

USACE Aquatic Invasive Species (AIS) Program SAME Small Business EXPO

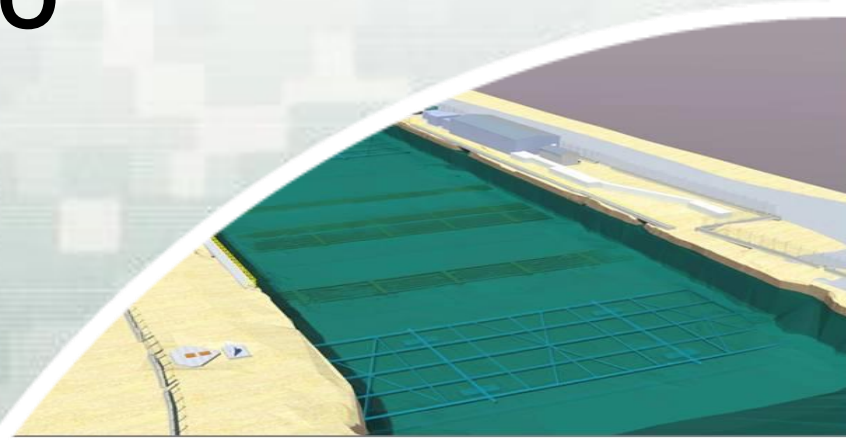
Linda M. Sorn, P.E.

