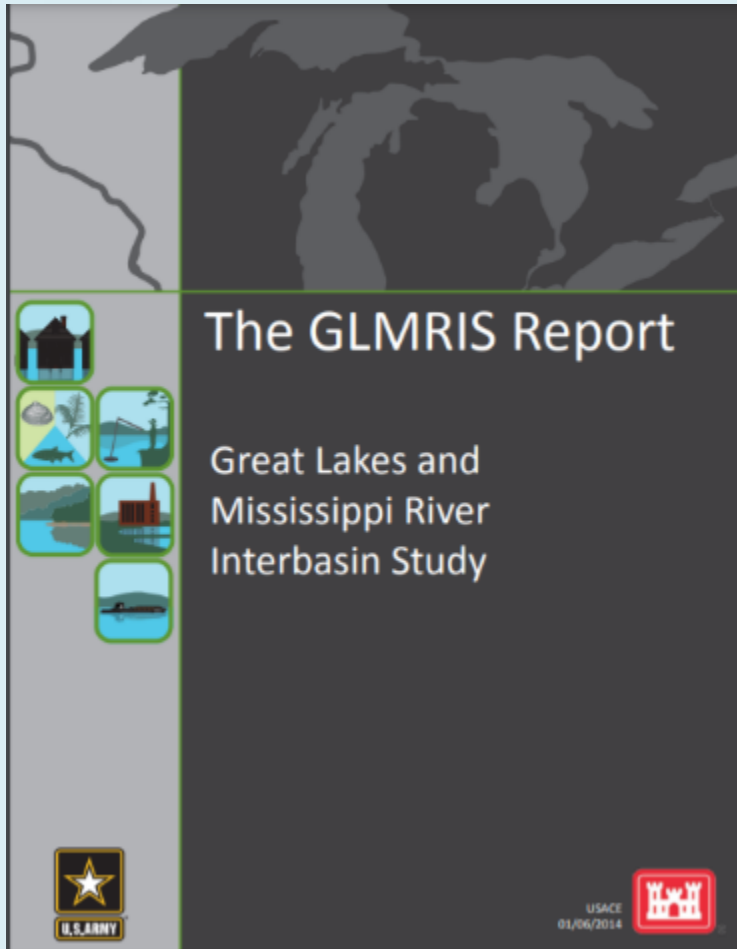
Scientists Demonstrate Threat to the Great Lakes

- ...predict that ...the potential to spread rapidly through the Great Lakes, establish populations even with small initial abundances, and ultimately disrupt Great Lakes food webs. (Currie et al. 2011)
- Affect the food web and see declines in yellow perch and walleye- Lake Erie (Zhang et al. 2016)
- Bighead carp had negative effects on plankton and planktivorous fish biomass- Saginaw Bay (Ivan et al. 2020)
- Climate change contribute to productivity and population growth (Alsip et al. 2020)





