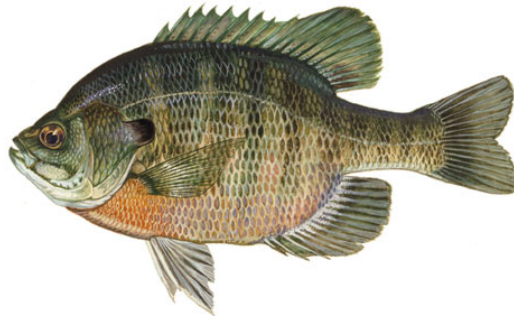


Biology of Bluegills



Other names: Brim or bream (especially in the South), roach, sunny

Scientific name:

Lepomis macrochirus; *Lepomis* means “scaled gill cover”; *macrochirus* means “large hand” (perhaps because of the large pectoral fin or because of the shape and size of the body).

Family:

Bluegills belong to the Family Centrarchidae. In Maryland this family includes pumpkin seed sunfish, red breast sunfish, black banded sunfish, largemouth and smallmouth bass, and black and white crappie, as well as several introduced species of sunfish (hybrid sunfish, redear sunfish and green sunfish).

Appearance:

Bluegills are small, deep-bodied fish, approximately half as deep as they are long, oval in shape and flattened from side to side (laterally compressed). They are usually olive green or blue-green on top and yellowish on the belly with iridescent blue or purple color on the lower jaw and gill cover. They have five to nine vertical dark bands running down the sides which fade out towards the belly. The earflap (opercular flap) of the gill cover is black and there is a dark spot on the base of the dorsal fin near the tail. Breeding males are usually more brightly colored - the iridescent blue is more pronounced and they may have orange throats. Females and juveniles tend to be less brightly colored.

Bluegills range in size from 7 to 15 inches, but most fish are in the 4 to 6 inch range and weigh a half pound or less. Males are usually larger than females of the same age. The U.S. record is a fish caught in Alabama in 1950 which weighed 4 pounds, 12 ounces and was 15 inches long. The Maryland record was caught in Deep Creek Lake in 1998; it weighed 3 pounds, 7 ounces and was 13 inches long.

Unlike many fish which rely solely on their tail (caudal fin) for propulsion, bluegills use both their caudal and pectoral fins for low speed swimming. The caudal fin



is slightly forked with rounded lobes, which allows for sudden bursts of speed over short distances. The pectoral fins are also used for braking and turning. The combination of a short compressed body and large pectoral fins make bluegills exceptionally maneuverable. The front of the dorsal fin has 9 to 12 sharp spines which make the fish difficult for predators to swallow.

Bluegills tend to occur in small schools of 10 to 20 fish, all of the same size.

Senses:

During the day, bluegills rely heavily on vision to locate prey, detect predators and recognize mates. Their eyes are sensitive to color and contrast and are adapted for seeing small moving objects in bright light. Even though they do not have eyelids, their eyes are able to filter out harmful UV radiation.

Range and Habitat:

Bluegills are primarily freshwater fish. They are found in warm, quiet water – ponds, lakes, reservoirs and slow moving streams and rivers – with sand, mud or gravel bottoms and plenty of aquatic vegetation in which to hide. In the Chesapeake Bay watershed, however, they are common in all the tributaries, and are tolerant of brackish water with salinities as high as 18 ppt. They are frequently stocked in farm ponds, both to provide fishing opportunities and for the control of mosquito larvae.

Their preferred temperature range is between 65°F and 80°F, but they can tolerate a much wider range of temperatures. They can survive in water as warm as 95°F, while at the other extreme, they are often the target of ice fishermen in colder areas. They prefer a dissolved oxygen level of at least 5 mg/l although they can tolerate a DO level as low as 1 mg/l for very short periods. Their optimal pH is 6.5-8.5.

Their native range is the eastern half of the U.S. from the Great Lakes and the Mississippi Valley eastward and from southeastern Canada to northeastern Mexico. Thanks to stocking programs, they are now common throughout much of the United States, including Hawaii, and in some areas are considered an invasive species. They have also been introduced in Europe, South Africa, Asia and South America.

Feeding:

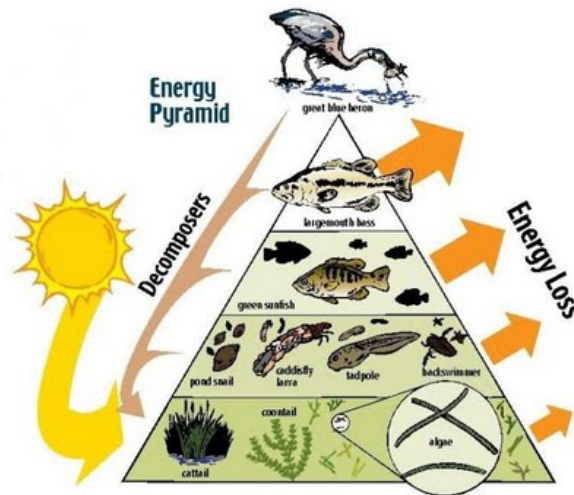
The dietary habits of bluegills are pretty straightforward – they will sample anything that fits in their mouths and does not eat them first. They have even been known to nibble on the toes of unsuspecting swimmers. They have small terminal mouths with fine needle-like teeth and long gill rakers, which makes them perfectly adapted for feeding on small, soft prey. Their diet includes algae, plant seeds, and aquatic vegetation, zooplankton, insects and insect larvae, small crustaceans, fish eggs (including those of other bluegills), larval fish, amphibian eggs, and smaller fish. Different age classes eat the same things; the only difference is in the proportion and size of the prey. During the summer, when there is plenty of food, bluegills may eat up to 35 percent of their body weight a week. In the winter, they may only consume 1 percent weekly.



Because their eyes are adapted for sensing small moving objects in bright light, bluegill feed primarily from dawn to dusk. They often follow a daily migratory pattern, feeding in open water during the day and then moving closer to shore at night.

Predation:

For obvious reasons, bluegill eggs, larvae and young-of-the-year (less than 1 year old) are the most vulnerable to predation. The eggs are often eaten by other bluegills (especially juveniles), other sunfish, smallmouth bass, bullhead catfish, carp, snails and crayfish. As small fish, their main predators are largemouth bass, yellow perch, crappie and adult bluegills. As a rule, when predators are around, young-of-the-year bluegill spend more time feeding among aquatic vegetation even though there is more food available in open water.



From: www.berrylake.info/

Once they reach the age of two or three, however, they are seldom prey, except for big largemouth bass (and other large fish) and humans. There are several reasons for this. First, their body depth is bigger than the mouth of all but the largest predators. Second, the spiny dorsal fins make them difficult to swallow. And third, their speed and maneuverability make them hard to catch. If they survive the first year of life, they may live as long as 11 years, although most do not live past age 9.

Reproduction:

The age at which a bluegill becomes sexually mature depends on water temperature, available food, and competition, but it usually occurs around 2 to 3 years of age or when the fish is about 3 inches long. Spawning behavior is triggered by a combination of increased water temperature and increased light levels. In Maryland,



spawning usually begins when the water temperature reaches around 55°F; peak spawning occurs in spring, but may continue through September.

Like other sunfish, bluegills build nests in colonies which range from just a few nests to a hundred or more. The colonies are located in shallow water with a gravel, sand or hard mud bottom. The male uses his tail to sweep a circular area up to a foot in diameter and two to six inches deep.



From: <http://ozarkfishin.wordpress.com>

He then swims in circles around the nest and grunts to attract a female. Once the eggs are laid and fertilized, they sink to the bottom of the nest. A female bluegill can produce up to 60,000 eggs, depending on her age and size. The entire colony spawns on the same day, and the process may take anywhere from 6 to 12 hours. A male may attract more than one female to his nest and a female may deposit eggs in more than one nest.

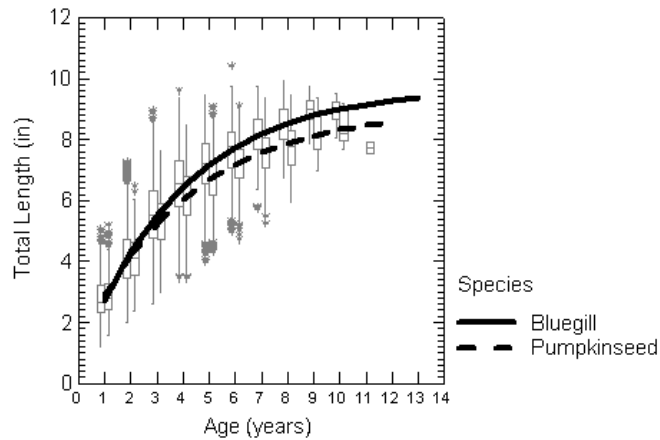
Once spawning is complete, the female leaves and the male is left to guard the nest. He fans the eggs with his pectoral fins to prevent siltation and guards them from predators, which include other bluegills. Given that the nests are very close to one another, a male bluegill is apparently able to distinguish a potential intruder from a neighbor. The eggs hatch in 2 to 5 days. The yolk sac fry cannot swim but remain hidden on the bottom of the nest, and the male continues to guard them for another 5 to 10 days.



From: www.miami.muohio.edu



Once the fry can swim, the male's parental duties are over. The fry begin feeding on tiny zooplankton, gradually moving up to larger food as they grow. Their rate of growth depends on water temperature and available food. Once a fish reaches sexual maturity, growth slows considerably because energy that previously went towards growth now goes towards reproduction.



From: www.fish.state.pa.us/pafish/bluegill/00bluegill_overview.htm