Chief, Technical Services Division

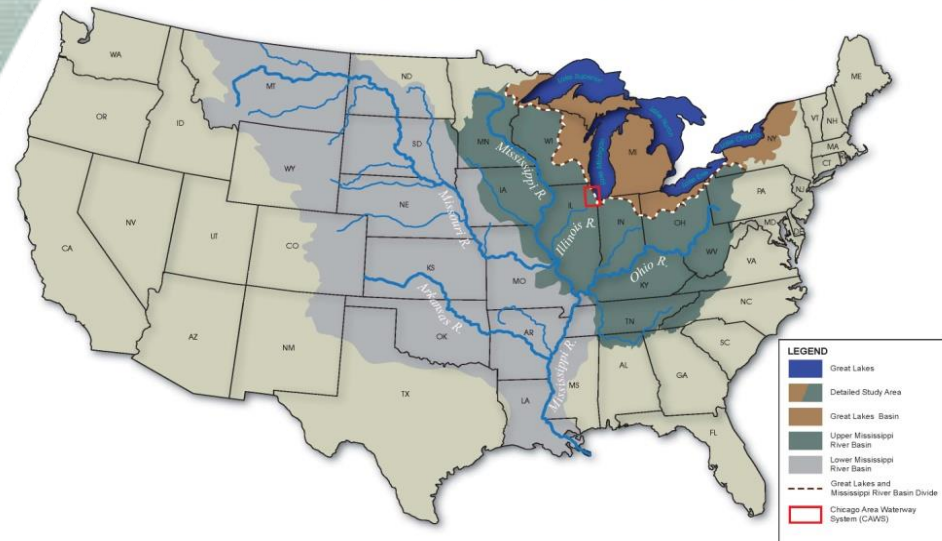
Chicago District

US Army Corps of Engineers

March 10, 2016

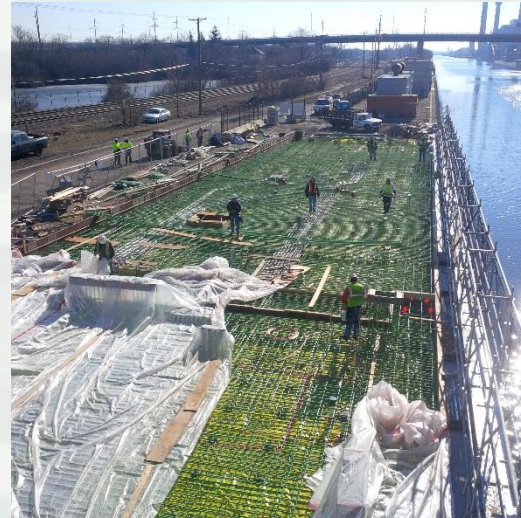


GLMRIS STUDY AREA MAP

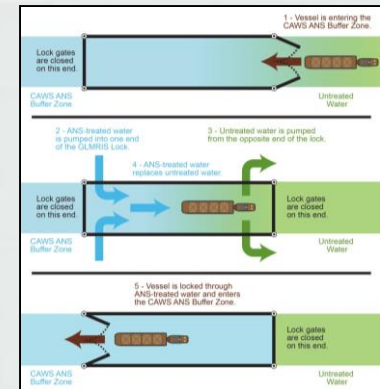
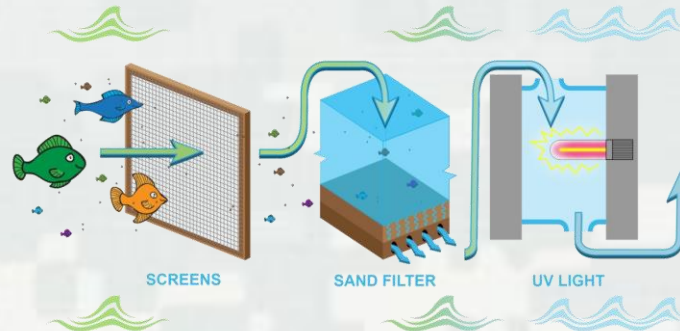


Agenda

- Understanding the Risk
 - The Chicago Area Waterway System
 - Asian Carp Distribution
- USACE Strategy
 - GLMRIS
 - Electric Barriers
 - Monitoring
 - Efficacy Study



Construction of Barrier I Building

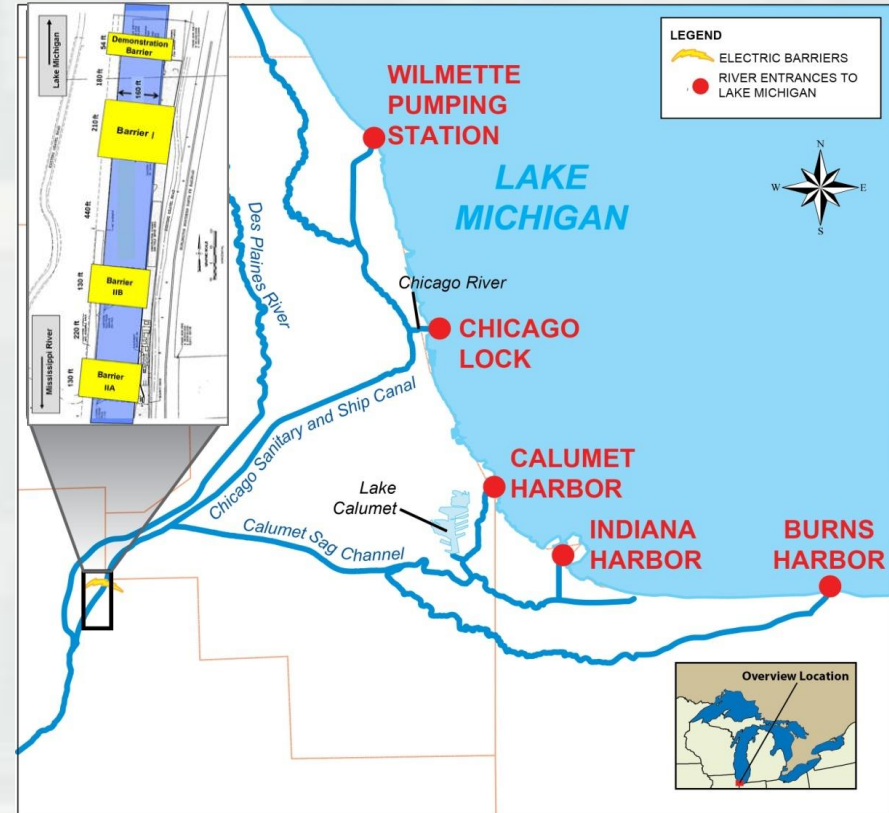
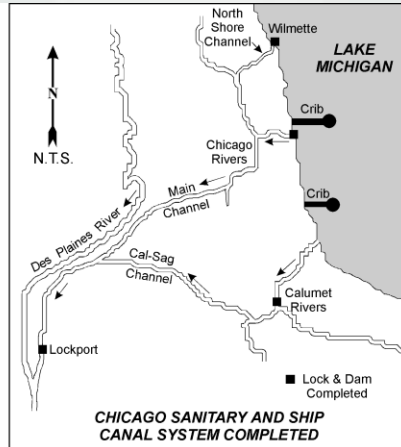
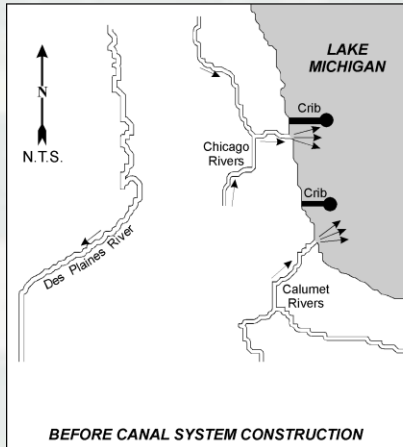