GLMRIS Report 2014



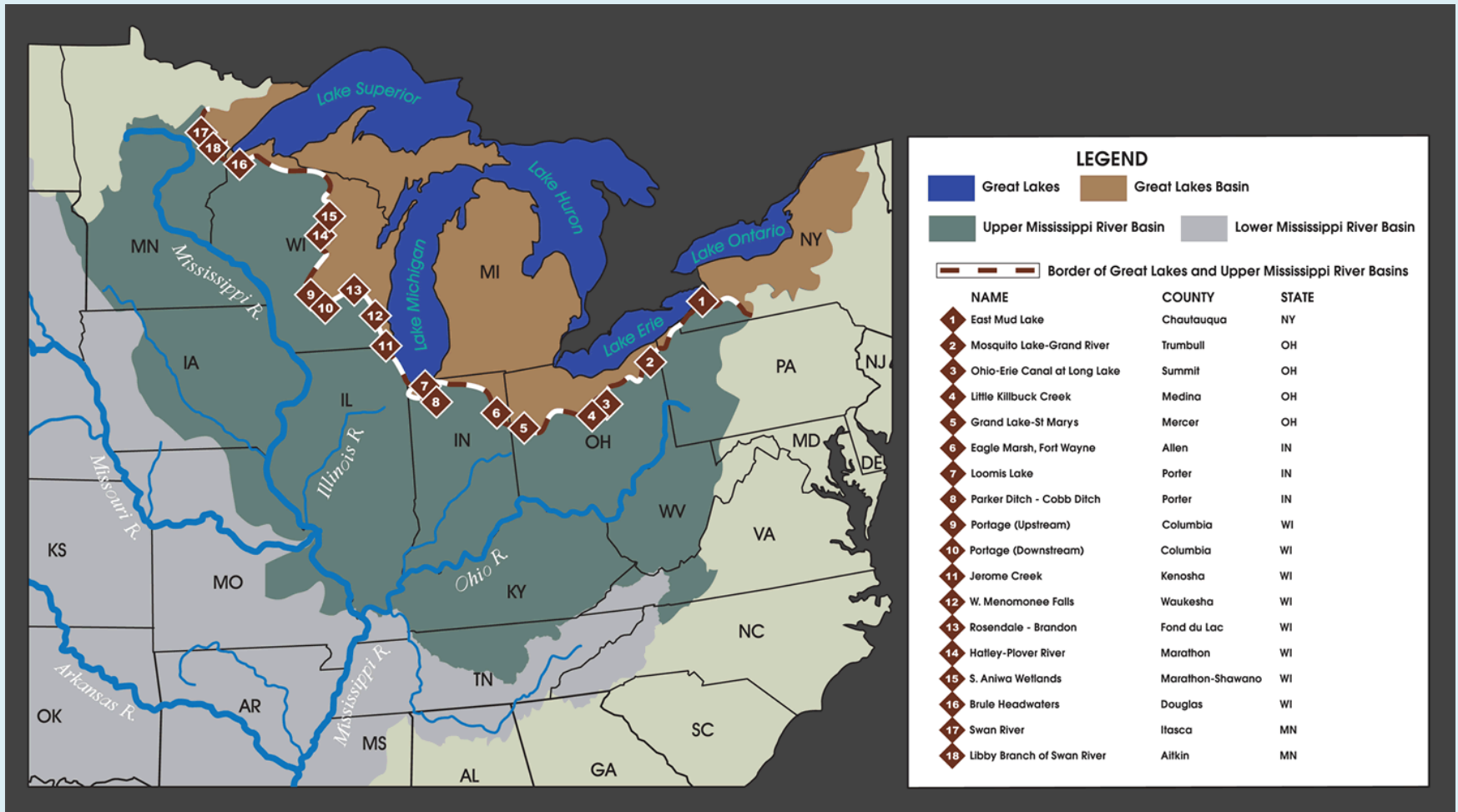
- Looked at alternatives for addressing the threat
- Brandon Road was included in several of the alternatives
- Report to Congress
- Basin input for direction

<https://glmris.anl.gov/glmris-report/>



18 Other Pathways...but....

<https://glmris.anl.gov/other-pathways/>





....only 4 Considered a Threat to Great Lakes Basin (GLB)

Table 7. Summary of probability of pathway viability for all Focus Area 2 locations.

Pathway Name	State	Probability of Viable Pathway (to MRB)	Probability of Viable Pathway (to GLB)	Overall Pathway Viability Rating
Eagle Marsh	IN	High	Medium	High
Ohio-Erie Canal at Long Lake	OH	Low	Medium	Medium
Little Killbuck Creek	OH	Medium	Medium	Medium
Parker-Cobb Ditch	IN	Medium	Medium	Medium
Brule Headwaters	WI	Medium	Low	Medium
Portage Upstream	WI	Medium	Low	Medium
Portage Downstream and canal	WI	Medium	Low	Medium
Rosendale-Brandon	WI	Medium	Low	Medium
Libby Branch Swan River	MN	Low	Low	Low
Menomonee Falls (South/West)	WI	Low	Low	Low
East Mud Lake	NY	Low	Low	Low
Loomis Lake	IN	Low	Low	Low
Grand Lake St Marys	OH	Low	Low	Low
Mosquito Creek Lake	OH	Low	Low	Low
S. Aniwa Wetlands	WI	Low	Low	Low
Jerome Creek	WI	Low	Low	Low
Swan River	MN	Low	Low	Low
Hatley-Plover River	WI	Low	Low	Low

MRB is defined as Mississippi River Basin

GLB is defined as Great Lakes Basin



Chicago Area Waterway System (CAWS)





