

Multi-jurisdictional Approach to Asian carp in the Upper Illinois River and Chicago Area Waterway System

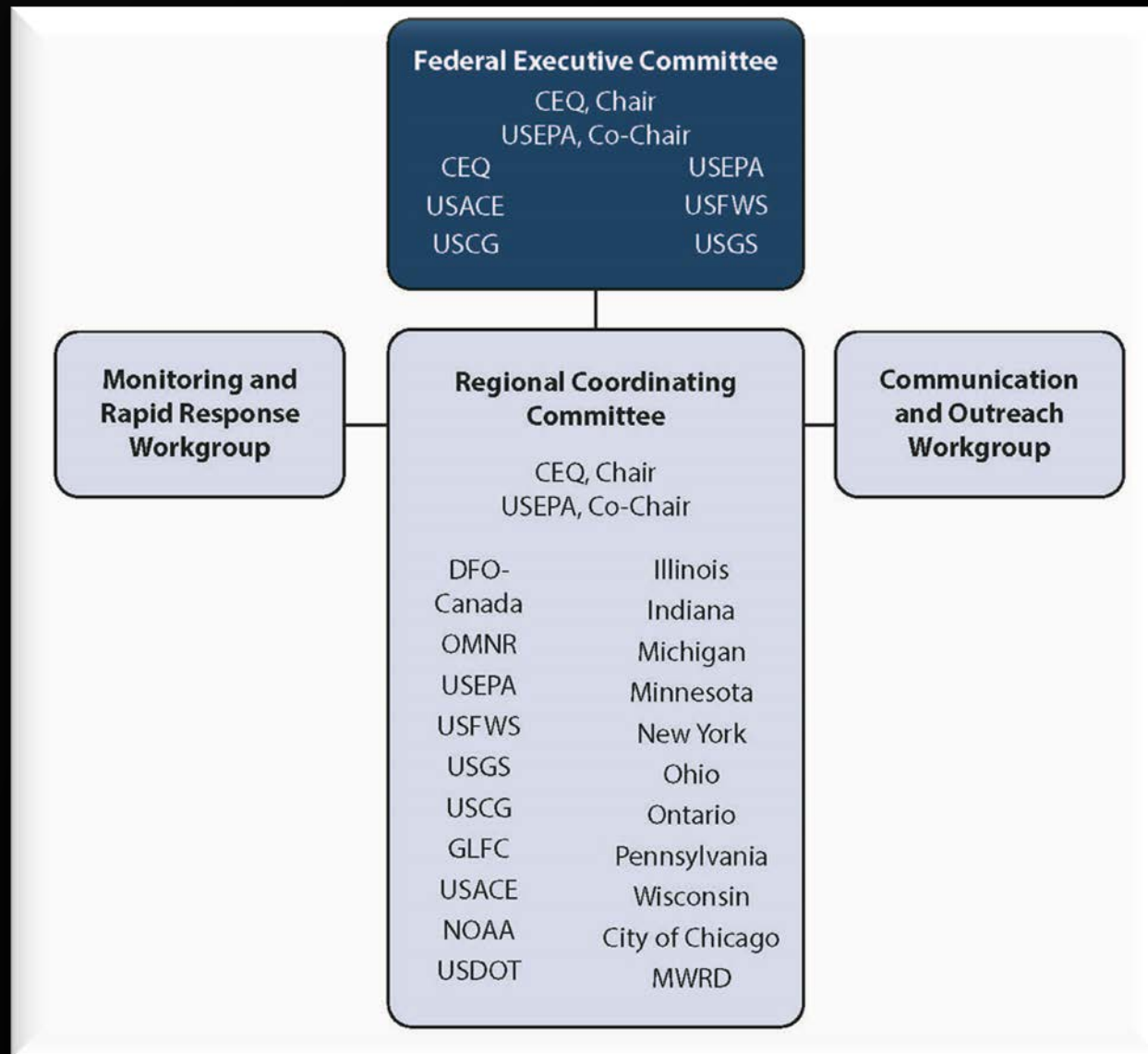
14th Biennial Governor's Conference on the Management of the
Illinois River System

October 3, 2013





ACRCC Organizational Structure



ACRCC Organizational Structure



Many more projects outlined in the Asian carp management Framework Funded under the Great Lakes Restoration Initiative, but I will focus on our Monitoring and Rapid Response Workgroup – Monitoring and Response Plan Work

Many agencies have work focusing on their areas that also benefit these efforts, Much of these efforts shared today in the Asian carp sessions.

Federal and Regional Partners

U. S. Fish and Wildlife Service

- Carterville, IL
- Lacrosse, WI
- Columbia, MO

U. S. Army Corps of Engineers

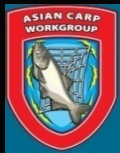
- Chicago District
- Rock Island District

U. S. Coast Guard

U. S. Environmental Protection Agency

U. S. Geological Survey

Great Lakes Fishery Commission



State and Local Partners

Illinois Department of Natural Resources

Illinois Natural History Survey

Illinois Environmental Protection Agency

University of Illinois

Southern Illinois University

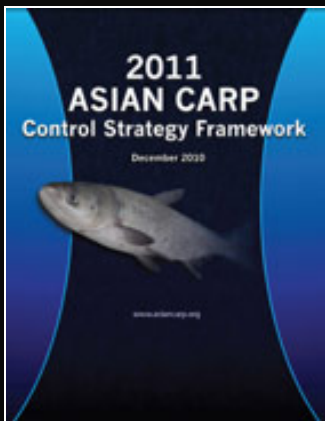
Western Illinois University

University of Notre Dame

Metropolitan Water Reclamation District



Add all Great Lakes States, Tribes, Provinces, and DFO Canada



www.asiancarp.us



Asian Carp Regional Coordinating Committee
Monitoring and Rapid Response Workgroup

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

May 2012



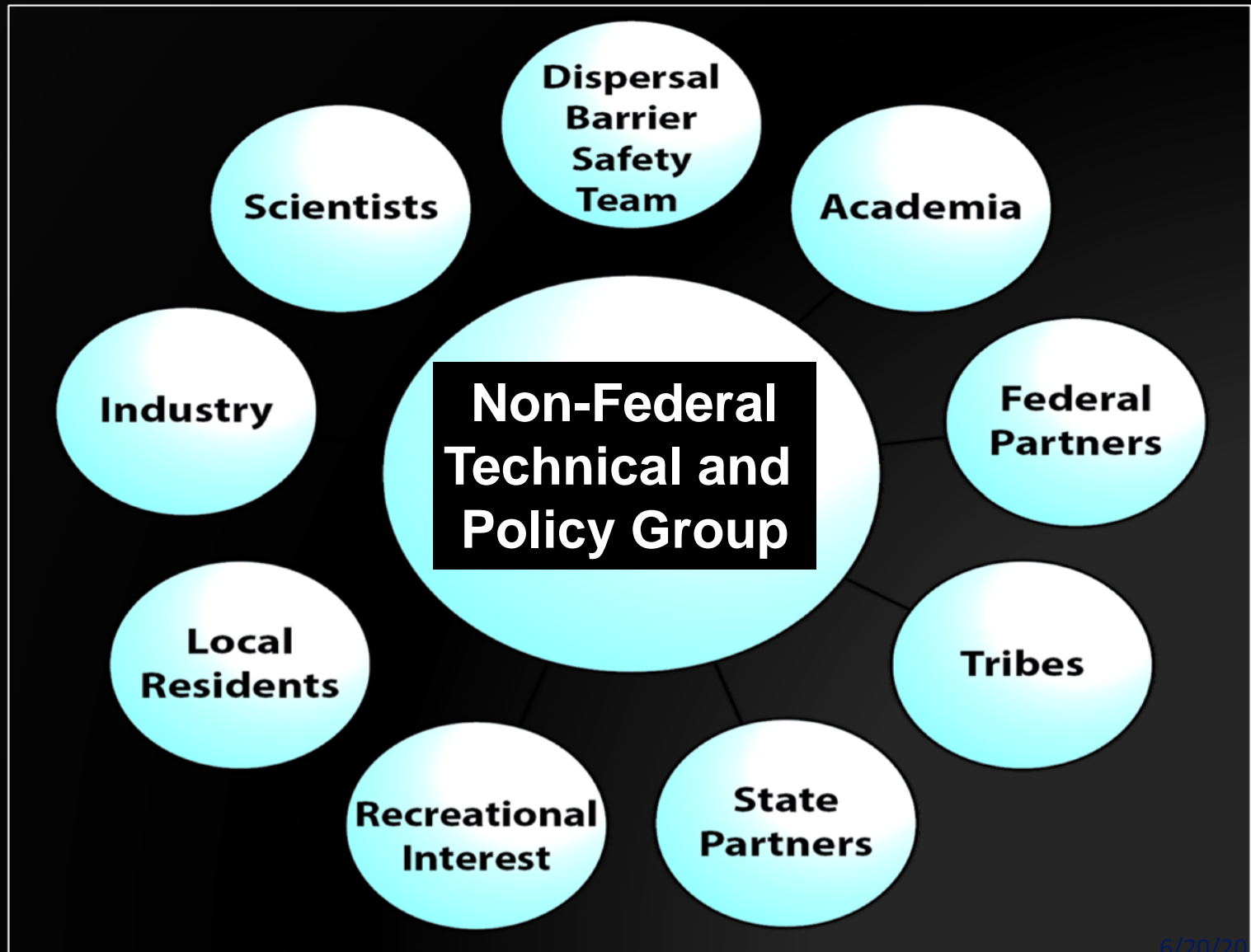
Asian Carp
Regional
Coordinating
Committee



