



## U. S. Fish and Wildlife Service

### Mission

The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect and enhance fish, wildlife, plants and their habitats for the continuing benefit of the American people. We are both a leader and trusted partner in fish and wildlife conservation, known for our scientific excellence, stewardship of lands and natural resources, dedicated professionals and commitment to public service. For more information on our work and the people who make it happen, visit <http://www.fws.gov>.

# MIDWEST REGION

## Hot Topic: Asian Carp



# Background



## Quick Facts

- Seven carps native to Asia have been introduced into the United States.
- The common usage of the term “Asian carp” in the United States has come to include only the four carps most recently introduced: bighead carp, black carp, grass carp and silver carp.
- Three additional carps native to Asia have been introduced into the United States but are not commonly included in the collective term “Asian carps” - common carp, goldfish, and crucian carp
- Bighead, black, and grass carp have commercial applications and are in trade in the United States. Silver carp are not presently cultured in the United States, largely because of their jumping habits and poor handling qualities during production, harvest and transport.

### What are Asian carp?

There are three species of Asian carp that are considered invasive and a threat to the Great Lakes - the bighead, silver and black carp. Silver and bighead carp are filter-feeding fish and consume plant and animal plankton at an alarming rate. Bighead carp can grow to very large sizes of over five feet in length and can weigh 100 pounds or more. Black carp differ in that they consume primarily mollusks, and threaten native mussel and benthic-feeding fish populations.

### Where did they come from?

Asian carp were originally imported to the southern United States in the 1970s to help improve water quality in ponds on aquaculture and wastewater

treatment facilities. Periodic flooding since that time allowed these fish to escape into the Mississippi River basin and migrate into the Missouri and Illinois rivers.

### Why are they a problem?

Asian carp are a problem because of their feeding and spawning habits. Bighead carp are capable of consuming 40% of their own body weight in food each day. Silver carp are smaller, but pose a greater danger to recreational users because of their tendency to jump out of the water when disturbed by boat motors. They have severely impacted fishing and recreation on the Illinois River. They can spawn multiple times each year and can quickly out-compete native species by disrupting the food chain.

Asian carp could have a devastating effect on the Great Lakes ecosystem and a significant economic impact on the \$7 billion fishery. Once in Lake Michigan, this invasive species could access many new tributaries connected to the Great Lakes. These fish aggressively compete with native commercial and sport fish for food. They are well suited to the water temperature, food supply, and lack of predators of the Great Lakes and could quickly become the dominant species. Once in the lake, it would be very difficult to control them.

## Bighead carp



## Silver carp

# The Great Lakes



## Quick Facts

- The Great Lakes ecosystem is the largest freshwater ecosystem in the world.
- The Great Lakes ecosystem is an extensive watershed (288,000 square miles) with 5,000 tributaries and 9,000 miles of shoreline.
- Fish species of special interest within the ecosystem include: Lake trout, Brook trout, Lake sturgeon, Yellow perch, Lake whitefish, Muskellunge, Walleye, Chinook salmon, and Coho salmon.
- The Great Lakes ecosystem provides important migration corridors and critical breeding, feeding, and resting areas for numerous species of migratory and resident birds - especially waterfowl, colonial nesting birds and neotropical migrants.
- The Great Lakes contribute \$7 billion to the economy through commercial and sport fishing, and an additional \$8 to \$10 billion through recreational boating.



# Current Situation

## CSSC Barrier

The Chicago Sanitary and Ship Canal (CSSC) Aquatic Nuisance Species Dispersal Barrier is an electric barrier that prevents non-indigenous aquatic species that use the CSSC from moving from the Mississippi River to the Great Lakes and vice versa.

## eDNA Sampling

During 2002 monitoring efforts, Asian carp were detected in the upper Illinois River, just 60 miles from Lake Michigan. In 2009, by using a new method called eDNA testing, silver carp DNA was detected considerably closer, within the Lockport Pool (Des Plaines River, and I&M Canal).