Overview

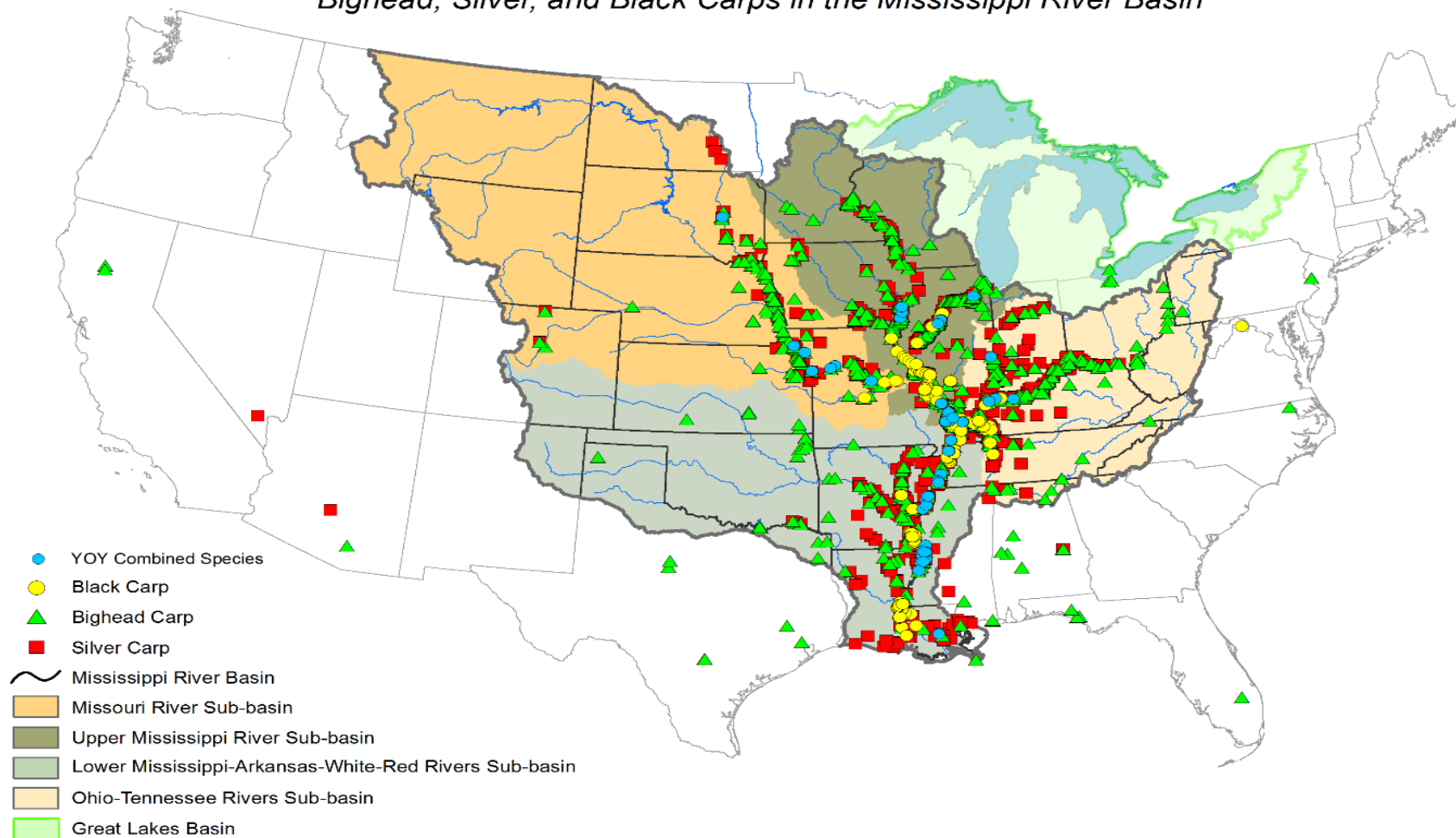
- What is the threat?
- Why is urgency needed?
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Distribution of Bighead, Silver, and Black Carps