Monitoring
and Rapid
Response
Work Group



ACRCC Stakeholder Coordination (45 regular participants)



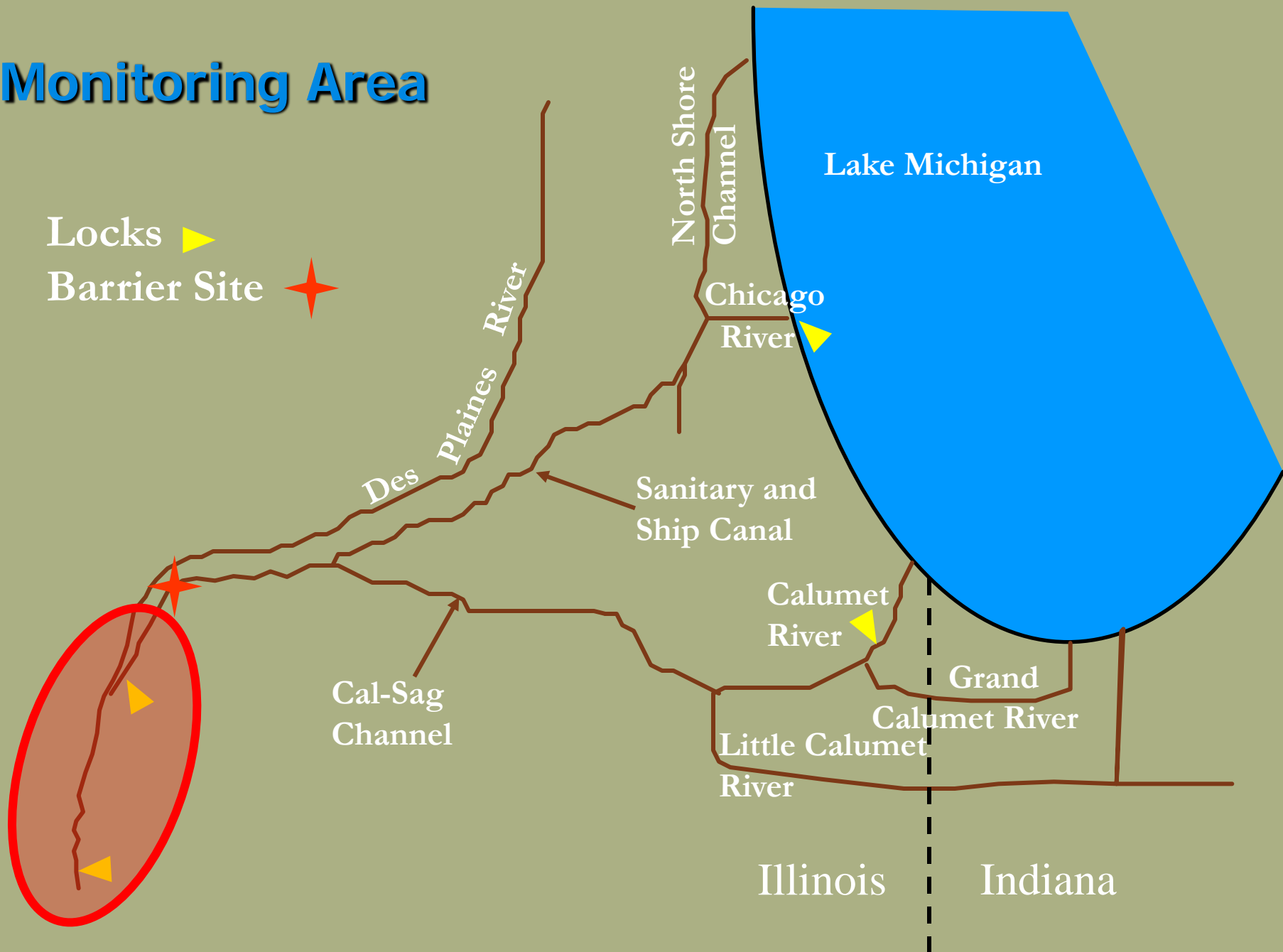
Response Plan - Monitoring

- IL DNR, MWRD, USFWS, Chicago Corps
- Monitor for presence of Asian carp
- Document upstream advance
- Four sites; monthly samples
- 1 site in Lockport Pool (Barrier Pool)
- 3 sites in Brandon Road Pool (Downstream)
- Mini Fyke & Trammel nets
- Electrofishing

Monitoring Area

Locks 

Barrier Site 



Multi-agency planning team

- Army Corps (Rock Island & Chicago)
- US Coast Guard
- IL River Carriers
- Chicago Water Reclamation District
- US EPA
- US Fish & Wildlife Svc.
- US Geological Survey
- USGS – Biological Resources Division
- IL DNR - Fisheries
- IL DNR-Office of Water Resources
- IL EPA
- IL Lt. Gov.
- WI & IL-IN Sea Grants
- Great Lakes Fishery C.
- Int’l. Joint Commission
- Midwest Generation
- City of Chicago

Response Plan - Trigger

- If Asian carp are found in Lockport Pool
- Intensive sampling to confirm abundance
- Take action if abundant
- Small fish of particular concern
- Large fish will likely be stopped by Barrier I
- Adults spawning in the canal = unlikely

