



Chesapeake Bay Program
A Watershed Partnership

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As author William Warner demonstrated in the Pulitzer Prize-winning *Beautiful Swimmers*, there is a mythic language associated with the crab fishery, and questions still surround the behavior of the blue crab, *Callinectes sapidus*.

This pugnacious, bottom-dwelling predator is the object of the most productive commercial and recreational fishery in the Chesapeake Bay. "Ain't nobody really knows about crabs," Warner quotes one waterman as saying in the early 1970s.

Despite the crabs' persistent air of mystery, Bay scientists know considerably more today than they did 30 years ago.

Blue Crabs and the Chesapeake Bay

Blue Crab Basics

Blue crabs are members of the swimming crab family. *Callinectes* (from the Greek, meaning "beautiful swimmer") *sapidus* ("savory") is a benthic or bottom-dwelling omnivorous predator that feeds on other crustaceans, bivalves, fish, annelids (such as marine worms), plants, detritus and nearly any other food it can find, including dead fish and decomposing plants. The blue crabs' favorite food appears to be thin-shelled bivalves.



The olive green and white blue crab—so named for its vivid blue claws—is one of the most important species to be harvested in the Chesapeake Bay and has the highest value of any commercial fishery, with landings in 2001 reaching 51.7 million pounds.

Like its cousins the shrimp and the crayfish, the blue crab is a crustacean, and it has 10 legs. It walks sideways using the three middle pairs, uses its front pincer claws for defending itself and securing food, but earns its scientific name from the remaining pair. Its hind legs, shaped like paddles, make the crab a remarkable swimmer indeed.

A blue crab's gender may be determined by the shape of the abdomen or "apron" on its underside. The male crab's apron is shaped like an inverted T. An adult female's apron is broad and rounded, while an immature female's is triangular. Red tips on the claws also indicate a female. A female carrying a cluster of orange eggs beneath her apron is known as a sponge crab.

Blue crabs serve as both predator and prey in the benthic and planktonic food webs of the Chesapeake Bay. They serve as food in their juvenile stages for eel, drum, spot, Atlantic croaker, striped bass, sea trout, catfish and some sharks and cownose rays.



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The Life Cycle of the Chesapeake Bay Blue Crab

Female blue crabs mate during their final molt, and males remain with them while the shell hardens. Females then migrate to the lower Bay, where they release their fertilized larvae-called zoea-in the salty waters near the Bay's mouth. Over the next 30 to 45 days, the ocean current-borne larvae move through several distinct stages, feeding on microscopic plants and animals. Once they have been swept back into the Bay by wind and currents, the zoea become post-larval megalopae, migrating vertically in response to light and tides. They use nocturnal flood tides to assist their movement up the estuary to shallow estuarine nursery habitats.

Blue crabs reach maturity in about 12 to 18 months. Under current levels of fishing pressure, most crabs live from one to two years beyond maturity, and the typical life span of a crab is about three years, although some may live as long as eight years.

Blue Crab Habitat

After molting, crabs are particularly vulnerable to predators while their new shells are still soft and often conceal themselves in bay grass beds for protection. Crabs use underwater grass beds for nursery areas, and crabs of all sizes forage for food there. Bay scientists have found that 30 times more young crabs were found in bay grasses than in areas without grass.

The loss of these vital bay grasses is not the only threat to the blue crab. Like other aquatic species, crabs are susceptible to summer's low oxygen conditions. Fueled by nutrient pollution from farms, wastewater treatment plants, homes and automobiles, enormous "blooms" of algae eventually deprive the water of its oxygen and drive crabs out. They may even die from low oxygen levels when trapped in crab pots under these conditions.

For more information about blue crabs and the Bay, please visit http://www.chesapeakebay.net/blue_crab.htm

What You Can Do to Help Blue Crabs

It may seem impossible to make a difference on an individual level, but you can help.

When you catch crabs:

- C Remember that a single female blue crab can produce up to 8 million eggs in one mating season, so try to minimize their capture.
- C Keep only the crabs you are going to eat.
- C Don't leave crab pots unattended for long periods of time.

You can also help by participating in bay grass restoration projects and by limiting any activities that could compromise their growth and health.

Helping Restore Healthy Blue Crab Populations

The abundance of mature female blue crabs in 2000, 2001 and 2002 is at or near historical lows. In the *Chesapeake 2000* agreement, the Bay Program commits to establish harvest targets for the fishery by 2001. Bay Program partners met this commitment when they agreed to increase the spawning potential of the blue crab by reducing current harvests 15 percent by 2003.

The Bay Program and its partners are taking several additional measures to restore, enhance and protect blue crab and other shellfish populations. These include developing multispecies management plans to take into account the impact of other fish species on the blue crab; protecting and restoring bay grasses in the Chesapeake, thereby restoring blue crab habitat; and funding research efforts involving aging and migratory patterns of the crab in the Bay.