

GLMRIS

GREAT LAKES AND MISSISSIPPI RIVER INTERBASIN STUDY



AQUATIC NUISANCE
SPECIES



ECOSYSTEMS



NAVIGATION



RECREATION



FLOOD RISK
MANAGEMENT



WATER USE

Great Lakes & Mississippi River Interbasin Study

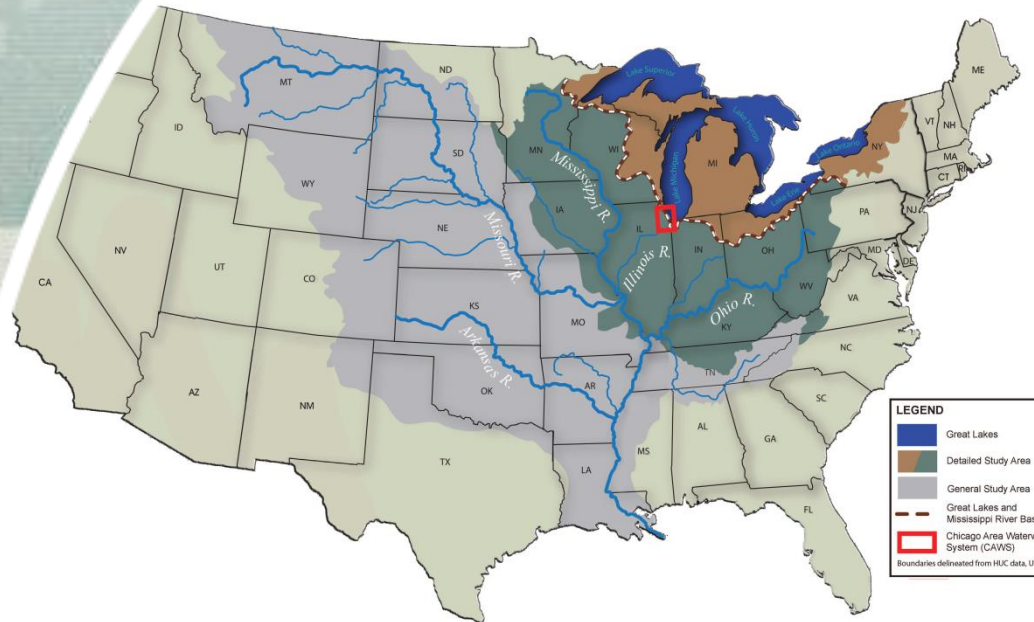
GLMRIS Update

Illinois River Conference

29 Oct 2015



US Army Corps of Engineers
BUILDING STRONG®



GLMRIS Program

- TOPICS

- ▶ GLMRIS OVERVIEW

- ▶ GLMRIS-BRANDON ROAD



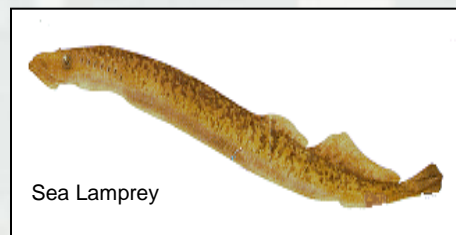
GLMRIS - Study Summary

☐ Authority

- ☐ (d) *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.*

☐ Purpose

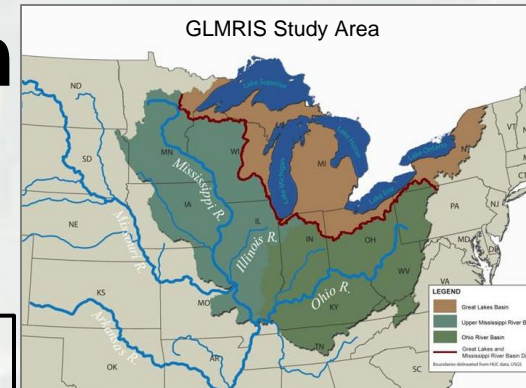
- ☐ Identify aquatic pathways that may exist between the Great Lakes and Mississippi River basins
 - ☐ Focus Area I – Chicago Area Waterways
 - ☐ Focus Area II – Other Pathways
- ☐ Inventory current and future potential aquatic nuisance species (ANS)



