



Status: State Threatened

Global and state rank: G5/S1

Family: Percidae (perch and darters)

Total range: Sauger are native to the St. Lawrence – Great Lakes, Hudson Bay, and Mississippi River basins from Quebec to Alberta and south to the Tennessee River in Alabama and northern Louisiana. It has been introduced into the Atlantic, Gulf, and southern Mississippi River drainages (Page and Burr 1991, Scott and Crossman 1973).

State distribution: Historically sauger were abundant in Lake Erie, Saginaw Bay, and less common in Lakes Michigan, Huron, and Superior and their main tributaries (Evers 1997). In the last 20 years, the sauger has been recorded in only the St. Clair River and Lake St. Clair.

Recognition: The sauger is an elongate, cylindrical fish from the perch family with large canine teeth (Smith 1979). They are yellowish-olive or gray with three to four widely spaced dusky saddles that extend down each side (Smith 1979). The main distinguishing characteristics of the sauger are the rows of distinct, dusky spots on the first dorsal fin and the black spot at the base of the pectoral fin (Smith 1979, Smith 1985). Sauger have two obviously separated dorsal fins, the first has 12-13 spines and is triangular in shape whereas the second dorsal has one fine spine and 16-21 rays and

is higher or as high as the first dorsal (Scott and Crossman 1973, Trautman 1981). They have a complete lateral line with 82-100 scales (Scott and Crossman 1973). Sauger have 5-8 pyloric caeca (finger-like pouches at the junction of the stomach and intestine).

The sauger looks very similar to the walleye but the sauger has many black spots on the first dorsal fin whereas the walleye has a single large black spot at the rear of the first dorsal and a white spot at tip of lower caudal lobe (Page and Burr 1991).

Best survey time/phenology: Sauger are best surveyed for at night.

Habitat: The sauger can be found in lakes, reservoirs, and large rivers (Smith 1985) and seem to prefer systems that are turbid. The turbidity “may prevent excessive egg adhesion and thereby reduce suffocation, protect young from predators, and facilitate feeding of young by concentrating plankton near the surface” (Scott and Crossman 1973). Sauger generally prefer systems where temperatures in the entire water column are within their temperature preferences (Scott and Crossman 1973).

Biology: Sauger spawn over gravel/rubble shoals in May or June when temperatures are around 3.9-6.1°C (Scott and Crossman 1973, Smith 1985). Sauger do not build nests but broadcast adhesive, demersal (sinking)



eggs over shoals in 0.6-3.6m of water at night (Scott and Crossman 1973, Smith 1985). The males typically arrive at spawning shoals before females. Spawning takes place in about a 2 week period. The recently hatched sauger spend between 7 and 9 days along the bottom absorbing yolk (Scott and Crossman 1973). Sauger can live up to 13 years and become sexually mature between 2-3 years for males and 4-6 years for females (Scott and Crossman 1973).

Sauger are sight predators and exhibit negative phototropism, meaning they tend to stay away from light, and so feed at night in clearer waters and may feed throughout the day in more turbid waters (Schlick 1978). Young sauger mainly feed on zooplankton and aquatic insect larvae (Scott and Crossman 1973, Hesse 1994). Adult sauger feed on fish and invertebrates, specifically gizzard shad, emerald shiner, crappie, bass, freshwater drum, leeches, crayfish, and insects (Scott and Crossman 1973, Fitz and Holbrook 1978, Rawson and Scholl 1978, Smith 1985, Walh and Nielsen 1985). In the Ohio River, gizzard shad and emerald shiner were the most common prey of sauger, followed by freshwater drum, channel catfish, and mimic shiners. Emerald shiners are an important component of sauger diets during most of the year, declining somewhat from October to January. In the spring, invertebrates are their staple. From September through January gizzard shad make up a large component of sauger diets and freshwater drum and channel catfish become large components of the diet in July and August. The most rapid period of growth for sauger is during September to March (Walh and Nielsen 1985). Females typically grow faster and are larger than males (Fitz and Holbrook 1978).

