



Asian Carp Regional Coordinating Committee

ACRCC

Congressional Briefing

February 23, 2016



Welcome and Introduction

Matthew McKenna

Director Northeast Midwest Institute

Cameron Davis

***Co-chair ACRCC and Senior Advisor to the
Administrator, USEPA***



Overview

Welcome and Introduction

- Matthew McKenna, NEMWI
- Cameron Davis, Co-Chair of the ACRCC, USEPA

Current State of & Response to Threat

- Kevin Irons, Illinois DNR
- Charles Wooley, USFWS

Actions to Address the Threat - 2016

- Mike Weimer, Co-Chair of the ACRCC, USFWS
- John Dettmers, Great Lakes Fishery Commission

Actions to Address the Threat – 2017 and Beyond

- COL Christopher Drew, USACE, Chicago District
- Mark Gaikowski, USGS

Q & A



Asian Carp Regional Coordinating Committee

“The purpose of the ACRCC is to coordinate the planning and execution of efforts of its members to prevent the introduction, establishment, and spread of Bighead, Black, Grass, and Silver Carp populations in the Great Lakes.”



Current State of and Response to the Threat

Kevin Irons

Illinois Dept. of Natural Resources

Charlie Wooley

U.S. Fish and Wildlife Service



Asian Carp in the US

National Framework with focused ACRCC Action

Illinois Waterway
337 miles from
Mississippi to
Lake Michigan

Focus of majority
of Asian carp
Framework on
upper third of
Illinois River



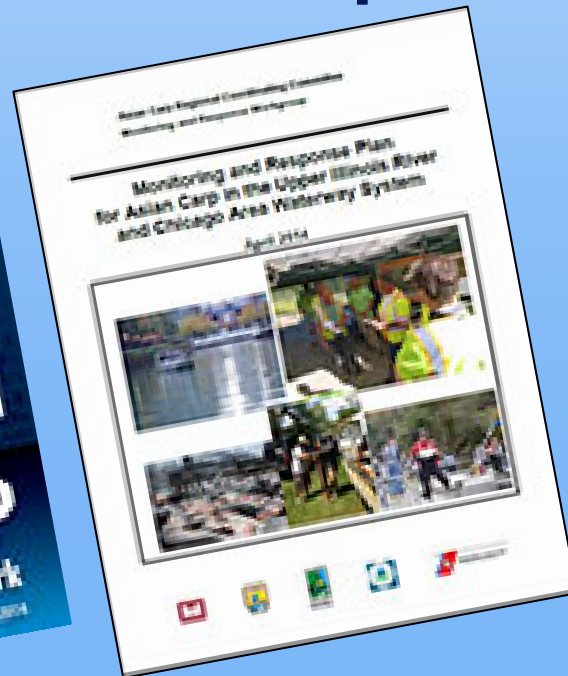
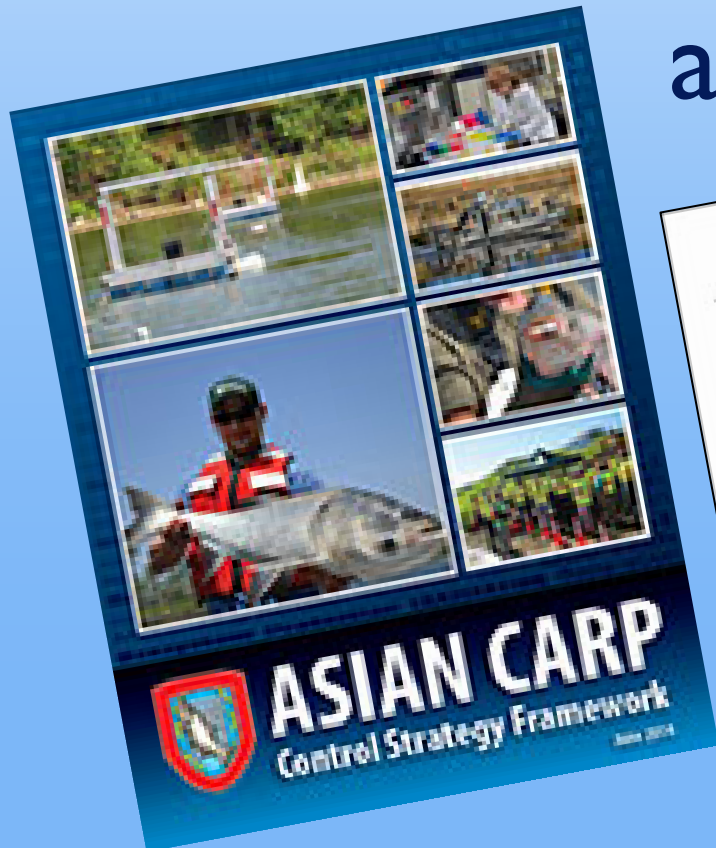
Map from DRAFT USFWS 2015 WRRDA Report



Asian Carp Regional Coordination Committee

<http://asiancarp.us>

Annual Action Plan, Monitoring Plans and Reports





2015 Monitoring and Response Plan

- **21(+)** project plans, **75** project objectives
- The MRP guides response, monitoring, management actions, and guides research
- Multiple agencies/bi-national
- Monitoring and Response Work Group (MRWG)
(Co-chairs - IL DNR, GLFC)