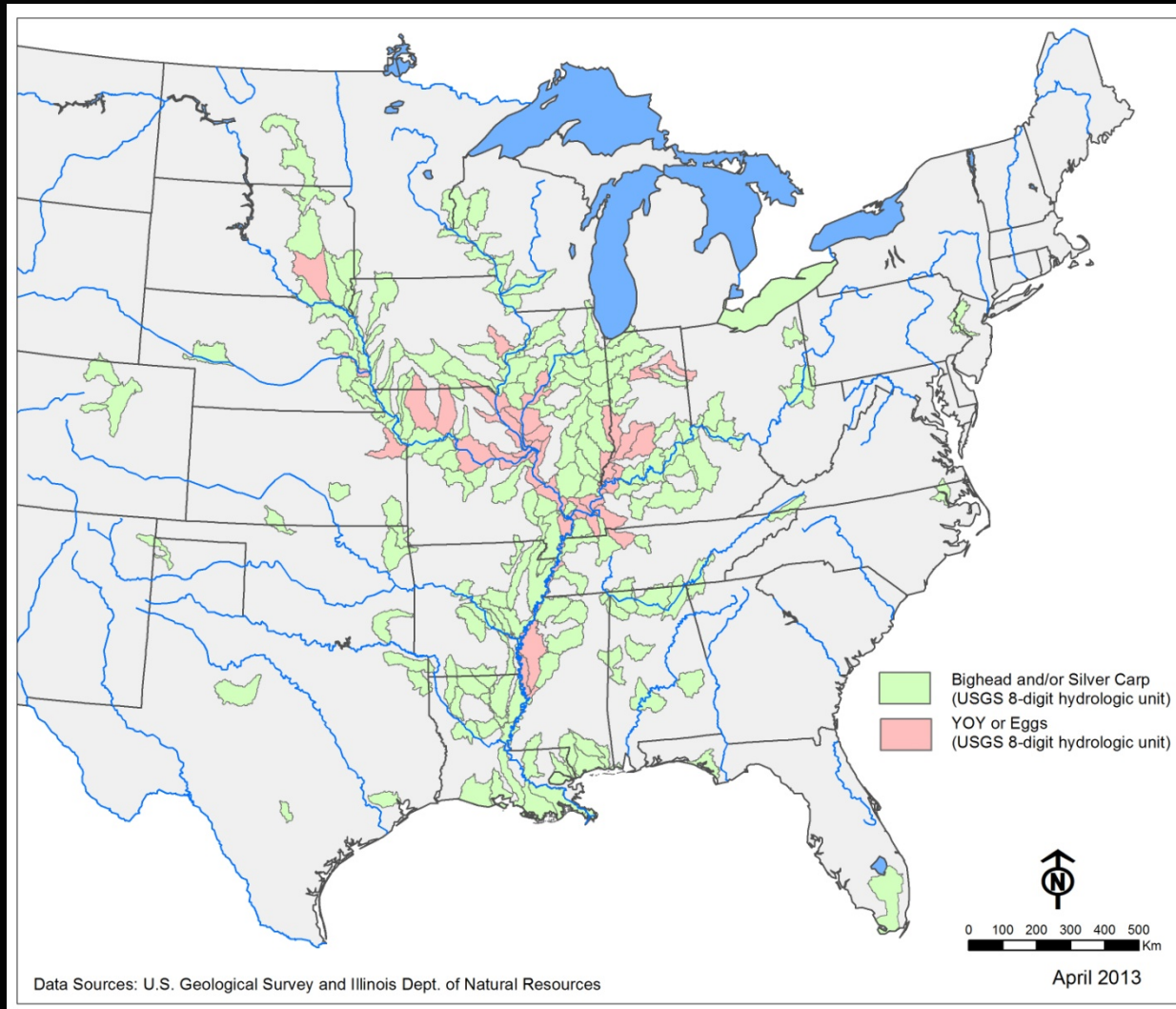
This Barrier Panel led efforts for ~ 7 years, poorly funded but directed science until ACRCC by building on collaboration and sharing of knowledge and expertise



2009/1

December 2009, nearly 450 people
Bi-national, multiple states, expertise, ICS to manage for ANS

Rotenone due to planned barrier maintenance, collected one bighead carp (none since)



What we are finding plus input from a total of 81 respondents from 22 states

Annual Summary Reports

<http://asiancarp.us/documents/MRRPInterimSummaryReports.pdf>

- 216 pages of results from 18 projects in the 2011 MRRP

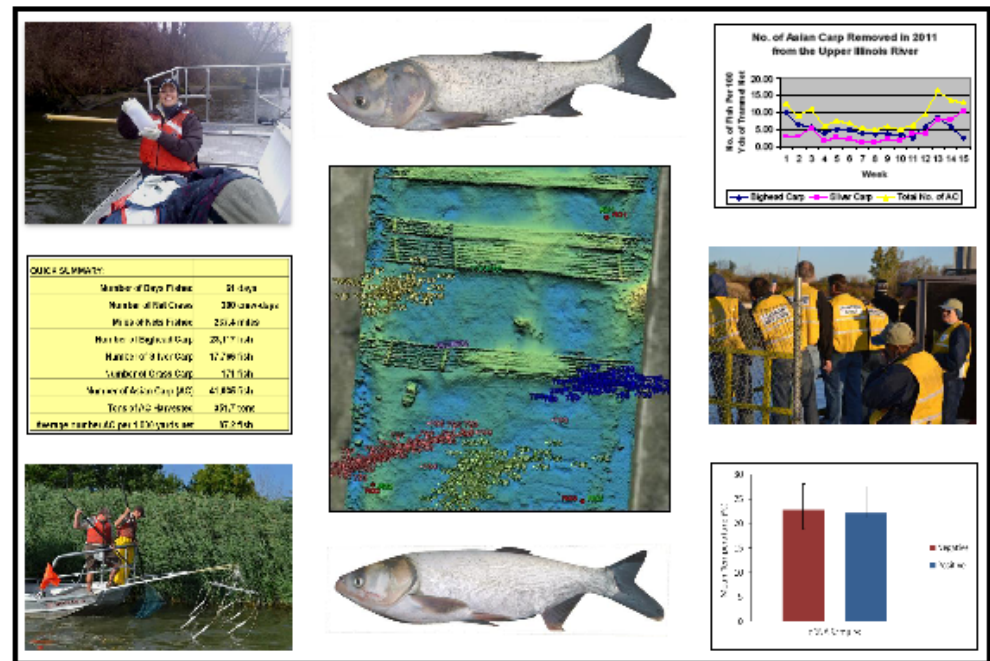
- Results from 2010 and 2011 for many projects



Asian Carp Regional Coordinating Committee
Monitoring and Rapid Response Workgroup

2011 Asian Carp Monitoring and Rapid Response Plan Interim Summary Reports

April 2012



Annual Monitoring Plan

<http://asiancarp.us>

- 129 pages, 18 project plans
- Guiding monitoring and removal operations
- **21 Projects in 2013**



Asian Carp Regional Coordinating Committee
Monitoring and Rapid Response Workgroup

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

May 2012



Projects for 2012

Asian Carp Presence and Abundance Monitoring

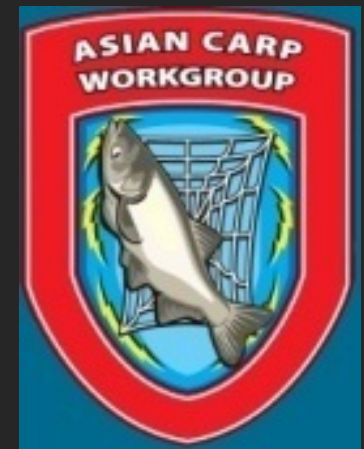
- Electrofishing and Netting Upstream and Downstream of the Barrier
- eDNA sampling
- Juvenile and Larval Asian Carp Monitoring
- Distribution and Movement of Small Asian Carp
- Monitoring for Bighead Carp in Urban Fishing Ponds
- Rapid Response Actions