- ☐ 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 complete Nov 2015

Ohio – Erie Canal, OH

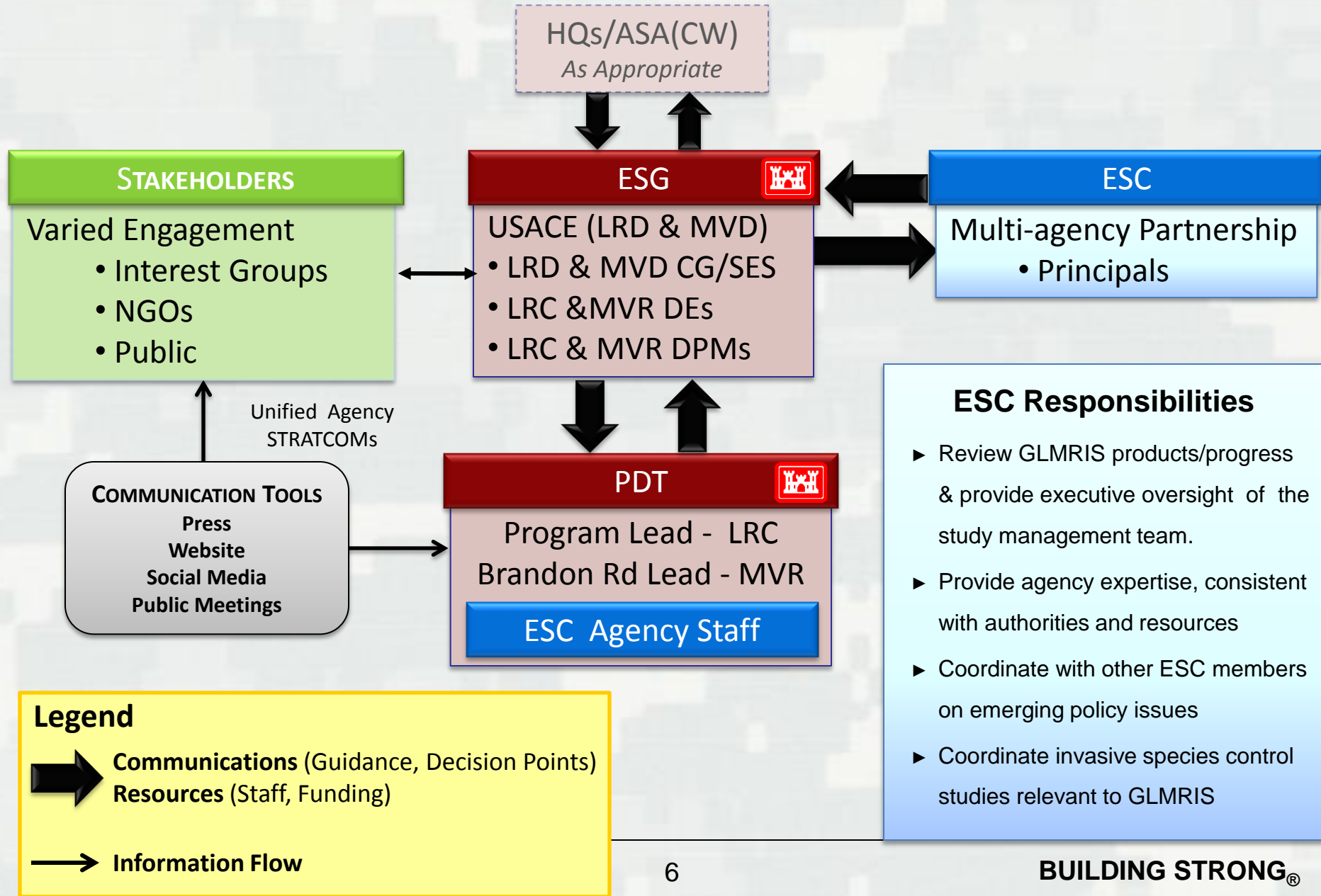
- LRB Lead
- Control implemented by State of Ohio with USACE support
- Complete by Sep 2018