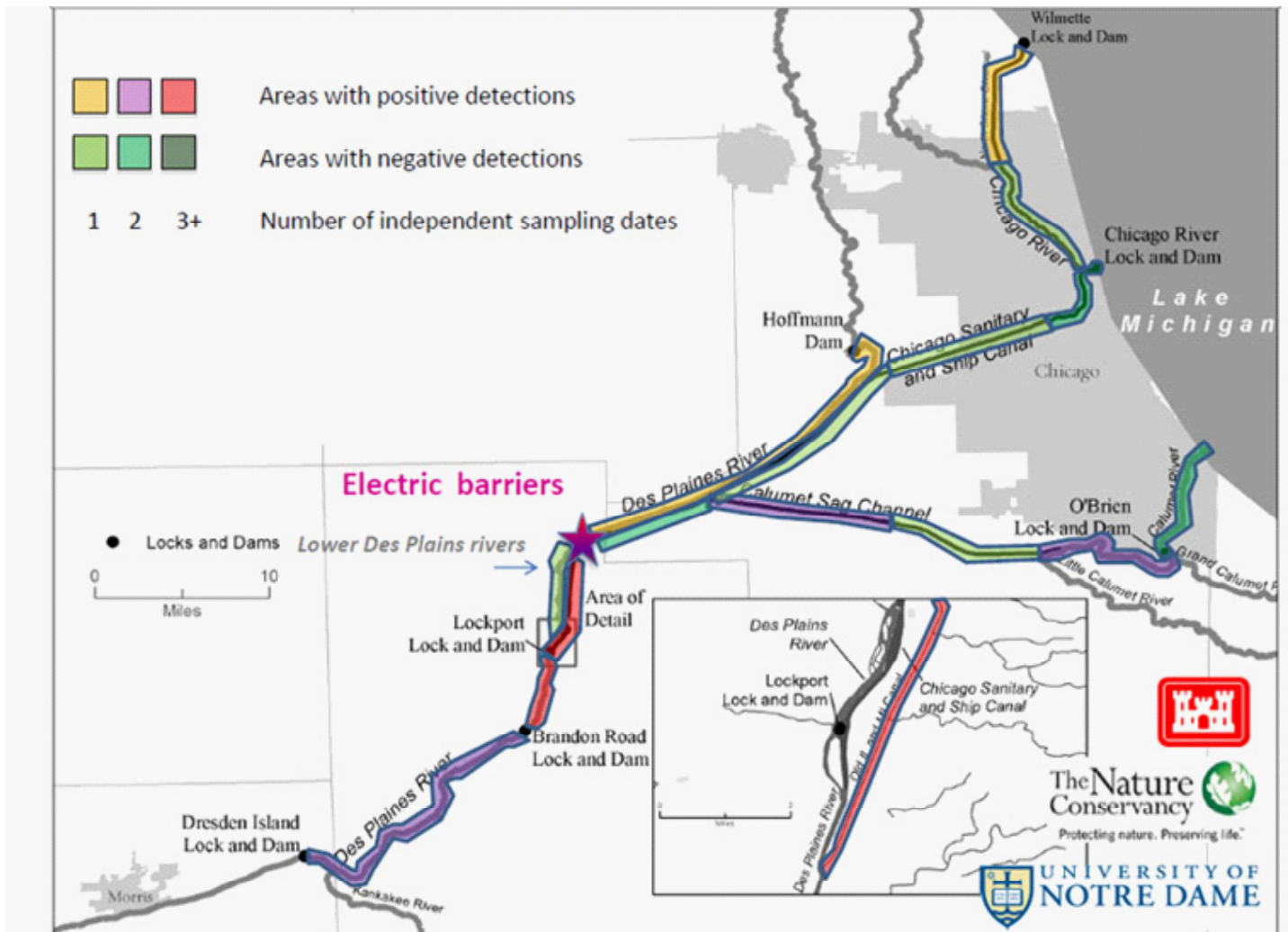
### • What is eDNA?

Environmental DNA testing (eDNA) was developed at the University of Notre Dame to improve monitoring of invasive species.

All fish, including Asian carp, release DNA into the environment. The presence of individual species can be detected by filtering water samples, and then extracting and amplifying short fragments of the shed DNA.

