

## **What's the proper way to hold a hawg ?**

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Over the years fishing for freshwater bass has shifted from harvest for the dinner plate to catch and release. Conservation of black bass, particularly to protect trophy-sized fish, is at the top of most anglers' goals. In an article by professional angler Bernie Schultz in April 2014 titled "How Not to Hold a Hawg", Bassmaster.com highlighted the concerns of many anglers about "safe" and "unsafe" handling methods for large bass. Being a conscientious angler who cares about fish health, Schulz reached out to fisheries scientists for advice on safe handling practices. His questions started some discussion among scientists, because in fact, there was a lack of scientific research that has explored whether different handling methods for bass can cause injury or mortality. As a result Mike Allen and FWC bass specialists teamed up with the Fisheries Conservation Foundation (FCF) to evaluate common handling methods and assess whether handling-method influenced bass feeding, growth, and survival.

The FWC donated use of their hatchery facilities at the Florida Bass Conservation Center, Sumter County, FL. They also provided use of 99 Florida Largemouth Bass brood stock ranging in weight from 2.5 to 8.5 lbs. Objectives were to assess differences in recovery time, feeding behavior and mortality following exposure to one of three commonly observed handling practices. The handling practices we evaluated included 1) a vertical hold with a grip device (vertical), 2) a tilted fully horizontal grip by the lower jaw only (horizontal), and 3) a two-handed cradle (support, see photos). A total of 30 bass were used for each experiment, ten per handling style, and the full experiment was repeated three times. Fish were mildly anesthetized in the hatchery raceway prior to treatment only to minimize self-induced injury when trying to evade net capture. Each time a bass was chosen randomly and held out of the water for one minute in a given handling style. The one minute time frame for handling exceeds the

recommended duration for holding bass out of the water, but we wanted to maximize how fish were exposed to each handling method to compare the effects. Underwater cameras were used to observe the fish after it was subjected to one of the handling practices.



Figure 1. Handling treatments (left) vertical hold, (top right) support, (bottom right) horizontal.

First, we evaluated the time it took for the fish to recover (that is to regain equilibrium and no longer make any jaw adjustments). It turns out there were differences in recovery time among the handling treatments. Bass in the two-hand fully supported group recovered faster on average in less than 10 seconds and 1 minute at maximum. Fish in the other two groups fully recovered within 12 seconds on average and 1 min 36 seconds max for the horizontal group, and 33 seconds on average and 6 minutes max for the vertical group. This infers that holding fish in a two-handed fully supported

manner decreased the time it took for fish to regain equilibrium. Violent head shaking and full jaw extension, which we categorized as major jaw adjustments were observed only in the tilted fully horizontal group, indicating short-term effects of the horizontal handling method on jaw function. However, we saw no evidence of permanent jaw damage or broken jaws as a result of the handling treatments.

Feeding behavior was evaluated twice on the 4<sup>th</sup> and 5<sup>th</sup> day following the handling treatment. Small prey, either Bluegill or Koi Carp (2 to 4 inches), were introduced, and underwater video was used to determine prey strike effectiveness and time to consume prey. We saw no difference in feeding success rates among handling treatments. Predatory chasing behavior of fish towards the prey was similar throughout the study treatments and experiments. Thus, we found no evidence that the handling method employed influenced feeding behavior.

Finally, after the feeding trials the bass were moved to outdoor ponds for 30 days to be monitored for any potential delayed mortality as a result of handling. At the end of this term, they were recovered and transferred to a natural lake for the FWC's Fish Orlando! Program. Mortalities did occur after transfer of the bass to the outdoor ponds, 12% of the total sample. For the surviving fish new symptoms of disease, for example fungus around the eyes, top of the head and gills were observed after 30 days in 8% of the sample. These symptoms could be the result of the handling manipulations. However, there was no difference in the frequency of occurrence of these symptoms or in the number of mortalities among fish from the different treatments.

What did we learn? It was clear that fish in the two-handed support treatment recovered the fastest. The one-handed jaw only horizontal hold caused the most disruption. It had a relatively moderate recovery time similar to the supported hold but required major head shakes and multiple jaw adjustments in many cases in order for the fish to right itself. However, we saw no permanent jaw

damage as a result of handling. The vertical grip had prolonged recovery times compared to the other two groups but we saw no major head shakes or evidence for jaw damage. It's possible that bass in this study were not heavy enough to result in serious damage to the jaw musculature and bone. Certainly the heavier a fish is the more likely the chance of serious and permanent injury. However, we did have multiple fish over 6 pounds in each treatment and fish up to 8.5 pounds. For fish in this size range, we saw no evidence of impaired feeding based on handling method. In the end, there was no permanent injury or mortality that could directly be attributed to any specific handling practice. Trophy bass conservation requires us as anglers and biologists sampling bass or handling broodfish to minimize the potential for injury, damage and disease when handling fish. As researchers we will continue to evaluate these issues and try to provide the best scientific information to anglers who are concerned about the potential implications of handling practices on bass survival.

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