Little Killbuck Creek, OH

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



GLMRIS - Collaboration



GLMRIS Program Activities

- Ongoing collaboration with stakeholders and Senior Leadership
 - ▶ Leveraging resources of governmental partners
 - ▶ Engaging with non-governmental stakeholders including the American Waterway Operators, NRDC, TNC
 - ▶ Conducting Briefings for Congressional Staff
- Continuation of Stakeholder Engagement through
 - ▶ Social Media
 - ▶ Newsletters
 - ▶ Press Releases
 - ▶ Participation in regional stakeholder meetings including
 - Asian Carp Regional Coordinating Council
 - CAWS Advisory Group



Focus Area II Update



Other Aquatic Pathways - Focus Area II



Temporary Fence by Indiana DNR



■ Objectives

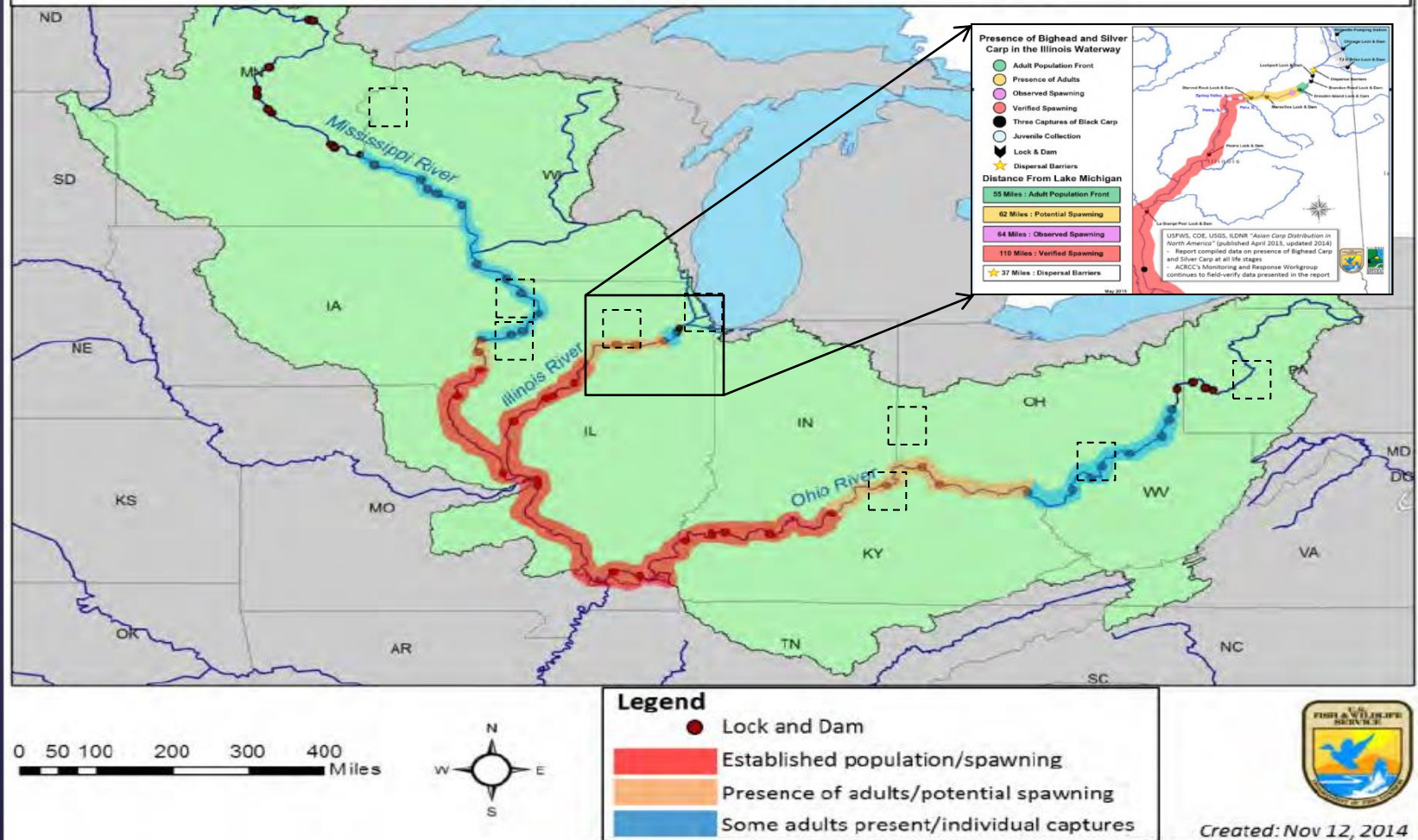
- Inventory of potential aquatic pathways
- Assess likelihood of ANS transfer