In January 2010 new Silver carp DNA was detected in the North Shore Channel near the Wilmette pumping station and near the Mouth of the Calumet River and Calumet Harbor.

**While these tests indicate the possibility of live fish in the area where positive tests have been found, no live Asian carp have been found above the electrical Barrier system.**



# Rapid Response Plan

## Asian Carp Rapid Response Workgroup

In late 2009, the Asian Carp Rapid Response Work Group developed and implemented a Rapid Response Plan to address the positive Asian carp eDNA samples in conjunction with the U.S. Army Corps of Engineers' scheduled maintenance of an electric barrier that historically has prevented carp from moving north (Barrier IIA). Barrier IIA is scheduled to undergo routine maintenance every four to six months. Maintenance was done in April 2009 when Barrier IIA was put into full time operation. The Rapid Response was necessary to account for the barrier shut down during the scheduled maintenance in December 2009.

## Rotenone Application December 2009

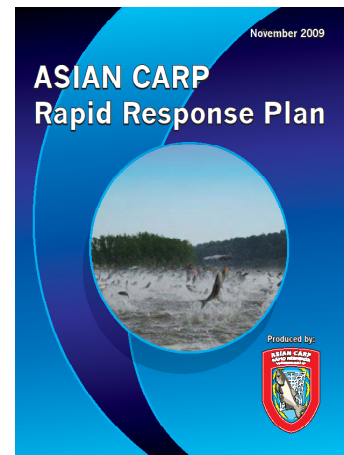
Rotenone application was chosen as the best option for keeping Asian carp from breaching the lower voltage

demonstration barrier while the more powerful Barrier IIA was taken down for maintenance. Illinois Department of Natural Resources (IDNR), U.S. Coast Guard (USCG), U.S. Environmental Protection Agency (USEPA), U.S. Army Corps of Engineers (USACE), and the U.S. Fish and Wildlife Service (USFWS), worked in conjunction with local agencies to apply rotenone to a 5.7 mile stretch of the canal to kill all Asian carp in the area. Rotenone is a toxicant applied in ponds and lakes as a tool to sample fish populations or to completely eradicate undesirable fish populations, and is approved for fishery uses by the USEPA.

USFWS provided personnel, assets and expertise to support these lead agencies during the Dec. 2009 Rapid Response operation on the Chicago Sanitary and Ship Canal. The agency provided personnel including 54 Service employees including chemical applicators, vessel and on shore

crews, Incident Command staff, and fish pathologists. The application of rotenone and a detoxifying agent was successful. The Service also provided representation on the Executive Work Group and Rapid Response oversight.

During the Rapid Response effort in December 2009, one Bighead Asian carp was discovered nearly 500 feet above the Lockport Lock. Biologists with the workgroup believe there is a high probability that additional Asian carp were killed during the toxicant application but may not have been found.



# Rapid Response Efforts



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# Future Actions

## Asian Carp Regional Coordinating Committee

In light of new positive eDNA results, an Asian Carp Regional Coordinating Committee has formed, led by the USEPA Great Lakes National Program Office, with primary involvement by USFWS, USACE, USCG and IDNR. Near term response actions by the Asian Carp Regional Coordinating Committee include:

- Rapid deployment of **intensive netting, including electrofishing and specialized netting alternatives**, in the area near O'Brien Lock to reduce the possibility that a self-sustaining population might be established.
- **Continued research into scientific advances** to apply detection systems that will allow

participating agencies to pinpoint the exact location and numbers of carp. Current eDNA testing does not yet provide this information.

- Planning to develop the concept of how **existing structures**, such as locks, could be operated in a way that would **minimize the risk of carp migration** while the USCG, local public safety and emergency responders, needed cargo, and other traffic transits the waterway;
- **Expedited construction of new electric dispersal Barrier IIB** to complement existing barriers, and severance of culverts and other bypass routes in the event of flooding, that might allow carp entry from adjacent waterways. Interim obstructions will be completed this year;

- **Accelerate development of an integrated pest management program** for Asian carps that focuses, in the immediate future, on delivery systems for approved chemicals designed to target only these species; and

- Continued efforts to assess **“ecological separation”** as a **long-term strategy that blocks invasive species** from transferring between the Great Lakes and Mississippi River watersheds while still allowing cargo and “clean traffic” to pass, leveraging the USACE’s Great Lakes and Mississippi River Interbasin Transfer Study.



