



Asian Carp Regional Coordinating Committee

2016 Asian Carp Action Plan Congressional Briefing

April 26, 2016



Welcome and Introductions

Matthew McKenna
Director,
Northeast Midwest Institute



Overview

Welcome and Introductions

- Matthew McKenna, NEMWI

Address the Threat

- ACRCC 2106 Action Plan – Mike Weimer, Co-Chair of the ACRCC, USFWS
- Monitoring Update and 2016 USFWS Actions – Charles Wooley, Deputy Regional Director for the Midwest Region, USFWS
- USACE 2016 Actions – Col. Christopher Drew, Commander of the USACE, Chicago District
- USGS Asian Carp Technologies Update – Mark Gaikowski, Director, Upper Midwest Environmental Sciences Center, USGS
- 2016 Funding Summary and Closing – Cameron Davis, Co-Chair of the ACRCC and Senior Advisor to the Administrator, USEPA

Questions & Answers

- Mike Weimer, Co-Chair of the ACRCC, USFWS and ACRCC Presenters



Asian Carp Regional Coordinating Committee 2016 Action Plan

Mike Weimer
Co-chair of the ACRCC,
U.S. Fish and Wildlife Service



2016 Action Plan

Asian Carp Regional Coordinating Committee





2016 Action Plan

Purpose:

“To prevent the introduction, establishment, and spread of Bighead, Black, Grass, and Silver Carp populations in the Great Lakes”

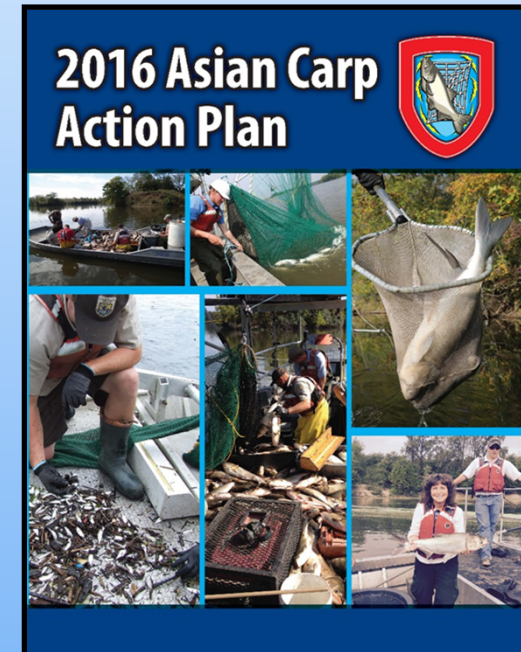
- Emphasis on prevention and control opportunities in the Chicago Area Waterway System and Illinois Waterway
- Additional focus on GLMRIS Secondary Pathways



2016 Action Plan

2016 Highlights:

- Builds on 2015 Control Strategy Framework
- Includes 58 collaborative agency projects
- Supports the ACRCC 2016 Monitoring and Response Plan (May 2016)
 - Early detection, rapid response and contingency planning
- Includes new out-year planning goals and objectives
 - Supports long-term agency coordination and strategic planning