Bighead, Silver, and Black Carps in the Mississippi River Basin



Legend

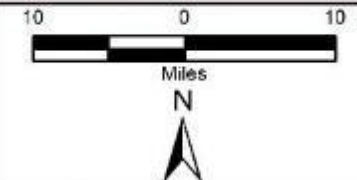
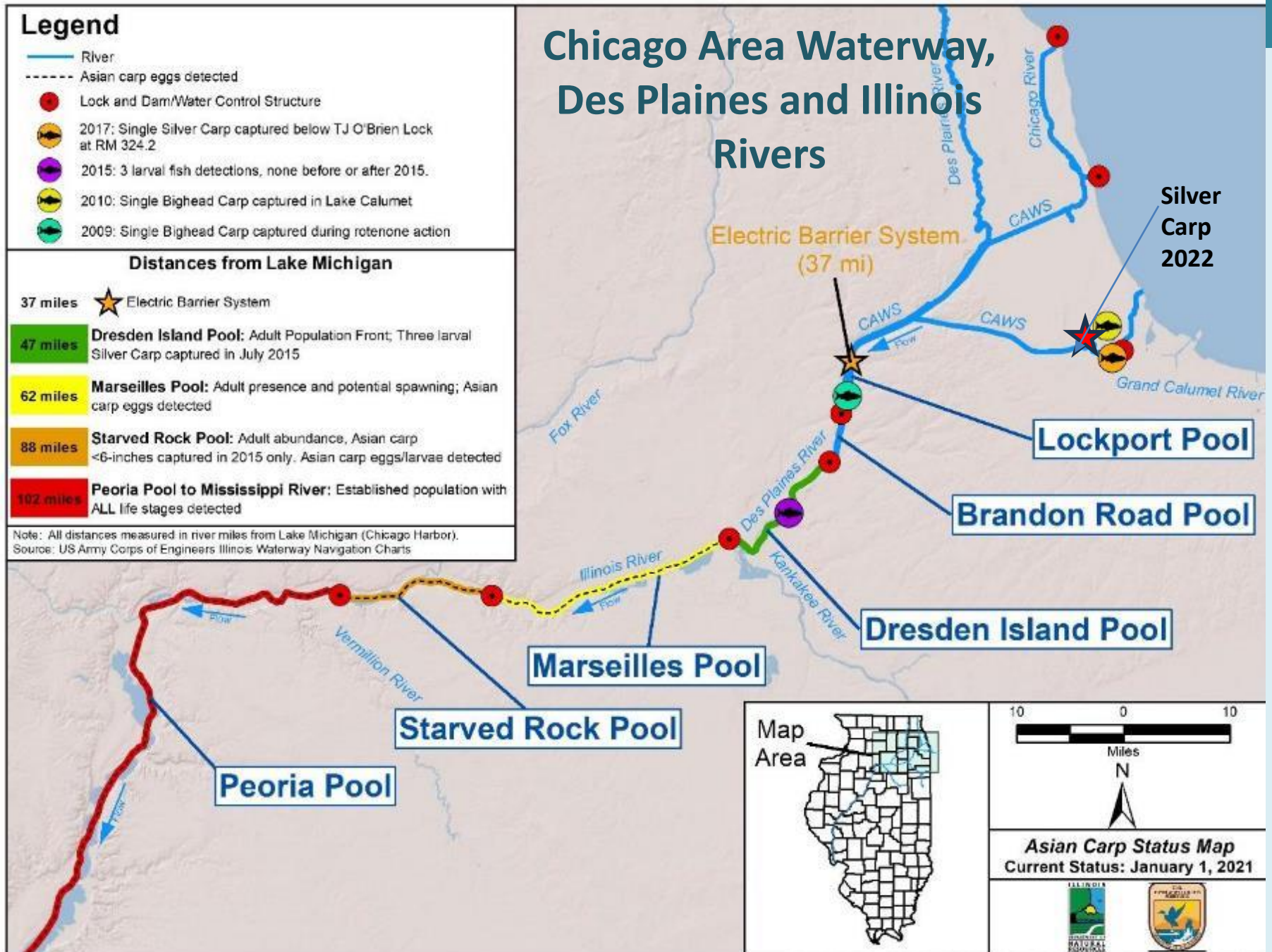
- River
- Asian carp eggs detected
- Lock and Dam/Water Control Structure
- 2017: Single Silver Carp captured below TJ O'Brien Lock at RM 324.2
- 2015: 3 larval fish detections, none before or after 2015.
- 2010: Single Bighead Carp captured in Lake Calumet
- 2009: Single Bighead Carp captured during rotenone action

Distances from Lake Michigan

- 37 miles ★ Electric Barrier System
- 47 miles **Dresden Island Pool:** Adult Population Front; Three larval Silver Carp captured in July 2015
- 62 miles **Marseilles Pool:** Adult presence and potential spawning; Asian carp eggs detected
- 88 miles **Starved Rock Pool:** Adult abundance, Asian carp <6-inches captured in 2015 only. Asian carp eggs/larvae detected
- 102 miles **Peoria Pool to Mississippi River:** Established population with ALL life stages detected

Note: All distances measured in river miles from Lake Michigan (Chicago Harbor).
Source: US Army Corps of Engineers Illinois Waterway Navigation Charts

