

Chinese Mitten Crab

Eriocheir sinensis



Photo courtesy of Chesapeake Bay Program.

This medium-sized burrowing crab was first reported in the San Francisco Estuary in 1992 and is currently only established in California, although individuals have been reported in several East Coast areas such as the Chesapeake Bay and the Hudson River. Its presence in North America is concerning due to the significant negative impacts experienced after its introduction and spread throughout Europe.

Species Description

The Chinese Mitten Crab is easy to identify by its “mitten-like” claws. Both sexes have dense patches of bristled hairs on the claws, although they tend to be fuller in males. Juveniles may not have any hair. Adult crabs range in size from 30-100 mm (1-4 in) and have legs about double the length of the torso. The carapace differs from other crabs in the same order in North America; it is convex and uneven, with four pairs of spines on the side edges. The Mitten Crab ranges in color from a light brownish-orange to a greenish-brown and the tips of the claws are usually white. It also has a small notch between the eyes.

Native & Introduced Ranges

Native to southeastern Asia, the Chinese Mitten Crab has been introduced throughout the eastern and northern parts of Europe and the United States. Currently, California is the only U.S. state with a confirmed population of Chinese Mitten Crab. While there is no evidence it is established in the Great Lakes, specimens have been collected in the Detroit River, Lake Erie, and the Mississippi River Delta. Several crabs have been reported along the East Coast, including the Delaware River and Delaware Bay in Pennsylvania; however, it is unclear if these are reproducing populations.



Biology & Spread

The Chinese Mitten Crab spreads easily and disperses widely because it is skilled at walking on land and can cling to cargo ship barges and hulls. It is believed to have arrived in the United States via cargo ships (by clinging and in ballast water). However, it is also intentionally and illegally released into non-native areas to establish a fishery, since it is commonly sold in urban seafood markets.

Habitat

Adults typically inhabit the bottoms and banks of freshwater rivers and estuaries before migrating to brackish and saltwater estuaries to reproduce. Late larval stages exist in the upper levels of the water column and are carried by currents towards the mouth of estuaries where they settle to the floor and develop into juvenile crabs. Juveniles begin upstream migration via main river channels where they then enter smaller rivers and streams with slower-moving waters.

Impacts

Threat to Biodiversity

The Chinese Mitten Crab is an opportunistic feeder that will eat anything from algae and plant material to fish carcasses and invertebrates. For this reason, large populations have the potential to alter the food chain and affect the abundance and growth rates of various species. In California, there is large concern over the numerous endangered or threatened species present in the San Francisco Estuary, and it is reportedly occupying important spawning areas and feeding on the eggs of these vulnerable species.

Economic Costs

Because it can clog intake pipes, the Chinese Mitten Crab interferes with normal operations at water treatment facilities, fish passage facilities, power plants, and pumping stations. In addition, its burrowing activities damage dykes, coastal protection systems, and harbor installations. High densities can also damage soft sediment banks, leading to increased erosion and repair expenses. Because it feeds heavily on bait and fish caught in nets, it can also impact the commercial fishery by reducing harvest. The Chinese Mitten Crab often becomes entangled in gear, increasing handling time and causing damage to fishing nets. It also has the potential to impact rice crops by consuming young rice shoots.

Photo courtesy of Christian Fischer, Wikipedia.org.



Photo courtesy of California Department of Fish and Game.

Health

The Chinese Mitten Crab is considered a health concern as it is the secondary host for the Oriental lung fluke (*Paragonimus westermani*). Mammals, including humans, are the final host of the lung fluke, which has symptoms resembling tuberculosis. There is also concern that the Chinese Mitten Crab can bioaccumulate contaminants, as it has been known to inhabit agricultural ditches and other areas that may contain elevated levels of contaminants.

Prevention & Control

High densities of the Chinese Mitten Crab, coupled with high reproductive rates and a wide range of physiological tolerances, make control difficult. Once the crab develops a self-sustaining population, most management approaches are unsuccessful and eradication programs have limited effectiveness. Physical control, such as trapping, is not effective in reducing damage caused to river banks and feeding on trapped fish. In California, management goals include preventing the spread of the Mitten Crab to new areas and reducing the negative impacts of existing populations. The Chinese Mitten Crab is listed as an injurious wildlife under the Federal Lacey Act, which makes it illegal to import, export, or transport between states in the U.S. without a permit.

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References:

Chinese Mitten Crab Control Committee. 2002. A draft national management plan for the Genus *Eriocheir*. Aquatic Nuisance Species taskforce.

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