Applied Research and Gear Development

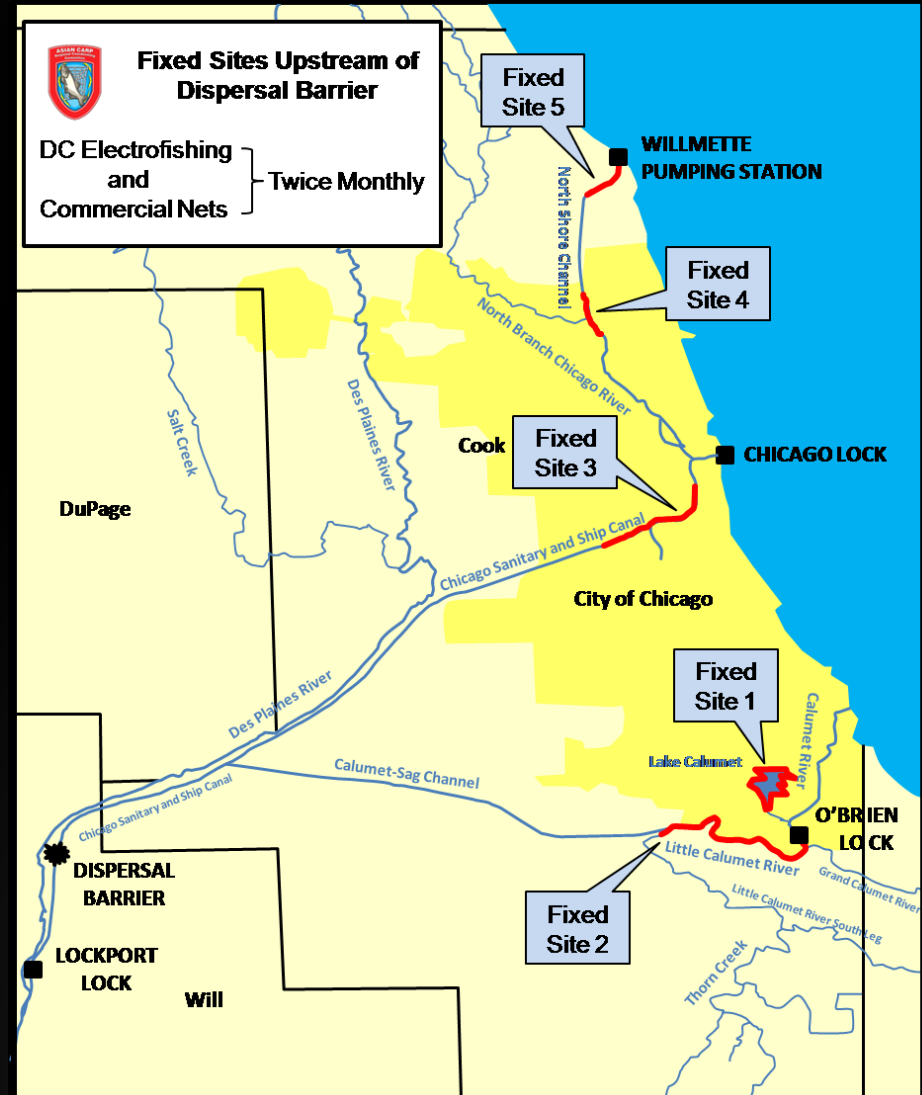
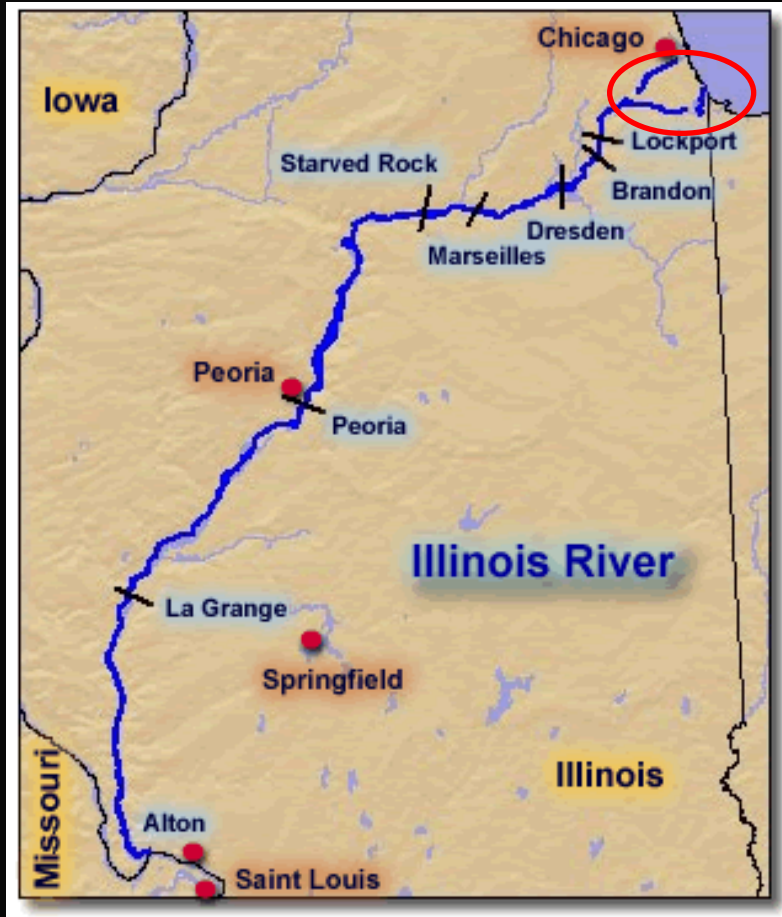
- Asian Carp Gear Efficiency Testing
- Asian Carp Gear Development
- Monitoring Asian Carp Population Metrics and Control Efforts
- Water Gun Development

Electric Barrier Support and Evaluation

- Barrier Defense
- Near Barrier Telemetry
- Fish Behavior at the Barrier
- Des Plaines Separation Barrier Monitoring
- Barrier Maintenance Fish Suppression



CAWS Sampling

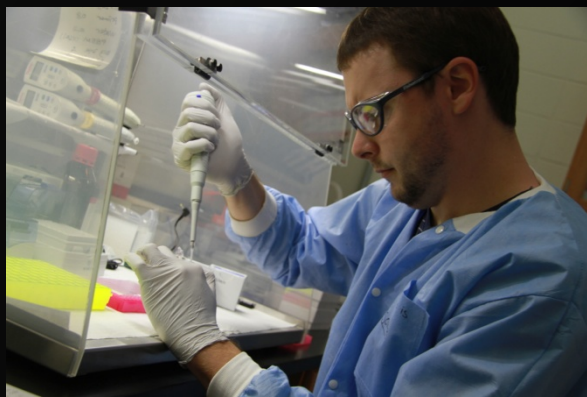


Fixed and Random Site Monitoring Upstream of the Dispersal Barrier - IDNR

- 9,600 person-hours sampling at fixed sites upstream of the Barrier in 2010-2012
- 3,713 person-hours at fixed sites, 3,805 person-hours at random sites in 2012
- 533 hours EF and 165.9 miles of nets at fixed sites in 2010-2012 and random sites in 2012
- 192 hours EF and 81.7 miles of nets in 2012
- 192,763 fish representing 67 species plus 2 hybrids in 2010-2012 and random sites in 2012
- 99,234 fish representing 63 species plus 2 hybrids in 2012
- **No Bighead or Silver Carp captured or observed**
- **Recommended reduction in monitoring above barrier in 2013**



environmental DNA

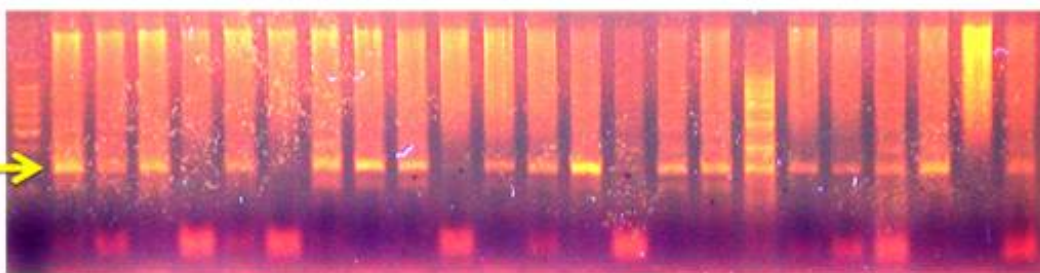


Replicates
from Site 1

Replicates
from Site 2

Replicates
from Site 3

Silver
carp →



Response Actions in the CAWS - IDNR

- **FALL 1012**

- Completed 5 response actions (3 triggered by eDNA monitoring results) in the CAWS

- 1,630 person-hours spent to complete 59 hours of electrofishing, 18.4 miles of nets, 3-800-yard long commercial seine hauls, 2 tandem trap nets, 10 hoop nets and 2 Great Lake pound nets equal to 30.3 net-days of effort

- Collected 29,818 fish representing 53 species plus 2 hybrids

- **No Bighead or Silver carp were captured or observed during response actions**