■ Results

- 18 Aquatic Pathway Assessment Reports completed
 - 8 sites rated medium or high risk
 - 10 sites rated low risk and eliminated from further study
- Highest Probability Location: **Eagle Marsh, Ft. Wayne, IN**
 - Interim measure implemented by Indiana DNR
 - NRCS implementing long term measure with USACE support
- Additional pathways addressed by Ohio



Bighead Carp and Silver Carp: Characterization of Relative Abundance in the Upper Mississippi River and Ohio River

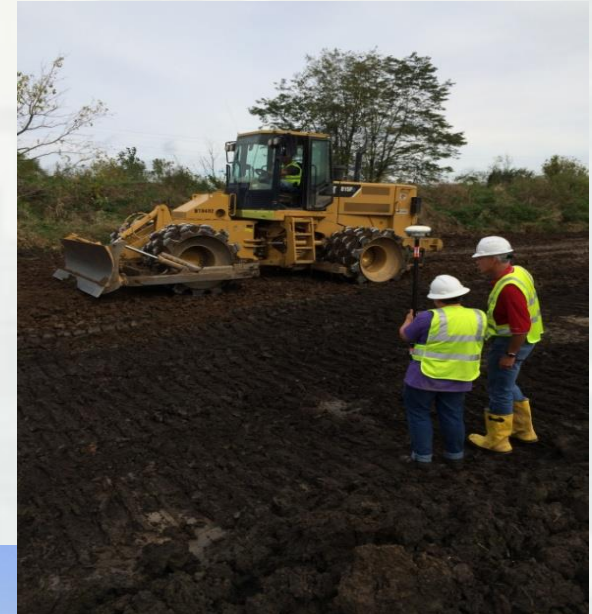


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Eagle Marsh Update

Status

- berm is more than 25% built
- earthfill in the cutoff trench and the berm core is installed from Towpath Trailhead to the carp fence (Sta. 10+00 to 58+00)
- moving the fill material from the borrow areas to the berm.

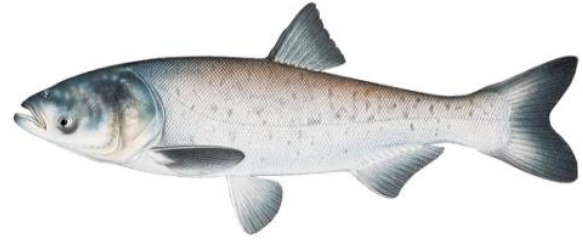


Borrow Area

New Berm



Path Forward Funding and Schedule



Ohio - Erie Canal

- **Current GLRI Framework funding: \$400,000**
- **USACE completion of final design: 9/30/16**
- **Future Framework requests:**
 - **FY16: \$550,000, FY17: \$1,050,000, FY18: \$1,050,000**
- **Closure of the connection: 8/31/18**