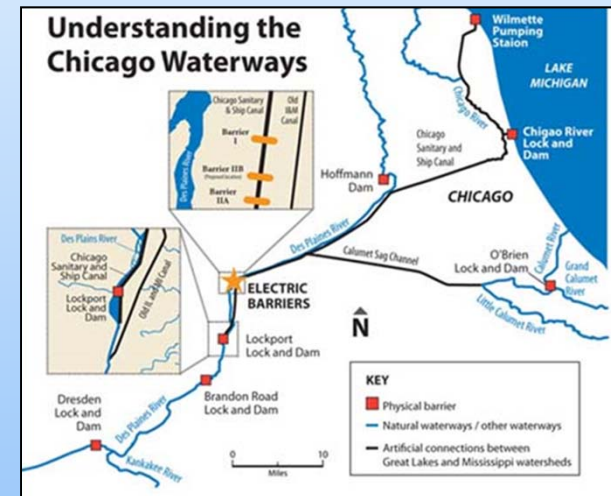




2016 Action Plan

2016 Key Initiatives:

- Construction of a new electric barrier
- Closure of GLMRIS Secondary Pathways:
 - Eagle Marsh Pathway
 - Closure actions at Little Killbuck Creek Pathway
 - Closure actions at Ohio-Erie Canal Pathway
- USACE evaluations of Brandon Road alternatives
- Development of new *detection and removal* techniques and gears
- Development of new *control* technologies and strategies





2016 Action Plan

2016 Key Initiatives:

- Comprehensive Interagency eDNA Monitoring
- Young-of-Year and Juvenile Asian Carp Monitoring
- Intensified Asian Carp Removal
- Evaluation of Potential Barge Entrainment of Small Fish
- Interbasin Collaboration



