



# Asian Carp



Greg Conover  
U.S. Fish and Wildlife Service



bighead carp (USFWS)



black carp (TWRA)



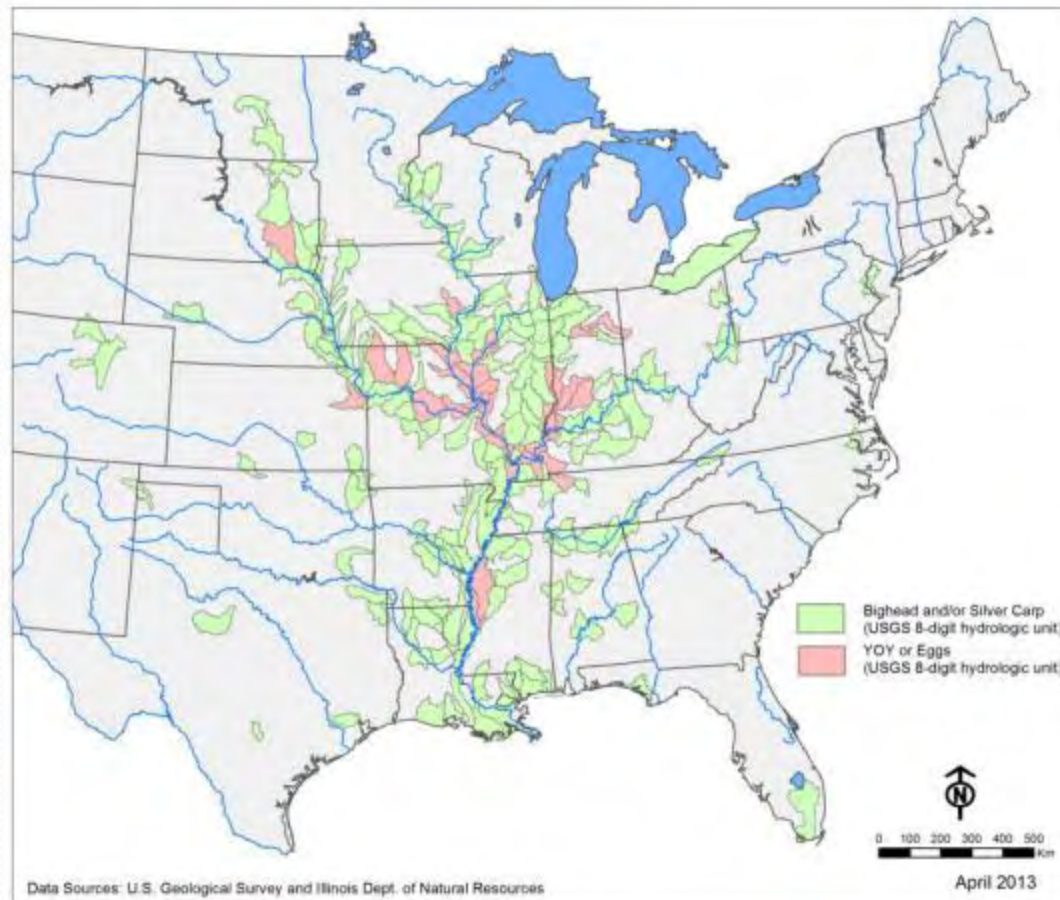
grass carp (USFWS)



silver carp (INHS)

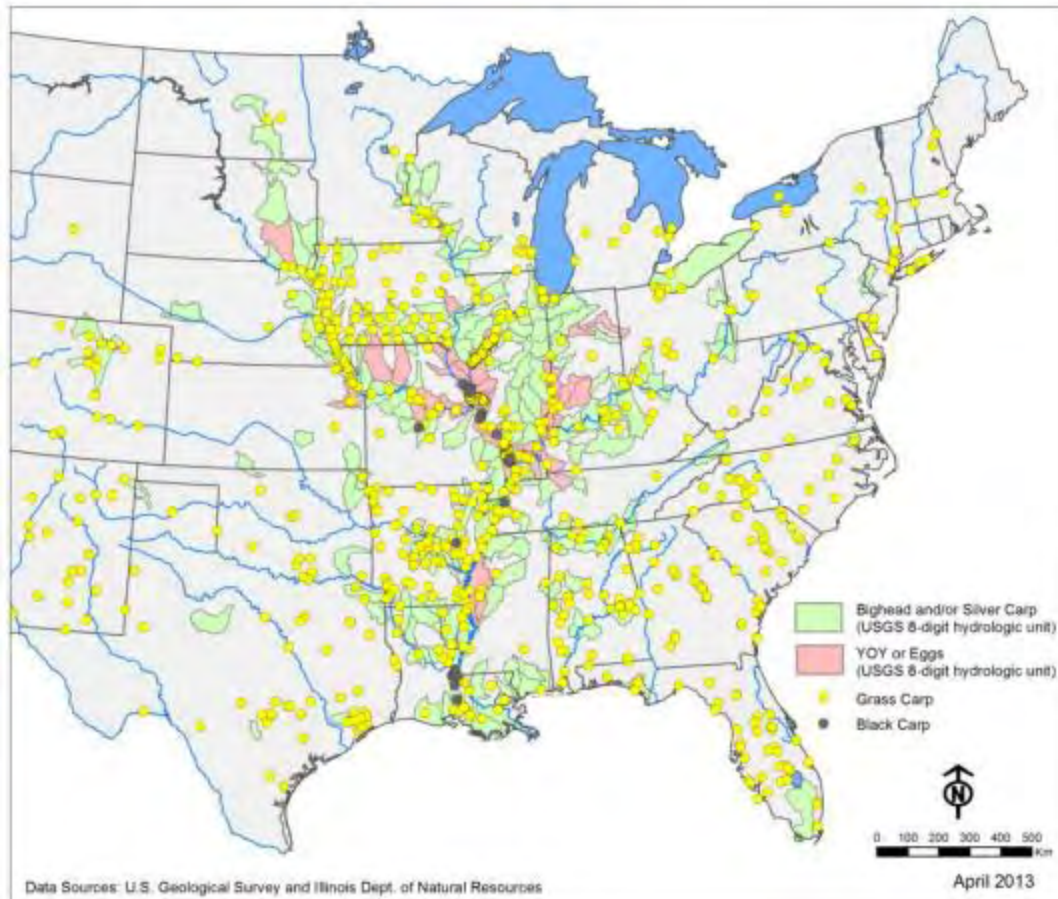


# Bighead and Silver Carp Distribution



Source: Baerwaldt, K., A. Benson, and K. Irons. 2013. Asian Carp Distribution in North America. Report to the Asian Carp Regional Coordinating Committee, April 2013.