Little Killbuck Creek

- **Current GLRI Framework funding: \$350,000**
- **Consultants completion of final design: 2/28/17**
- **Future Framework requests:**
 - **FY16: \$0, FY17: \$200,000, FY18: \$3,000,000**
- **Closure of the connection: 9/30/18**

CAWS - Focus Area I



- Complex, multi-use waterway
 - Navigation
 - Cargo
 - Commercial – Passenger and Governmental (Fire, Police, etc)
 - Recreational
 - Water Supply & Conveyance
 - Municipal wastewater
 - Industrial users
 - Recreation
 - Flood Risk Management
 - Stormwater
 - Combined sewer overflow
- Primary connection between Great Lakes & Mississippi River basins

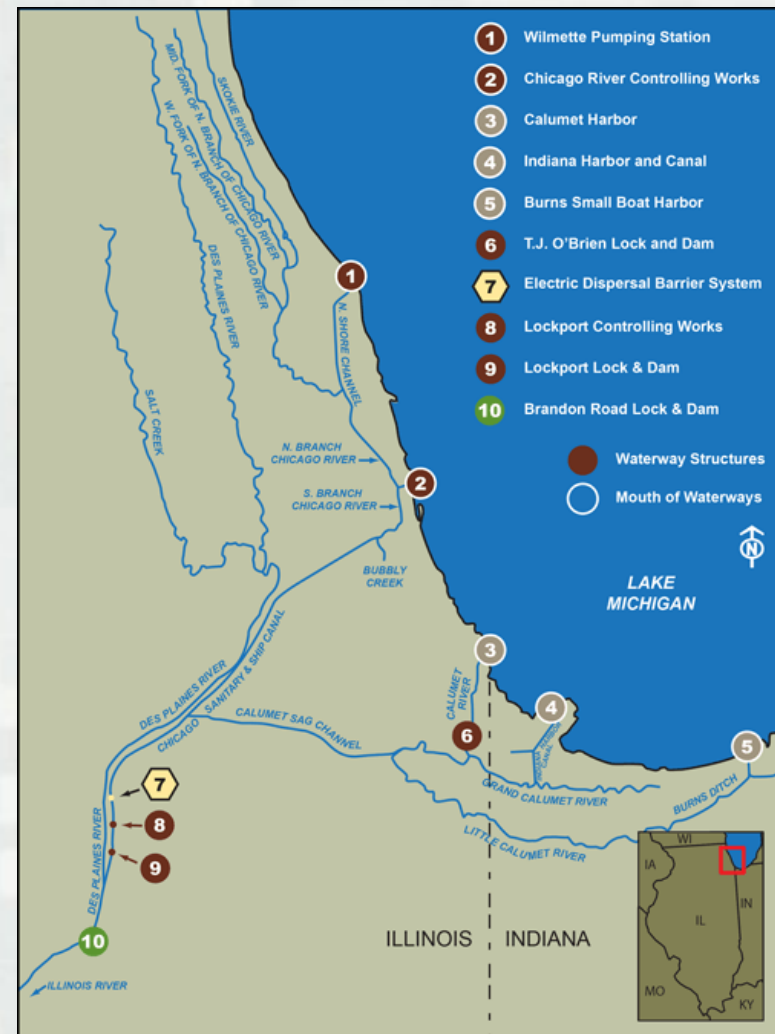
Collaboration

- Federal, State, Regional Agencies
- Native American Tribes
- Non-governmental organizations



The GLMRIS Report

- The GLMRIS Report completed in January 2014 presented eight alternatives to control the transfer of a variety of ANS between the GL and MR basins via aquatic pathways
- The GLMRIS Report provides basis for further investigation
 - Nonstructural measures
 - Active management; biologic controls
 - Education and outreach
 - Laws and regulations
 - Structural alternatives
 - New/novel ANS control technologies
 - Hydrologic separation
 - “Hybrids” – combination of both
 - Brandon Road is a logical location for investigation and/or demonstration of an integrated ANS management strategy
 - Identified as the only location that can address upstream transfer of ANS through the CAWS



GLMRIS

Other Ways to Provide Input & Stay in Touch

- Website

**Learn more about GLMRIS &
Submit Comments**

<http://glmris.anl.gov>



- Social Media

Join the Conversation!