Asian Carp Regional Coordinating Committee
Monitoring and Response Workgroup

**Monitoring and Response Plan
for Asian Carp in the Upper Illinois River
and Chicago Area Waterway System**

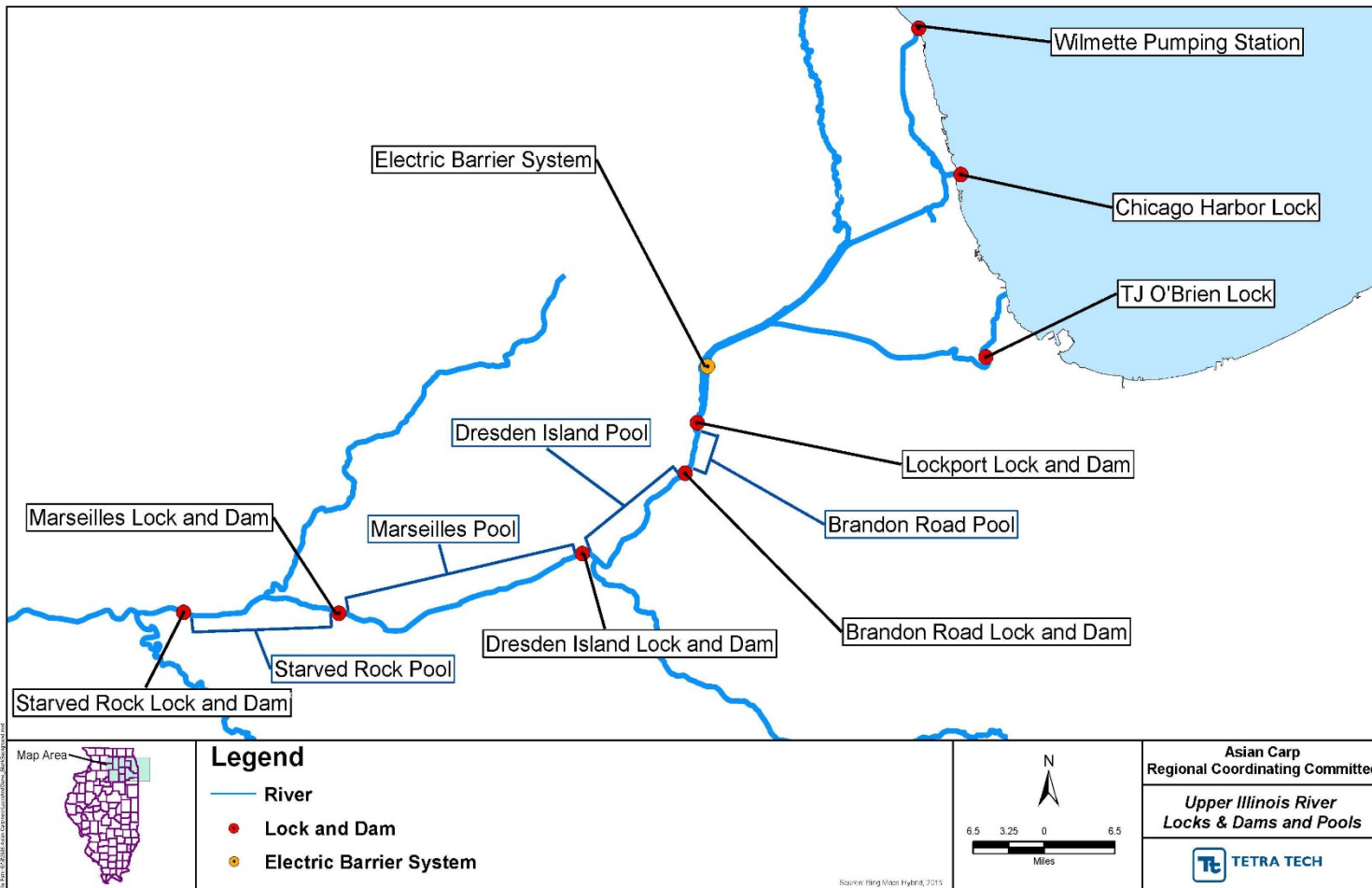
May 2013

The collage consists of six photographs: 1. A person in a blue shirt and hat stands on a boat in a river, surrounded by a large catch of Asian carp. 2. A person in a red jacket and hat operates a pump or net on a boat. 3. A person in a blue jacket and hat is shown in a field, possibly collecting samples. 4. A boat is docked at a concrete pier on a river. 5. A person in a blue jacket and hat is shown in a field, possibly collecting samples. 6. A boat is shown in a river, with a person in a blue jacket and hat visible on board.

The bottom of the slide features five logos: the Illinois Department of Natural Resources logo, the Illinois Department of Transportation logo, the Illinois Department of Agriculture logo, the Illinois Department of Environmental Protection logo, and the United States Coast Guard logo.