Monitoring Update and 2016 USFWS Actions

Charles Wooley

***Deputy Regional Director for the Midwest
Region, USFWS***



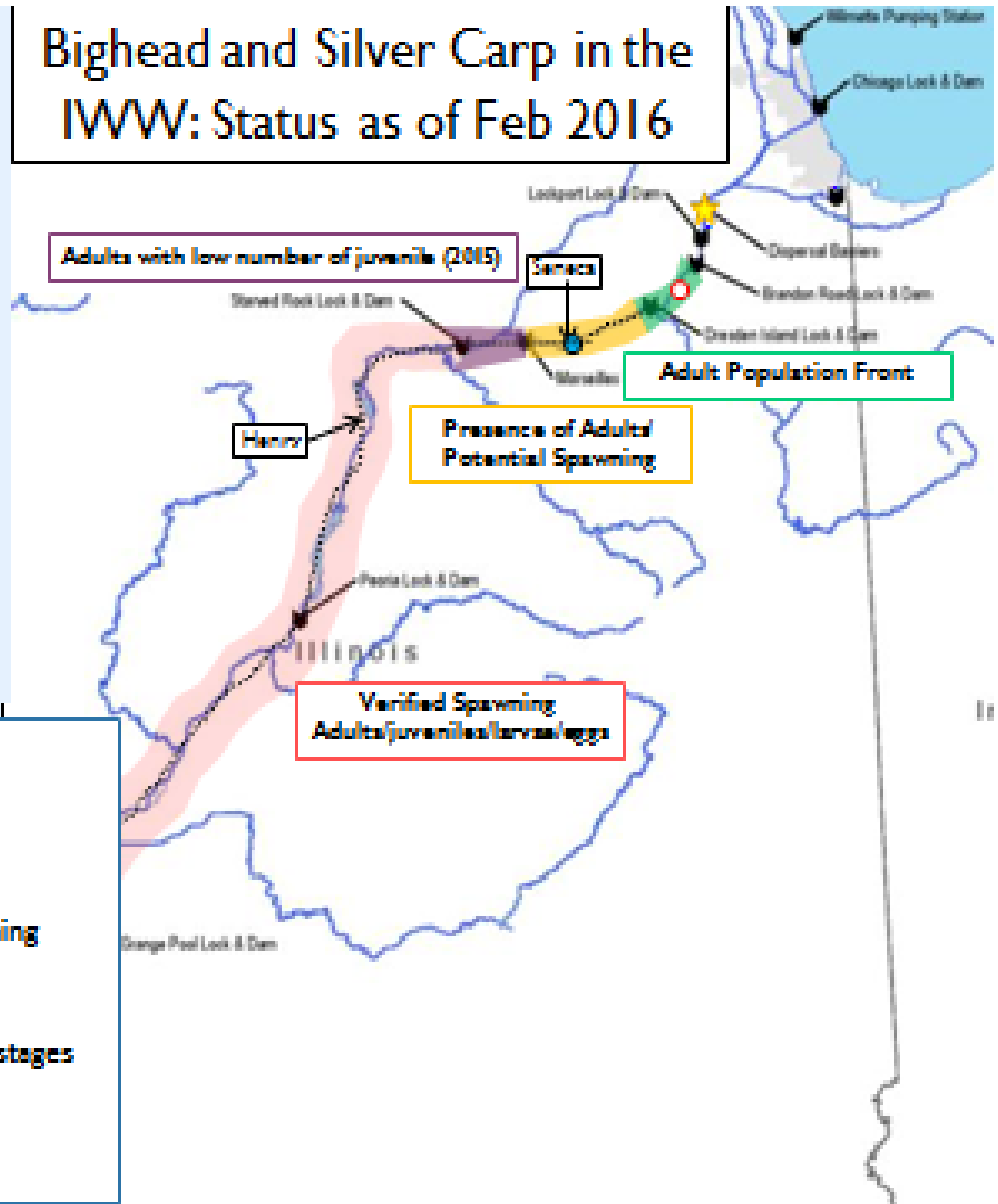
Asian Carp Monitoring

Key observations in 2015:

- 2010-2015, all life stages detected in/downstream of Peoria Pool - 102 miles from LM
- Small Silver Carp detected in low numbers in Starved Rock Pool - 88 miles from LM
- AC eggs (Silver and/or Bighead Carp) identified from Marseilles Pool downstream
- Single detection of larval AC from the Dresden Island Pool - 55 miles from LM (confirmed by genetics)

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 Adult Potential Spawning

Verified Spawning Adults/juveniles/larvae/eggs

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

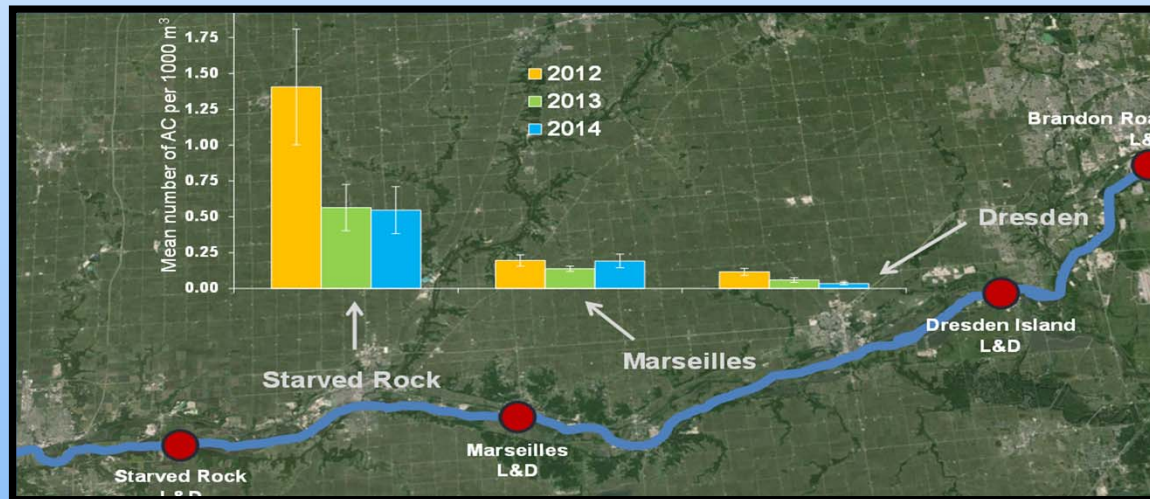
..... Eggs detected



Asian Carp Monitoring

Key observations in 2015:

- AC population reductions of 68% in Dresden Island Pool



- No Bighead/Silver Carp observed from Brandon Road to Lake Michigan



Asian Carp Monitoring

In 2016, continue adaptive management approach:

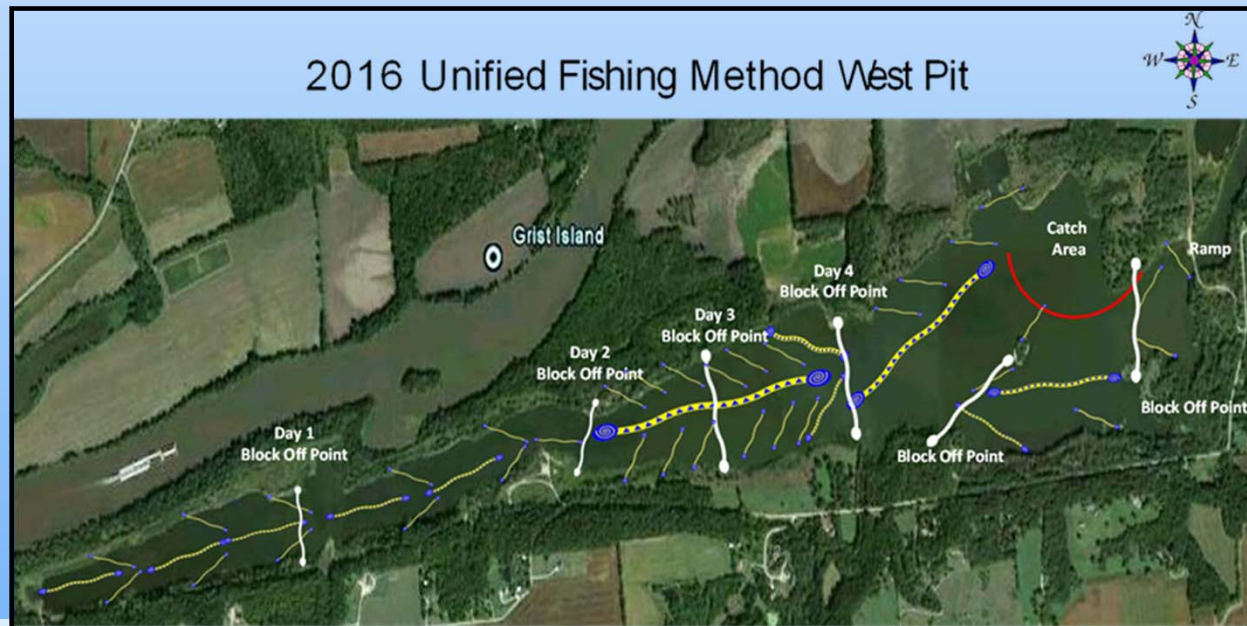
- Target available tools to maximize AC reduction and early-detection capability
 - Intensify/re-focus commercial fishing for removal
 - Focus monitoring on detecting leading edge
 - Develop unified fishing method



Asian Carp Monitoring

March 2016 Unified Fishing Effort

- Removed ~100,000 lbs of Asian Carp during one intensive 2 week fishing effort utilizing new techniques.





Asian Carp Monitoring

2016 Monitoring/Removal Actions:

- Seasonal intensive monitoring above barriers
 - June (Lake Calumet) and September (Chicago River)
- Increased monitoring and removal efforts below barriers
- Increased monitoring at Brandon Road Lock and Dam
- eDNA monitoring



Asian Carp Monitoring

2016 Monitoring/Removal Actions:

- Intensive electrofishing and netting
- Contracted fishing removal
- Deployment of new gears for small Asian Carp
- DIDSON/acoustics-based monitoring
- Contingency response planning



USFWS 2016 Projects

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)• 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 Registration of CO2 and Microparticle Technologies
Outreach	<ul style="list-style-type: none">• Public Outreach/Website



Asian Carp Monitoring

ACRCC's Monitoring and Response for Asian Carp

- Coordinated by Monitoring and Response Work Group
- Guided by annual Monitoring and Response Plan (MRP)
 - 70+ monitoring, removal, and response actions
 - Includes pool-by-pool contingency response plans