Great Lakes & Mississippi River Interbasin Study
is on Facebook

<http://www.facebook.com/glmris>



Follow @GLMRIS on Twitter



BRANDON ROAD



Brandon Road Study

3x3x3 Exemption and Conditions

- GLMRIS predates WRRDA 2014, but direction from the ASA(CW) was that the study follow the SMART Planning Process
- Exemption Request was signed 6 Apr 2015
 - ▶ Time to complete from 6 Apr 2015 – 46 Months
 - ▶ Budget to complete from 6 Apr 2015 – \$8.2M
- Conditions:
 - ▶ Any physical modeling determined to be needed for the study will be done after the Agency Decision Milestone.
 - ▶ The study will incorporate research by the U.S. Geological Survey on nonstructural measures including, but not limited, to hydro-guns, bio-bullets, and chemical treatments.
- ▶ Limited to “Brandon Road only” Analyses



Brandon Road Study

Study Cost

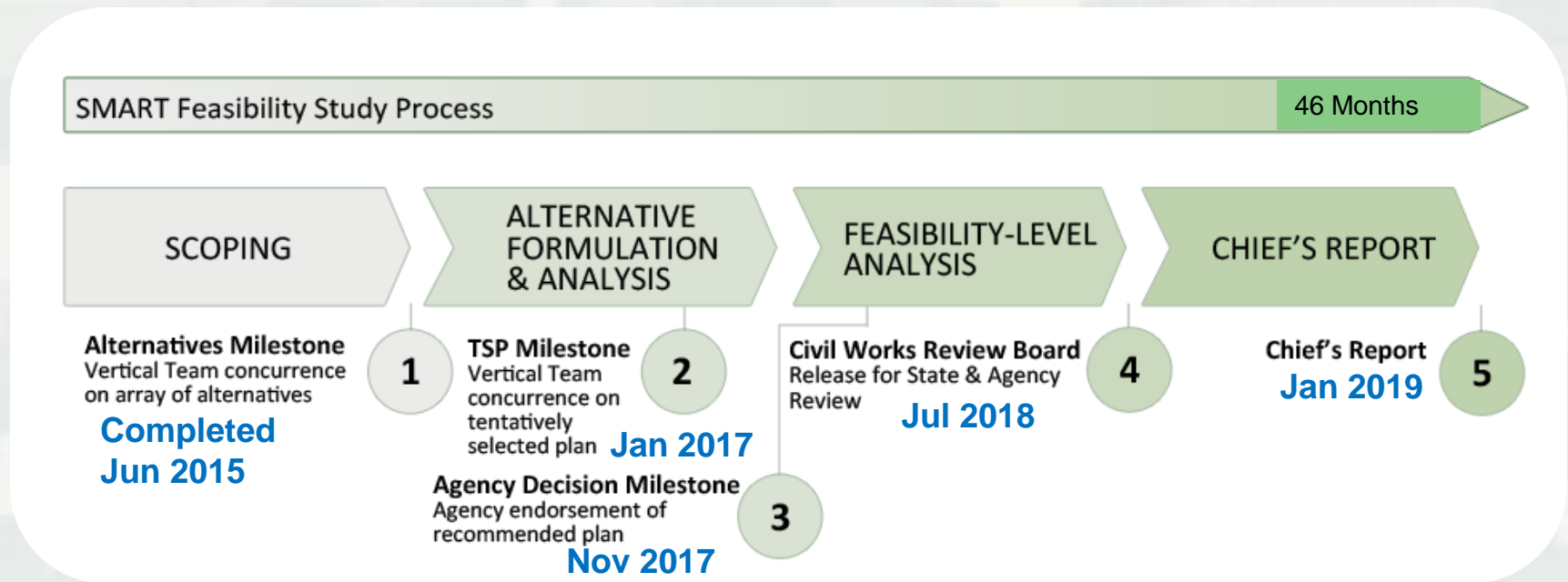
Fiscal Year	Capability*	Corps Funds Available	Other Fed (GLRI) Available
<i>FY 2015</i>	<i>\$900,000**</i>	<i>\$418,000</i>	<i>\$1,354,000</i>
FY 2016	\$2,900,000	\$489,000	\$2,430,000
FY 2017	\$2,300,000	TBD	TBD
FY 2018	\$2,000,000	TBD	TBD
FY 2019	\$100,000	TBD	TBD
Total	\$8,200,000		