July 2012 Lake Calumet Rapid Response

approximately 500 acres



4 Contracted commercial Fishing crews

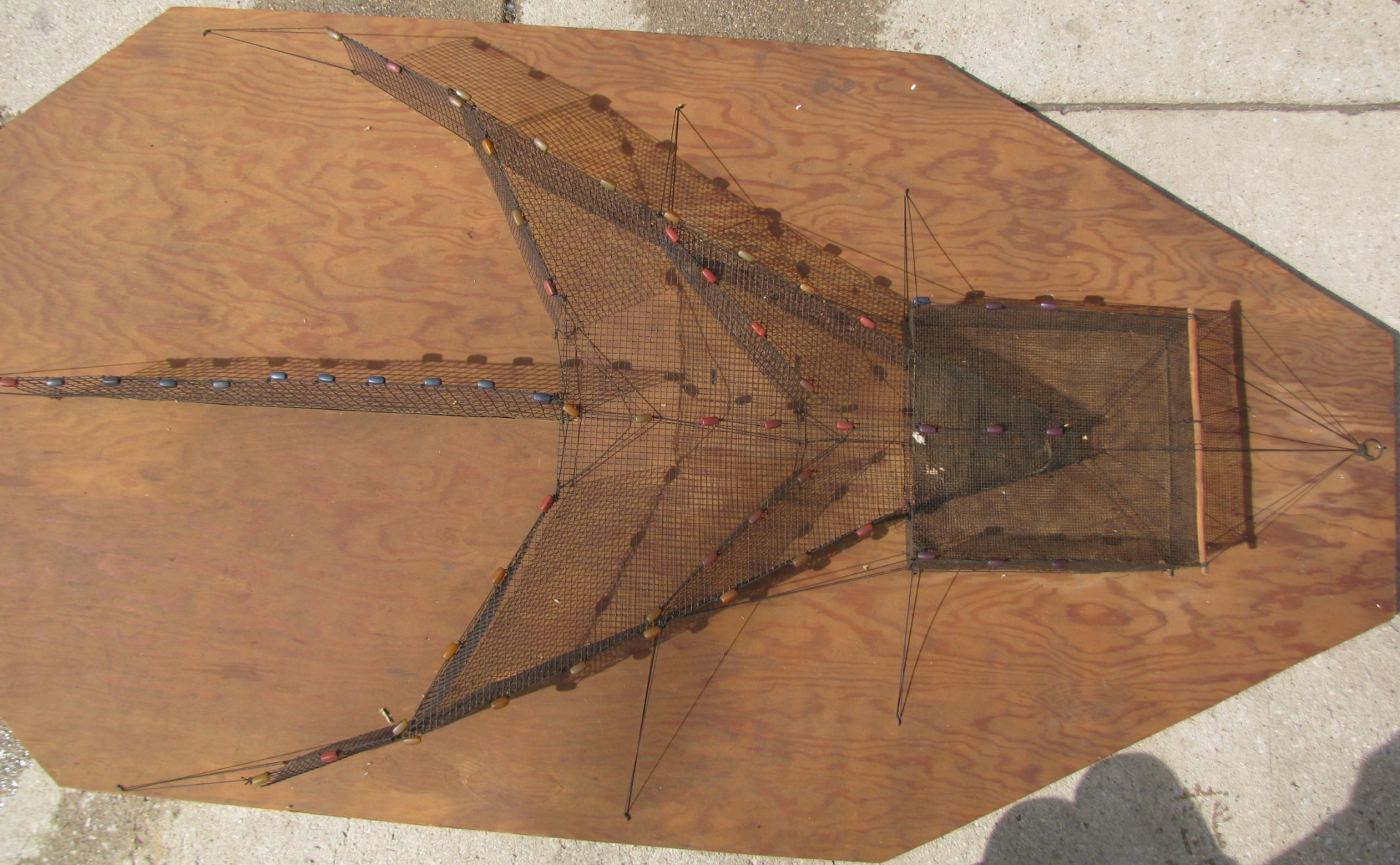
- fish fixed sites and target areas throughout the remaining area
- Including 3 commercial seine hauls and fixed site sampling
- Pound nets will stay in place 2 wks or longer.
- Over 4,000 fish collected, ~30 species....
- **NO Bighead or Silver carp**

July 2012 Lake Calumet Rapid Response



Large Great Lakes Pound nets have been developed by ACRCC Gear Development Group led by IDNR

These surface to bottom traps can be fished for extended times and extended across large areas, such as mouth of Lake Calumet



Barrier Maintenance Fish Suppression – closure of waterway ICS -----*(IDNR , USFWS, USCG, USACE, MWRD, USGS)

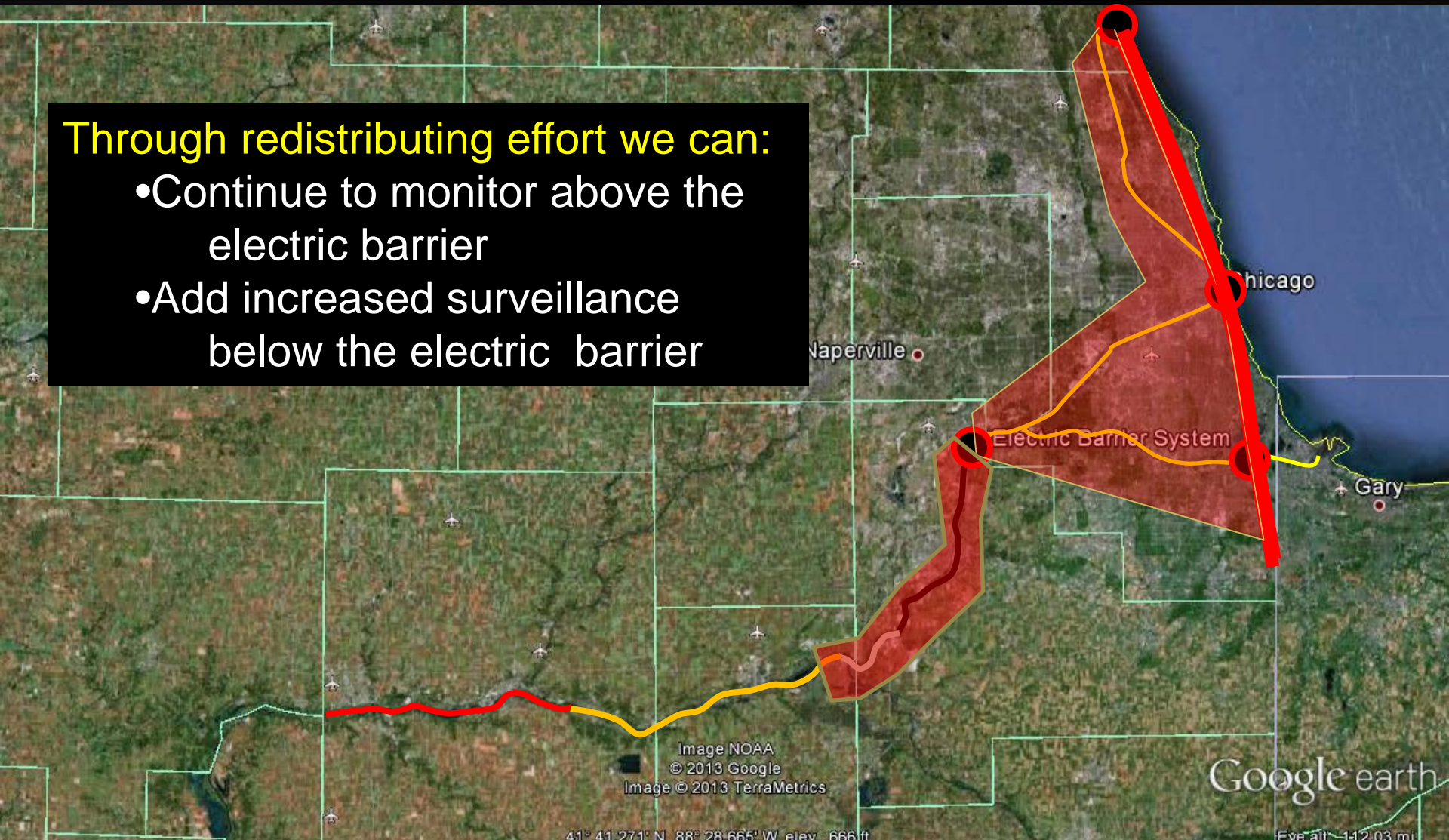
- Multiple agencies and stakeholders cooperated in successfully removing fish between Barrier 2A and 2B for necessary barrier maintenance on 3 separate operations.(May 12th, June 21st and November 14th in 2012)
- A total of 100 fish were removed with 13 fish > 12 inches in length by USGS hydroguns, surface and deep-water DC electro-fishing and 30 foot deep gill netting.
- A total of 6 hours of Split-beam hydroacoustics, side-scan sonar, and DIDSON imaging sonar were used to assess the success of the fish clearing operation by surveying the area in and near the barrier.
- **No Asian carp were captured or observed during fish suppression operations**