Chicago Area Waterway, Des Plaines and Illinois Rivers



Asian Carp Status Map
Current Status: January 1, 2021





The Electric Barrier System has Weaknesses

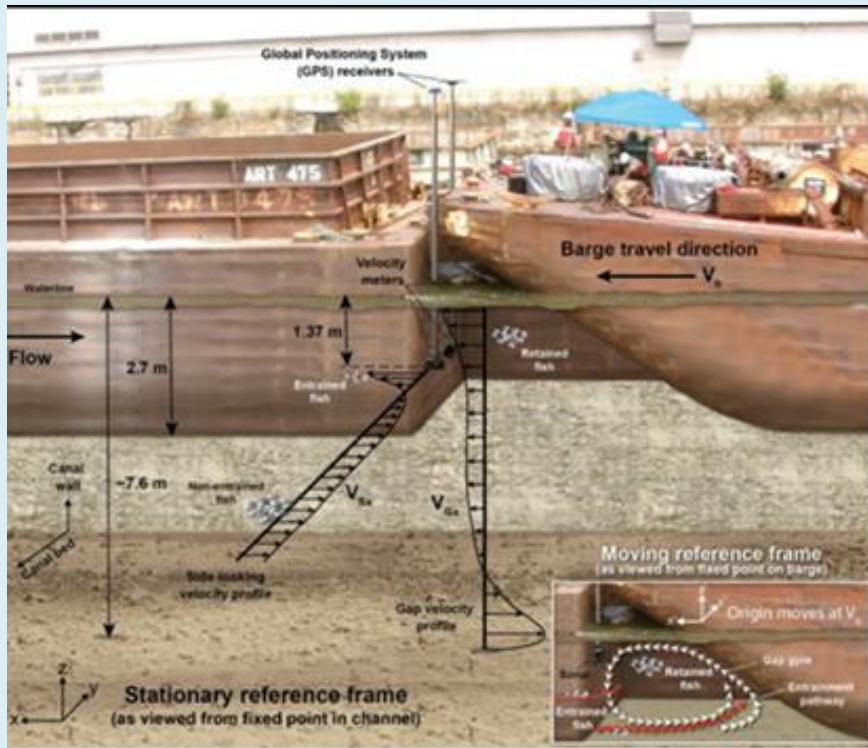


Figure 10. Rake to box junction between barges
(from Davis et al. 2016).

- Fish in-between barges can be transferred
- Small fish can pass through barrier
- Push/pull with water as barge moves through



Overview

- What is the threat?
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- **Brandon Road Project**
- Michigan's commitment
- Pathway forward





2018 Public Opinion Survey

(Great Lakes Coalition)

More than 90 percent of respondents from each state – Illinois, Indiana, Michigan, Ohio and Wisconsin – view increasing protections to block invasive carp from entering the Great Lakes as important to do immediately given the recommendation by the U.S. Army Corps of Engineers.



Brandon Road Lock and Dam

GLMRIS
Brandon Road

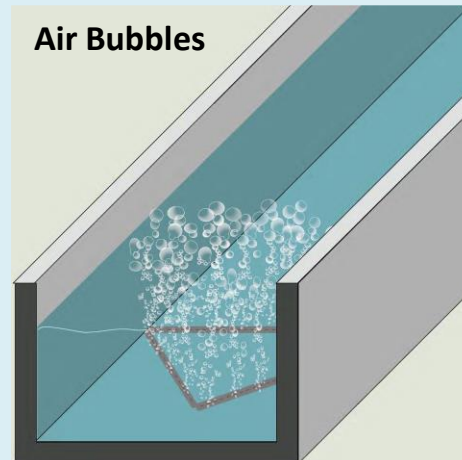
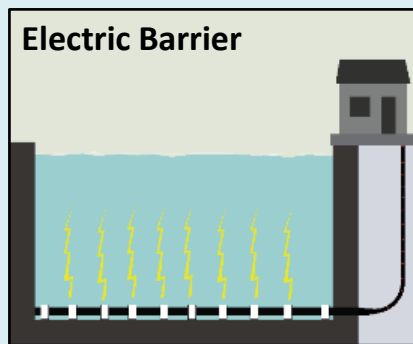
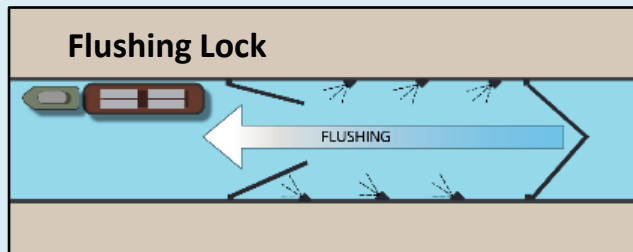
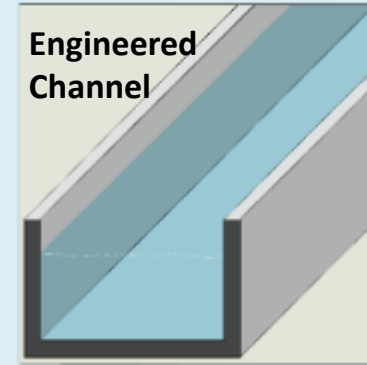
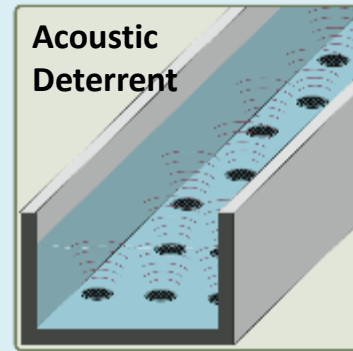




