

**Abundance, age structure, and spatial distribution of lake sturgeon  
*Acipenser fulvescens* in the St. Clair System**

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*Abstract.*—Historically, the St. Clair River and Lake St. Clair supported an abundant lake sturgeon population. Since the early 1900s, the status of lake sturgeon populations within these waters has been unknown, largely due to the demise of the commercial fishery. We initiated a study in 1996 to determine the spawning locations, abundance, age structure, and spatial distribution of lake sturgeon in the St. Clair River and Lake St. Clair. One spawning site was identified in the North Channel of the St. Clair River. The site was unusually deep, 9 to 12 m, with a substrate of coal cinders. A total of 1,238 lake sturgeon were captured with trap nets, setlines, trawls, and gill nets. Nearly all the fish captured were tagged and released. Fifty-six tag recoveries were recorded for all sources (assessment, sport fishing, and commercial fishing). Seven fish were recaptured twice, providing more details on individual movements and growth. Tag recoveries documented movement into southern Lake Huron and Lake Erie. Factors such as the open nature of the St. Clair system, unknown level of fishing mortality, tag loss, and individual fish behavior deterred efforts to use mark-recapture data to estimate population size. Age structure, based on interpretation of pectoral fin ray sections, indicated consistent recruitment during the 1970s and 1980s, but low recruitment prior to 1973 and after 1994. Trawling and sidescan sonar analysis documented an area of consistently high lake sturgeon density in the lake near the St. Clair River delta. We used sidescan sonar to estimate the abundance of lake sturgeon in a 255-ha section of that area of the lake at over 29,000 fish in 1999 and about 5,000 fish in 2000. Results of this study indicate the St. Clair system supports a large number of sturgeon with some movement into Lakes Huron and Erie. During summer, sturgeon are densely aggregated in a small geographic area of Lake St. Clair. This dense aggregation likely represents fish from several different spawning locations, including the one identified on the North Channel of the St. Clair River. Gaining an understanding of the characteristics that make that area a preferred location may enhance environmental protection efforts and assist in habitat restoration efforts in other Great Lakes connecting waters.

Lake sturgeon *Acipenser fulvescens* is the only species of sturgeon endemic to the Laurentian Great Lakes. Within the last century, lake sturgeon populations have been

dramatically reduced or extirpated from much of their native range (Harkness and Dymond 1961; Brousseau 1987; Hay-Chmielewski and Whelan 1997). Life history traits, such as long life span,