Asian Carp Monitoring

ACRCC's Monitoring and Response for Asian Carp

Indicator/level of urgency (Action Response Level)*	Potential Actions	Applicable locations	Responsible Agencies	Estimated time to implement	Regulatory and other Requirements	Relative cost (\$-\$\$\$\$)
Significant Change	Increased Sampling Efforts	All	IDNR/USFWS	1-7 days	Sampling permits	\$\$
	Coordinate/Modify Planned Barrier Outages	LP, BR	USACE	1 day	Coordinate with contractors	\$
	Complex Noise	All	USFWS/IDNR	1-7 days	Unknown	\$\$
	Commercial Contract Netting	All	IDNR	1-7 days	Sampling Permits/Contracts	\$
	Hydroacoustics	All	USFWS/SIU/USGS	1-7 days	None	\$
	Block Nets	All	IDNR	1-7 days	Notice to Navigation	\$\$
	Temporary Flow Control	LP, BR	MWRD	1 day	Notice to Navigation	\$
	Mobile Electric Array (Available Spring 2016)	All	INHS/IDNR	Months	Finalize contracting, construction	\$\$\$
Moderate Change	Increased Sampling Efforts	All	IDNR	1-7 days	Sampling Permits	\$\$
	Coordinate/Modify Planned Barrier Outages	All	USACE	1 day	Coordinate with contractors	\$
	Complex Noise	All	USFWS/IDNR	1-7 days	Unknown	\$\$
	Commercial Contract Netting	All	IDNR	1-7 days	Sampling Permits/Contracts	\$
	Hydroacoustics	All	USFWS	1-7 days	None	\$
	Block Nets	All	IDNR	1-7 days	Notice to Navigation	\$\$
No significant change	Maintain current level of effort	N/A	All	Ongoing	N/A	\$