Sauger tend to have considerable population fluctuations (Hackney and Holbrook 1978). They are often found in systems with highly diverse fish communities and where yellow perch and walleye are not as common (Clady 1978).

Movements: Sauger can have extensive movements, especially during their spawning season (Jeffrey and Edds 1999). They have been known to move up to 380 km (Collette et al. 1977).

Interesting note: The sauger mainly feeds at night or during twilight hours. They are able to do this because

of a special structure in their eye called the tapetum lucidum. This is a reflective structure in the eye that acts like a mirror and reflects light back through the retina, giving the retina two chances to catch the light.

Conservation and management: Over-fishing and environmental degradation are often blamed for the saugers decline (Rawson and Scholl 1978). However, these reasons are not always agreed upon. Evers (1994) suggests that due to the saugers tolerance of turbidity, their population declines are not likely related to habitat degradation. There is also debate as to whether competition with walleye has aided in sauger declines. Management targeted towards restoring and/or preserving spawning and other critical habitats is needed.

Research needs: Identification of spawning grounds and other critical habitats is crucial for the effective management of sauger. In addition, more information is needed on why sauger have declined in the Great Lakes region. A better understanding of sauger and walleye interactions in the Great Lakes is also important for effective management.

Selected references:

- Clady, M.D. 1978. Structure of fish communities in lakes that contain yellow perch, sauger, and walleye populations. American Fisheries Society Special Publication 11: 11-108.
- Collette, B.B., M.A. Ali, K.E.F. Hokanson, M. Nagiec, S.A. Smirnov, J.E. Thorpe, A.H. Weatherly, and J. Willemsen. 1977. Biology of the percids. Journal of the Fisheries Research Board of Canada 34: 1890-1899.
- Evers, D.C. 1994. Fish: species accounts. In D.C. Evers, ed., Endangered and threatened wildlife in Michigan. University of Michigan Press, Ann Arbor, MI, p. 265-267.
- Fitz, R.B. and J.A. Holbrook II. 1978. Sauger and walleye in Norris Reservoir, Tennessee. American Fisheries Society Special Publication 11: 82-88.
- Hackney, P.A. and J.A. Holbrook II. 1978. Sauger, walleye, and yellow perch in the southeastern



United States. American Fisheries Society
Special Publication 11: 74-81.

Hesse, L.W. 1994. The status of Nebraska fishes in the Missouri River. 6. sauger (Percidae: *Stizostedion canadense*). Transactions of the Nebraska Academy of Sciences 21: 109-121.

Jeffrey, J.D. and D.R. Edds. 1999. Spring movements and spawning habitat of sauger (*Stizostedion canadense*) in a small Midwestern USA reservoir. Journal of Freshwater Ecology 14(3): 385-397.

Page, L.M. and B.M. Burr. 1991. A field guide to freshwater fishes: North American north of Mexico. Houghton Mifflin Company, Boston, Massachusetts. 432 pp.

Rawson, M.R. and R.L. Scholl. 1978. Reestablishment of sauger in western Lake Erie. American Fisheries Society Special Publication 11: 261-265.

Scott, W.B. and E.J. Crossman. 1973. Freshwater fishes of Canada. Bulletin 184, Fisheries Research Board of Canada, Ottawa, 966 pp.

Smith, C.L. 1985. The inland fishes of New York State. New York State Department of Environmental Conservation, Albany, NY. 522 pp.

Smith, P.W. 1979. The fishes of Illinois. University of Illinois Press, Urbana. 314 pp.

Trautman, M.B. 1981. The fishes of Ohio. Ohio State University Press. 782 pp.

Wahl, D.H. and L.A. Nielsen. 1985. Feeding ecology of the sauger (*Stizostedion canadense*) in a large river. Canadian Journal of Fisheries and Aquatic Sciences 42:120-128.

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