GLMRIS BRANDON ROAD UPDATE -

TO CHICAGO AREA WATERWAY SYSTEM ADVISORY GROUP

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STUDY SCOPE

2014 GLMRIS Report provided basis for this study

GLMRIS-BR Study Goal

- Reduce the risk of one-way aquatic nuisance species transfer to Great Lakes Basin
- Minimize impacts to multiple waterway users
AQUATIC NUISANCE SPECIES

Alternatives adaptable for future species

Modes of Transport:

- Swimming
- Floating
- Hitchhiking

GLMRIS-BR

- Bighead and Silver Carp

- *Fresh Water Crustacean* (Apocorophium lacustre)
WHY BRANDON ROAD?

- **Effective**
  - ~ 34 foot high dam
  - Upstream movement through lock
  - Avoids flood bypass via Upper Des Plaines

- **Relevant**
  - Identified in 3 of 6 structural alternatives (GLMRIS Report)

- **Responsive**
  - Stakeholder input
  - Upstream of leading edge of Asian Carp population

- **Valuable**
  - Enhance effectiveness of existing technologies

- **Minimizes Impacts**
  - Location seeks to minimize impacts to current waterway uses.
SAFEGUARDING NATION’S ECONOMIC INTERESTS IN THE GREAT LAKES BASIN AND NATION’S INLAND WATERWAYS

Brandon Road Lock
- Highly utilized for commercial navigation
- 11.3M tons of cargo transit each year
- $319M in annual transportation benefits
- Link between Great Lakes and Gulf of Mexico

Great Lakes Basin
- 63M recreational fishing trips annually with about $1.3B in net economic value
- Commercial fishing generates about $20M in revenue
WHAT ARE WE TRYING TO PROTECT?

- 20% of the world’s fresh water resource
- Over 5,000 Great Lakes tributaries
- 41% Great Lakes Basin is governed by Canada
- >60 fish species are special status
- 10 Threatened & endangered mussel species
- ~ $1.8B GLRI & Great Lakes Legacy Act (2010-present)
CONSEQUENCES OF ANS ESTABLISHMENT

**Bighead and Silver Carp**

NOAA modeling – Lake Erie

- Asian Carp biomass could range 10% to 34%

Great Lakes Consequences:

- Substantial economic impacts
- Management actions would be in multiple locations
- Perception of quality decreased
- Safety
ANS CONTROLS

Modes of Transport:
- Swimmers
- Floaters
- Hitchhikers

Nonstructural Measures

Water Jets

Electric Barrier

Engineered Channel

Acoustic Fish Deterrent

Flush Lock
## ALTERNATIVES

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<thead>
<tr>
<th>Alternative</th>
<th>ANS Control Measures/Features</th>
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<tbody>
<tr>
<td><strong>No New Action (No Action)</strong></td>
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<tr>
<td><strong>Nonstructural Alternative</strong></td>
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<tr>
<td><strong>Technology Alternative – Electric Barrier</strong></td>
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<td><strong>Lock Closure</strong></td>
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Public Education and Outreach
Monitoring
Overfishing/Removal

Engineered Channel
Air Bubbles
Flushing Lock
Electric Barrier
Mooring Area

CSSC EB
FWOP

Nonstructural
Boat Ramp

Engineered Channel
Air Bubbles
Flushing Lock
Acoustic Fish Deterrent

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EVALUATION CRITERIA

- Effectiveness
- Relative Life Safety
- Impacts to Navigation (NED Costs)
- Costs
  - Construction
  - Operation, and Maintenance, Rehabilitation,
    - Repair and Replacement
  - Mitigation
- Ability to cycle in new
  - Nonstructural ANS Controls
  - Structural ANS Controls
- Number of Structural Control Points in the CAWS
- Modes of Transport
TENTATIVELY SELECTED PLAN (TSP)

Overview:
- Reduces risk of Mississippi River Basin ANS establishment in Great Lakes Basin
- Allows for continued navigation
- Nonstructural measures
- Mitigation required to address impacts to connectivity

Estimated Cost to Construct: **$275.4M**
Estimated Cost to Operate and Maintain: **$8.2M/yr**
Estimated Nonstructural Measures: **$11.3M/yr**
Estimated Time to Construct: **5 yr**
TSP IMPLEMENTATION

- Life safety primary consideration
- Safety evaluation of constructed project
  - USCG, USACE and Navigation Community
- Assumed Operations:
  - Electric Barrier: When no vessels are immediately downstream of barrier, within channel or lock
  - Complex noise on when electric barrier off
- Seek to operate as effectively as possible within acceptable safety parameters
- Nonstructural measures begin as soon as project funded

Flushing Lock: Clears floating life stages.

Acoustic Fish Deterrent: Deterrent when electric barrier turned off during lockage.

Engineered Channel: Creates uniform concrete surface w/o fish habitat; increased effectiveness of measures. Platform for future measures.

Electric Barrier: Deterrent for adult fish.

Fish Entrainment Deterrent: Bubble curtain to deter/dislodge adult & juvenile fish.

Mooring Area: Barge staging area

*Pending further study, speakers may be placed in lock.
BRANDON ROAD
WHAT HAS CHANGED SINCE PUBLIC REVIEW

• Cost

• Des Plaines River Mitigation Plan

• Non-Federal Sponsor

• Replacing Water Jets with Air Bubble Curtain

• Schedule
BRANDON ROAD
KEY STAKEHOLDER CONCERNS

- Navigation Impacts
- Effectiveness of Preventing Passage
- Safety
- O&M Responsibilities
Key Schedule Drivers

- Completion of Chief’s Report
  - Non-federal sponsor
  - Internal & external reviews
- Non-federal sponsor/cost share agreements (DA/PPA)
- Availability of PED funds in FY19/20
- Complex innovative designs increase PED duration
- Construction authorization & appropriation
- Maintaining navigation during construction extends duration

* PED is able to begin after submittal of Chief’s Report to ASA(CW) and Design Agreement is signed pending funding