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Fecundity of the Pallid Sturgeon

K. D. KEENLYNE

*U.S. Fish and Wildlife Service
420 South Garfield Avenue, Suite 400
Pierre, South Dakota 57501, USA*

E. M. GROSSMAN

*U.S. Fish and Wildlife Service
Post Office Box 021287
Juneau, Alaska 99802, USA*

L. G. JENKINS

*U.S. Fish and Wildlife Service
612 June Avenue
Panama City, Florida 32405, USA*

Abstract.—Fecundity was estimated for a 17,110-g, 41-year-old, female pallid sturgeon *Scaphirhynchus albus* taken from the upper Missouri River. The mass of mature eggs weighed 1,952 g, which represented 11.4% of total body weight. Using a mean of 87 eggs/g, we estimated total fecundity at 170,000 eggs for this fish.

Little is known about reproduction of the pallid sturgeon *Scaphirhynchus albus*. Kallemeyn (1983) reported that males reach sexual maturity at 53.3–58.4 cm, but size and age of females at sexual maturity are unknown. Nothing exists in the literature on fecundity of the species.

A major problem in obtaining data on the reproductive potential of this species is the difficulty in collecting fresh specimens in reproductive con-

dition. Williams et al. (1989) indicated that the species had declined drastically over the previous 10 years because of habitat destruction, and they considered it in danger of becoming extinct. In listing the pallid sturgeon as an endangered species throughout its range, the U.S. Fish and Wildlife Service cited loss of suitable habitat and an apparent failure of successful reproduction for over a decade as reasons to conclude that the species is in danger of extinction (*Federal Register*, September 6, 1990).

Our report on fecundity is based on a single large female taken from the Missouri River by an angler near Fort Rice, Morton County, North Dakota. The fish weighed 17,110 g and was 140.4 cm in fork length.

Methods

We used a low-speed diamond saw (Buehler isomet) to cut transverse sections 0.3–0.5 mm thick from the leading right pectoral fin ray proximal to the body. Annuli exposed in the sections were read with a compound microscope to estimate the fish's age (Currier 1951; Zweigacker 1967; Priegel and Wirth 1971).

The ovary, containing uniformly dark eggs, was removed and weighed to the nearest gram. Egg samples were taken from a central portion of the egg mass at anterior, middle, and posterior sections of the ovary. The average number of oocytes

per gram was calculated to estimate the total number of eggs contained in the ovary. Egg length and diameter were also recorded to the nearest 0.1 mm.

Results and Discussion

Total ovary mass was 1,952 g, representing 11.4% of the total body weight. Oocytes were uniformly light-black and ovoid, indicating that the eggs were in late-stage maturity and suitable for spawning (Conte et al. 1988). Oocyte size ranged from 2.5 to 3.0 mm in length and from 2.0 to 2.5 mm in diameter. Mean number of oocytes was 87/g, yielding a fecundity estimate of 170,000 for this fish.

At age 41, this is the oldest reported pallid sturgeon, surpassing the 27-year-old specimen collected in South Dakota (Kallemeyn 1983). However, if size is a reasonable indicator of age, this fish may not have been unusually old. A much larger specimen, also taken in North Dakota, weighed 30.8 kg (Carlander 1969).

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