

SOME OBSERVATIONS OF SHORTNOSE GAR (*LEPISOSTEUS PLATOSTOMUS*) BEHAVIORS IN THE MISSISSIPPI RIVER AND BOWFIN (*AMIA CALVA*) FEEDING



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Growing up literally on the Mississippi River, afforded the author many opportunities to interact with, and sometimes make observations that have provided insight on the behavior of the resident fishes. When I was very young, I dip netted a very small fish, took him home, and noting the heterocercal caudal fin and long snout, I was sure I had caught a Paddlefish (*Polyodon spathula*). I fed it cultured daphnia and it grew and I soon realized this was not a Paddlefish but rather a gar. Wishful thinking for sure, but afterwards I thought possessing a gar was pretty cool too! Such is the cases of the observations listed in this article. Upon reading *Freshwater Fishes of North America*, Volume 1 (Warren and Burr, 2014), I realized this very good book synthesizes most documented behaviors of North American fishes so it has enabled me to quickly analyze observations that I felt were not completely previously documented.

NANFA Fellow (and past president) Ray Katula is an R&D Technician at Celanese Corporation. He has a degree in Business Management from Minnesota Southeastern Technical College. He had his first exposure to North American fishes while growing up literally on the banks of the Mississippi River. Ray is a charter member of NANFA (he joined at age 11). At 13, he attended the first NANFA meeting with founder John Bondhus, who flew them in his private plane. In the 1970s, he dabbled in selling fish for the aquarium trade. Ray also lived for several years in California and Oregon, where he collected and studied native fishes of the West Coast and traded when possible for eastern species. He has written several scientific publications and contributed articles to *Tropical Fish Hobbyist*, *Freshwater and Marine Aquarium Magazine*, and last, but not least, *American Currents*. He has kept fish for 47 years and was John Bondhus' fish hatchery manager in southeastern Minnesota. Ray's primary focus is studying behavior and breeding native fishes.

The aforementioned book discusses Shortnose Gar feeding on cicadas. Gars "will patrol actively for food, as, for example, in a situation in Missouri where Shortnose Gars were patrolling the water surface for dying cicadas caught in the stream flow during an emergence of 13- and 17-year periodic cicadas (Vokoun, 2000)." I made somewhat similar observations in mid-July 2000 with a lot of help from my then young son Zachary.

My daughter Brittney was playing in a softball game in Stoddard Park, Vernon County, Wisconsin, where the baseball diamond was situated next to the Mississippi River. My son Zack wandered down a short road opening up to the Mississippi River water's edge, basically a primitive boat landing. Upon returning he informed me that several gars were swimming next to the shoreline. Curious of course, I left the game to see what he was talking about. Upon approaching the shoreline, I noticed some movement at the water's surface so we crouched down as to not disturb the gars. Most of the gars that I have observed over the years outside of spawning season do not approach the shore so closely, not to mention so shallow that some of their dorsal fins were above the water. This period also coincided with the mayfly hatch so there were mayflies everywhere and with a little discernment we could tell a gar would occasionally snatch up one as they fell onto the water's surface. At this spot, there were trees overhanging the water so I decided to give Mother Nature some help and started to shake a branch, disturbing the mayflies and then watching the subsequent feeding frenzy taking place as they fell to the water. The fish were gluttons as evidenced by their distended abdomens. Their occupation of such shallow water seemed unnatural. Spawning season was long over so I knew their rotund condition was from feeding alone. Anywhere from 10 to 12



Shortnose Gar (*Lepisosteus platostomus*). Loon Lake, Jackson County, MN. (Photo by Konrad Schmidt)



Male Bowfin (*Amia calva*) in spawning colors. Long Meadow Lake, Hennepin County, MN. (Photo by Konrad Schmidt)

fish were seen at this shallow/constrained area and averaged about 18 to 20 inches in length. The fish finally noticed us and took off to deeper waters. Gars are opportunistic feeders as suggested in the literature and in aquarium observations so this feeding frenzy does not surprise me, just not sure if this behavior has been reported previously. Apparently Shortnose Gar do enjoy a shore lunch once in a while too.

Another topic discussed in the *Freshwater Fishes of North America* is gar movements. In areas that I have frequented there does seem to be a shift in habitat preference by Shortnose Gar, moving from the Mississippi River into flooded backwaters. In one instance, they migrated from either the main channel or downstream backwaters up into the upper backwater of a creek. For several years in the early 1990s I speared fish with my friend, Randy, in Waumandee Creek, Buffalo County, Wisconsin, in mid-May. An upper pond drained into a creek, which flowed under the Highway 35 bridge and into another pond, which also drained back into a stream channel and backwaters not too far upstream from the Mississippi River. At one point where the flow goes under a railroad track, the flow is quite intense. Standing on the shore ready to spear fish, we would see a steady movement of three species of fishes, moving upstream. Common Carp (*Cyprinus carpio*) were the most common, but we also saw and speared buffalo (*Ictiobus* spp.) and Shortnose Gar, and Randy would smoke the gar in his smokehouse.

Another place where gars would transition to different habitats was a place called Lizzy Paul's Pond. The pond fed directly into the Mississippi River. At a road crossing that went over a culvert leading to an upper pond, at the right time of year, you could sit and watch Shortnose Gar move into the upper pond for spawning. When wading the shoreline of this pond looking for Bowfin fry, I found that the thrashing of my waders was quite an attractant for mostly male gar, albeit there would be an occasional female attracted to this noise. Undoubtedly the noise caused by the waders was similar to the thrashing made by the spawning Shortnose in the shallows. The gar would come within close proximity to participate in the presumed spawning frenzy and could be easily dip netted.

As an aside I will mention an observation I made on Bowfin while visiting the same pond. In the warmer sum-

mer months, this was a favorite spot of mine to either fish or just enjoy observing fish. One afternoon, I watched a Bowfin seemingly waiting patiently by the outflow below the lower pond culvert. Occasionally a bullhead would get washed down the culvert and the Bowfin would swim out and grab it. He would chomp down on it and munch on it like it was popcorn, spines and all, and he would quickly return to his spot awaiting his next meal.

The known predators of gar were also discussed in *Freshwater Fishes of North America*, but it did not mention an activity that I observed near the outlet of Coon Creek, Vernon County, Wisconsin, where it flows into the Mississippi River. At this location, there used to be a myriad of old tree stumps that were likely remnants left behind when dams were constructed on the Mississippi River in the 1930s forming pools. As the pools formed eventually the trees were flooded and died (or perhaps foresters cut down the trees in advance of the flooding). In any case, I would drive by this site several times a day and Bald Eagles were easily visible consuming fish on the emergent stumps. I was always curious what the eagles were eating and several subsequent canoeing forays would provide the evidence. Around the many stumps were numerous gar remnants, e.g., scales, bodies, and skeletons. From my quick field observations, most were Shortnose Gar but Longnose Gar (*L. osseus*) were also likely on the menu, since both species are common in the area. Most often the tough ganoid scales were left behind. Apparently, the eagles did not need this much roughage in their diet. Recently the US Army Corps of Engineers did some stream improvements that removed the stump field and also altered the backwaters near the ball field such that the prior habitats have changed from their previous conditions. I'm sure the gar's surface breathing habits make them vulnerable targets for eagles.

References

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