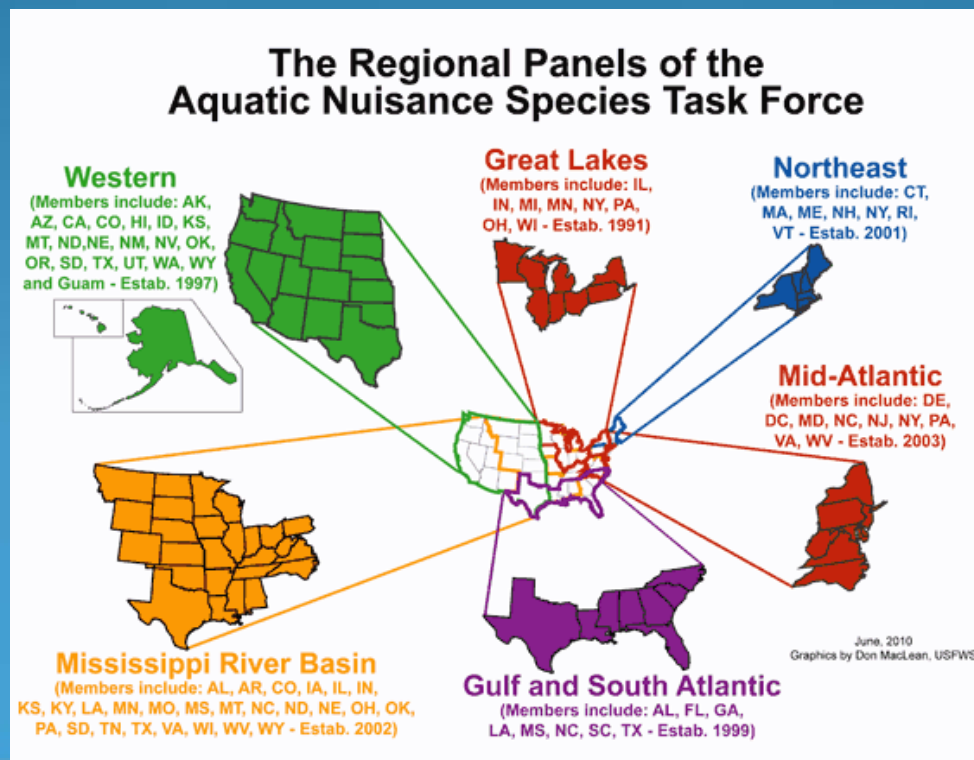
# Black and Grass Carp Distribution



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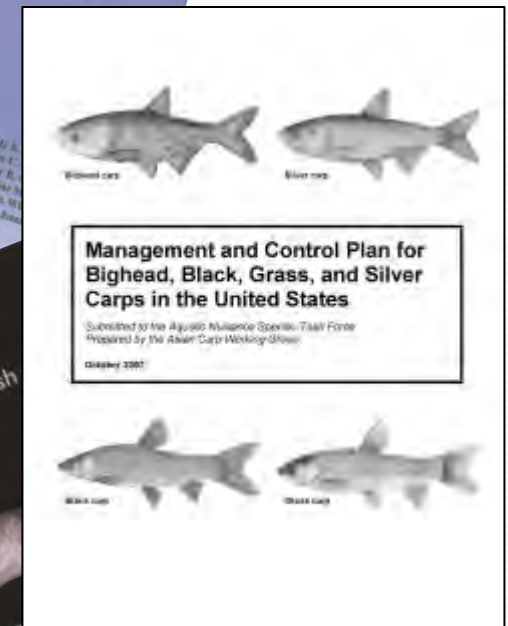
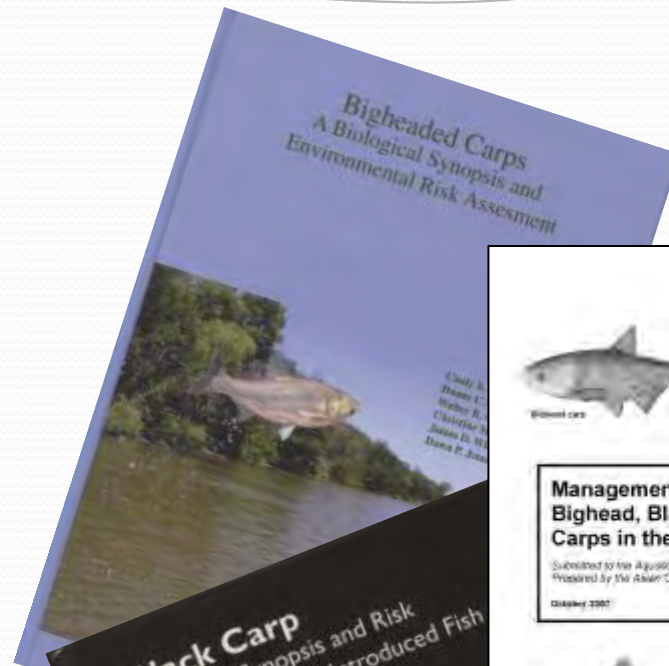
# What are we doing?