*Efficient funding to meet study schedule

**Actual amount expended



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



Brandon Road Study

Schedule

Activity/Milestone	Approx. Duration (Month)*	Est'd Finish
Alternatives Milestone		6/15/2015 (actual)
Inventory and Forecast Information	9 to 14	
Complete Future Without Project Condition (FWOP)	9 to 14	
Formulation of Alternatives	4 to 8	
Evaluation of Alternative Effectiveness	4 to 7	
Evaluation of Alternative Impacts	4 to 8	
Analysis Supporting Tentatively Selected Plan (TSP)	4 to 6	
Report and EIS Writing & TSP Milestone Preparation	4	
TSP Milestone		Jan-17
Release document for NEPA and internal/external review and public meetings	1 to 2	
Agency Technical Review (ATR)	4 to 6	
Independent External Peer Review (IEPR)	4 to 6	
Planning/Policy Review	4 to 6	
Update Report and EIS; ADM Milestone Preparation	4 to 6	



Brandon Road Study

Schedule

Activity/Milestone	Approx. Duration (Month)*	Est'd Finish
Agency Decision Milestone (ADM)		<i>Nov-17</i>
**Physical Model	4 to 12	
Value Engineering Study	1 to 2	
Cost-Schedule Risk Analysis	1 to 2	
Update Report and EIS & ADM Milestone Preparation	1 to 2	
Submit DE's Notice (Milestone)	-	
Civil Works Review Board (CWRB) Preparation	2	
CWRB Milestone		<i>Jul-18</i>
State & Agency Review	3 to 4	
Update Report and EIS & Prepare Chief's Report	3 to 4	
Chief's Report Milestone		<i>Jan-19</i>
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.		

The dates in bolded italicized indicate the GLMRIS-BR Team continues to refine interim milestone dates.



Brandon Road Study



Planning Overview

- Refining suite of alternatives through additional analysis
- Ongoing Coordination with Partner Agencies
- Documenting without project conditions
- TSP Requirements
- Critical Activities



Brandon Road Study

ANS of Concern

	AQUATIC NUISANCE SPECIES		
	Asian Carp		Scud
	Silver Carp	Bighead Carp	<i>A. lacustre</i>
			
Mode of Transport	Eggs & Fry - Passive drift Juvenile & Adult - Active swimming	Eggs & Fry - Passive drift Juvenile & Adult - Active swimming	Passive drift Benthic Movement Hull Fouling Ballast Water
Current Location	Adult - Dresden Island Pool	Adult - Dresden Island Pool	Dresden Island Pool*
Information	Extensive research regarding life history, potential for spread, and establishment in the Great Lakes	Extensive research regarding life history, potential for spread, and establishment in the Great Lakes	Little research regarding life history, ways to control, or prevent spread
Risk of Establishment - GLMRIS Report	T50: Prob(est) - M T50: Con(env, econ, & soc/pol) - H(M)	T50: Prob(est) - M T50: Con(env, econ, & soc/pol) - H(M)	T50: Prob(est) - H T50: Con(env) - M(H) T50: Con(econ & soc/pol) - N(L)

*Based on preliminary 2015 survey data



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Alternative Development

- The First Planning Milestone, the Alternatives Milestone was achieved in June 2015
- Alternatives were developed from control measures
- Potential measures are being screened based on effectiveness and whether R&D measures were ready for implementation in a navigation channel
- Alternatives are being formulated emphasizing life safety and being available for use 24 hours per day, 7 days per week.