Upper Illinois River Lock & Dam and Pools



Units Saved: 2/7/2016

Source: Bing Maps Hybrid, 2015

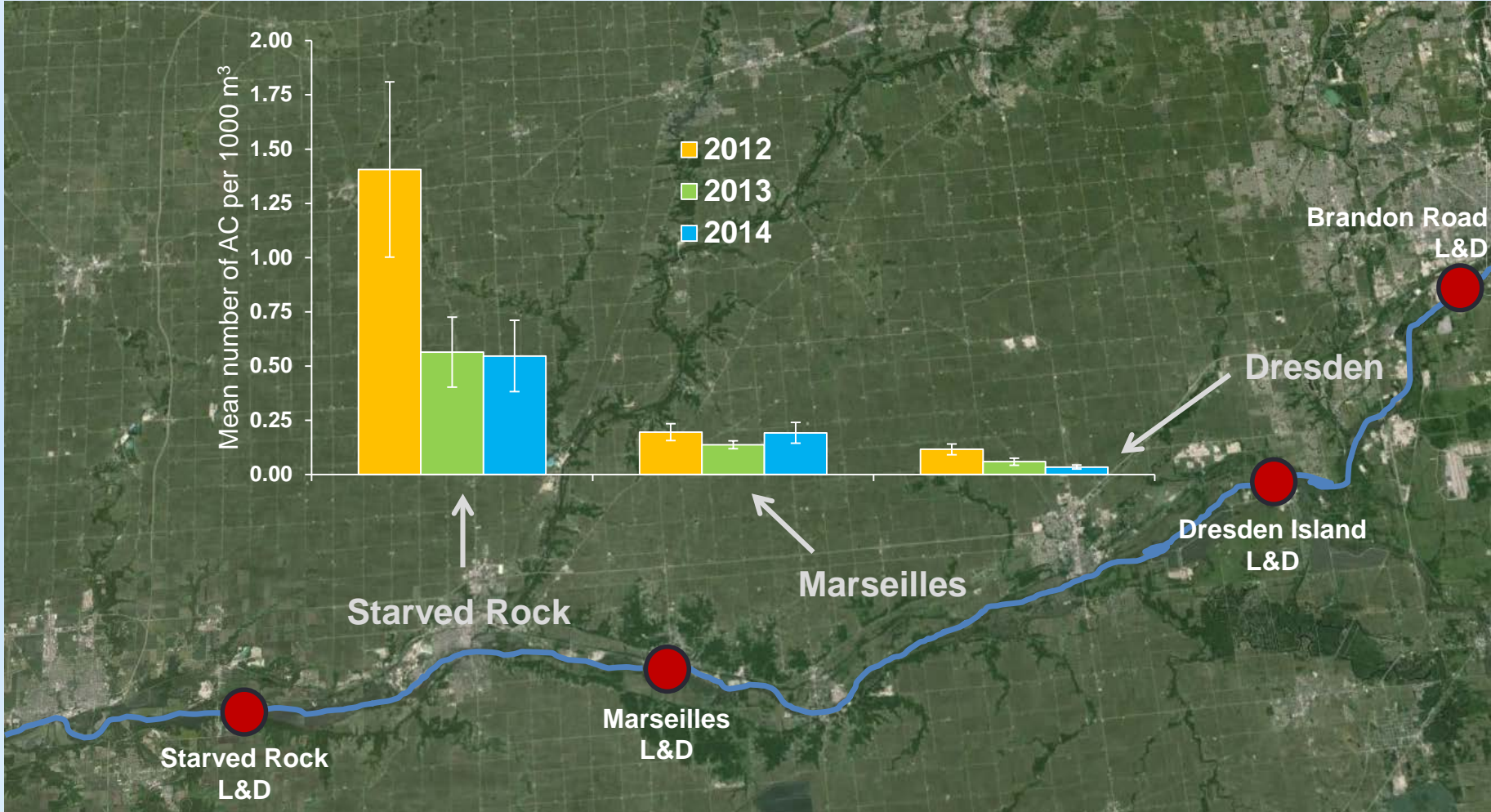


Asian Carp Monitoring

- Intensive monitoring above barriers in CAWS
 - June (Lake Calumet)/September (Chicago River)
 - Environmental DNA (eDNA) recorded no detections in 2015
- Vigilance is high/responsive below barrier:
 - Responsive: refocusing efforts when small fish (< 6 inches) were detected in addition to planned work; larval fish detected in Dresden Pool
 - Small meshed seining in upstream pools
 - Began development of Decision Support Tool (Spring)
 - 4 million pounds removed to date; 68% reduction in key area
 - Detection of small fish in upper River
- Heightened evaluations at Brandon Road Lock and Dam