- Nonindigenous Aquatic Nuisance Prevention and Control Act (NANPCA) of 1990
- National Invasive Species Act (NISA) in 1996



# Early Actions

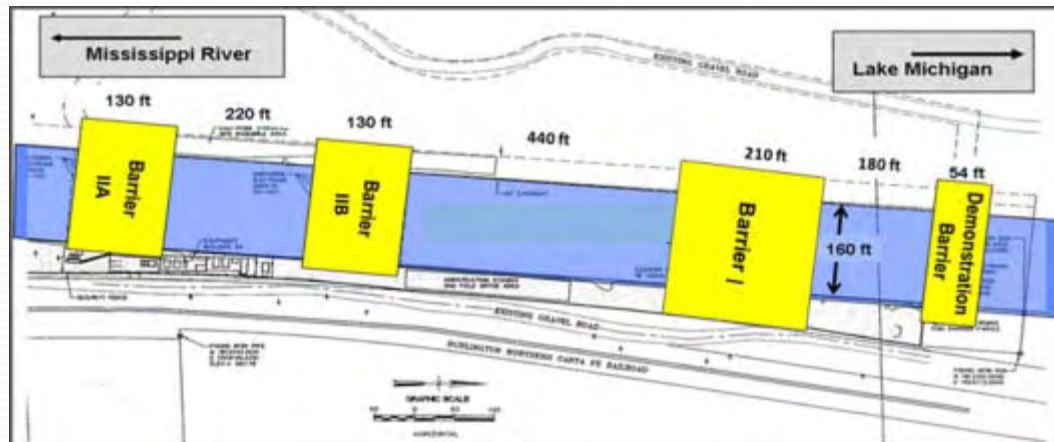
- Risk Assessments
  - Black carp
  - “Bigheaded carps”
- Injurious Wildlife Listings
- National Asian Carp Management and Control Plan





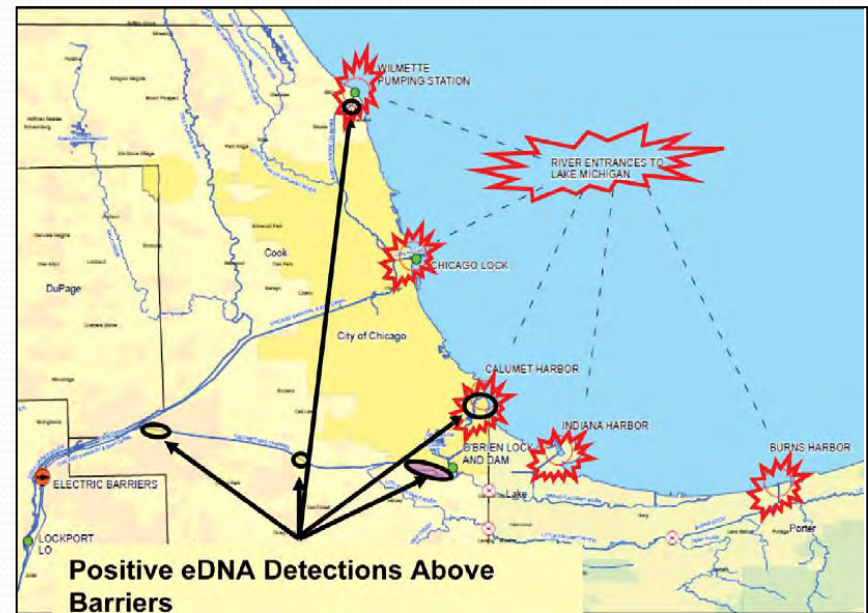
# USACE Electric Dispersal Barrier

- Demonstration project to stop exchange of AIS
  - Authorized in 1996; activated in April 2002
- Permanent barriers authorized in 2007
  - Barrier IIA full-time operation in 2009
  - Barrier IIB full-time operation in 2011
  - Barrier I operational in FY16



# A Sudden Threat...

- Regular monitoring with standard gears
  - 2009: Asian carp detected ~15 miles below barrier
- Environmental DNA
  - 2009: eDNA detected ~0.8 miles below barrier
  - 2010: eDNA detected above barrier

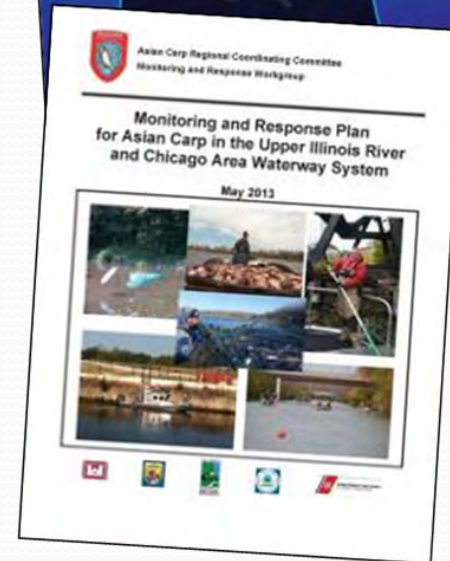
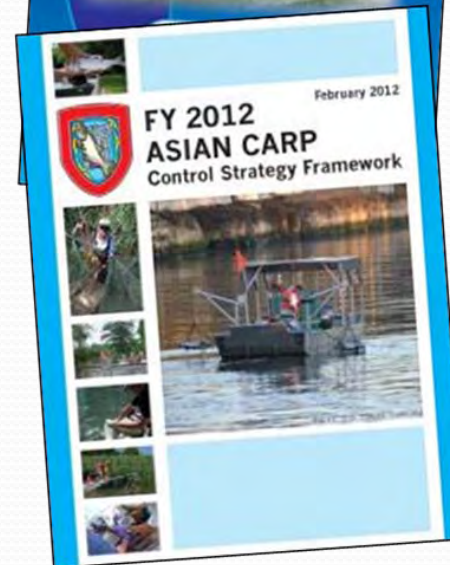
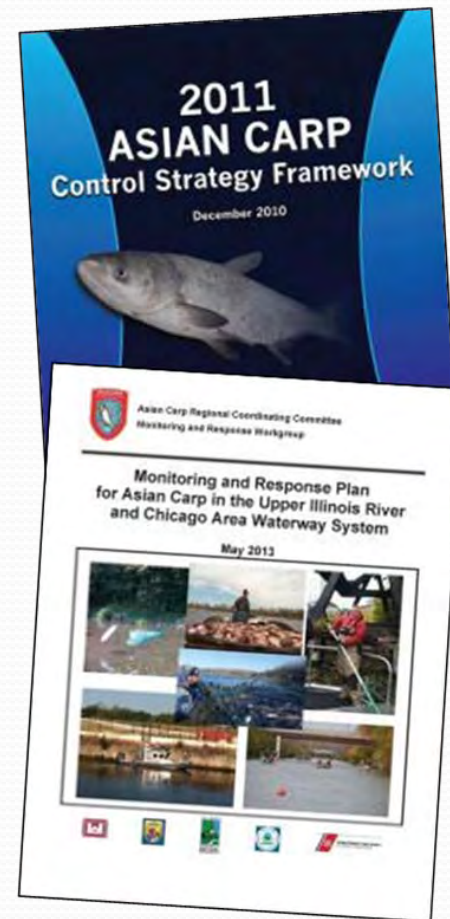
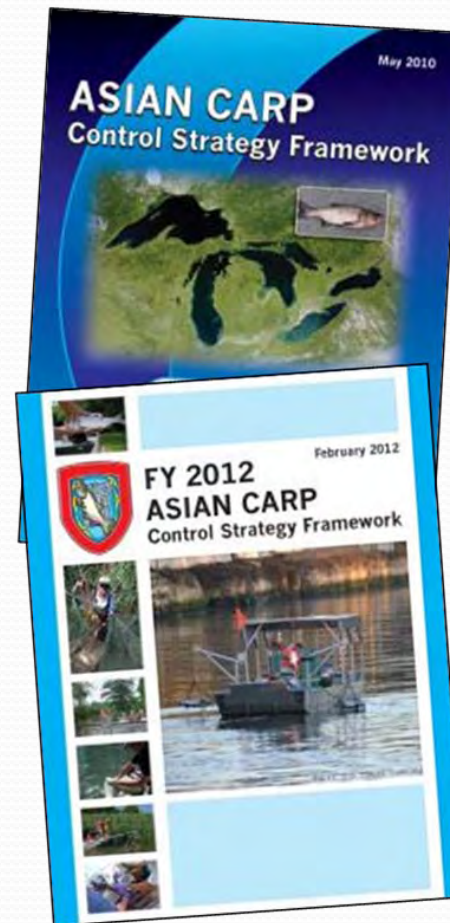