GLMRIS Control Technologies
ANS Treatment Plant and ANS Lock



Chicago Area Waterway System (CAWS)

- Only continuous pathway connecting the Great Lakes and Mississippi River basins
- Consists of 78 miles of canals and modified streams
- Five outlets to Lake Michigan within the CAWS



- The Chicago Sanitary and Ship Canal remains an important pathway for navigation and the transport of wastewater effluent and storm water runoff.



Bighead and Silver Carp Distribution in IWW and CAWS

Distances from Lake Michigan

37 miles ★ Dispersal barriers

47 miles Adult Population Front

62 miles Presence of Adults/Potential Spawning

88 miles Presence of Adults/some small fish

102 miles Established population with all life stages detected/assumed

..... Eggs detected

Overall leading edge of adult Asian carp invasion has not changed since 2006

The ACRC Monitoring and Response Work Group (MRWG) recognizes the importance of small Asian carp (less than 6 inches) as evidence to support the understanding of reproducing populations and has noted their occurrence on this map.

Three captures of adult BLACK CARP
 2010: RM 27.5 Triploid
 2013: RM 24 Diploid
 2014: RM 22.5 Diploid

Adults with low number of juvenile (2015)

Wilmette Pumping Station
 Chicago Lock & Dam
 Dispersal Barriers
 Brandon Road Lock & Dam
 Dresden Island Lock & Dam

Adult Population Front

Presence of Adults/
 Potential Spawning

Verified Spawning
 Adults/juveniles/larvae/eggs

Henry

Seneca

Marseilles

Peoria Lock & Dam

Illinois

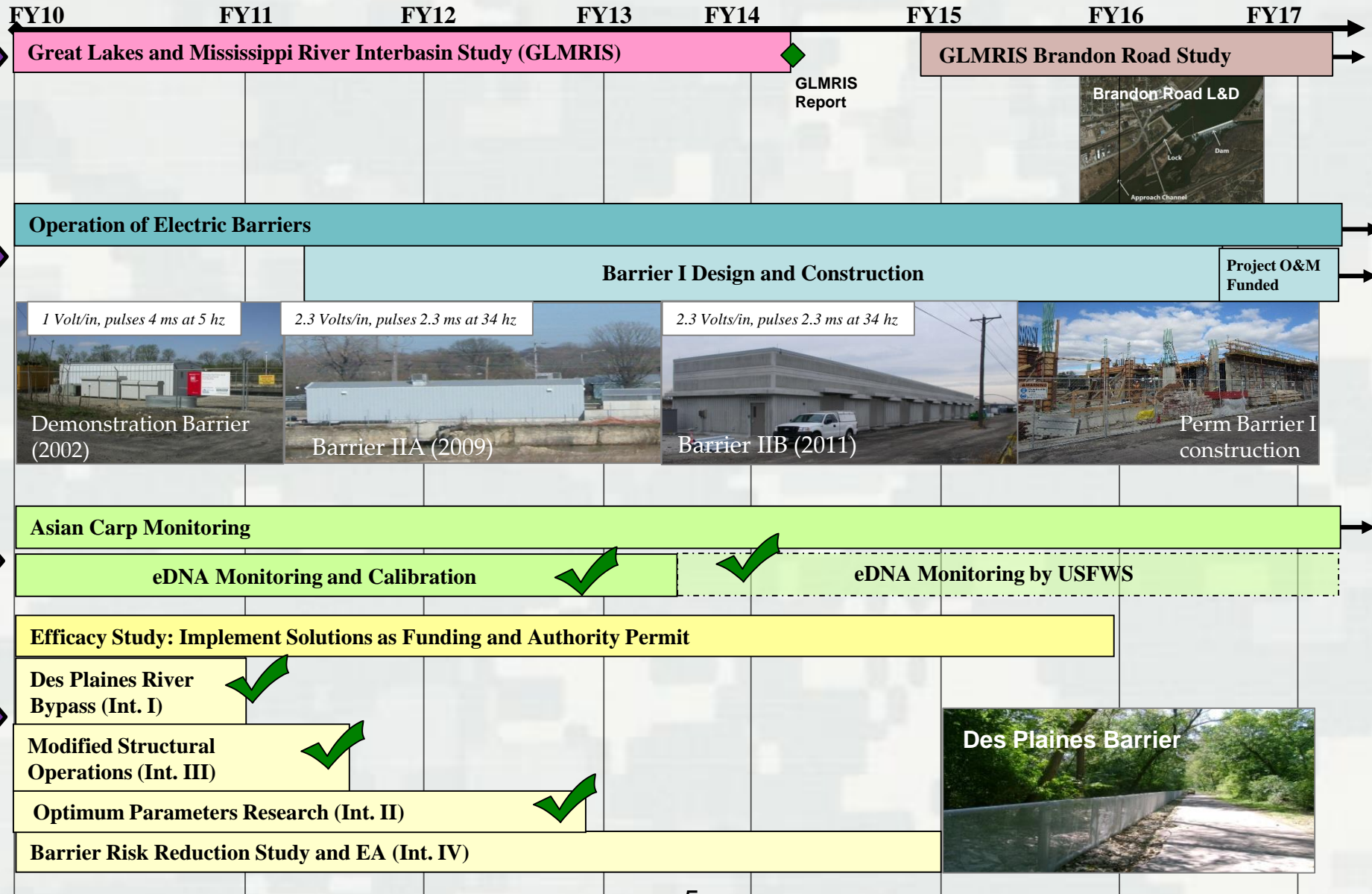
○ June-November 2015: Three larval Silver Carp were captured (June 18) and later positively identified by genetic analyses (November 2015) in the Dresden Island Pool at RM 279.2 (16.8 miles downstream of the electrical barrier). These three Silver Carp are the only larval Asian carp detected to date upstream of Henry, Illinois.