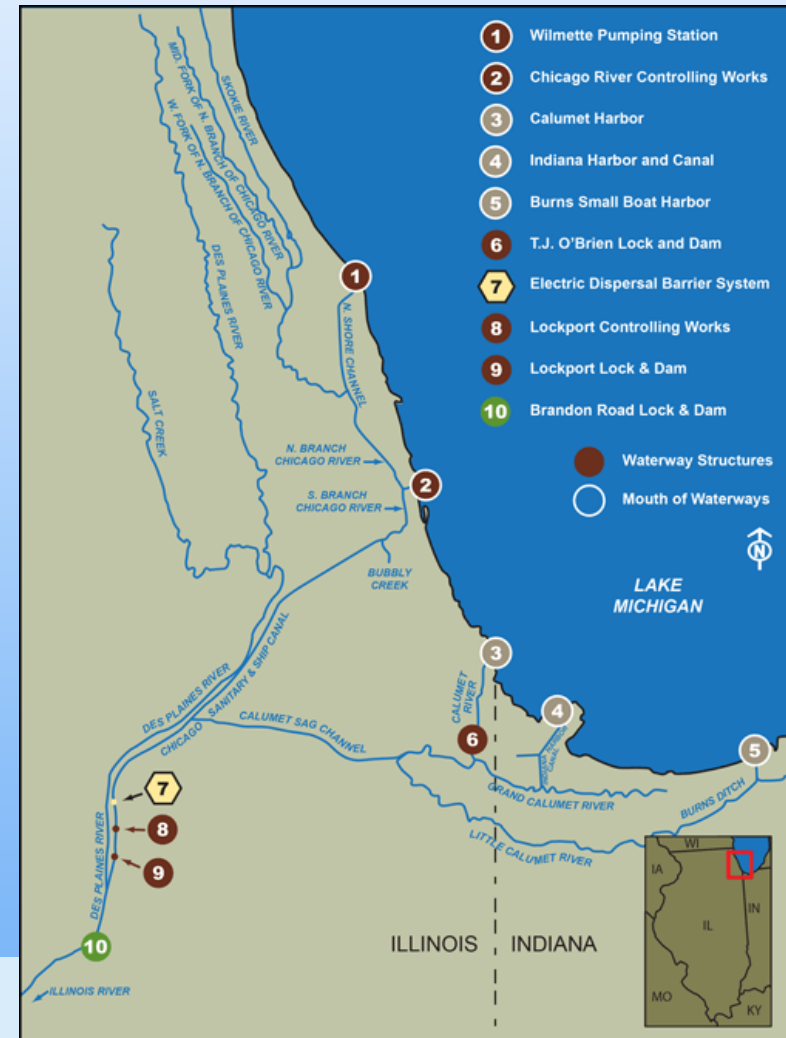
DRAFT SAMPLE RESPONSE MATRIX



USACE 2016 Actions

COL Christopher T. Drew
Commander, Chicago District

26 April 2016





Key USACE Projects in the 2016 Action Plan

- **Pathway Closures and Control Measures**
 - Construction and Operation of Electric Barriers in the CSSC
 - Execution of the Great Lakes and Mississippi River Interbasin Study (GLMRIS)
 - Brandon Road
 - Support to others in the closure of Eagle Marsh and Ohio-Erie Canal
 - Research of Measures to Address Barge Entrainment



- **Detection, Monitoring and Control**
 - Evaluation of the Effectiveness of Carbon Dioxide in a Flowing Environment
 - Support to the Monitoring and Response Workgroup



USGS Asian Carp Technologies Update

Mark Gaikowski

Director,

USGS Upper Midwest Environmental Sciences Center



Control Tools - 2016

Carbon Dioxide (CO₂)

- ▣ Identifying minimum concentrations; continue field tests;
- ▣ Assessing injection systems
- ▣ Collaborating with FWS to complete CO₂ Registration with EPA

Underwater Sound

- ▣ Evaluating where carp are abundant
- ▣ Completing sound mapping at potential application sites
- ▣ Examining high frequency sound
- ▣ Sound barrier workshop – May 17-18, 2016 (USGS, USFWS, UMN-Duluth & St. Paul)

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
 - ▣ Law Enforcement Officer training – Illinois, Michigan and Ohio Departments of Natural Resources, May 3, 2016 – Vickery, Ohio
 - ▣ Initial use to look for Asian carp in bait tanks at bait shops
- ▣ Promising tool to improve AIS and pathogen detection
- ▣ Aid management decisions (prevent, contain, control)

▣ Molecular Toolbox

- ▣ Refine 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

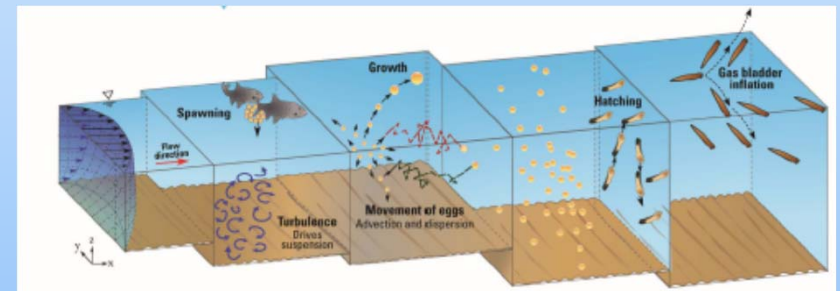
- Using to predict AC spawning locations and egg/larvae survival to assess risk; use data to inform control strategies
 - Applying model to Grass Carp eggs found in 2015

Grass Carp

- Sandusky River
 - Monitoring for proof/location of spawning
 - Detect and model risk of recruitment
- Initiate mapping of submersed aquatic vegetation
- Use of triploids to identify possible concentrations of GC

Black Carp

- Continue working partners to process wild BC to 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

IPM Support

- Coordinating telemetry database to inform management and removal efforts
- Deploying more automated telemetry receivers to help track carp movement

Barge Entrainment

- Initiate hydraulic modeling to assess movement of eggs and larvae and the potential of barge entrainment
- Initiate lab studies with FWS