Changes in Asian Carp Densities

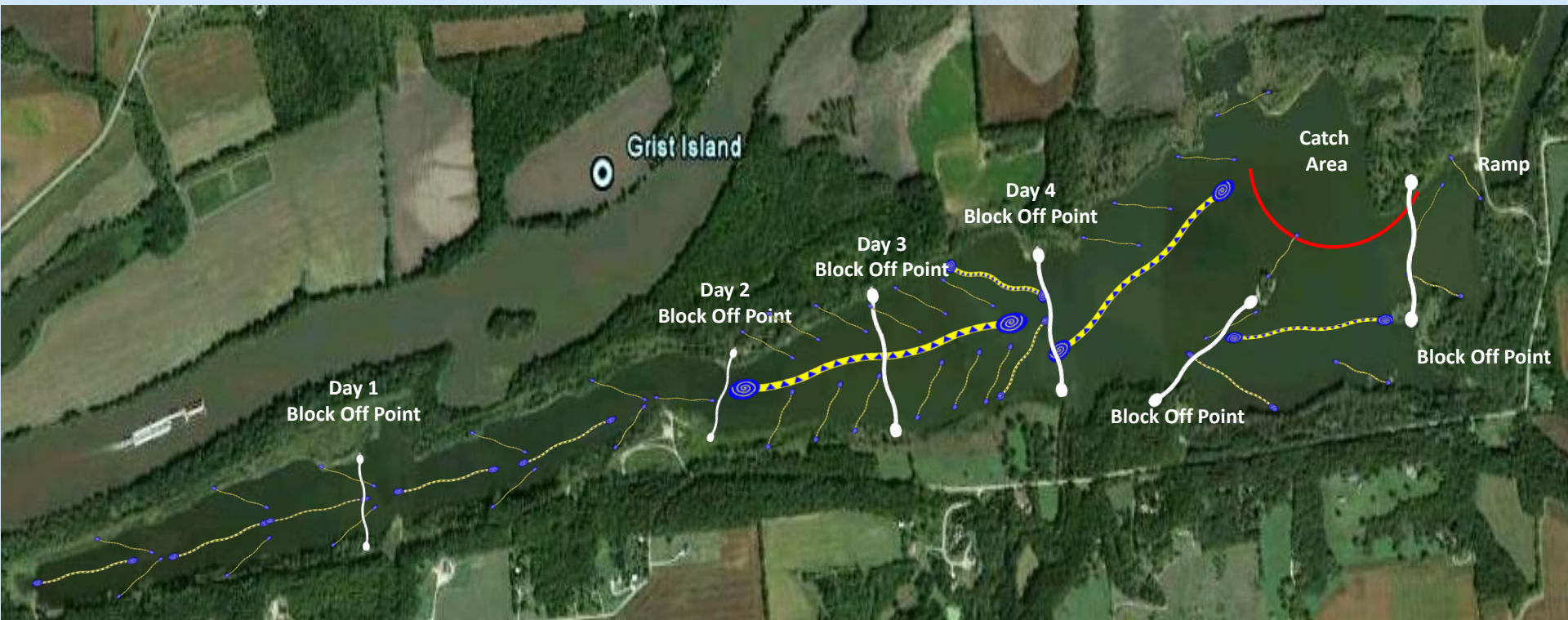
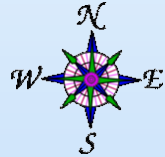




Increase Removal Efforts

develop in 2015, deploy 2016

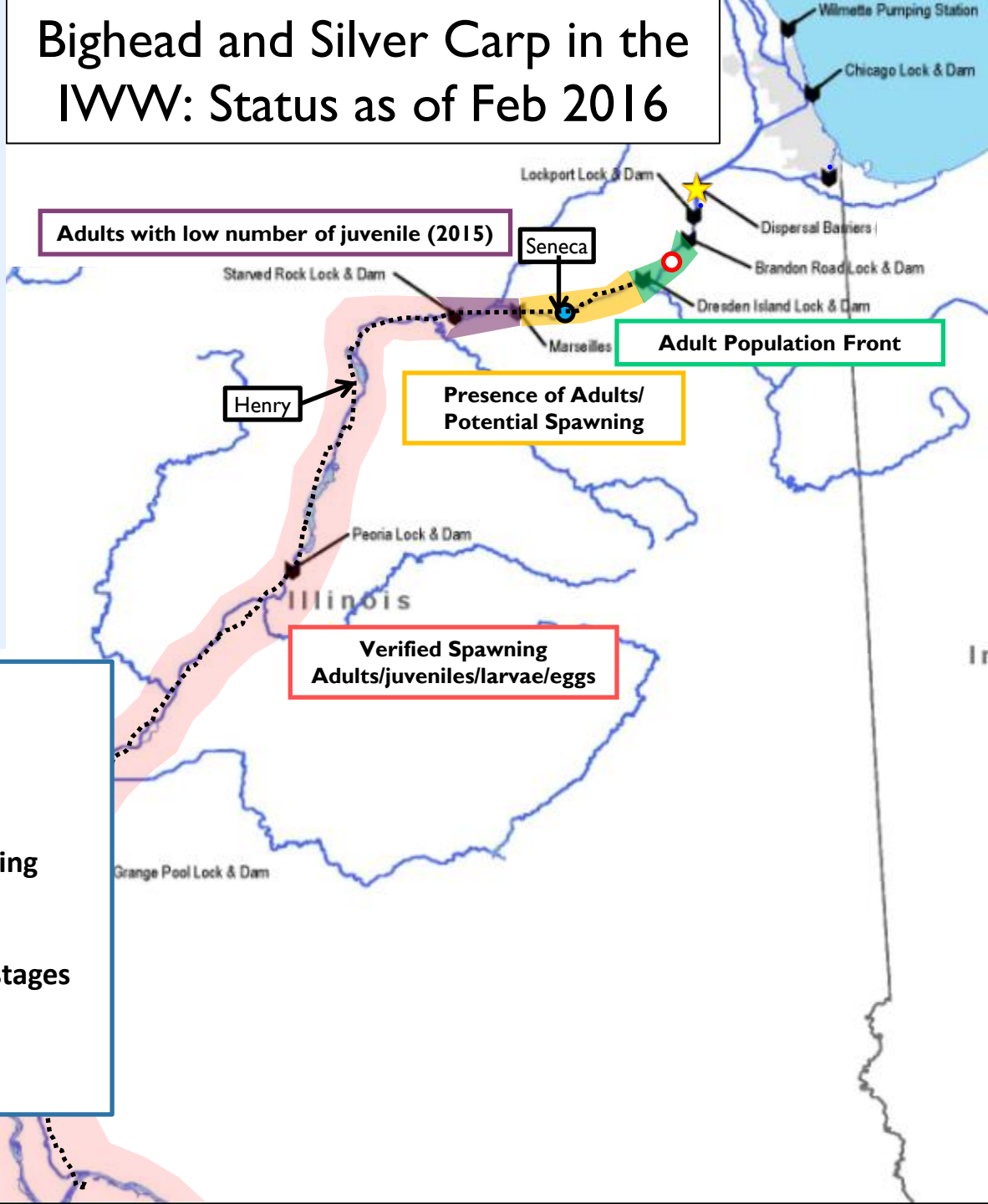
2016 Unified Fishing Method West Pit



500 acres: Hanson Material Services, Morris, Illinois – Marseilles Pool, IWW

Asian Carp Monitoring

Bighead and Silver Carp in the IWW: Status as of Feb 2016



Adults with low number of juvenile (2015)