July - September 2015: Small Silver Carp (less than 6 inches in length) captured throughout Starved Rock Pool in relatively small numbers (total of approximately 100 fish).

● October 2015: Two Juvenile Silver Carp captured in the Marseilles Pool at RM 256.5 just upstream of Seneca, IL (39.5 miles downstream of the electrical barrier). Although just over 6 inches in length, these are the smallest fish detected at this location upstream of Marseilles Lock and Dam



USACE Aquatic Invasive Species (AIS) Strategy



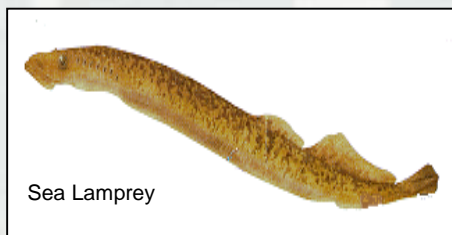
GLMRIS - Study Summary

□ Authority

- *FEASIBILITY STUDY.-The Secretary, in consultation with appropriate Federal, State, local, and nongovernmental entities, shall conduct, at Federal expense, a feasibility study of the range of **options and technologies available to prevent the spread of aquatic nuisance species between the Great Lakes and Mississippi River Basins through the Chicago Sanitary and Ship Canal and other aquatic pathways.** - WRDA 2007, Sec 3061(d)*

□ Purpose

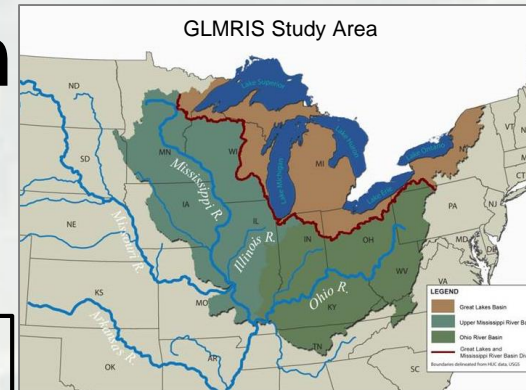
- Identify aquatic pathways that may exist between the Great Lakes and Mississippi River basins
 - Focus Area I – Chicago Area Waterways (CAWS)
 - Focus Area II – Other Pathways
- Inventory current and future potential aquatic nuisance species (ANS)



- Analyze possible ANS controls available to prevent ANS transfer between basins, via aquatic pathways



The GLMRIS Program



GLMRIS Program

- LRC Lead
- Coordination of program elements
- Budget development and defense
- Stakeholder engagement, including ACRCC related activities
- Collaboration with ERDC and other agencies on ANS research, including control measures

