

THE TILAPIA *SAROTHERODON AUREA* (STEINDACHNER) IN THE NORTH CANADIAN RIVER IN CENTRAL OKLAHOMA

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The tilapia is a member of the family Cichlidae, which is native to tropical or warm waters of Africa, Madagascar, Syria, India, Ceylon and Central and South America. The tilapia has been studied in great detail in areas where it is indigenous, both as a forage form and as a food species for humans. Because of this suitability the tilapia has been transplanted to many warm places over the earth, including the United States. Now, for the first time, a large uncultured population of *Sarotherodon aurea* has been found to exist in Oklahoma waters.

The purpose of this paper is to report the existence of *S. aurea* in the Oklahoma City area and the extension of its range into the North Canadian River.

A biological survey of the North Canadian River northwest of Harrah, Oklahoma (SE 21, SW 22, R1E, T12N), on June 7, 1977, revealed 308 specimens of *Sarotherodon aurea* (Steindachner). The sampling area encompassed about 250 m of the river. The sampling gear was a 5-m minnow seine.

A monthly sampling program was established at the Harrah site in order to monitor the population of *S. aurea*. Collections during the succeeding months produced 1,101 in July, 268 in August, 82 in October, and 41 in November. Several collections were made during late October and early November by Charles Marshall of the Oklahoma City-County Health Department. Two other collections of *S. aurea* were reported by personnel from the Oklahoma Department of Wildlife Conservation. During July, G. Wolf reported tilapia in the North Canadian River at Okemah (105 river km downstream). On November 7, 1977, Garland Wright collected 11 specimens using electro-fishing gear in the Deep Fork Arm of Lake Eufaula in the Fountainhead Cove (250 river km downstream).

The range of the *S. aurea* in the North Canadian River now appears to cover about 383 river km. The farthest upstream collection was made below Lake Overholser (58 river km upstream). The farthest downstream occurrence was in Lake Eufaula (250 river km downstream).

The movement of *S. aurea* into the North Canadian appears to have taken place between April and June, 1977. Sampling at the Harrah site during June 1976 and January, March and April of 1977 failed to produce this species. A source of the *S. aurea* could have been the Oklahoma Gas and Electric Company power pool northwest of the Harrah site. A project using *S. aurea* in that power pool (Horseshoe Lake) was conducted from 1972-1976, but was discontinued in 1976. This species may have escaped from this area.

The *S. aurea* appear to have carried on successful reproduction in the North Canadian River. This is supported by the size ranges encountered. The smallest fish was 12.7 mm, collected below Lake Overholser, far upstream from the possible point source of introduction. The largest specimen was 292 mm, collected at the Harrah site in July. In most collections, the size ranges indicated at least four age groupings.

On October 11, 30 dead tilapia were found below the SE 4th Street Sewage Plant in Oklahoma City. A survey of 100 m produced an additional 30 dead tilapia, while no other dead fish were found and seining failed to show any living fish at this time. Water analysis at this time indicated that high ammonia (16 mg/l) was the probable cause of the kill.

Sampling on December 5, 1977, when water temperature was 5.4 C, produced no living specimens, but 13 dead specimens were found, indicating that winter mortality had occurred. The lethal temperature for this species is 13.3 C (1). Sampling

during January and February yielded no additional specimens, possibly indicating the eradication of this species during the severe winter of 1977-78.

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REFERENCES

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