Map of the Chicago Area Waterways System (CAWS), depicting the location of the electric barriers, 5 potential entry points into Lake Michigan, and locations where Asian carp eDNA was detected in early 2010. (Source: 2010 Asian Carp Control Strategy Framework)



# Protecting the Great Lakes

- Multi-agency response
- 2009: Asian Carp Regional Coordinating Committee formed
- 2010: White House Summit of Great Lakes Governors
- 2010: First Asian Carp Control Strategy Framework



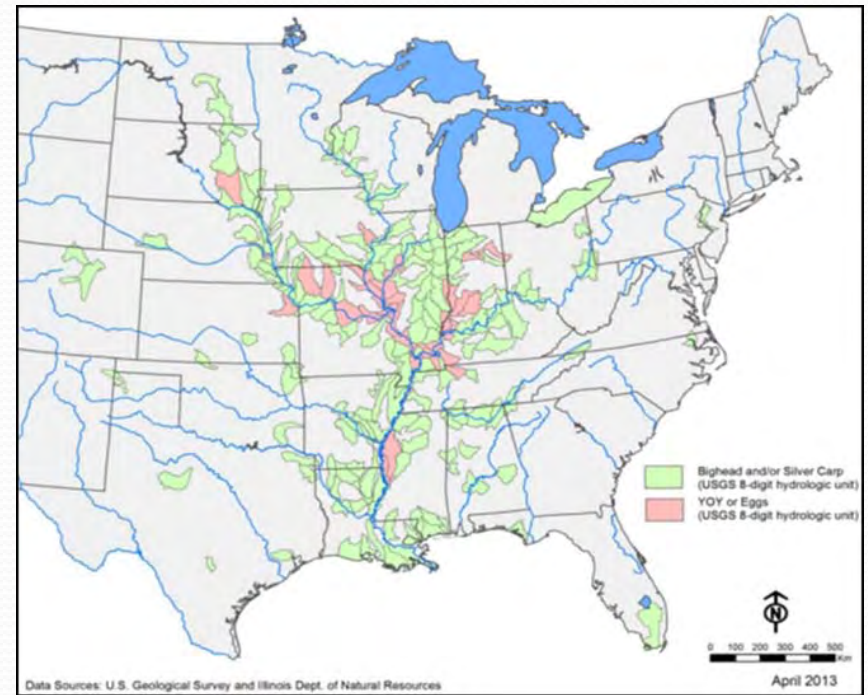
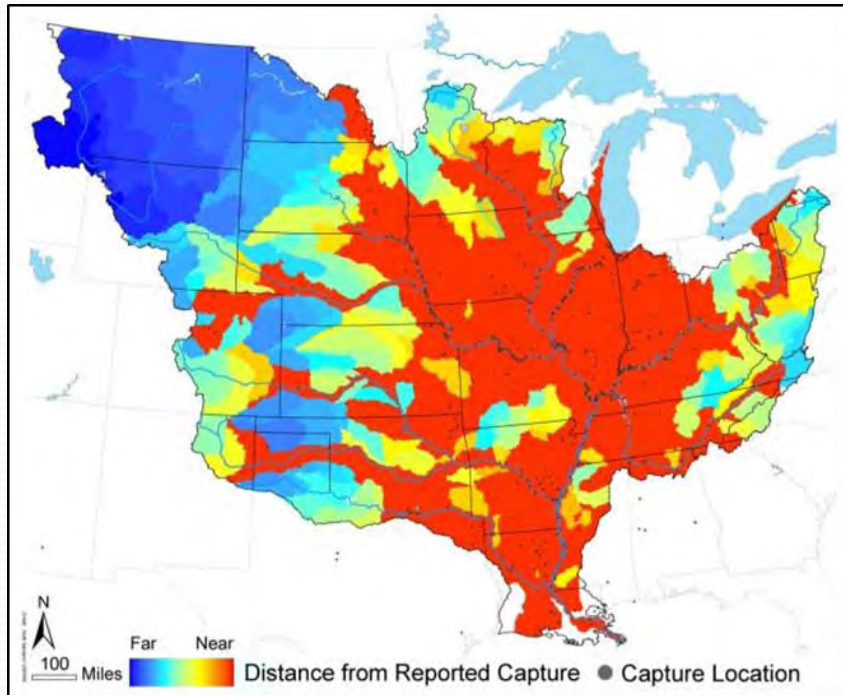