Focus Area I - CAWS

- LRC Lead
- GLMRIS Report released Jan 2014

Focus Area II - Other Pathways

- LRB Lead
- GLRI funded
- Pathway assessments by state
- Summary Report released May 2013

Brandon Road

- MVR Lead
- One-way control point identified in three alternatives in GLMRIS Report

Eagle Marsh, IN

- LRL Lead
- Highest risk pathway outside CAWS
- Control implemented by NRCS with USACE support
- Phase I completed Nov 2015

Ohio - Erie Canal, OH

- LRB Lead
- Control implemented by State of Ohio with USACE support
- Complete by Sep 2018

Little Killbuck Creek, OH

- LRB Lead
- Control implemented by State of Ohio
- Complete by Sep 2018



BRANDON ROAD



Brandon Road Study

Why Brandon Road?

- **Effective** – Control point can address upstream transfer of Mississippi River species through CAWS pathways
 - **Relevant** – Identified in GLMRIS; included in 3 of 6 structural alternatives
 - **Valuable** - Opportunity to enhance effectiveness of existing technologies, and demonstrate new concepts
 - **Minimum Impacts** - A project at Brandon Road control point will seek to minimize adverse impacts to existing waterway uses and users
 - **Responsive** - Incorporates stakeholder input
- **Study Goal:** *Evaluate potential control options and technologies at Brandon Road Lock & Dam to prevent (reduce to the maximum extent possible) the risk of upstream interbasin transfer of ANS while minimizing impacts to waterway uses and users, and identify a recommended plan.*



Brandon Road Study

Study Cost

Fiscal Year	Est. Funding Requirements*	Corps Funds Available	Other Fed (GLRI) Available
<i>FY 2015</i>	<i>\$930,000**</i>	<i>\$418,000</i>	<i>\$1,354,000***</i>
FY 2016	\$3,340,000	\$200,000	\$1,800,000
FY 2017	\$2,300,000	TBD	TBD
FY 2018	\$1,560,000	TBD	TBD
FY 2019	\$100,000	TBD	TBD
Total	\$8,230,000		

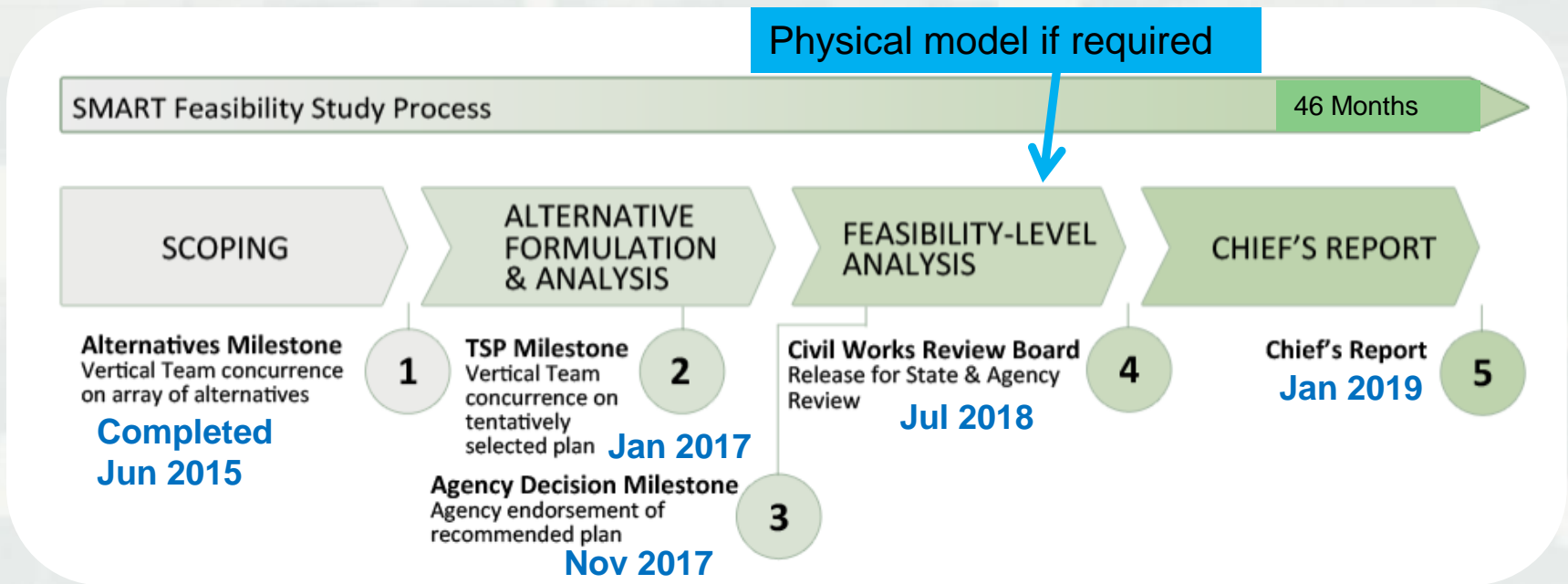
*Efficient funding to meet study schedule. Does not include GLMRIS Program cost