Adult Population Front

Presence of Adults/
Potential Spawning

Verified Spawning
Adults/juveniles/larvae/eggs

Henry

Seneca

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



USFWS Studies on Small Fish and Barges



- 2015 Studies on Golden Shiners show that certain common configurations of barges can:
 - Inadvertently entrain (trap) transport small fish and allow passage at the electric dispersal barrier
 - Inadvertently transport small fish through locks
- This same study also demonstrated that Golden Shiners can be transported long distances in rake to box junction gaps (nearly 10 miles)
- 2016 studies will examine the effects of these barge configurations downstream where small Asian carp are common, and also determine likelihoods of barge encounters



USFWS ACRCC Projects 2016

| | |
|---|--|
| eDNA | <ul style="list-style-type: none">• Development and Testing of Black Carp eDNA Markers (New for 2016)• Great Lakes Asian Carp Monitoring Program (also includes traditional gear) |
| Adult Monitoring | <ul style="list-style-type: none">• Development of Sampling Techniques for Black Carp to Aid Assessment of Natural Reproduction, Distribution, and Ecological Impacts (New for 2016)• Barrier Defense Removal of Asian Carp Using Novel Gear (New for 2016)• Analysis of Grass Carp Populations in the IWW (New for 2016)• Monitoring and Response Team Support in CAWS• Hydro-Acoustic Assessment of Lock Mediated Fish Passage in the Upper Illinois River |
| Juvenile Monitoring | <ul style="list-style-type: none">• Gear Evaluation for Removal and Monitoring of Juvenile Asian Carp Species (New for 2016) |
| Barge Entrainment | <ul style="list-style-type: none">• Barge Entrainment and Interaction Project |
| Support for USGS Technology Refinement | <ul style="list-style-type: none">• Support for CO2 Registration• Registration of Microparticle Technologies to Selectively Deliver Control Agents to Bigheaded Carps |
| Outreach | <ul style="list-style-type: none">• Website Outreach |



Actions to Address the Threat - 2016

Mike Weimer

U.S. Fish and Wildlife Service

John Dettmers

Great Lakes Fishery Commission



2016 Monitoring and Response Highlights

Monitoring and Response – Enhanced Interagency Action Planning

Continues use of Adaptive Management approach:

- Focus agency monitoring effort on highest-priority locations (informed by current data) >> *More focus of assets on determining upstream movement of small (less than 6”) fish, including eggs and larvae*
- Shift of control efforts to address greatest opportunities for AC removal and “population front” >> *Increase commercial harvest at select locations*

Includes New Contingency Planning for Coordinated Response

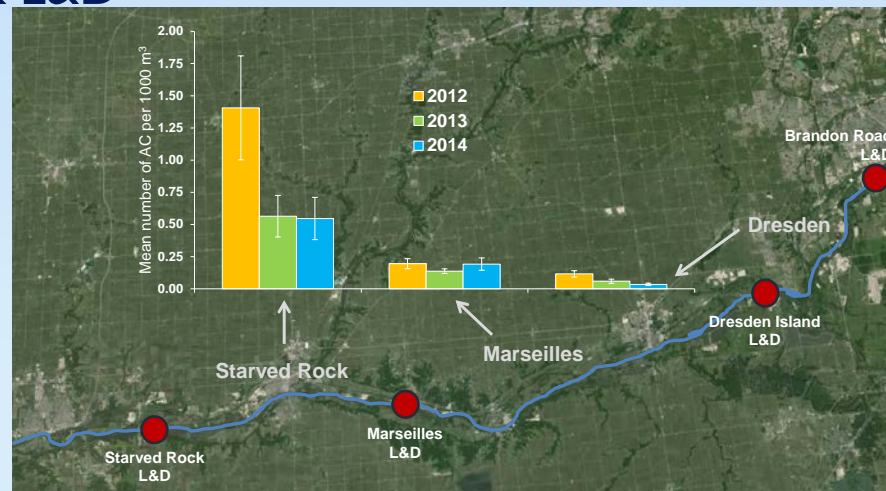
- Scenario-based response planning, using all available tools and capacity
- Now includes scenarios and measures for locations downstream of Brandon Road Lock and Dam

Individual MRP projects included in the Draft ACRCC 2016 Asian Carp Action Plan



Actions in 2016

- Continue proven monitoring and management efforts
- Follow the Monitoring and Response Plan for 2016
- Increased management efforts
 - 50% increase in contracted fishing effort between the electric barriers and Dresden Island L&D
 - Includes 100% increase in Dresden Island Pool
 - 20% Increase contracted fishing between Dresden Island L&D and Starved Rock L&D





Actions in 2016

- Increased monitoring efforts for small Asian carp upstream movement
 - 100% increase small fish monitoring in Brandon Road Pool
 - Double small fish monitoring effort in Dresden Island Pool
 - 25% increase in small fish monitoring in Marseilles Pool
- Use satellite tags to identify congregations of Asian carp for removal
- USACE will continue construction of Barrier I
- Deploy unified fishing method in March 2016
- Law enforcement coordination