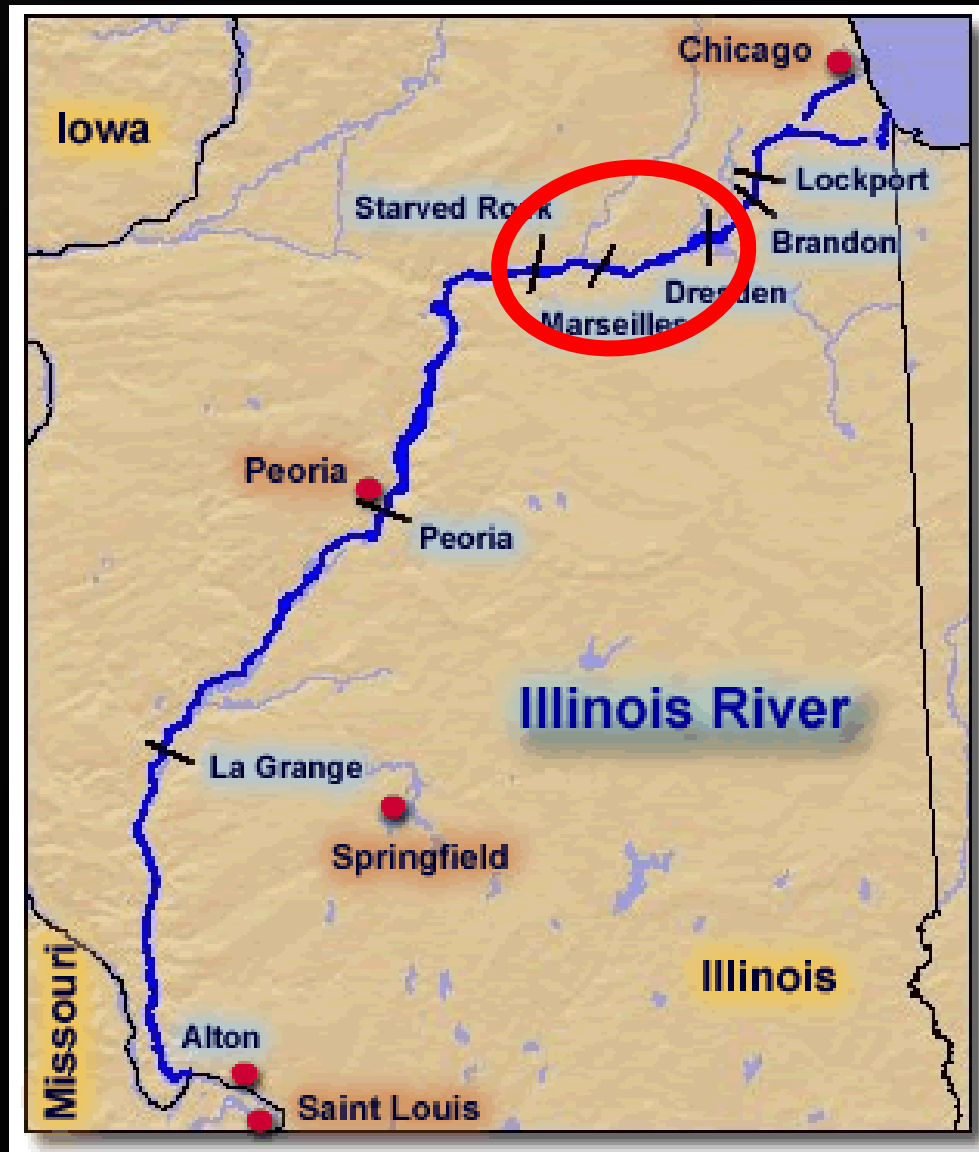


General recommendation regarding sampling, above and below barrier in 2013

Through redistributing effort we can:

- Continue to monitor above the electric barrier
- Add increased surveillance below the electric barrier





Barrier Defense Asian Carp Removal Project – IDNR

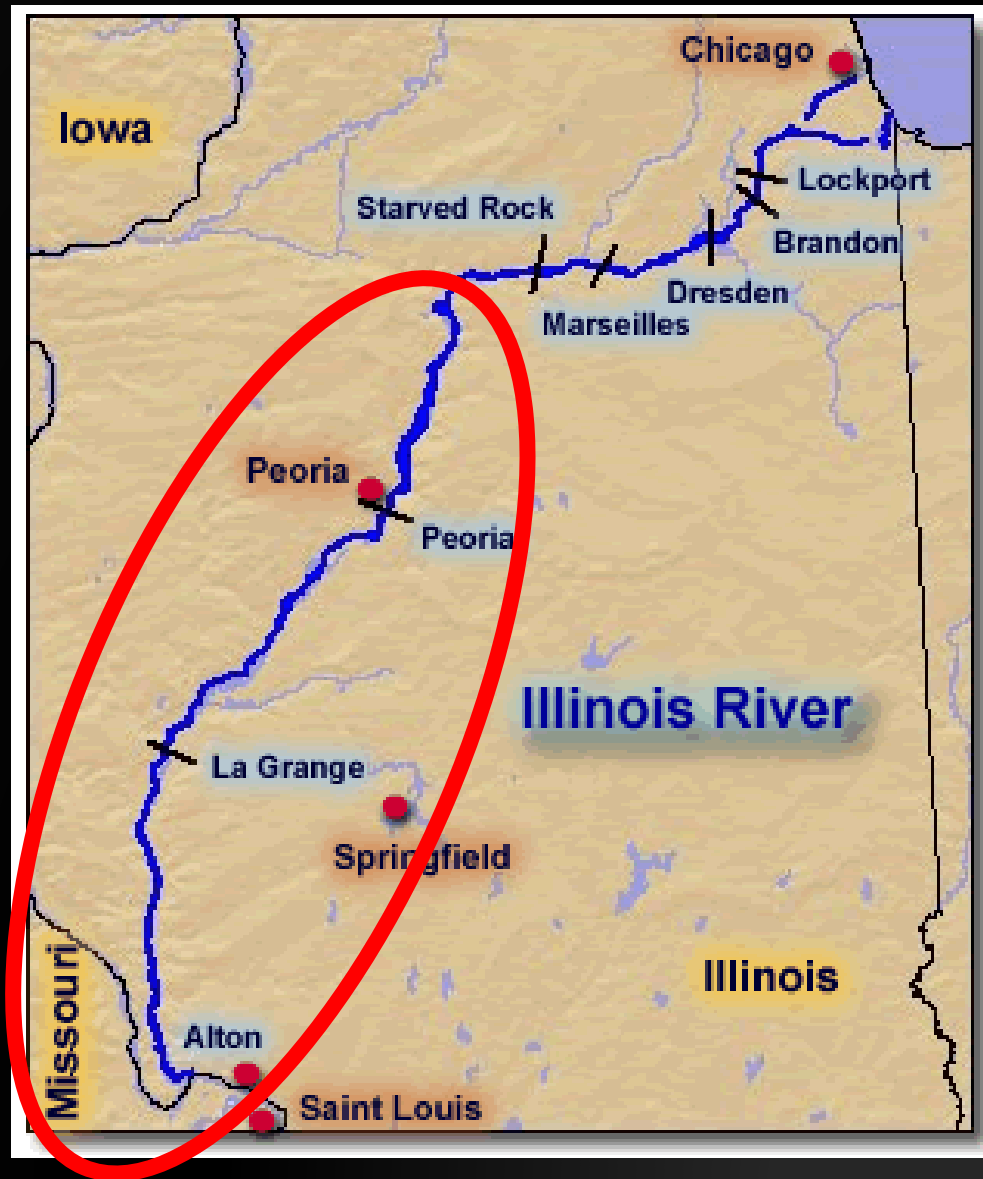
- 643.3 miles of nets deployed in the upper Illinois Waterway from 2010- 2012
- 44,658 BHC, 47,474 SCP, and 496 GRC removed
- **698.72 tons of AC have been removed**
(62.41 tons in 2010, 351.78 tons in 2011 and 284.53 tons in 2012)

2012 Highlights

- 293.2 miles of nets deployed in 871 nets sets in Dresden, Marseilles, and Starved Rock
- 16,560 BHC, 28,8632 SCP, and 309 GRC removed
- 284.53 tons of Asian Carp were removed in 2012

UPDATE: To date (Oct 2013, nearly 2 million lbs removed)





