

CHANGES IN THE ICHTHYOFAUNA IN THE BEAVER RESERVOIR TAILWATERS

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ABSTRACT

Collections of the fishes in the tailwaters of Beaver Reservoir were made during the spring and summer of 1968. The present study is a continuation of an investigation designed to follow the development of the ichthyofauna in the cold tailwaters below Beaver Dam, Arkansas. A total of 527 fishes representing 21 species, 12 genera, and 7 families has been identified. Eight species collected in 1968 were not reported by Brown, et al. (1967) and 7 species reported in the 1967 publication were not collected in this study. *Campostoma anomalum* was still the most abundant cyprinid collected and darters were also abundant. In the 1968 study more species of centrarchids were collected than previously reported. Both *Salmo trutta* and *Salmo gairdneri* are now present in the tailwaters of Beaver Dam.

INTRODUCTION

The upper White River system, located in northern Arkansas and southern Missouri, has been impounded at five locations changing this natural stream habitat into a series of reservoirs with cold tailwaters (Brown, Liston, and Dennie, 1967). The primary question concerns the initial effects of impoundment upon the species and relative abundance of fishes in the cold tailwater environment immediately below the dam. Cashner (1967) and Brown (1967) have shown that warm-water sport fisheries were destroyed for several miles below the older reservoirs on the White River. However, trout stocking programs on a "put and take" basis have aroused new fishing interests in these areas.

The objectives of this study were to determine the species of fish present in the Beaver Reservoir tailwaters during the spring and summer of 1968, and to compare the present composition of the ichthyofauna with that reported by Brown, et al. (1967) for the period October, 1965 through December, 1966.

MATERIALS AND METHODS

Collecting stations were established in the tailwaters to coincide with the areas utilized and described by Brown (1967), and were approximately 0.25, 1.9, and 3.5 miles from the base of Beaver Dam (Fig. 1). Fishes were collected by a variety of methods to circumvent gear selectivity. An 1/8-inch mesh seine and a gasoline-powered generator with 115 volt, 300 watt capacity supplying electrical power, were employed as a modified electro-seining technique. However, the most efficient method of collecting was accomplished by stunning the fish with electrical current supplied by a back-pack electro-shocker and picking them up with dip nets or by hand. Collections were taken from both pool and riffle habitats at each station. All specimens were placed in 10% formalin at the time of collection and later identified and counted. Species were identified according to Moore (1968), and the nomenclature used followed that recommended by the American Fisheries Society (1960) with certain modifications.

RESULTS AND DISCUSSION

A total of 527 fishes representing 21 species, 12 genera, and 7 families has been identified for this study, while Brown, et al. (1967) collected a total of 1,193 fishes representing 18 species, 11 genera, and 8 families.

A list of the species present at Stations B₁ B₂ and B₃ are shown in Table 1. The stoneroller (*Campostoma anomalum*) was the most abundant species at each station, although only 5 species of cyprinids were collected during the current study. Of 6 species of centrarchids collected, only green sunfish (*Lepomis cyanellus*) were taken

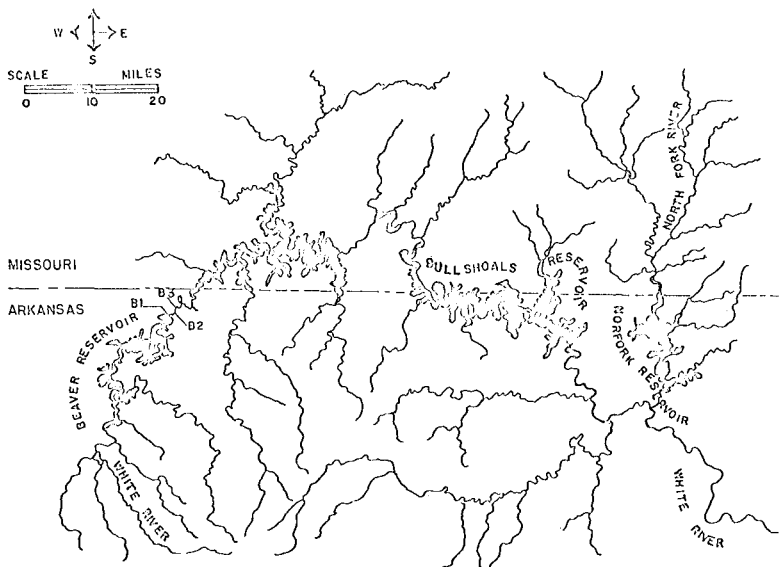


Figure 1. Location of the collecting stations in the Beaver Reservoir tailwaters.

TABLE 1

Species and numbers of fishes present in the Beaver Reservoir tailwaters at Stations B₁, B₂, and B₃.