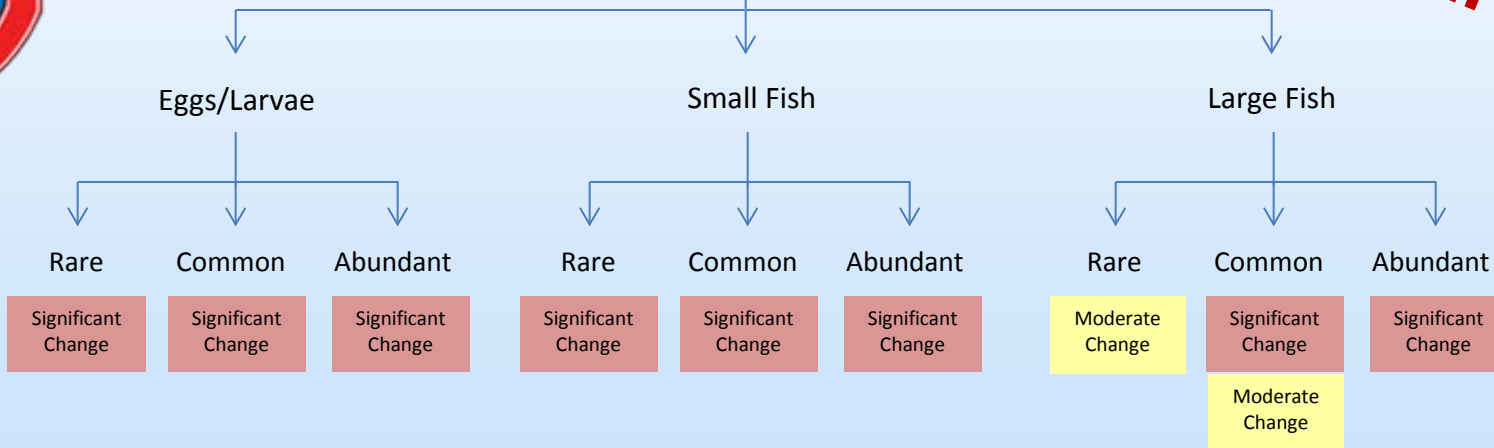
MRP Contingency Planning

- Build upon existing response plan in MRP and apply control actions
- Primary Factors
 - Location- delineated by pool, Lockport to Starved Rock
 - Life stage- egg/larvae, small, adult
 - Relative abundance- rare, common, abundant
- Secondary Factors
 - Fish population and other conditions in upstream and downstream pools
 - Ongoing rate of change of population characteristics
 - Season and water temperature
 - Habitat where fish are sighted or collected
 - Flow conditions
 - Barrier operations (for upper pools)



