

The Outside Story

Spawning Sunfish, Satellites, and Sneakers

By Doug Facey

In the shallow margins of many lakes and ponds in June and July, you may spot male sunfish guarding their nests. The sunfishes (family Centrarchidae) comprise many well-known species – including largemouth bass, smallmouth bass, rock bass, and black crappie – but the most visible nest guarders in early summer are the pumpkinseed, bluegill, and redbreast sunfish. These “sunnies” provide a good introduction to fishing – or simply fish watching.

Pumpkinseeds have wavy bluish-green lines on the head and the rounded lobe on the back of the gill cover (operculum) is black with a bright red or orange margin. Bluegills have a dark, rounded operculum lobe, but it has no red or orange margin; bluegills also often have pairs of dark, vertical markings on the body, and a dark blotch near the back of the fin along their back. Redbreasts have noticeably longer dark operculum lobes than those of both pumpkinseeds and bluegills.

During the spawning season, the bellies of large territorial males of all three species are brightly colored; pumpkinseeds and redbreasts are typically yellow-orange, whereas bluegills tend to be a deeper reddish-copper. This coloration – along with their aggressive behavior toward other males – announces their status as dominant males.

As the shallow waters of lakes and ponds warm to about 55 degrees, territorial male sunfish create nests by plucking away vegetation with their mouths and fanning their tails and fins to clear away silt, leaving a circular nest about 12 inches in diameter and 2 to 6 inches deep. Males may establish nests near one another, sometimes in large colonies. If a territorial male ventures too close to the nest of another, however, the defending fish flares his fins and chases the intruder away.

Bluegills are the most studied of our local sunfishes, and the other species seem to act similarly. Females are attracted to areas with many territorial males defending nests and often arrive in a school, which initiates courtship behavior by the males. To spawn, a female and territorial male position themselves alongside one another and swim in tight circles. About every 30 seconds, the female dips down, rolls to her side, and releases 10 to 30 eggs while the male releases sperm. This occurs multiple times before the male drives the female away and attempts to attract other females.



Pumpkinseed

Females also visit nests of other males to spawn, and territorial males may occasionally visit a neighboring nest to fertilize some eggs before returning to guard their own nest. Spawning lasts several hours, after which a male ceases courtship displays and focuses on guarding the nest. A territorial male may accumulate up to 30,000 eggs from multiple females in his nest during a single day of spawning.

Territorial males become sexually mature around 7 years of age, when they are large enough to become dominant. Some males become mature at a younger age – and smaller size – and rely on alternate strategies to reproduce. In early-maturing males, growth slows, because much of their energy is directed to sperm production; therefore, these fish do not become territorial males.

Some small, mature male bluegills and redbreasts remain near nest sites as “satellite” males, resembling less-colorful females and therefore not attracting the aggression of the territorial males. When a territorial male begins spawning with a female, a “satellite” male may enter the nest, position himself next to the spawning pair, fertilize some eggs, and then leave. He will likely repeat this behavior multiple times, possibly at several nests. Other small, mature bluegill and pumpkinseed males act as “sneakers” – maintaining a safe distance from a nest, but rapidly swimming past a mating pair while releasing sperm, thus fertilizing some eggs. (Sneaker and satellite behavior also occurs in some other fish species, including salmon.)

The fertilized eggs settle to the bottom of the nest, and the territorial male guards them, aggressively chasing off potential rivals or predators. He maintains the nest by fanning his fins to keep it clear of silt and to provide enough oxygen for the developing eggs. Eggs hatch in 2 to 5 days, and the territorial male guards the nest until the young disperse 5 to 10 days later.

Genetic analyses confirm that the eggs in a sunfish nest often come from multiple females, and that only 85 to 90 percent of the eggs were fertilized by the male guarding that nest – indicating the satellite and sneaker tactics are effective. Adult sunfish may spawn several times during the summer, providing ample opportunity for fish-watchers to observe these colorful fish guarding their nests.

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