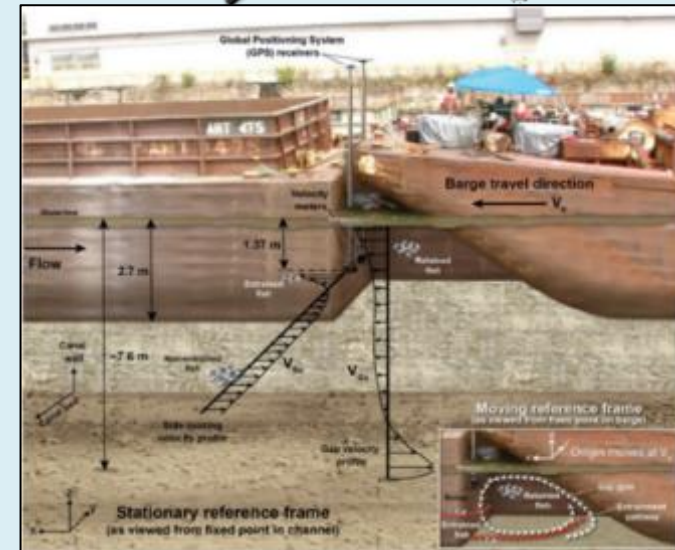
Aquatic Nuisance Species Controls

Modes of Transport:

- Swimmers
- Floaters
- Hitchhikers



Nonstructural Measures

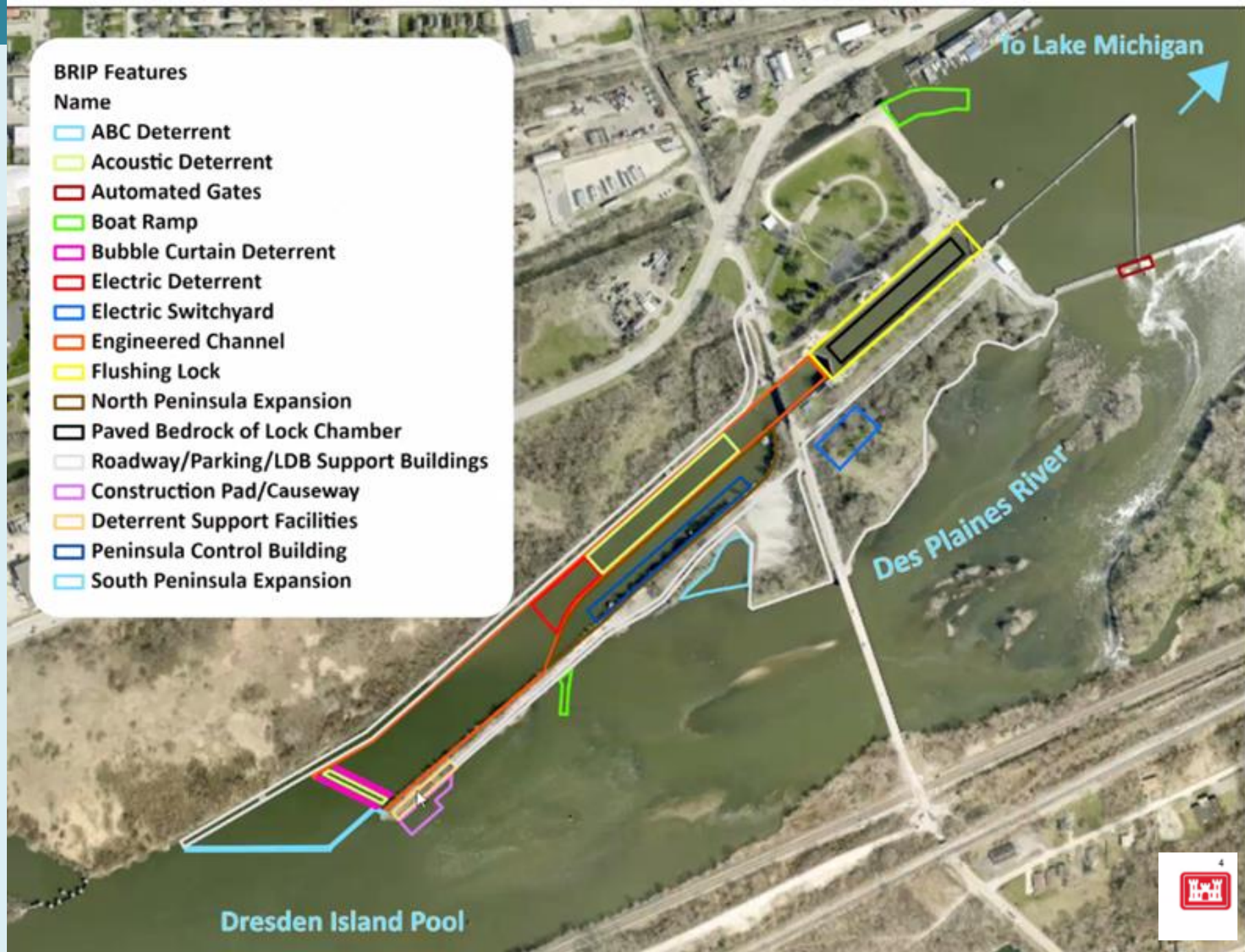


USACE Credit

BRIP Features

Name

-  ABC Deterrent
-  Acoustic Deterrent
-  Automated Gates
-  Boat Ramp
-  Bubble Curtain Deterrent
-  Electric Deterrent
-  Electric Switchyard
-  Engineered Channel
-  Flushing Lock
-  North Peninsula Expansion
-  Paved Bedrock of Lock Chamber
-  Roadway/Parking/LDB Support Buildings
-  Construction Pad/Causeway
-  Deterrent Support Facilities
-  Peninsula Control Building
-  South Peninsula Expansion





Brandon Road Current Status

- WRDA 2020 authorized the Brandon Road Project for construction at a cost of \$858M - construction cost share of 80% Federal/20% non-federal.
- allows for the addition or substitution of technologies or measures not described in the report
- Pre-construction Engineering and Design - three to four years to - Construction is estimated to take six to eight years
- Focused on gathering data from acoustic study, bubbler study, electrical current, stray current and modeling to aid design.
- An HTRW analysis, physical modeling of lock & channel, design of multiple conceptual components and their interaction is critical at the beginning of design.