MRP Contingency Planning Scenario - Brandon Road

EXAMPLE

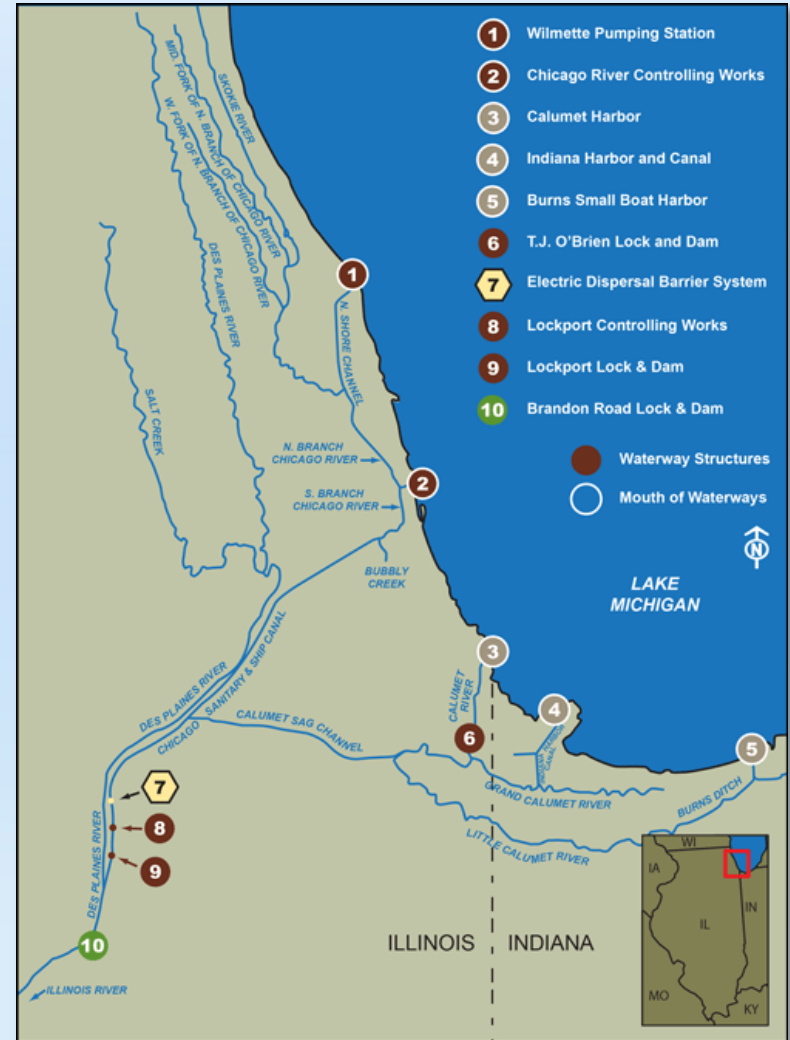


| Indicator/level of urgency (Action Response Level)* | Action | Who | Estimated time to implement | Regulatory and other Requirements |
|---|------------------------------------|--------------|-----------------------------|---|
| Significant Change | Increased Sampling Efforts | IL DNR/USFWS | 1-7 days | |
| | Cancel Planned Barrier Outages | USACE | 1 day | Coordinate with contractors |
| | Commercial Contract Netting | IL DNR | 1-7 days | |
| | Hydroacoustics | | 1-7 days | |
| | Block Nets | IL DNR | 1-7 days | Notice to Navigation |
| | Flow Control | MWRD | 1 day | Notice to Navigation |
| | Temporary Lock Closure | USACE | 0 - 30 days | Notice to Navigation |
| | Barge Navigation Regulation | USCG | Months | USCG rule making process, public review |
| Moderate Change | Increased Sampling Efforts | IL DNR/USFWS | 1-7 days | |
| | Coordinate Planned Barrier Outages | USACE | 1 day | Coordinate with contractors |
| | Commercial Contract Netting | IL DNR | 1-7 days | |
| | Hydroacoustics | USFWS | 1-7 days | |
| | Block Nets | IL DNR | 1-7 days | Notice to Navigation |

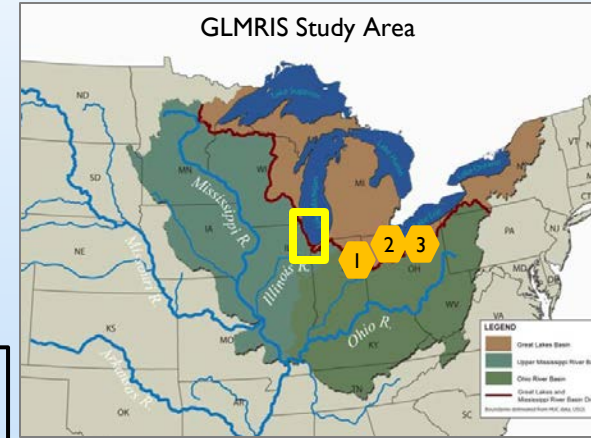
USACE Update

COL Christopher T. Drew
Commander, Chicago District

23 February 2016



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


Brandon Road

- MVR Lead
- One-way control point identified in three alternatives in GLMRIS Report
- Chief's Report by Jan 2019


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 

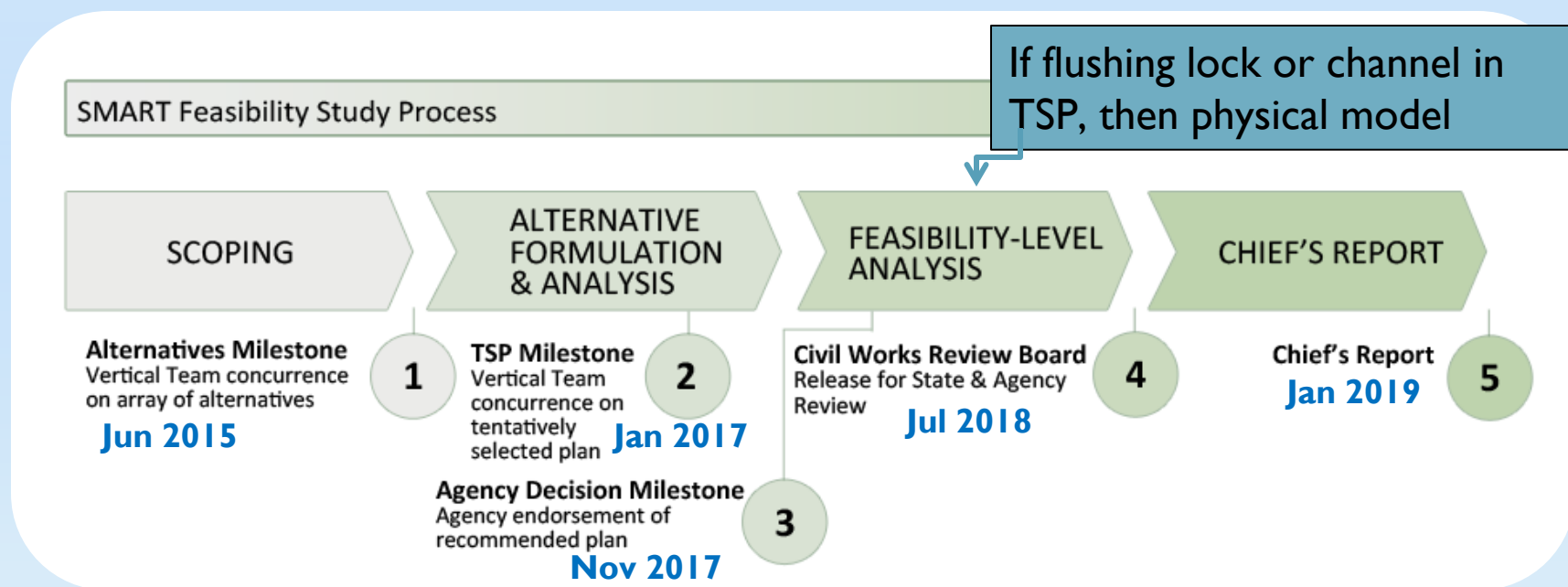
Focus Area II - Other Pathways

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



Brandon Road Study

Study Goal: *Evaluate potential control options and technologies at Brandon Road Lock & Dam to reduce the risk of upstream interbasin transfer of ANS while minimizing impacts to waterway uses and users and identify a recommended plan.*