Brandon Road Study

Alternative Development

ANS Control Measures/Features	Alternatives				
	No New Federal Action	Nonstructural Alternative	Technology Alternative 1	Technology Alternative 2	Lock Closure
Sustain Current Activities	X	X	X	X	X
Nonstructural		X	X	X	X
Engineered Channel + Barge Entrainment Options + Swimmer Controls (e.g., Electric Barrier, CO ₂ , and/or Complex Noise)			X	X	
Flushing Lock				X	
Lock Closure					X
Monitoring & Adaptive Management		X	X	X	X



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Alternative Formulation and Analysis

- Currently refining suite of alternatives through additional analysis
- Coordinating with USGS and others on research and testing of emerging technologies
- Working with USCG on safety restrictions (Electric Barrier at Brandon Rd L&D)
- Ongoing numerical modeling of Lock Flushing and Channel Hydraulics
- Developing methodologies to assess alternative effectiveness
- Coordination with USFWS, State resource and other agencies (FWCAR)
- Survey of Navigation stakeholders ongoing
- Documenting without project conditions
- Next Milestone: Tentatively Selected Plan



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Ongoing Agency Coordination

- Ongoing coordination with other agencies:
 - ▶ USGS (UMESC) field testing of new technologies,
 - ▶ USGS (IWSC) measurements at BR L&D and Morris, IL
 - ▶ NOAA Food Web Modeling
- Briefing to USEPA staff in July 2015 (PL & PM)
- Initiated formal coordination in September 2015 with USFWS (FWCAR) – NEPA & Natural Resources Team
 - ▶ Initial meeting with State resources agencies on 8 October 2015



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Defining the Future Without Project Conditions

- Released about 180 letters to local, state and federal agencies within the study area
- Forecast of future conditions will include changes that can affect:
 - ▶ ANS Monitoring and Control
 - ▶ Navigation
 - ▶ Water Quality and Water Quality Regulations
 - ▶ Recreation
 - ▶ Changes to current land use in the project vicinity
- Develop a defensible future condition for the EIS and as a basis for formulation of alternatives



Brandon Road Study

TSP Requirements

- Identified Tentatively Selected Plan
 - ▶ Effectiveness
 - ▶ Impacts
 - ▶ Cost
 - ▶ Time to Implement
- Draft Report and Draft EIS
- Draft FWCAR
- Model Certification for Planning Models
- **Letter of support from viable non-Federal Sponsor(s)**



Brandon Road Study

Critical Activities Leading to the TSP

Activity	Lead Agency	Completion Date
Responses on Future without Project Conditions Requests	Multiple Agencies	September 2015
CO ₂ , Hydro-Gun, and Complex Noise Field Testing/Data Analysis & Reporting (UMESC-IWSC)	USGS	October 2015
Electric Barrier Hazard Risk Analysis	USCG	October 2015
Numerical Modeling Flushing Lock	ERDC-CHL	November 2015
Expert Elicitation of Effectiveness	USACE	December 2015
Food Web Modeling (Lake Erie)	NOAA-GL	Coordinating
Food Web Modeling (Michigan/Huron)	NOAA-GL	Coordinating
Fisheries Economic Assessment	MSU	March 2016
Model Certification (PCXIN, ECO-PCX, SBH-PCX)	USACE	March 2016
Draft FWCAR Report	USFWS	April 2016

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Requirement for a Non-Federal Sponsor

- Requirement established in WRDA '86
- Responsibilities include:
 - ▶ Cost-share of project construction (35%)
 - ▶ Provide lands, easements, rights of way and disposal sites (LERRDs)
 - ▶ O&M project features
- **Non-binding** letter of support needed at TSP milestone
- Project Partnership Agreement executed prior to construction start
- Study Authority is 100% federal; implementation would have to be cost-shared



Brandon Road Study

Key Plan Formulation Activities Next 90 days

- Receive field data from USGS October
- Expert elicitation completes in December