**Actual amount expended

***Carryover from FY2015 into FY2016 = \$840,000



Brandon Road Study Schedule



*Study schedule dependent on the receipt of timely funding

Activities and documentation to support a decision document

NEPA Scoping for BRLD, three public meetings	December 2014
Model Certification for selected Planning Models	April 2016
ATR, IEPR, Policy Review, & NEPA Review	May 2017
Agency Decision Milestone	November 2017
Civil Works Review Board	July 2018
Chief's Report	January 2019



Study Cost and Schedule Drivers

ANS Control Effectiveness

- **Novel ANS Control Features:** Analysis/testing of novel control measures is needed to assess effectiveness, functionality & acceptability

Impacts to Waterway Users and Uses

- **Life Safety:** Significant life-safety concerns (public, USACE staff) with application of ANS control measures in a high traffic waterway
- **Multi-Use Waterway:** Multi-use waterway requires assessment of impacts and cumulative effects on environmental, economic and other resources
- **Agency Coordination:** Extensive coordination with regulatory and resource agencies required

Decision-Making

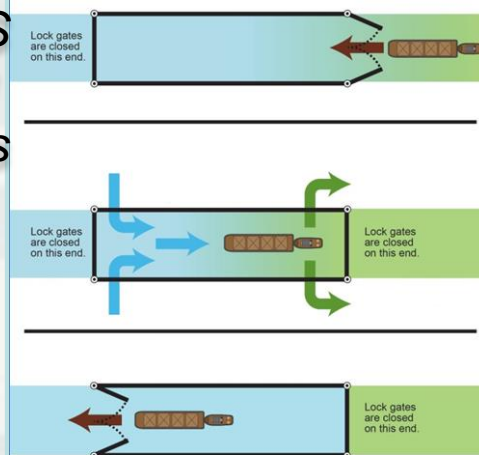
- **Compare Differences:** Proposed level of detail needed to compare differences between plans



Novel ANS Control Features

GLMRIS Lock

Prevents the transfer of ANS that move by Passive Draft along the current of water.



*General operating conditions are shown. Operations would vary based on direction of travel and site specific conditions.



GLMRIS

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GLMRIS
 GREAT LAKES AND MISSISSIPPI RIVER INTERBASIN STUDY

US Army Corps of Engineers

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This Web site is the online center for public information and involvement in the Great Lakes and Mississippi River Interbasin Study (GLMRIS). Browse this Web site, and subscribe to receive e-mail alerts and GLMRIS newsletters. You can also attend public forums to be hosted by USACE. Forum details such as date, time, and location will be announced on this Web site, to GLMRIS email subscribers, and through social media outlets.

The GLMRIS Team is utilizing Facebook and Twitter as a means of broadcasting ways to stay involved with GLMRIS and with issues associated with aquatic nuisance species. Join the GLMRIS conversation on [Facebook](#) and [Twitter](#).

Interbasin Study
GLMRIS

Just rolled out the "common-name" directory of potentially invasive aquatic species for GLMRIS. You can find them here:
<http://bit.ly/rhjFdR>
 2 days ago · reply · retweet · favorite

[twitter](#) Join the conversation

Great Lakes & Mississippi River Interbasin Study (GLMRIS) on Facebook

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Great Lakes & Mississippi River Interbasin Study (GLMRIS)

Are you interested in potentially invasive aquatic species in the Great Lakes or Mississippi River basins, but not quite sure how to pronounce "Gymnocephalus cernuus"? Just tell your friends you're interested in the "tuffe" – it's a lot easier to say! Check out the common-name directory of high-risk aquatic nuisance species on the GLMRIS website: <http://glmr.is.anl.gov/documents/ans/index.cfm>