# U.S. Fish and Wildlife Service Activities

## Asian Carp Control Strategy Framework

USFWS has been working in collaboration with Federal, State, Provincial, non-governmental, industry, and academic partners on finalizing the Asian Carp Control Strategy Framework (Strategy), focused on preventing the introduction and establishment of Asian carp in the Great Lakes. Bighead, silver, grass, and black carps are included under the definition of “Asian carp”.

Development of the Strategy has been led by the USEPA Great Lakes National Program Office, with primary involvement by USFWS, USACE, USCG and IDNR.

USFWS activities within the framework include:

- **Intensive field monitoring** for Asian carps in priority locations within southern Lake Michigan and tributaries (including canals);
- Administration of **competitive and noncompetitive funding opportunities** to support carp prevention/control research and other related activities (using appropriations for the Great Lakes Restoration Initiative (GLRI), the Great Lakes Fish and Wildlife Restoration Act, and the Wildlife and Sport Fish Restoration Program); and
- **Implementation and enforcement of the Lacey Act** (including pursuing “injurious species” listing for bighead carp).

Additionally, the USFWS Midwest Region has been designated as the agency lead in implementing the **Management and Control Plan for Bighead, Black, Grass, and Silver Carps in the U.S. (U.S. Plan)**, completed in 2007. A subset of the 133 priority management actions contained within the Plan specifically addresses the challenge of Asian carp in the

Great Lakes basin. Actions of the Plan are focused on: 1) containment, 2) control and extirpation of wild fish, 3) minimizing impacts, 4) education and outreach, 5) research, and 6) adaptive management

### Seven Goals of the Plan:

- Prevent accidental and deliberate unauthorized introductions of bighead, black, grass, and silver carps in the United States (strategies to manage 22 pathways for accidental or deliberate unauthorized introductions of Asian carps are presented within this plan).
- Contain and control the expansion of feral populations of bighead, black, grass, and silver carps in the United States.
- Extirpate, or reduce to levels of insignificant effect, feral populations of bighead, black, grass, and silver carps in the United States.
- Minimize potential adverse effects of feral bighead, black, grass, and silver carps in the United States.
- Provide information to the public, commercial entities, and government agencies to improve effective management and control of bighead, black, grass, and silver carps in the United States.
- Conduct research to provide accurate and scientifically valid information necessary for the effective management and control of bighead, black, grass, and silver carps in the United States.
- Effectively plan, implement, and evaluate management and control efforts for bighead, black, grass, and silver carps in the United States.

Additionally, USFWS will provide up to \$11 million (through FY2010 GLRI appropriation) to support Great Lakes-focused actions identified in approved State Aquatic Nuisance Species Management Plans.

USFWS will also begin implementing the specific high-priority actions identified in the Great Lakes component of the *U.S. Plan* through the use of some GLRI funds. However, currently no designated funds have been authorized and appropriated by Congress specifically to support implementation of the *U.S. Plan*.





# U.S. Fish and Wildlife Service Activities



## USFWS Midwest Region Commitment

- **On-the-ground field presence**

USFWS currently has fishery biologists surveying and electrofishing the North Shore Sanitary Canal. In addition to this immediate effort, USFWS will continue to provide on-the-ground support to carry out surveying and monitoring efforts, in addition to future actions developed in the near and longterm in partnership with the Asian Carp Regional Coordinating Committee.

- **Rapid Response ready**

USFWS stands ready to assist future Rapid Response efforts at the request of State and Federal partner agencies.

- **Funding mechanisms**

USFWS has funding mechanisms in place dedicated to the fight against Asian carp. That includes funding primarily from the Great Lakes Restoration Initiative through USEPA. Service grant programs including the Great Lakes Fish and Wildlife Conservation Act also provide grant opportunities.



**Latest information: [www.asiancarp.org/rapidresponse](http://www.asiancarp.org/rapidresponse)**