Columbia Environmental Research Center

Facts About Bighead and Silver Carp

Invasive Asian Carps

- Silver and bighead carp were first captured from the wild in the 1980's, and continued escaping aquaculture facilities through the 1990's.
- Both fishes have spread to most of the Mississippi River drainage, which includes the Missouri and Ohio Rivers and their tributaries.
- High-head dams have prevented upstream movement to reservoirs.
- Both fishes grow quickly to large size (>50 pounds).
- Despite their recent introduction, they may now be the most abundant large (>5 pounds) fish in the lower Missouri River.
- Thousands of pounds of carp can be caught from an area of less than a half acre.

Bighead carp can exceed 50 pounds; the average fish in mid-Missouri is between 12 and 15 pounds.

Real and Potential Threats

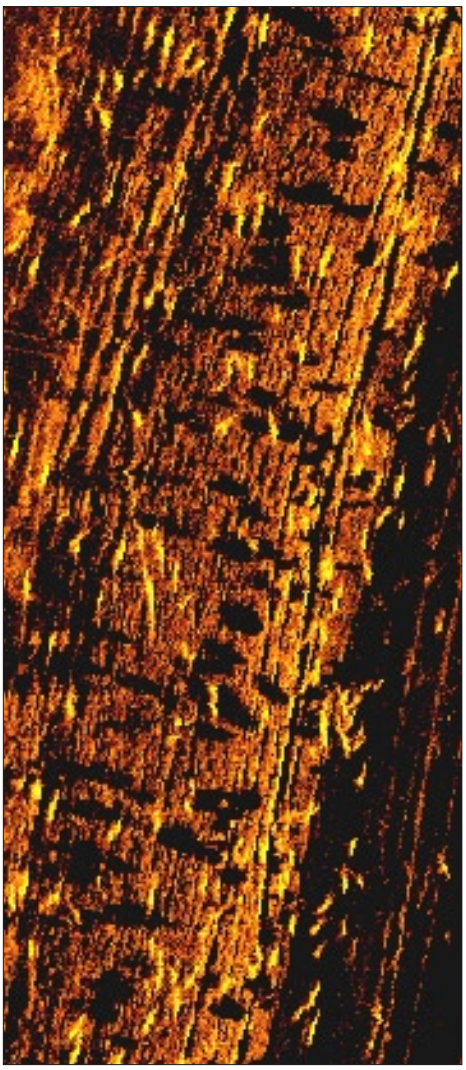
- Asian carps pose a considerable hazard to boaters, mainly due to silver carp jumping into moving boats, causing human injuries and property damage. Damage from a jumping carp hitting an object might reasonably be compared to being hit with a thrown bowling ball.
- Water skiing is a risky sport in waters that silver carp inhabit.
- "Bait bucket transfer" can move these invasive species around dams into reservoirs, causing serious deleterious impacts on fisheries and recreational boating.
- Asian carps have little economic or sport value compared to native fishes.
- In Europe and Asia where bighead and silver carp have been introduced outside their native range, they usually exceed 90% of the commercial catch.
- Bighead and silver carp are in direct competition with native fishes for food and space, and may prey on larvae of native fishes. Most native fishes eat plankton during part of their life cycle, the same food that Asian carps eat.
- Like the introduced zebra mussel, Asian carp have the potential to disrupt the ecology and the food web of large river systems.

CERC Research and Results

- Bighead and silver carp are active and feed year round.
- Both carps were observed making long upstream migrations after spring river rises, which are known spawning cues for bighead carp.
- Asian carps are well-adapted to North American large river systems, and can make long distance migrations in short periods. Some have traveled over 200 miles in a year.
- Paddlefish, a species of concern, feed on plankton as adults, and are shown to be out-competed by bighead carp.
- Bighead and silver carp hybridize in the wild.
- Stomach content analysis reveals that Asian carps may be eating foods other than plankton, which indicates the ability to invade habitats that would not normally support filter feeders.
- Low velocity habitats within the lower Missouri River have abundant populations of large bighead and silver carp.
- After long distance movements, some Asian carps return to the same tributaries or wing dike fields they previously occupied.

Silver carp are active during the winter months, even feed under the ice.

(Below) A side-scan SONAR image of the Lamine River where Asian carps are abundant. The bright yellow spots and streaks are large fish, averaging about three feet in length. The black spots on the river bottom are shadows of fish, and the reddish brown background is river bottom substrate. The side-scan SONAR is a specialized SOund NAvigation and Ranging system for imaging underwater environments.



(Above) A trammel net haul from the Missouri River shows the abundance of bighead and silver carp, which easily constitutes two thirds of the catch using this type of gear. In this particular haul, only two native fish are visible.

Information Needed

- Further understanding of Asian carps' life history in invaded environments, including habitats and locations used by juvenile carps.
- Research into innovative control methods such as pheromone attractants and natural repellents.
- Expansion of on-going diet studies to determine competition and predation on eggs and larvae of native fishes.
- How to use the Asian carps' natural reproduction and recruitment constraints as population controls.
- Development of models to determine the long-term effects of Asian carps in U.S. large river ecosystems.
- Improved methods for harvesting large numbers of these fishes.
- Define the large river habitat overlaps with native fish.

(Above) To protect themselves from jumping carp injury, the project team constructed and anchored a "carp guard" to the boat used for carp research.

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