Bed fishing and bass populations

Fishing for bass on spawning beds is controversial, with anglers and fisheries managers expressing concern about the practice. Surprisingly, however, very little fisheries research has addressed whether this issue is truly a threat to bass populations or bass fisheries.

A recent study shows that Northern bass populations are more likely to be affected by fishing during the spawn than Southern populations are. Photo by Eric Engbretson

Several studies led by Dr. Dave Philipp and Dr. Cory Suski of the Illinois Natural History Survey have proved that removing male bass from a nest often causes loss of the bass eggs and larvae. If the male is removed from the bed, in some cases only for a few minutes, it is likely to lose the eggs because of nest predators such as bluegill, shiners and other fish. However, the question that has not been addressed is whether the loss of nests because of fishing actually reduces the number of young fish entering the adult population.

Quite a few states in the North close fishing seasons during bass spawning, but the effectiveness of these regulations for protecting bass populations from impacts of fishing has not been evaluated.

To answer these and other questions, we recently conducted a study that assessed the potential for fishing during spawning to impact bass populations. We obtained largemouth bass growth information and angler fishing survey data from state fisheries agencies in Florida, Tennessee and North Carolina and from fisheries researchers in Wisconsin and Michigan. Tagging studies from around the United States also provided estimates of the percentages of adult largemouth bass captured during spawning. Using the data sources as a guide, we built a largemouth bass computer model to explore whether spawning season closures could improve the abundance of adult fish in the population.

We simulated two bass fisheries, one from the Northern states having slow growth and late maturation (fish mature at age 4 or 5) and one from the Southern states having more rapid growth and maturing between ages 2 and 3. We considered several regulations, including no closed season, a catch-and-release-only regulation during spawning, no fishing during spawning, and total catch-and-release all year long.

The data suggested that about a third of the total annual bass fishing effort by anglers occurs during the spawning season in both Northern and Southern fisheries. Largemouth bass in Northern states spawn over a short period (a few weeks to two months), but this region also has relatively short fishing seasons because of ice formation. In Southern states, largemouth bass spawn over periods of two to six months, but the fishing season is longer, meaning that roughly one-third of the annual fishing occurs when fish are spawning in both North and South locations.

The tagging studies suggested that on average about 40 percent of the bass in a lake are caught by anglers in a given year. We infer from this that on average only 10 to 15 percent of the largemouth bass will be caught during the spawning season. Certainly there are cases in which high fishing pressure and very clear water would increase the proportion of fish caught while spawning, but the tagging data indicated that this represented average conditions.

We also simulated a scenario in which most bass would be caught during spawning, and we assumed that all bass caught during spawning would lose their eggs to predators. These assumptions would assess impacts from a worst case scenario.

The results suggested that spawning season closures would not improve most bass populations, even for Northern populations.

This is because loss of some bass nests is typically countered with improved survival of eggs in the nests that are successful. The model predicted that if 10 to 20 percent of the nests are lost because of fishing, the survival rates increase for the other eggs and larvae due to reduced competition and cannibalism. This is a common occurrence in fish populations, which have very high mortality in early life. Lower larval production is typically offset by higher survival, meaning that populations are able to compensate for mortality that occurs during the first year of life.

However, we did find evidence that Northern bass populations would see higher benefits from protecting spawning fish than the Southern populations, particularly when fishing pressure is high. The Northern population was more sensitive to fishing because of later maturation of the fish, and when combined with very high fishing pressure, closed seasons can improve bass populations. Thus, the model showed that under a situation where a very high proportion of bass nests fail due to fishing, the population can suffer large reductions, and a closed season is beneficial. Nevertheless, the existing data indicate that this is the exception rather than the rule across largemouth bass fisheries in North America.

Results of this study indicate that spawning season closures probably don't benefit most bass populations, but there are almost certainly lakes where impacts do occur. Fisheries researchers and managers need to invest more time in identifying the situations where the impacts are occurring, and evaluating the closed season regulations that are currently in place. Experiments are needed that test the effects of fishing on bass populations in both Northern and Southern lakes.

In cooperation with Drs. Philipp and Suski, we are planning experiments like this in both Florida and Canada, and these should shed more light on the impacts of fishing on fish populations. Our results so far indicate that spawning season closures may not improve most bass populations, but this interesting topic deserves more attention and research. We'll report back with more results when they are completed.

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BASS' Chris Horton appointed to council

CELEBRATION, Fla. – BASS Conservation Director Chris Horton has been appointed to the Sport Fishing and Boating Partnership Council (SFBPC), an influential body that advises the U.S. Secretary of the Interior on nationally significant recreational fishing and boating topics and aquatic resource conservation issues.

The appointment was announced recently by Secretary of the Interior Ken Salazar. Horton was appointed to a two-year term on the 20-member board of fisheries leaders and industry representatives.

"From our BASS members' perspective, this is one of the most important efforts going on in Washington, D.C., because it is helping to advise the Secretary of the Interior on recreational angling and boating," Horton said.

"It's an enormous opportunity for us [BASS] to continue to make sure that the concerns and the interests of our members and recreational anglers everywhere are represented within the Department of the Interior."

Since the SFBPC was chartered, BASS has had a seat on the SFBPC. Serving previously was Tom Ricks, vice president and general manager of BASS and ESPN Outdoors.

Past initiatives of the council include creation of the Recreational Boating and Fishing Foundation (RBFF), National Fish Habitat Conservation Act and the National Fish Habitat Action Plan. The panel also provides reviews of how well U.S. Fish and Wildlife Service programs are meeting the needs of the fisheries as well as anglers.

DAVID HUNTER JONES