

Longer catch-and-release time leaves largemouth bass nests more vulnerable to predators

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This image shows bass underwater. Credit: University of Illinois

During spawning season, a largemouth bass male attentively guards its nest. Recent research at the University of Illinois found that catch-and-release angling could give bass predators the perfect opportunity to

consume the young. In fact, the time spent away from the nest during a catch-and-release event and the subsequent exhaustion it creates for the male are critical to the survival of the embryos, particularly in lakes with high densities of brood predators.

"One of the main conclusions of the study was that in a lake where there are very few brood predators, when you angle a male away from his [nest](#) and then immediately release him, the chance of a negative impact is less, but if the nest is located in a part of a lake where there is a high density of brood predators, once the male is removed, predators get into the nest very quickly," said U of I fisheries research scientist Jeff Stein. "On average, the time it took brood predators to begin eating [bass](#) young was less than five minutes in cases where the nest was located near schools of brood predators."

Stein said that the message to anglers is, if they are catch-and-release angling for nesting bass early in the year, it's best if they can get the fish back into the water as soon as possible, especially if the lake is known to have a high density of largemouth bass predators such as bluegill, pumpkinseed, or rock bass.

In the study, 70 nests were located within nine lakes in southeastern Ontario and southwestern Quebec, which were closed to public angling during the data collection period. All of the lakes contained natural largemouth bass populations, with varying numbers of known brood predators. Stein snorkeled in shallow water wearing a neoprene wetsuit that provided buoyancy to float for hours at a time. He observed the nests and assigned scores representing the number of brood predators and the quality of parental care demonstrated by the largemouth bass dads. (The female leaves immediately after laying the eggs and has absolutely no part in parental care of the nest. The males defend the nests from predators.)

Nesting males were captured and held in a live well for 15 minutes, then released – but took another 30 minutes on average to return to their nests. Stein put that return time into perspective by comparing catch-and-release practices for both professional and amateur anglers. "A pro who isn't interested in anything about the fish other than that he caught it will rip that fish over in about 15 seconds into the boat and spend only about another minute or two with the fish before releasing it back into the water," Stein said. "Casual recreational anglers may be afraid they're going to lose the catch and so may play it a little more, which exhausts the fish more. After the fish is caught, it might accidentally flop around on the floor of the boat for a while. They may put it in a live well if they're thinking of keeping it or until they get the camera out. Five minutes or more elapse."

Stein said that by the time the fish is finally released back into the water it's tired and stressed. He compared the fishes' exhaustion to a runner in a marathon being told to hold his breath at the finish line.

When "dads" are released back into the water, they don't head right back to the nest. "They're disoriented so they go to the bottom to sit and recover for a while and get their heart rate back to stasis," Stein said. "The fish is saying, 'Okay, I lived through whatever that was. Now where is my nest?' and by the time it actually gets back to the nest it has been gone from it 30 minutes."

Because bass typically spawn only one time per year when the water temperature reaches a critical threshold, it's doubtful that the male will spawn a second time if it loses its eggs to a predator. This means that, in places that have a high density of brood predators, catch-and-release, particularly during spawning season, could result in a reduction of the bass population.

The bass population is also affected by how many broods are actually

captured each year. "In a lake with 100 bass nests but very little angling pressure and not many predators, one, two, or three nests where the male gets captured and the nest is raided won't make a big difference in the overall population flow because most of the first-year young are going to survive," Stein said. "But in a smaller lake with lots of bluegill and lots of anglers throughout the spawning season—that scenario could affect the next generation of bass."

Fishing spawning beds for bass is a known strategy among knowledgeable anglers, Stein said "During spawning season, the males are highly aggressive and the females are big because they're full of eggs ready to spawn. Some jurisdictions, some provinces, and states in North America disallow any fishing for bass or require catch-and-release angling during the spawning season," he said. "Illinois has a regulation for streams that prohibits harvesting smallmouth bass from April 1 to June 15 to encourage a successful spawn."

"I could envision a future where regionally or in specific lakes in which we know some bass populations may be at risk because of the presence of large numbers of brood [predators](#) and angling pressure is really high, that management would track these ingredients that can have a high [negative impact](#) on the bass population," Stein said. He added that in some areas of Ontario, for example, bass fishing doesn't open until the fourth weekend in June.

"We definitely know that the success rate of largemouth bass nests when parental care is interrupted is lower," Stein said. "During catch-and-release angling, the male may become so physically taxed that it doesn't continue [parental care](#). The big question we're still looking at is how it affects the whole population."

More information: "Quantifying brood predation in largemouth bass (*Micropterus salmoides*) associated with catch-and-release angling of

nesting males," co-authored by David Philipp, was published in a recent issue of *Environmental Biology of Fishes*.

Provided by University of Illinois at Urbana-Champaign

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