2016 Funding Summary and Closing

Cameron Davis

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

GLRI Asian Carp Funding by Agency: 2010 - 2016

Agency	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
USGS	\$4,643,000	\$4,673,934	\$2,055,100	\$1,625,000	\$3,523,232	\$3,935,500	\$5,240,000
USACE	\$14,040,000	\$7,481,680	\$5,868,000	\$3,600,000	\$1,830,740	\$3,916,500	\$2,594,000
USEPA	\$400,000	\$400,529	\$373,583	\$340,000	\$0	\$0	\$1,713,000
USCG	\$500,000	\$380,000	\$360,000	\$0	\$0	\$0	\$209,000
USFWS	\$1,410,000	\$5,080,444	\$3,610,000	\$3,580,000	\$4,918,028	\$4,024,000	\$3,260,000
NOAA	\$0	\$1,166,169	\$785,617	\$292,800	\$0	\$0	\$0
States	\$4,000,000	\$5,718,000	\$6,337,417	\$5,373,000	\$5,728,000	\$4,124,000	\$4,522,000
USDA-NRCS	\$0	\$0	\$0	\$1,200,000	\$0	\$0	\$0
Total cost	\$24,993,000	\$24,900,756	\$19,389,717	\$16,010,800	\$16,000,000	\$16,000,000	\$17,538,000

Asian Carp Agency Funding: 2010 - 2016

Agency	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
USGS	\$692,000	\$552,000	\$3,052,000	\$5,617,000	\$3,264,942	\$5,260,229	\$5,228,000
USACE	\$25,095,000	\$13,372,000	\$27,065,000	\$27,500,000	\$39,000,000	\$50,200,000	\$29,000,000
USEPA	\$0	\$0	\$0	\$0	\$0	\$0	\$0
USCG Guard	\$0	\$0	\$98,000	\$0	\$0	\$5,600	\$7,600
USFWS	\$320,000	\$320,000	\$2,000,000	\$2,900,000	\$2,790,094	\$2,797,088	\$5,300,000
NOAA	\$497,846	\$497,122	\$60,000	\$684,680	\$0	\$0	\$152,128
States	\$0	\$0	---	\$0	\$0	\$0	\$150,000
USDA-NRCS	\$0	\$0	---	\$0	\$0	\$0	\$0
Total cost	\$26,604,846	\$14,741,122	\$32,275,000	\$36,701,680	\$45,055,036	\$58,262,917	\$40,197,728



Total Asian Carp Funding: 2010-2016





ACRCC Points of Contact

- **Cameron Davis**, Co-Chair of the ACRCC and Senior Advisor to the Administrator, USEPA
(Davis.Cameron@epamail.epa.gov)
- **Mike Weimer**, Co-Chair of the ACRCC, USFWS
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- **Charles Wooley**, Deputy Regional Director for the Midwest Region, USFWS (Charles_Wooley@fws.gov)
- **Col. Christopher Drew**, Commander of the USACE, Chicago District (Christopher.t.drew@usace.army.mil)
- **Mark Gaikowski**, Director, Upper Midwest Environmental Sciences Center, USGS
(mgaikowski@usgs.gov)



THANK YOU



For more information

Please visit www.asiancarp.us

ACRCC



Insights from long-term monitoring: Asian carp and fish communities within the Illinois River

R. Pendleton¹, L. Solomon¹, B. Ickes², and A. Casper¹

¹Illinois River Biological Station, Illinois Natural History Survey, Prairie Research Institute, University of Illinois

²Upper Midwest Environmental Sciences Center, U.S. Geological Survey

Strata	Pre-Asian carp (1993-1999)	Post-Asian carp (2000-2013)
Reach-wide		
Main Channel		
Side Channels		
Connected Backwaters		

Table 1. Top twenty-two species identified as contributing most to the significant differences observed between pre- and post-establishment communities. Species shown indicate those that were numerical more abundant pre- or post-establishment of Asian carp