# Asian Carp

## Control Strategy Framework

1. Targeted Monitoring and Assessment Above and Below the Electric Barrier System
2. Commercial Harvesting and Removal Action Below the Barrier System
3. Barrier Action and Waterway Separation Measures
4. Great Lakes Mississippi River Inter-Basin Study
5. Research and Technology Development
6. eDNA Analysis and Refinement
7. Enforcement and Outreach
8. Funding Opportunities and Agency Preparation Activities
9. Other Support Activities

# Mississippi River Basin





# Minnesota Action Plan

## I. Early Detection & Response

- eDNA
- Commercial netting

## II. Prevention & Deterrence

- Multiple barriers
- Lock use reductions

## III. Mitigation & Control

- Research

## IV. Outreach & Communication



# Coalition Efforts

1. STOP the spread of Asian carp on the Mississippi River upstream of the Twin Cities
2. SLOW Asian carp passage in Minnesota and Iowa
3. CONTROL established Asian carp populations in Minnesota and Iowa



# Congressional Efforts

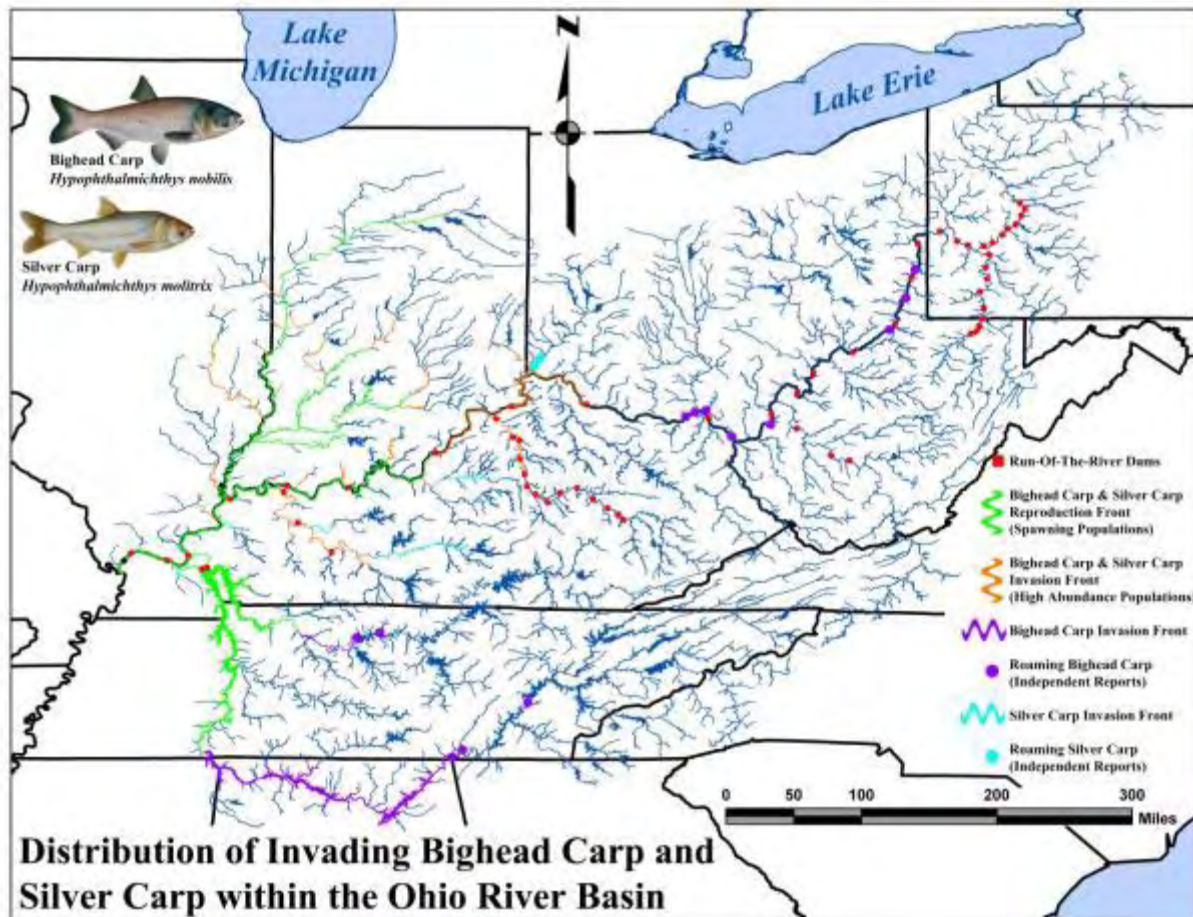
- The Upper Mississippi Conservation and River Protection Act (CARP)
  - Authorizes USACE to take actions at Upper St. Anthony Falls Lock and Dam to stop Asian carp
- Strategic Response to Asian Carp Invasion Act
  - Directs USFWS to lead a multiagency effort to slow the spread of Asian Carp nationally



Commercial fishermen hold three different species of Asian carp (grass carp, silver carp, and bighead carp) all captured in nets on the same day in Pool 6 near Winona, WI.