Illinois River

Items came from a 2010 Marketing summit

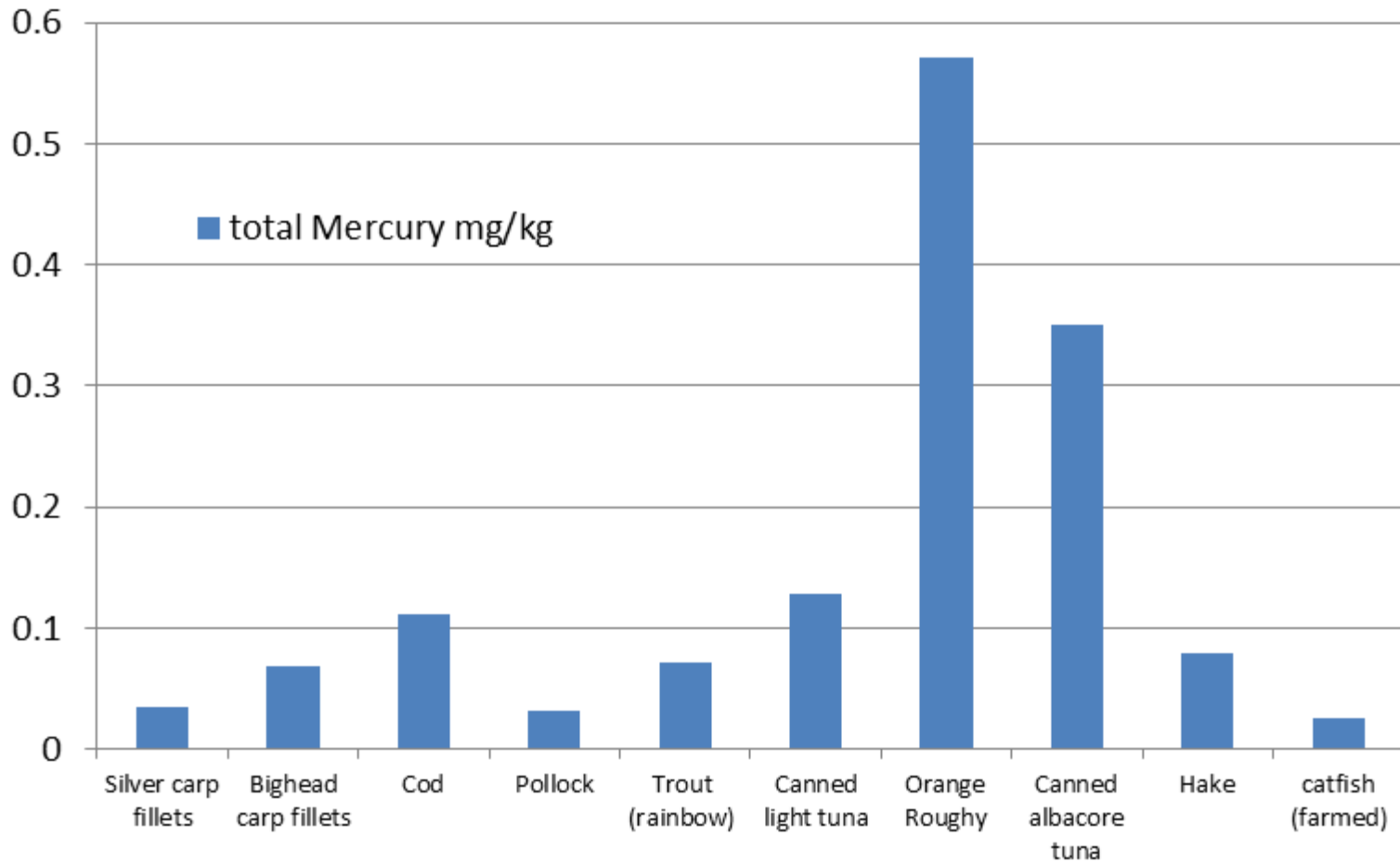
Commercial harvest Incentives Market development



<http://agricultureguide.org/fishmeal-plants/>

http://www.bombayharbor.com/Product/10959/The_Fish_Meal.html

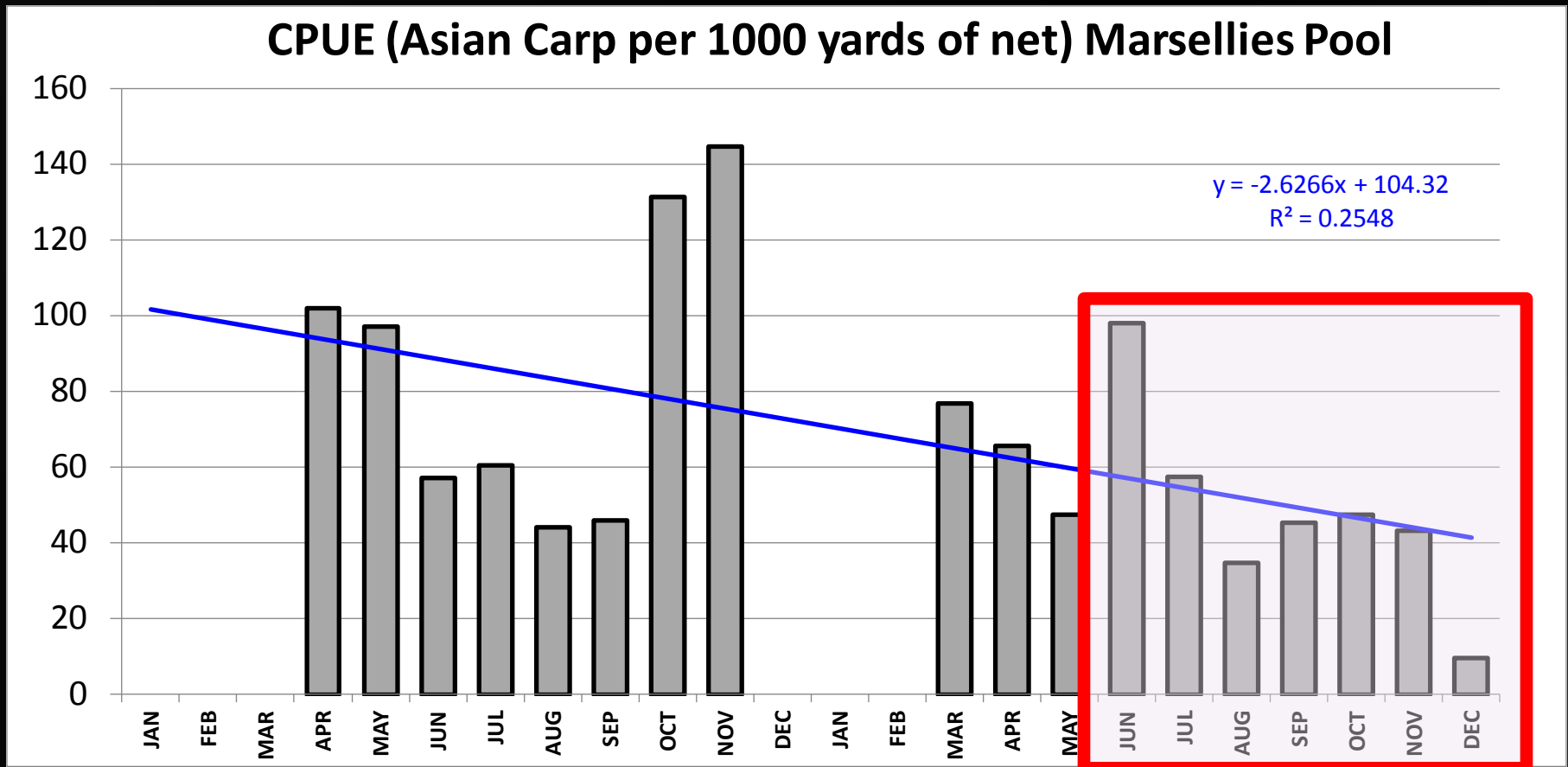




Contaminant and Nutrition

Is this effort working?