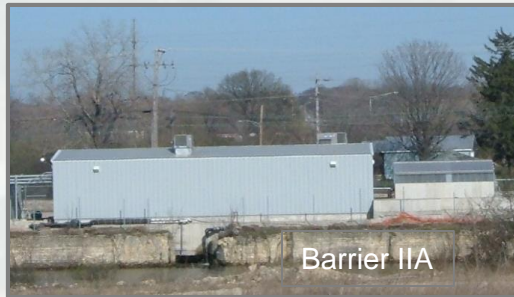
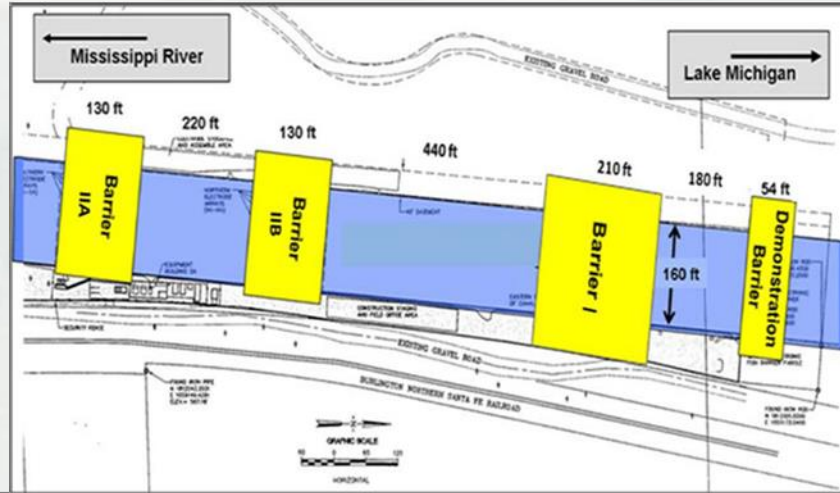
Aquatic Nuisance Species (ANS)
glmr.is.anl.gov

Aquatic Nuisance Species (ANS) White Paper and fact sheets about high-risk species that are most likely to transfer between

Facebook social plugin



CSSC Barriers



Barrier	Date of Activation	Construction Cost	Voltage (volts/inch)	Frequency (Hz)	Pulse Duration (ms)
Demo	2002	\$2M	1.0	5	4
I	2017*	\$60M	2.3**	34	2.3
IIA	2009	\$7M	2.3	34	2.3
IIB	2011	\$21M	2.3	34	2.3

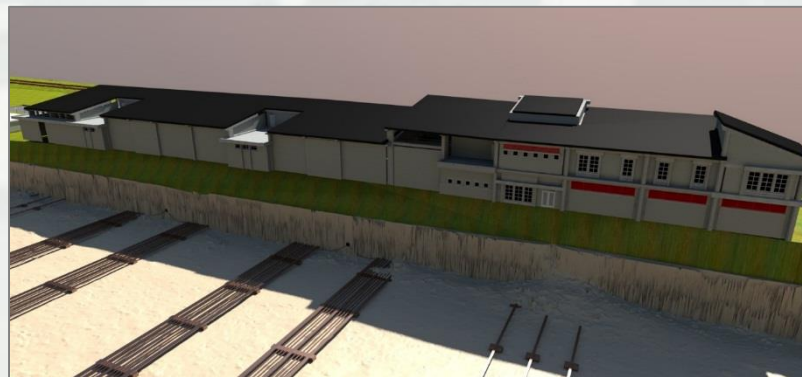
* Planned ** Barrier I will have greater power capacity and the ability to operate at higher parameters

Permanent Barrier I – Status/Schedule

- Completed
 - ▶ Site preparation
 - ▶ Installation of underwater electrodes & parasitics
 - ▶ Purchase of specialized long-lead electrical equipment
- Building Contract
 - ▶ Began construction Mar 2015
 - ▶ Currently working on vertical construction
- Backup Power Contract
 - ▶ Awarded Aug 2015
 - ▶ Preparing for spring mobilization
- FY16
 - ▶ Continue building construction
 - ▶ Begin install of backup power systems
 - ▶ Award electrical equipment install contract
- FY17
 - Q1 - Complete building construction & backup power install
 - Q2 – Complete electrical equipment install
 - Q3 – Complete startup/safety testing



Building Construction as of
21 Dec 2015



Rendering of Completed
Permanent Barrier I



2016 CAWS Monitoring Plan*

Actions continuing from 2015 Plan

- Des Plaines Bypass Barrier Monitoring
- Above and below barrier traditional gear monitoring
- Gear Development (Paupier and Mamou gears)
- eDNA monitoring of the CAWS
- Fixed DIDSON at the Barrier
- Small fish monitoring in the Upper Illinois Waterway
- Fish sampling at the Barrier
- *Expansion of the acoustic network (telemetry)*
- SONAR monitoring of fish abundance, location and movements in the upper pools of the Illinois Waterway

PLUS...

