

## Sample Study 1: Asian Carp Threat to the Great Lakes



**Background Info:** Asian carp are fast-growing, aggressive and adaptable fish that are outcompeting native fish species for food and habitat in much of the mid-section of the United States. Asian carp were introduced into Southern fish farm ponds in the 1970s and quickly spread across the United States. They are now on the verge of invading the Great Lakes.

**What are Asian Carp:** Asian carp is a catchall name for species of silver, bighead, grass, and black carp from Southeast Asia. The huge, hard-headed silver carp also pose a threat to boaters. The fish can leap out of the water when startled by boat engines, often colliding with people and causing injuries. Voracious filter feeders, Asian carp consume up to 20% of their bodyweight per day in plankton and can grow to over 100 pounds. Plankton are small floating organisms that

form the foundation of the aquatic food chain and are vital to native fish. It is crucial to prevent Asian carp from entering the Great Lakes. Once established in an ecosystem they are virtually impossible to eradicate. Adult Asian carp have no natural predators in North America and females lay approximately half a million eggs each time they spawn.

**Where are Asian Carp:** Asian carp were imported into the U.S. in the 1970s to filter pond water in fish farms in Arkansas. Flooding allowed them to escape and establish reproducing populations in the wild by the early 1980s. At present, bighead carp have been found in the open waters of 23 states and silver carp in 17 states. Asian carp represent over 97% of the biomass in portions of the Illinois and Mississippi Rivers and are swiftly spreading northward up the Illinois River in the direction of the Great Lakes.

**On the Brink of an Asian Carp Invasion:** Asian carp are advancing towards the Great Lakes at multiple locations. The Chicago Area Waterways System, a series of sewage and shipping canals, is the pathway of greatest concern for Asian carp to enter the Great Lakes. The U.S. Army Corps of Engineers maintains three electric barriers to prevent Asian carp from entering Lake Michigan, but these barriers are only temporary impediments and have proven to be penetrable. A live bighead carp was discovered only 6 miles from Lake Michigan near Chicago. One bighead carp was found in the Chicago Sanitary and Ship Canal, just below the first electric barrier. DNA evidence has been found in multiple locations on the Lake Michigan side of the barriers. Asian carp eggs, fry and fingerlings were found in the Wabash River in Indiana. There is acute risk of the Wabash River flooding into the Maumee River, which leads directly into Lake Erie.

**Possibility of Asian Carp Establishing in the Great Lakes:**

Temperatures in the Great Lakes are well within the fishes' native climate range. Parts of the Great Lakes, including nutrient-rich bays, tributaries and other near-shore areas, would offer Asian carp an abundant supply of their preferred food, plankton. Plankton is also favored by most young and many adult native fishes and the voracious carp would likely strip the food web of this fundamental resource. The U.S. Geological Survey has identified 22 rivers in the U.S. portion of the Great Lakes that would provide suitable spawning habitat for Asian carp.