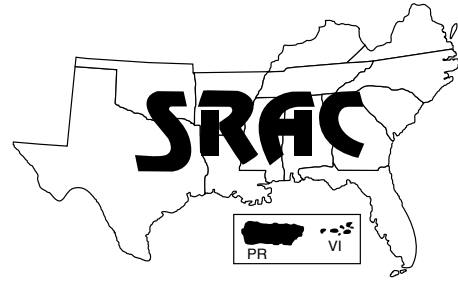


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## Largemouth Bass Biology and Life History

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The largemouth bass (*Micropterus salmoides*) is one of several "basses" that are actually members of the sunfish family. There are two recognized subspecies, the Florida and the Northern, which will blend genetically. Although the two subspecies differ slightly in body structure, behavior, and growth, biochemical tests are necessary to positively identify them.



*Largemouth bass.*

### Food and growth

Largemouth bass are valued by fishermen chiefly because of their fighting ability. They are voracious predators that readily strike artificial baits. Bass begin to eat fish when they are about 2 inches long. They swallow live fish and other aquatic life whole rather than biting off chunks, which limits the size of what they can eat. Depth of the body of the prey must be less than the mouth width of the bass. As a general rule the larger the bass, the larger the prey that will be selected. Very large bass usually will not prey heavily on small fish. Their feeding habits are difficult to categorize completely. One of the reasons that bass feed is to satisfy hunger. The other is apparently a

reflex action toward anything that moves. (The bass motto: If food is there, eat it.)

The availability of adequate size live food (baitfish or forage) usually limits bass growth. With adequate forage, largemouth bass can surpass 2 pounds the first year, but normal growth is about  $1\frac{1}{2}$  pound. Mature females grow larger than males, with Northern strains growing up to 10 pounds; the males seldom exceed 5 pounds. Females of the Florida strains and first generation crosses with Northern strains (F1) have grown to more than 20 pounds. These large sizes are directly affected by the forage available. Though farm ponds were the areas where record-sized bass were caught for many years, large reservoirs have yielded the most trophy-sized fish for the past 20 years.

Largemouth bass will eat a variety of live fish, but bluegill are particularly important in ponds and small lakes because they reproduce throughout the warm months. This furnishes a continual supply of different size forage. Tilapia\* and/or goldfish are commonly used as forage on fish farms and in intensively managed lakes because more can be produced at lower cost. About 5 pounds of live forage are required for annual maintenance, and 10 pounds of forage are required to add 1 pound of gain to largemouth bass.

The swimming speed of largemouth bass has not been studied in depth. For practical purposes, expect bass to swim at speeds up to 2.5 times their body length per second. This means that small fish swim about 2 miles per hour while a 20-inch fish may swim in spurts of up to 12 miles per hour.

Largemouth bass do not grow well in muddy ponds because they usually feed by sight. Water clarity should be at least 15 inches and preferably 24 inches for feeding and best growth. Bass may also feed by attraction to sound or vibrations in the water. This is

\*Texas Agricultural Extension Service.

\*Tilapia are illegal for use as forage in some states.

probably the best explanation for fishing success at night, but even at night sight may be involved as bright moonlit nights are generally preferred to very dark nights. There have been few studies on taste by largemouth bass. It is often reported that bass will take a bait and then "spit it out." This may be a reaction to taste reception but may also be a reaction to the texture of the bait.

The age of largemouth bass has been reported to be up to 15 years in northern United States but is usually less than 11 years in the South. It has also been reported that female bass live longer than males.

Bass normally eat only live food but fingerlings can be trained to eat prepared rations under certain circumstances. See SRAC Publication No. 201, *Culture of Largemouth Bass Fingerlings*, for more information.

## Spawning

Largemouth bass in the South will usually spawn when 1 year old, if they are at least 10 inches long. Males select a nest site in the spring after the water temperature has stabilized above 60° F. Bass normally spawn at temperatures of 65 to 75°F in water depths of 1 to 4 feet near shore, but nesting has been observed as deep as 20 feet in clear water. There are some data, based on induced spawning trials, that indicate spawning is also affected by photoperiod or day length. The male constructs a shallow, circular nest, about twice the male's body length in diameter, by sweeping away debris. Hard substrates such as sand or gravel are preferred and if cover or any form of structure is available, this

will be the area of choice. Males normally guard the area about 6 feet around the nest. If there is an obstruction, males will often nest closer together than 12 feet because they are unable to see one another.

After the nest is completed the male is often observed swimming in the vicinity of the nest searching for a compliant (ripe) female. When a ripe female joins the male, they slowly circle the nest, side by side. Spawning occurs with both fish tilted laterally so their vents are close together. Both fish shudder as eggs and sperm are released simultaneously. The male may turn and check on each release of eggs before resuming the spawning position.

Spawning with multiple females is common. Females normally release about one-half of their eggs during the first spawn and half of the remaining during the second spawn. A third spawn up to 1 month later is common. Females average about 4,000 eggs per pound of body weight, but the number can be quite variable. Reports of up to 80,000 eggs from one female have been reported but the average is much smaller. Larger fish tend to have larger eggs and therefore larger fry but fewer eggs per pound of body weight. Usually at spawning the weight of eggs in females will be 10 percent or more of her body weight. During the spawning season the male does not eat and many males die each year due to their poor body condition prior to the spawning period.

Males attempt to guard the nest and fan the silt away from the eggs until they hatch. If he is successful, eggs hatch in 2 to 4 days in the southern U.S., depending

on water temperature. The male will continue to guard the fry until they disperse, which may be a period of 2 weeks or more depending on temperatures. In nature, most nests are lost to sun-fish predation.

Nesting success is also reduced if the temperature drops below 60° F. This temperature usually causes the male to leave the nest. Without parental care the eggs will not hatch and predation will be increased. The fry feed on the yolk sac of the egg for the first few days. At 68° F they will develop mouthparts in about 190 hours. Fry swim up when they are about 8 days old and begin feeding on zooplankton (cladocerans, rotifers, copepods). They remain in a school, guarded by the male, for 2 to 7 more days before dispersing. They continue to feed on zooplankton and add insect larvae and fish to their diet when about 2 inches long.

Normally fry feed about every three hours as this is the length of time necessary for food to pass through the gut. Adult bass are often observed to feed after about 14 to 24 hours depending on the size of prey devoured.

Studies have found that largemouth bass tend to move toward warm water in the colder months, although this may be affected by prey availability. In addition, most bass will move less frequently when water temperatures are below 50 or above 80° F. Largemouth bass apparently do not learn quickly. There are some bass in every population that are non-learners. This may make up the majority of the harvestable surplus.