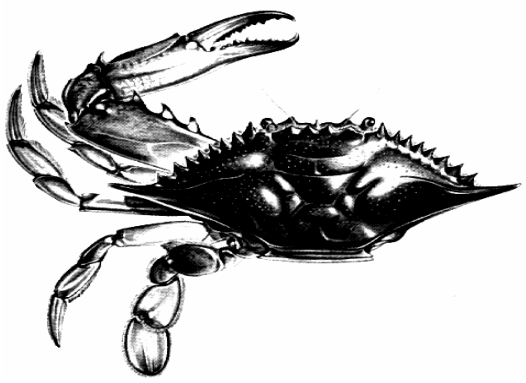
Blue Crab *(Callinectes sapidus)*

From Cape Cod to Brazil, the Blue Crab or Blue-claw Crab is a well-known estuarine species. With blue on its claws (red tips if female) and points on either side of its body, it's easy to identify. And, if those characteristics don't get your attention, the powerful pinch from its front claws will. In our area, the Blue Crab is abundant along the coast of New York and New Jersey and in the rivers, tidal creeks and saltwater bays of the New York/New Jersey Harbor Estuary. In the Hudson River, Blue Crabs have been found as far north as Albany.



All in all, the Blue Crab has five sets of appendages. This includes a pair shaped like paddles. Called swimmerets, they make this crab a strong swimmer. Blue Crabs are also very good to eat and are valuable resource to recreational and commercial fishers throughout the Mid-Atlantic. *Callinectes sapidus,* the Blue Crab's Latin or scientific name supports all this. "Calli" means beautiful; "nectes" means swimmer and "sapidus" means savory or tasty.

The top shell or carapace of the Blue Crab is made of chitin, providing a rigid, protective shell. It is actually the crab's exoskeleton. It gets cast off many times in order for the Blue Crab to grow and reach maturity. This process is called molting or shedding. When the Blue Crab sheds its shell, it is "soft" for about a day or two while it's new, larger exoskeleton hardens up. When it is in this state, it is highly prized for eating as a "soft-shell crab." The crab's eyes are mounted at the end of eyestalks at the front of the carapace. They give this crab a distinct advantage. It can bury itself in sand or mud but still have a view of everything around it.

If you've visited our nation's capital, you can tell a male Blue Crab from a female, or, in the words of real crabbers, a Jimmie from a Sook. If the tail or apron, generally found curled inward on the underside of the crab, is shaped like the Washington Monument or a lighthouse, it's a male. A fully mature female's apron or tail is dome-shaped (think Capitol Building). A juvenile female's tail is shaped like a triangle or pyramid.

Little is known of the life history of Blue Crabs in the New York/New Jersey Harbor Estuary, but much is known about this animal in general from research conducted in other estuaries. Mature females release their fertilized eggs at the mouth of an estuary or near the shore during warmer months. A mature, fertilized female (also called a sponge crab) can carry as many as 8 million eggs or larvae. She stores this orange mass of eggs under her dome-shaped tail or apron. The larvae go through two planktonic stages (zoea and megalopa) before they even resemble a Blue Crab. Eggs hatched in May or June become immature or juvenile crabs in about two months. Each crab will shed its exoskeleton between eighteen to twenty-three times before reaching maturity. The total life span of the Blue Crab is about three years. The female crab mates only once. This occurs in the warmer months as the newly mature female sheds her carapace for the last time. She is cradled by a male until her shell hardens. She stores the sperm received during this time under her tail or apron and can produce eggs from it a number of times during her remaining lifetime.

When water temperatures fall below 50^{o}, Blue Crabs stop feeding and burrow in soft sediments to overwinter. Females prefer to winter in saltier water than males do so they usually dominate the winter dredge fishery catch. In the spring, the adults become active and disperse throughout the estuary.

The Blue Crab fills an important niche in the estuarine system. It is a major predator of benthic invertebrates and small fish. It is also a scavenger, cleaning up dead bits of animals left behind perhaps by other predators. Blue Crabs will also eat each other. This is a major cause of death among juveniles. At all life stages, the Blue Crab serves as food to other species, including many fish, sea turtles, some wading birds, diving ducks, and raccoons.

The NY/NJ Harbor Estuary supports both recreational and commercial fisheries for Blue Crab. These fisheries have steadily increased since the 1970's. Although they are abundant and desirable, Blue Crabs caught in the Harbor Estuary are subject to consumption advisories or suggested limits on how many are safe for one to eat. There are also specific preparation guidelines for cooking these crabs that make them safer to eat. Some crabs in our area should not be eaten at all under any conditions. It is illegal to take Blue Crabs from the Newark Bay Complex, which includes the Passaic and Hackensack Rivers, Newark Bay, the Arthur Kill and the Kill Van Kull due to chemical contamination. Fines apply for gathering or selling them and there is no safe way to prepare them for consumption.

In winter, Blue Crabs are caught using dredge nets off Brooklyn from Lower Bay and Gravesend Bay through Rockaway Inlet. There is also a significant dredge fishery in Raritan Bay. The Hudson River and other waters of the NY/NJ Harbor Estuary support a summer pot or trap fishery, especially near the Tappan Zee Bridge and north and into Jamaica Bay. The commercial catch in the Hudson River has recently been estimated at 40,000 kilos. This crab is also highly sought by recreational fishers who catch them from shore and under bridges, docks and boats. The amount of recreational catch is currently unknown but a survey in New Jersey is currently underway ht*tp://www.state.nj.us/dep/fgw/bluecrabupdate1-06.htm*).

The Blue Crab uses many habitats within the NY/NJ Harbor Estuary but prefers nearshore structures and/or submerged aquatic vegetation (SAV) beds. It also makes use of open sandy or clay bottoms and mud substrates. Juvenile and adult Blue Crabs can tolerate a wide range of salinities, from nearly fresh to full marine. Larvae, however, survive best in higher salinity, > 20 ppt, waters. The species is not low oxygen or hypoxia tolerant, preferring dissolved oxygen (DO) levels > 3.0 mg/l. If hypoxia occurs, the crabs will swim or crawl to better conditions, including staying at the surface water's edge or even crawling out of the water to avoid low oxygen conditions.

The most recent reports on Blue Crab harvests suggest healthy, but annually variable, population levels. Harvests from New York State were at their height from the late 1800's until the 1920s. In more recent times, harvests began to improve in New York State from the 1970s to at least the late 1990s. There was a similar trend of increased harvests in New Jersey through the late 1990s and in Delaware Bay through 2002. It is reasonable to assume that harvest trends in the NY/NJ Harbor Estuary would be related to those of the overall New York and New Jersey state landings reflecting increased abundance into at least the late 1990s.

NJ DEP and NYDEC and the USACE-NYD may have specific project–related blue crab survey data. For landings by states, refer to NOAA commercial fisheries landings database (*http://www.st.nmfs.noaa.gov/st1/commercial/index.html*).

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