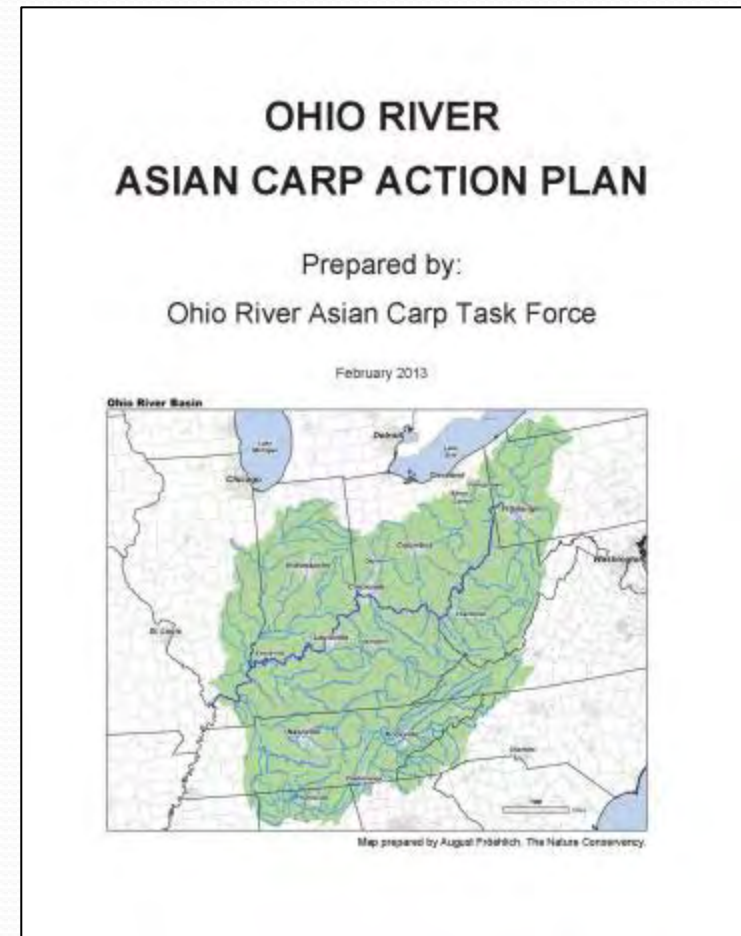
# Ohio River Basin



Asian carp distribution based on a consensus of participating state fisheries biologists and available information as of September 2012.

# Ohio River Basin Action Plan

- I. Early Detection
- II. Rapid Response
- III. Prevention and Deterrence
- IV. Population Control
- V. Coordination and Communication



# Ohio River Asian Carp Monitoring and Assessment

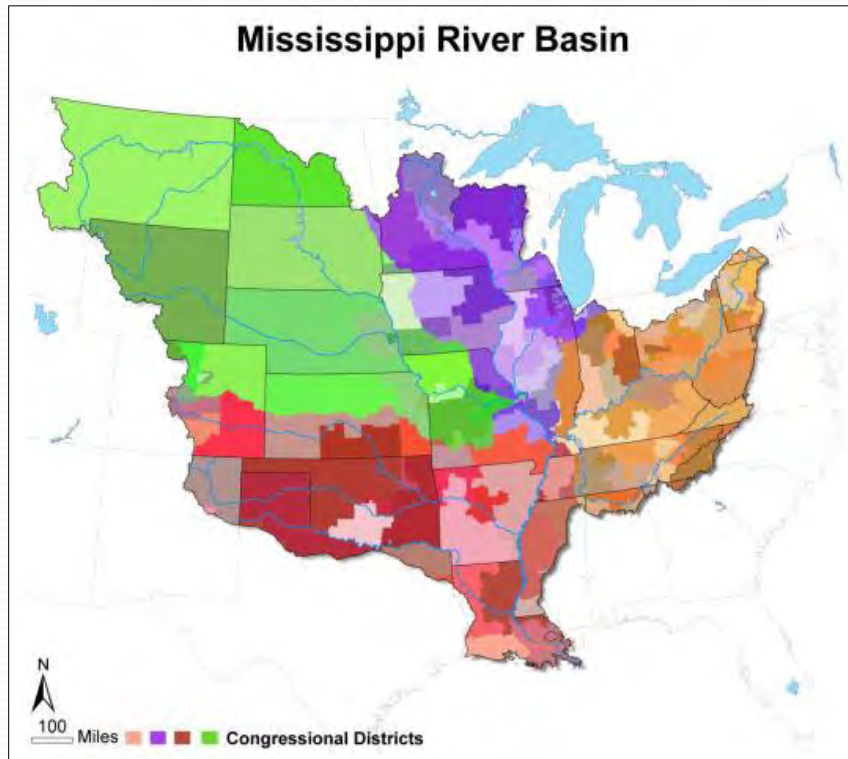
1. Telemetry
2. eDNA sampling
3. Agency Netting
4. Aging and Natal Water Determination
5. Split-beam Hydroacoustics and Side Scan Sonar



Sonic transmitter being surgically implanted into a bighead carp collected from the Illinois River. (Source: USFWS)



# Mississippi Interstate Cooperative Resource Association (MICRA)



## Mississippi River Basin

- 1.2 M square miles
- 41% of continental U.S.
- Drains all or a portion of 31 states
- 176 Congressional districts





# Bighead Carp

- 1973: Imported to U.S.
- Improved water quality = increased production
- Live food fish markets
- Polyculture = potential contamination
- 1982: collected in wild



Bighead carp (Source: USFWS)



# Silver Carp

- 1973: imported to U.S.
- Water quality and food fish
- Minimal commercial production (20+ years)
- 1981: collected in wild



Silver carp (Source: INHS)

# Black Carp

- 1973: Imported to U.S.
- 1980's: food fish
- 1990's: parasites control in aquaculture ponds
- 1994: 30 reported escaped, Osage River
- 2003: collected in wild



Black carp (Source: TWRA)