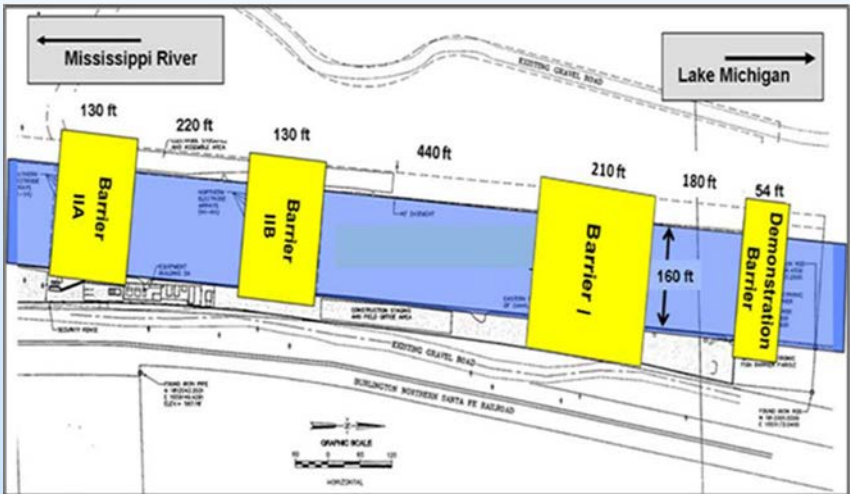
Brandon Road Study

Status of Control Measures

| ANS Control Measures | Under Consideration | Screened |
|--|----------------------------|-----------------|
| Electric Barrier | X | |
| Water Jets | X | |
| Carbon Dioxide (CO2) | | X |
| Hydroguns | | X |
| Acoustics Complex noise | X | |
| Flushing Lock | X | |
| Lock Treatment (Hot Water, Chlorine, Ozone) | | X |
| Lock Closure | X | |



CSSC Barriers



Barrier IIA



Barrier IIB



Barrier I Construction



Demo Barrier

| 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



USGS Asian Carp Technologies Update

Mark Gaikowski, Director
USGS Upper Midwest Environmental Sciences Center
ACRCC Congressional Briefing
February 23, 2016





Control Tools - 2016

Carbon Dioxide (CO₂)

- ▣ Identifying minimum concentrations and effects of surrounding conditions
- ▣ Assessing injection systems; continuing field testing
- ▣ Collaborating with FWS to complete CO₂ Registration with EPA

Underwater Sound

- ▣ Evaluating where carp are abundant under potential use conditions (deterrent, herding); refine speaker positioning and sound mapping; examine high frequency sound

Microparticles

- ▣ Pond trials to finalize microparticle development; work with partners to ID field sites for testing Aug/Sept 2016; coordinate permitting for experimental field application
- ▣ Initiate development of delivery system for grass carp

Lock Treatment Options: Hot Water/Ozone/Chlorine

- ▣ Prevent AIS movement through CAWS; minimize impact to navigation
- ▣ Initiating lab studies to evaluate efficacy of ozone, hot water, chlorine and combinations



Early Detection/Surveillance-2016

▣ Portable, Rapid Asian Carp eDNA Detection Kit

- ▣ Detect a single, minnow-sized silver carp comingled with $> 10,000$ fathead minnows; potential to identify unintentional or illegal AC transfer
- ▣ Train, equip and develop procedures/data for law enforcement use
 - ▣ 10 kits for distribution
- ▣ Promising tool to improve detection of other AIS and pathogens and aid in management decisions to prevent, contain, and control them

▣ Molecular Toolbox

- ▣ Refining methods to enhance detection e.g. shedding rates and degradation
- ▣ Collaborating with FWS to refine high-throughput sequencing protocols
- ▣ Supporting validation of genetic markers (with FWS and USACE)



Risk Assessment

FluEgg Model

- Using to predict AC spawning locations and egg/larvae survival to assess risk; use data to inform control strategies
 - Applying model to Grass Carp eggs found in 2015

Grass Carp

- Continue monitoring for proof/location of spawning in Sandusky R
- Initiate mapping of submersed aquatic vegetation
- Use of triploids to identify possible concentrations of GC

Black Carp

- Continue working with IL DNR, SIU, FWS and mid-Mississippi River basin states to process wild BC when caught and determine source
- Design and development of a targeted BC bait to protect endangered mussels



Partner Support

GLMRIS Support

- Providing hydraulic and WQ data/analyses to inform USACE GLMRIS decisions
 - USGS streamgages up and downstream of BRLD; Dye study in lock chamber to examine mixing; Provide data to inform USACE models

Barge Entrainment

- Initiate hydraulic modeling to assess movement of eggs and larvae and the potential of barge entrainment
- Initiate lab studies with FWS:
 - CO₂ – Assess response of AC to determine use to clear AC from void space
 - Sound – Assess response of AC to determine use to clear carp from void space
 - Hydraulics – Assess the potential to enhance flow to void spaces between barges
 - Swimming performance – Assessing small AC swim speeds to inform actions



THANK YOU



For more information

Please visit www.asiancarp.us