Insights from long-term monitoring: Asian carp and fish communities within the Illinois River

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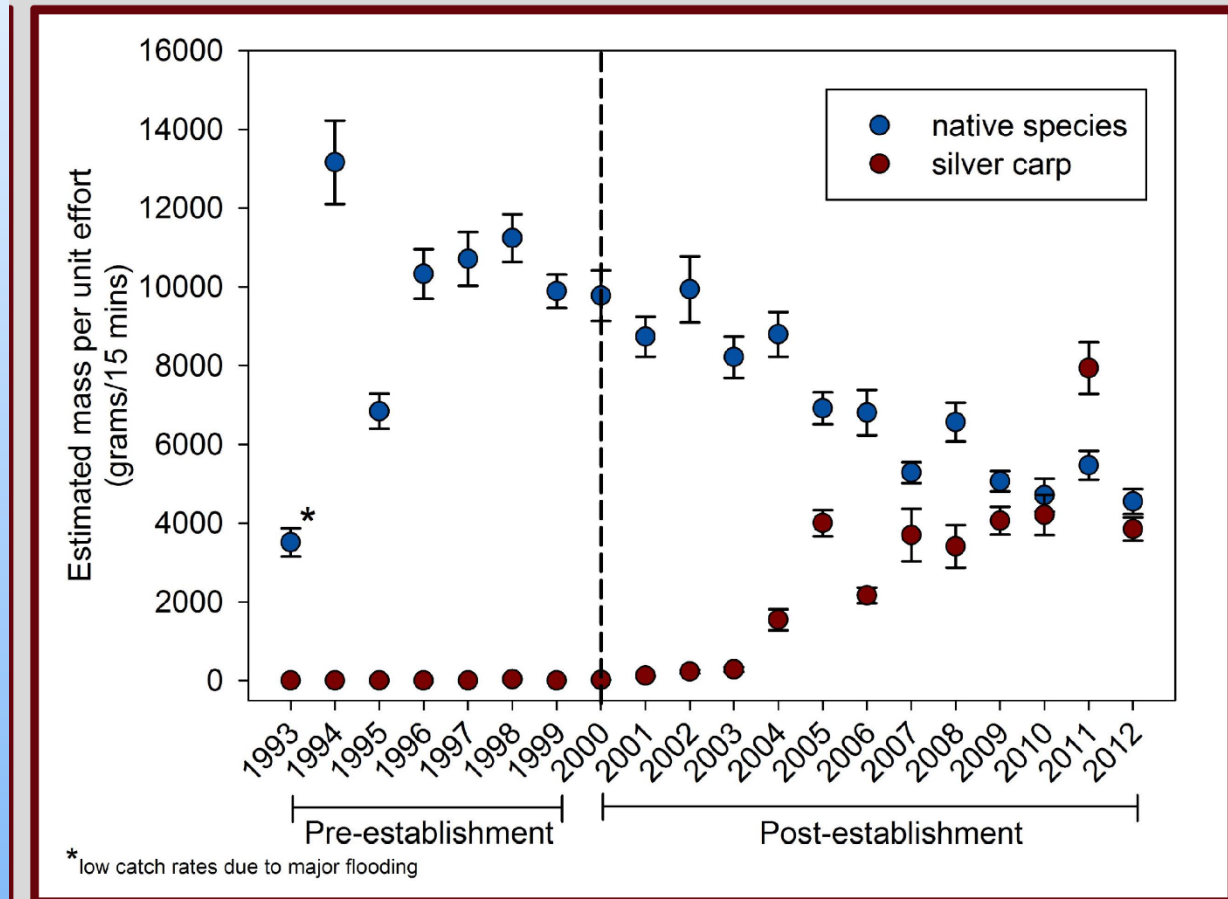


Fig 2. Estimated biomass of native species and silver carp via day electrofishing in the La Grange Reach