Commercial Fishing for Removal (barrier defense)



**Using multiple techniques to gage success, Communication is high
Between crews thus having search and destroy operations between
Researchers and contracted fishers. Challenge to assessments.**

Monitoring Asian Carp Population Metrics and Control Efforts – SIUC

3 million lbs of Asian carp were harvested from the lower three reaches of the Illinois River (Fishing experiment, Meal)

Changes

- population size structure
- relative abundance
- sex ratios

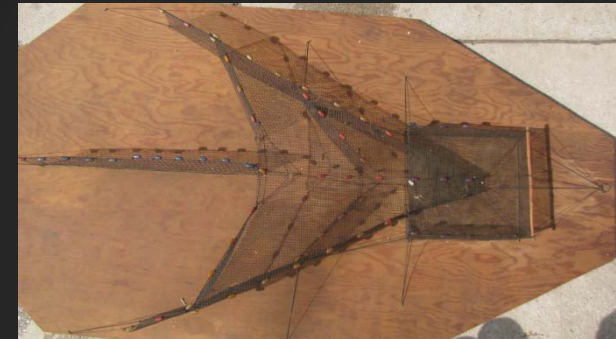


Additional information from Mark-Recapture studies



Evaluation of new gears - INHS

- **No Asian carp were captured in the Great Lakes trap net in Lake Calumet over 107 net-days**
- The Great Lakes trap nets were highly effective at capturing Asian carp in the Material Services pit (Marseilles Pool) over 70 net-days
- Over 40 comparisons, surface-to-bottom gill nets caught more Asian carp than traditional gill nets per 4-hour set, whereas surface-to-bottom gill nets had similar catch rates to large mesh sinking gill nets per unit area of net
- Standard small (1.2 m diameter) hoop nets caught more Asian carp than large (2 m) hoop nets per net night
- Spreading soybean meal on the surface of the water did not attract Asian carp to feed



Integrated - Pest Management OR Integrated Pest – Management ?



Water Gun + Food Lure + Commercial Fishers + Pound Nets + Hydroacoustics USGS/IDNR/INHS/SIU (summer 2013)



Alternate Pathway Surveillance in Illinois – Urban Pond Monitoring - IDNR

- Sampled 19 ponds with electrofishing and trammel/gill nets during 2012
- 727 person-hours spent to complete 30 hours of electrofishing and 6.2 miles of nets
- Collected 9,103 fish representing 29 species plus 2 hybrids
- 6 Bighead carp were removed from three ponds (Garfield Park, Humboldt Park, Joe's Pond)
- 2013 surveillance hits new ponds and resample others

*** 3 on exhibit at the
John G. Shedd Aquarium ***



Investigations of a Chemical Barrier to Deter Asian Carp – University of IL

- Experiments at Osage Beach, MO, to quantify the impacts of CO₂ exposure on the stress response of larval silver carp and bighead carp
- Experiments at UMESC to quantify the impacts of CO₂ exposure on the behavior and stress response of fingerling silver carp and bighead carp. Preliminary analyses indicate that fingerling Asian carp will actively avoid water with CO₂
- Experiments to assess the impacts of short-term exposure on largemouth bass and bluegill
- Discussions ongoing between U of I and UMESC about field experiments to quantify movement and activity of free-swimming carp in a pond following exposure to CO₂

- **Discussions between U of I and various state and federal agencies (e.g., EPA) about permitting and permission issues related to large-scale field deployments of CO₂ barriers**



Alternate Pathway Surveillance in Illinois – Law Enforcement – IDNR

- Invasive species law enforcement unit was formed
- ISU logged 1,035 hours investigating invasive species issues
- ISU gained much intelligence from Chinatown operation
- Conducted a joint investigation with USFWS in which several charges and penalties were given to a fish hauler
- A multi-agency Asian carp task force was formed to share intelligence, information and plan future operations



While both Bighead and Silver Carp (Asian carp) are listed under the Lacey Act as illegal to transport alive, many local communities and/or markets have a desire to acquire Asian carp for consumption. If fish are alive, there is a risk of unintentional or intentional release into the wild according to proximity to local water bodies, ethnic customs or traditions, or purposeful releases. IL DNR has increased officer presence, friendly enforcement activities, and communications related to Asian carp. Since 2005 when a ban on live bighead and silver carp went into effect in Illinois, the Department has communicated with local management and regulatory entities such as the City of Chicago, Department of the Environment as well as industry representatives of the live fish market and suppliers. This has proved successful in promoting open dialogue between store owners, the public, and enforcement officials.



Recently, multiple, and repeated attempts in transportation of live Bighead and Silver Carp into Ontario Canada from the US has heightened concern of these species to be found alive in Northeast Illinois area fish markets. The desire for this fish stems from cultural familiarity with Asian carp in areas such as China and other areas around the world. These Asian carp are some of the most cultured fish in the world and can be found in food markets widely as well. Until the Lacey Act listed these as injurious, Toronto Ontario Canada had a live market estimated at \$5 million for Bighead Carp alone. Highly sought after for its food value, the head makes a high quality fish soup base.



In April 2012, IL DNR law enforcement and biologists visited live fish markets across Northeast Illinois (Chicago-land) to follow up on tips from concerned citizens regarding the sale of protected species of aquatic life and the sale of endangered and/or invasive species. Transportation and source of these species is also a concern. IL DNR law enforcement routinely inspects facilities such as these every few years to maintain vigilance in this matter.

Over two days 32 businesses were visited in the Chicago-land area. Several had minor permit violations for not having an Aquatic Life Retail/Wholesale license with 25 written warnings issued and 3 citations written. A host of aquatic species were found in these markets (Table 1) they included numerous fish, turtle, frog, and crustacean species. No Federal or Illinois endangered or threatened species were discovered. Only freshwater aquatic species fall under the IL DNR enforcement mandate, but other salt water species of fish, crustaceans, and mussels were noted and a plethora of frozen products were also seen.



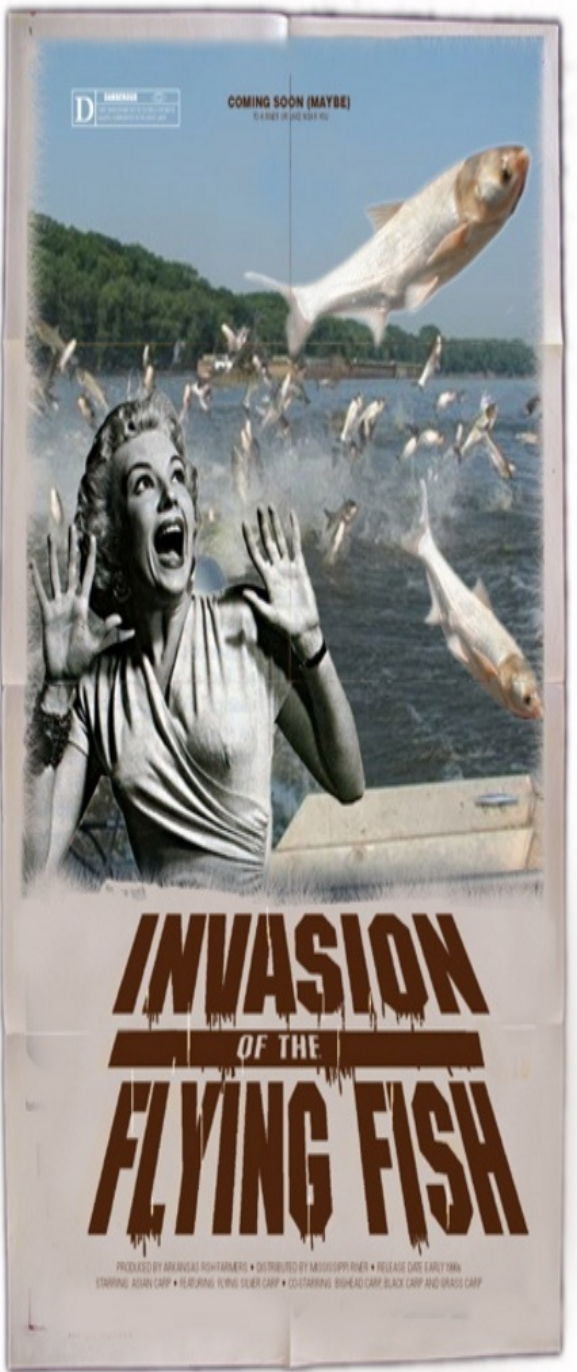
Control efforts should continue to focus on the Illinois River, but may need to be expanded to include the Mississippi and Missouri Rivers to increase effectiveness of removal efforts, particularly for silver carp and for National/Basinwide control efforts.

- National strategy needed

***ANSTF (panels), AFWA, AFS, NISAW,
Congressional and national dialogue***

Conclusions:

- This collaborative work stands as a model for management of Asian carps
- Communication is unprecedented in Natural resources according to many of the participants, prevents duplication of effort
- Under tight fiscal environments, we can accomplish more work in this complimentary fashion
- Perhaps best evidence is the work in other basins that are building upon our success



Questions?



Danny Brown