# Grass Carp

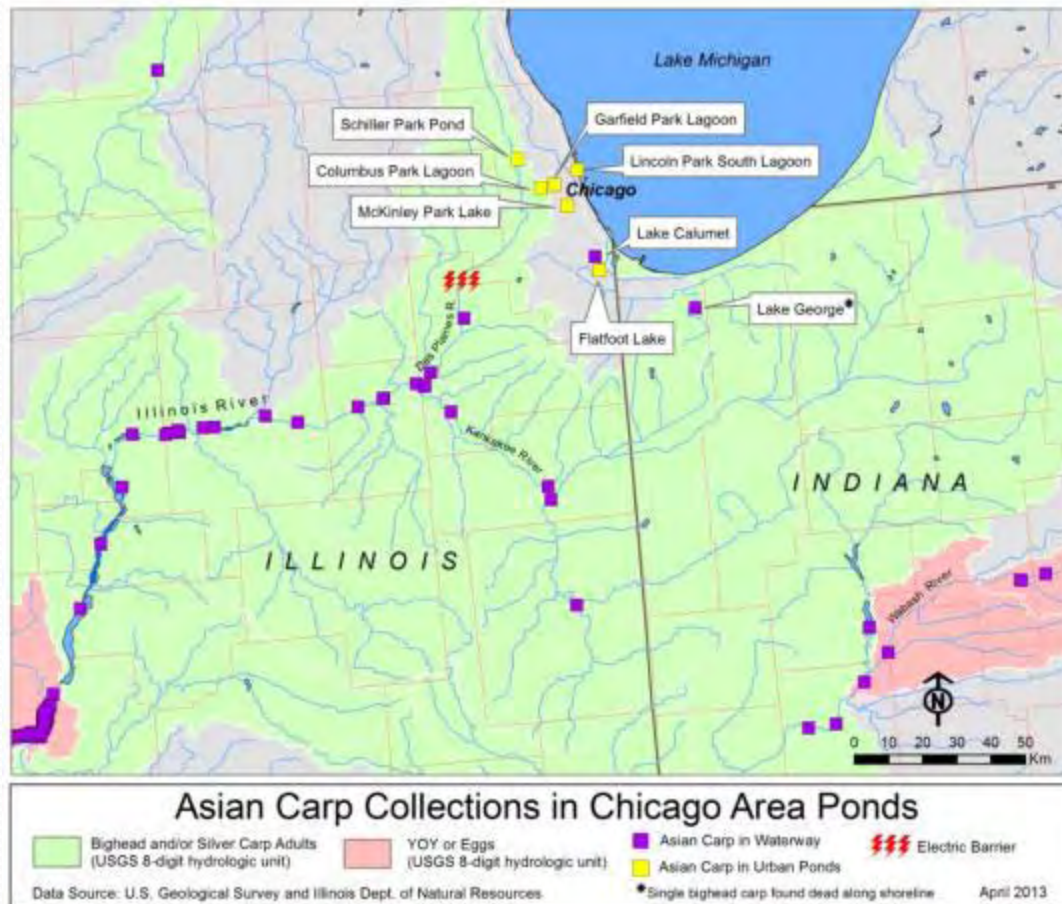
- 1963: imported to U.S.
- Biological weed control
- Live food fish markets
- 1970: collected in wild
- 1972: 40 states
- 1983: commercial triploid sales
- 1985: USFWS triploid inspection program



Blood sample being collected from a farm-raised triploid grass carp for ploidy determination. (Source: USFWS)