- ***Increased monitoring for eggs and larvae in the upper reaches of the Illinois Waterway***
- ***Increased monitoring in the Kankakee River***
- ***Decision Support Framework***



* As developed by the Asian Carp Regional Coordination Committee



Efficacy Study

- Section 3061(b)(1)(D) – *Water Resources Development Act of 2007*
 - “Conduct...a study of a range of options and technologies for reducing impacts of hazards that may reduce the efficacy of the Barriers”
- Scope
 - Implemented as part of the CSSC Barrier project
 - Focus Areas
 - Physical Bypass via nearby waterways (Interim I)
 - Overtopping from the Des Plaines River north of the Barrier
 - Bypass via the I&M Canal and other connected waterways through culverts and other connections
 - Barrier Optimal Operating Parameters (Interim II)
 - Modified Structural Operations (Interim III)
 - Reduction of Propogule Pressure (Interim IIIA)
 - Barrier Risk Reduction Study and Environmental Assessment (Interim IV)
 - Additional Areas under Consideration
 - Barge Entrainment
 - Small Fish



Questions?

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Backup Slides



Brandon Road Study

Schedule

Activity/Milestone	Est. Finish Dates	Status
Alternatives Milestone Phase Activities		
Study Scoping		Completed
Identify Range of Alternatives		Completed
Public Scoping		Completed
Alternatives Milestone Target Date	June -15 (actual)	Completed
TSP Phase Activities		
Inventory and Forecast Information		Underway
Complete Future Without Project Condition		Underway
Formulation of Alternatives		Underway
Evaluation of Alternative Effectiveness		Underway
Evaluation of Alternative Impacts		Underway
Analysis Supporting (TSP)		Not Started
Technical Review, Report Writing Milestone Prep		Not Started
TSP Milestone Target Date	Jan-17	On Schedule



Brandon Road Study

Schedule

Activity/Milestone	Est. Finish Dates	Status
Agency Decision Milestone Phase Activities		
Release document for NEPA and internal/external Review and public meetings		Not Started
Agency Technical Review		Not Started
Independent External Peer Review		Not Started
Planning/Policy Review		Not Started
Update Report and EIS; ADM Milestone Preparation		Not Started
Vertical Team Review & Concurrence		Not Started
Agency Decision Milestone Target Date	Nov -17	
CWRB Milestone Phase Activities		
**Physical Model		Not Started
Value Engineering Study		Not Started
Cost-Schedule Risk Analysis		Not Started
Update Report and EIS		Not Started
Submit DE's Notice (Milestone)		Not Started
***Execute Design Agreement (if required)		Not Started
Civil Works Review (CWRB) Preparation		Not Started
CWRB Milestone Target Date	Jul-18	



Brandon Road Study

Schedule

Activity/Milestone	Est. Finish Dates	Status
Chief's Report Phase Activities		
State & Agency Review		Not Started
Update Report and EIS & Prepare Chief's Report		Not Started
Chief's Report Milestone Target Date	Jan -19	
Administration Review Including ASA and OMB Reviews		
Administration Submittal to Congress		
Authorization for Construction		
Appropriation of Construction Funds		
Cost Sharing Agreement (if required) & Real Estate Acquisition		
Conduct Planning Engineering and Design (PED)		
Construct Project		
OMRR&R		

NOTES:

- * Some tasks preceding a milestone may be performed concurrently.
- ** This activity list assumes a lock physical model is required to complete the feasibility evaluation.
- ***Dependent on allocation of PED funds



2016 Control Strategy Framework

- Summarizes actions from 2015
- Outlines plans for Asian carp control efforts for 2016 and 2017
- Includes agency base funding and GLRI funds
 - USACE Base funding - \$28.5M
 - CSSC Barriers \$28M
 - GLMRIS \$500K
 - USACE GLRI Allocation - \$2.38M
 - Brandon Road Study \$500K
 - Other Pathways \$60K
 - Research \$1.62M
 - Monitoring Support \$200K
- GLRI Funding Priorities
 - Project addresses an imminent threat
 - Project funds action
 - Project undertakes research that leads to action
 - All other projects
 - O&M efforts, such as ongoing monitoring should be transitioned to base budgets
- Target release - March 2016