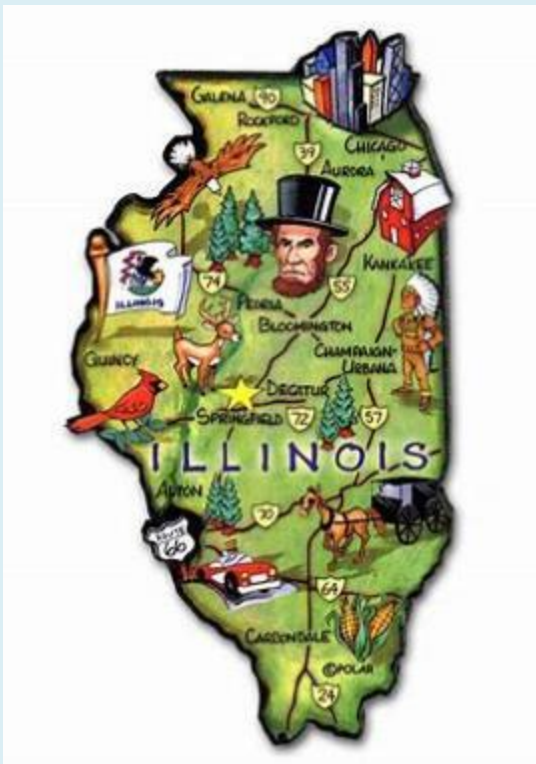
Partnering Pathway to Brandon Road



Timeframe	Milestone
2007 – Jan 2014	Great Lakes Mississippi River Interbasin Separation Study (GLMRIS) (USACE)
Apr 2015 – Nov 2018; Apr 2019 (revised)	Brandon Road Feasibility Study (USACE)
May 23, 2019	Chiefs Report
Jul 16-17, 2019	Brandon Road Collaboration Meeting with All States and Provinces (Chicago)
Jan 2020	MI and IL meet to discuss nonfederal sponsor support (\$10 million)
Mar 2020	Covid hits!!!
Dec 24, 2020	MI – IL Intergovernmental agreement
Dec 29, 2020	Design Agreement to conduct Pre-Construction Engineering & Design (PED) signed by IL and USACE
Dec 30, 2020	MI – IL Nonfederal funding – escrow agreement
Mar 2021	Federal Funding for USACE for PED (\$29 million)
Jun 23-24, 2021	Brandon Road States and Provinces Forum



Non-Federal Sponsor Project Partners



\$2.5 Million



Multi-Disciplined
Non-Federal
Design Team



← \$8 Million



States and Provinces Forum

*New York, Pennsylvania, Ohio, Indiana,
Illinois, Michigan, Wisconsin, Minnesota,
Ontario, Quebec*

- Goals: provide updates, discuss policy and issues, and concerns, develop strategy support construction or other progress
- Logistics and professional facilitation supported through Great Lakes Commission with funding and support from Joyce Foundation
- First meeting June 24, 2021
- Avoid duplication, provide additive value to USACE communications plan and develop regional support



Continued timeline...work began, then....

- Jan 2022 Bipartisan Infrastructure Law – Construction - \$226 million
- Dec 2022 changed matched to 90:10 (fed/state)
- Jan 23 \$9 million additional federal funds added to construction
- Mar 2023 – Project costs \$1.15 billion
- Feb 2023 – IL \$50 million; MI \$64 million

Now we need a new agreement:
Project Partner Agreement (PPA)



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Michigan's Commitment

- Solve problems, seek efficiencies, better economies, sustainable solutions
- Engagement in regional forums
- Full participation in the Brandon Road Project design & construction
- Science driven in monitoring & response





Michigan's Invasive Carp Actions 2014 - 2023

- Continued engagement with Invasive Carp Regional Coordinating Committee (ICRCC)
- Appointed as resource agency to Chicago Area Waterways Advisory Board
- Cooperative eDNA surveillance w/US Fish and Wildlife Service
- Coordinated with Ohio DNR a Lake Erie field response exercise
- Pursuit of alternative capture/containment methodologies
- Cross training of staff with Illinois DNR
- 2 desktop response exercises
- Mutual Aid Agreement
- \$1 million Great Lakes Invasive Carp Challenge
- Grass Carp eradication effort in Lake Erie
- Commitment of \$8 million and now \$64 million for Brandon Road Project



“Are already here”

Surveillance and Effort

- Commercial fishers
- Anglers
- Monitoring and research assessments
- eDNA

There is no evidence to suggest that live silver, bighead, or black carp are present in the Great Lakes.



eDNA Procedure





“Will get here anyhow”

- Bait retail/wholesale surveillance, awareness
- Clean Drain Dry - awareness - Online Reporting
- Illinois DNR and USFWS efforts for management and control
- Ohio and Indiana closing off other pathways

Everyday that these fish are NOT present in the Great Lakes contributes to more time for research and technology to provide meaningful detection, eradication, or controls options. YOU are part of the success in keeping these fish at bay.



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What You Can Do!

- Be observant
- Know your bait
- Report – need pictures!
<https://www2.dnr.state.mi.us/ORS/Survey/27>
- Support efforts towards Brandon Road
- Practice prevention for all invasive species –
Clean, Drain, Dry!
- Share your knowledge!



Resources

- Information (reports, media, pictures) on the work to prevent invasive carp from entering the Great Lakes:
 - <https://www.invasivecarp.us/>
- Information on the Brandon Road Project:
 - <https://www.mvr.usace.army.mil/Missions/Environmental-Stewardship/BR-Interbasin-Project/>
- Information on reporting invasive carp in Michigan:
 - <https://www2.dnr.state.mi.us/ORS/Survey/27>
- Michigan Invasive Species:
 - <https://www.michigan.gov/invasives/>



Questions?



NOT NOW. NOT EVER.

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www.michigan.gov/invasivespecies