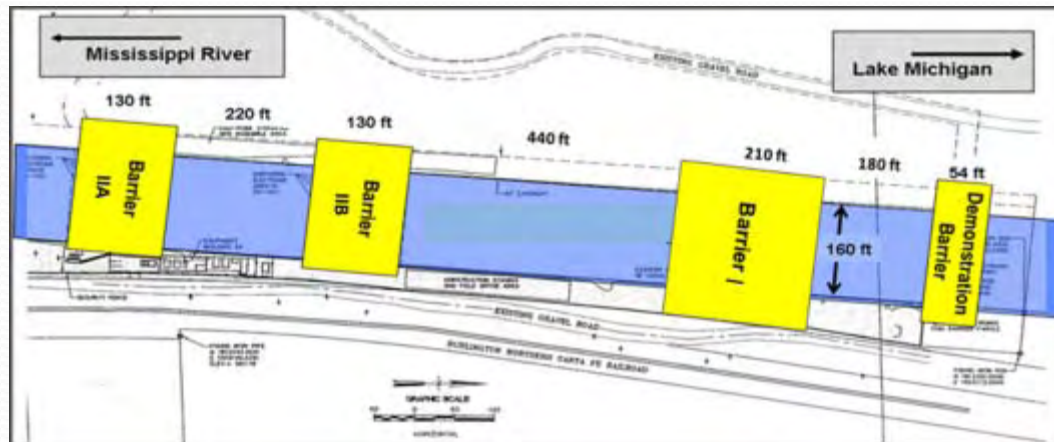
# Chicago Area Waterway Distribution



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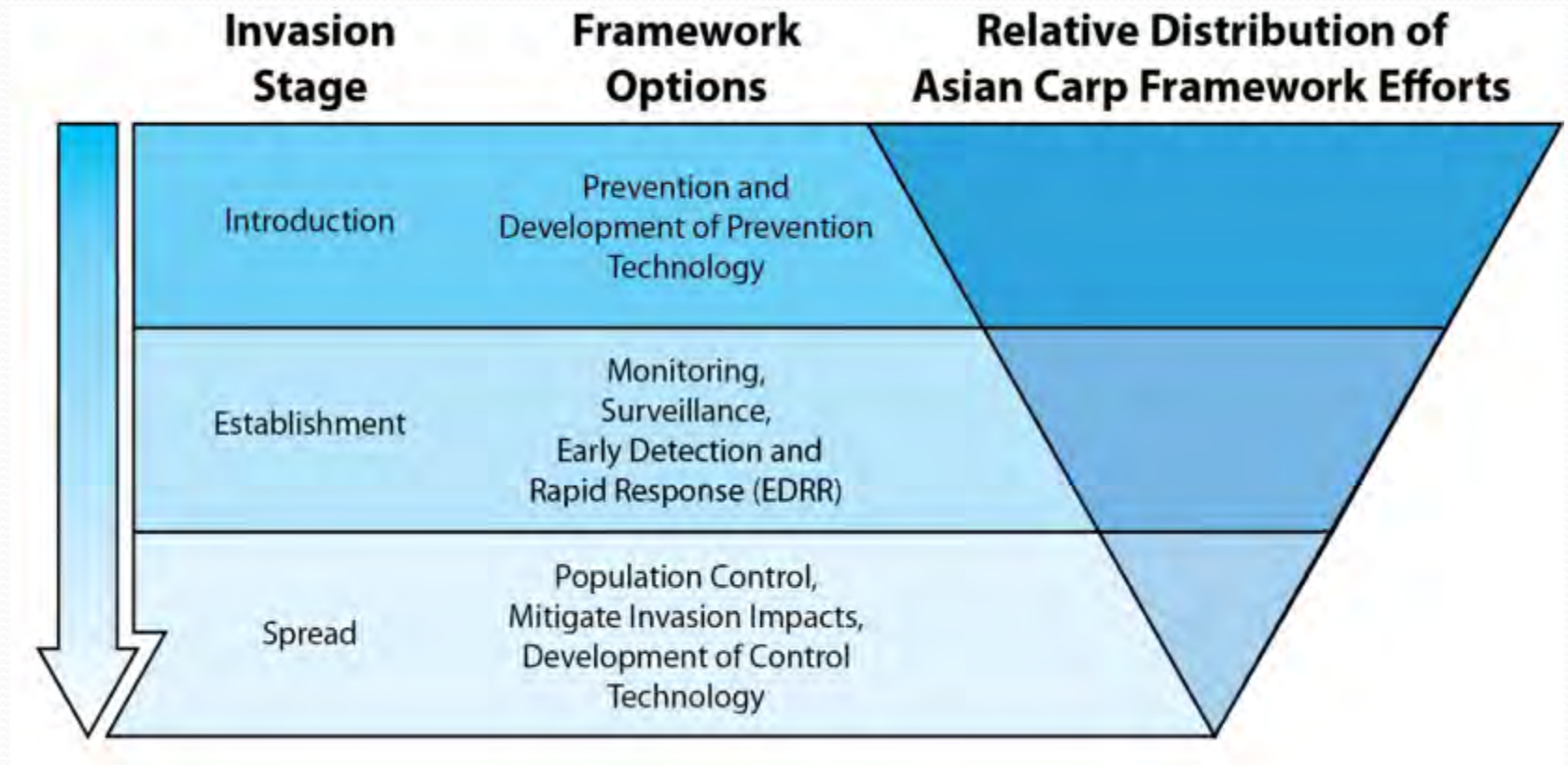


# FY2012 Asian Carp Funding

Agency	FY 2012 GLRI Funding	FY 2012 Federal Base Funding	FY 2012 Total Funding
USGS	\$1,638,700	\$3,052,000	\$4,690,700
USACE	\$5,445,000	\$27,065,000	\$32,510,000
USEPA	\$2,109,983	NA	\$2,109,983
Coast Guard	\$360,000	\$98,000	\$458,000
USFWS	\$3,090,000	\$2,000,000	\$5,090,000
NOAA	\$785,617	\$60,000	\$845,617
CEQ	\$123,000	---	\$123,000
States	\$5,837,417	---	\$5,837,417
GLFC	\$0	---	\$0
<b>Total cost</b>	<b>\$19,389,717</b>	<b>\$32,275,000</b>	<b>\$51,664,717</b>



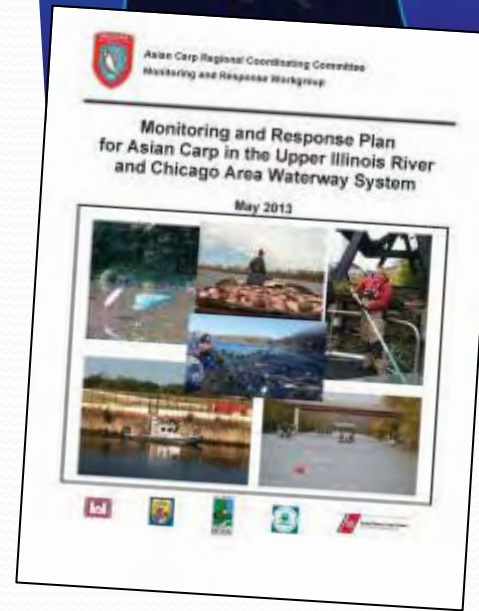
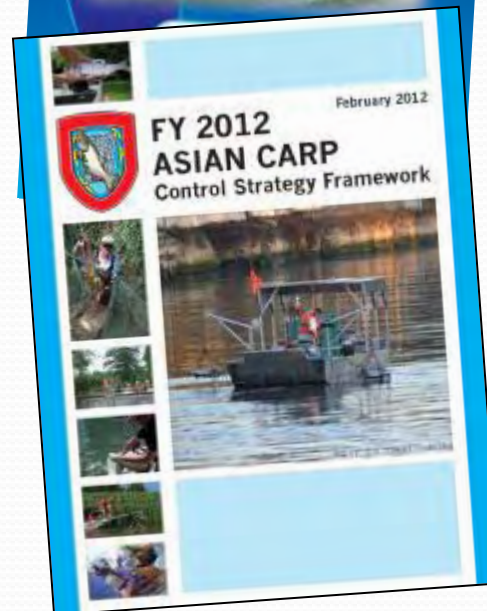
# Conceptual Illustration of Framework Strategy



# Asian Carp

## Control Strategy Framework

- 2010
  - 32 federally funded actions
  - \$38.6M GLRI
  - \$65M total
- 2011
  - 45 federally funded actions
  - \$24.9M GLRI
  - \$39.6M total
- 2012
  - 58 federally funded actions
  - \$19.4M GLRI
  - \$51.6M total
- FY10-FY12: \$156.2M total





# NGO Asian Carp Coalition

- National Wildlife Federation
- Izaak Walton League of American, Minnesota Division
- Clean Water Action
- Minnesota Coalition of Lake Associations
- Audubon Minnesota
- Anglers for Habitat
- Friends of the Mississippi River
- Minnesota Conservation Federation
- MN Center for Environmental Advocacy
- Minnesota Seasonal and Recreational Property Owners
- Mississippi River Fund
- National Parks Conservation Association
- Trout Unlimited
- Fish and Wildlife Legislative Alliance
- FM Walleyes Unlimited
- The Nature Conservancy
- St. Croix River Association
- New Ulm Area Sport Fisherman