First Observations of Young-of-Year Gulf of Mexico Sturgeon (Acipenser oxyrinchus de sotoi) in the Suwannee River, Florida

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FIRST OBSERVATIONS OF YOUNG-OF-YEAR GULF OF MEXICO STURGEON (ACIPENSER OXYRINCHUS DE SOTO) IN THE SUWANNEE RIVER, FLORIDA.—Gulf of Mexico sturgeon, Acipenser oxyrinchus de sotoi (sometimes referred to as Gulf sturgeon), is an anadromous species with spawning migrations into rivers occurring primarily from late Feb. to early May (Huff, 1975; Wooley and Crateau, 1982; Chapman and Carr, 1995). The adult sturgeon remain in the river until the fall, when they migrate into the Gulf of Mexico (Huff, 1975; Wooley and Crateau, 1982).

Previous investigators have been unable to locate the spawning grounds of Gulf of Mexico sturgeon or to determine where young fish venture after they hatch. During early May, a single collection of 1-2-day-old-larvae was made by Wooley et al. (1982) working upstream in the Apalachicola River in northwest Florida. In the Suwannee River, primarily at the river’s mouth, juvenile sturgeon [60-70 cm in total length (TL), 0.5-2.5 kg] are commonly captured during winter and spring; the smallest individual collected during this time was 42 cm TL and 300 g in body weight (J. P. Clugston, National Biological Service, pers. comm.).

The Gulf of Mexico sturgeon is federally protected as a threatened species (Federal Register, 1991). A mandate for sturgeon recovery is to identify essential habitats important to each developmental life stage of the species. In this study, we report the first observation of young-of-year sturgeon in the upper reaches of the Suwannee River.

Materials and Methods.—We attempted to locate Gulf of Mexico sturgeon around aquifer springs that naturally seep into the Suwannee River (DER, 1985). We believe river areas in close proximity to springs are likely spawning sites for Gulf of Mexico sturgeon. Sturgeon require hard bottom substrates to deposit their eggs (Doroshov, 1985). Suwannee River natural spring areas are known to consist primarily of deep trenches and outcroppings of hard limestone (Rosenau et al., 1977). In addition, Chapman and Carr (1995) indicated that cool water temperatures (15–22 C) are necessary for optimal spawning and larval survival of Gulf of Mexico sturgeon. Water temperatures of the Suwannee River springs are stable at around 18–21 C (Rosenau et al., 1977), and adult sturgeon are often found in proximity to these springs (Chapman and Carr, 1995).

Sturgeon were captured with a dip net. The fish were also collected by hand by snorkeling divers. The term young-of-year (YOY) refers to juvenile sturgeon from 1 month to approximately 1 year in age (July 1). Fish were measured (TL in cm) and weighed (g) using a measuring tape and balance. Approximate sizes of sturgeon in the water were estimated from video and photographs taken at the site. Water temperatures were taken approximately 6 cm above the river bottom.

Results and discussion.—The number and body sizes of young Gulf of Mexico sturgeon ob-
The other two fish were 21.0 and 22.0 cm TL and weighed 31.0 g each. The water temperature in the area was 22.8 C.

Based on growth on Gulf of Mexico sturgeon in the laboratory (F. A. Chapman, unpubl. obs.; Mason et al., 1992), we estimate the sturgeon observed upstream in the Suwannee River were 110 to 175 days old. These sturgeon were probably YOY and born sometime in March, April, or early May. It is difficult to determine the age of YOY sturgeon using fin-ray sections. Laboratory studies demonstrate, however, that even in unfavorable conditions (i.e., high densities and restricted feeding), the length of Gulf of Mexico sturgeon after a 1-year growth period is substantially greater than the size of the fish we observed in the field (F. A. Chapman, unpubl. obs.).

Spring spawning migrations by sturgeon in the Suwannee River were first reported by Huff (1975) and more recently by Chapman and Carr (1995). Our observations and collection of YOY in the field confirm that Gulf of Mexico sturgeon spawn during the spring. Most important, our observations also suggest that YOY sturgeon remain in the river after they hatch. Chapman and Carr (1995) suggested that natural springs of cool water (18–21 C) flowing into the Suwannee River provide an essential habitat for adult Gulf of Mexico sturgeon in summer months. Our observations indicate that these spring areas also provide suitable habitat for the YOY sturgeon. It is unknown when YOY Gulf of Mexico sturgeon swim downstream and into the estuary. In the Suwannee River, adult sturgeon remain in the river after spawning, and in the fall (Oct.–Nov.) they migrate into the Gulf of Mexico (Huff, 1975; Chapman and Carr, 1995). Perhaps at this time of year, YOY sturgeon also move into the estuary. Larvae and juvenile Atlantic (A. oxyrinchus) and shortnose (A. brevirostrum) sturgeon are known to remain upstream in rivers during the warmer months of the year (when water temperatures are above 20 C), and move downstream to congregate in deeper brackish waters before they migrate out to sea (Gilbert, 1989).

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LITERATURE CITED


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