Species	Station B ₁	Station B ₂	Station B ₃
<i>Dorosoma cepedianum</i>	1	—	—
<i>Camptostoma anomalum</i>	106	54	76
<i>Cyprinus carpio</i>	1	1	—
<i>Notropis chrysocephalus</i>	—	1	—
<i>Notropis pilsbryi</i>	—	2	—
<i>Hypentelium nigricans</i>	—	—	1
<i>Ictalurus melas</i>	3	—	—
<i>Lepomis cyanellus</i>	31	2	6
<i>Lepomis macrochirus</i>	1	—	2
<i>Lepomis microlophus</i>	1	—	—
<i>Lepomis megalotis</i>	1	4	—
<i>Micropterus salmoides</i>	—	2	4
<i>Micropterus punctulatus</i>	1	—	—
<i>Etheostoma blennioides</i>	2	1	—
<i>Etheostoma caeruleum</i>	4	17	14
<i>Etheostoma punctulatum</i>	7	18	3
<i>Etheostoma spectabile</i>	13	67	30
<i>Percina caprodes</i>	17	22	7
<i>Salmo trutta</i>	1	—	—
<i>Salmo gairdneri</i>	2	—	—
<i>Pimephales notatus</i>	1	—	—
Total	193	191	143

at each station. Generally, a large number of darters were collected at each station. Seventeen of the 21 species listed were collected from Station B₁; while 12 and 9 species were collected from Station B₂ and B₃, respectively.

A comparison of the species reported by Brown, et al. (1967) and of those collected in this study is listed in Table II. In both studies there was a paucity of cyprinids with the exception of the stoneroller (*Campostoma anomalum*) and an abundance of darters. Centrarchids were more abundant than previously recorded both in species and in numbers. White bass (*Roccus chrysops*) and walleye (*Stizostedion vitreum*) appear in this tailwater area periodically during the spawning season (R. Martin, personal communication).

A rainbow trout stocking program was begun on May 22, 1967, by the Arkansas Game and Fish Commission to promote fishing interests in this area. Three trout were collected at Station B₁ (*Salmo trutta* and *Salmo gairdneri*) and were approximately 5 inches each in total length.

Keith (1964) reported 72 species and 5 hybrid combinations in a pre-impoundment survey of Beaver Reservoir. Subsequently, impoundment has greatly altered both the species and numbers of fishes in the tailwaters of Beaver Reservoir. Also it appears that the qualitative and quantitative fluctuations of the ichthyofauna in the Beaver Reservoir tailwaters have not reached a stable condition.

TABLE 2

A comparison of the species and numbers of fishes collected from the tailwaters of Beaver Reservoir during 1965-1966 and the spring and summer, 1968.

Species	1965-1966*	1968
<i>Dorosoma cepedianum</i>	9	1
<i>Campostoma anomalum</i>	599	236
<i>Cyprinus carpio</i>	—	2
<i>Notropis chrysocephalus</i>	—	1
<i>Notropis pilsbryi</i>	3	2
<i>Notropis galacturus</i>	1	—
<i>Notropis whipplei</i>	1	—
<i>Hypentelium nigricans</i>	4	1
<i>Ictalurus punctatus</i>	1	—
<i>Ictalurus melas</i>	—	3
<i>Fundulus catenatus</i>	2	—
<i>Fundulus olivaceus</i>	7	—
<i>Lepomis cyanellus</i>	1	39
<i>Lepomis macrochirus</i>	3	3
<i>Lepomis megalotis</i>	—	5
<i>Lepomis microlophus</i>	—	1
<i>Micropterus salmoides</i>	23	6
<i>Micropterus punctulatus</i>	—	1
<i>Etheostoma blennioides</i>	—	3
<i>Etheostoma caeruleum</i>	391	35
<i>Etheostoma juliae</i>	4	—
<i>Etheostoma punctulatum</i>	1	28
<i>Etheostoma spectabile</i>	48	110
<i>Percina caprodes</i>	92	46
<i>Cottus caroliniae</i>	3	—
<i>Salmo trutta</i>	—	1
<i>Salmo gairdneri</i>	—	2
<i>Pimephales notatus</i>	—	1
Total	1193	527

* Listed by Brown, et. al. (1967).

SUMMARY

Brown, et al. (1967) collected 18 species and observed a paucity of cyprinids with the exception of *Campostoma anomalum* and noted an abundance of darters. A total of 21 species was collected in this study with only slight changes in the composition of the ichthyofauna. Centrarchids, although well represented by six species, were generally few in numbers. Species present now that were not reported by Brown, et al. (1967) are *Notropis chrysocephalus*, *Ictalurus melas*, *Lepomis microlophus*, *Micropterus punctulatus*, *Etheostoma blennioides*, *Salmo trutta*, *Salmo gairdneri*, and *Pimephales notatus*. Species reported by Brown, et al. (1967) which were not collected in the present study are *Notropis galacturus*, *Notropis whipplei*, *Ictalurus punctatus*, *Fundulus olivaceus*, *Fundulus catenatus*, *Etheostoma juliae*, and *Cottus caroliniae*.

ACKNOWLEDGMENTS

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GROWTH OF BLUE CATFISH *Ictalurus furcatus* (LeSueur) IN THE TOMBIGBEE RIVER OF ALABAMA

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ABSTRACT

Length-weight data from 196 fish and spine samples from 125 fish taken August 5, 1965 were used to determine growth and age composition of blue catfish in the upper Tombigbee River in Western Alabama. Mortality rates were calculated in an effort to determine the abundance of harvestable age classes of fish. The 1964 year class was represented by one specimen and no fish of the 1965 year class were taken in the sample area. The year classes prior to 1964 were well represented in the

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