

THE OCCURRENCE OF BLACK BUFFALO, *ICTIOBUS NIGER*
(RAFINESQUE), IN LAKE MITCHELL, SOUTH DAKOTA¹

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Although three buffalofishes, (*Ictiobus* spp.), occur in the Mississippi River basin, including the Missouri River and the lower reaches of its larger tributaries (1, 2, 3), published records have not clearly established the presence of the black buffalo (*I. niger*) in South Dakota waters. The bigmouth buffalo (*I. cyprinellus*) is common in the Missouri River impoundments and in the larger streams and lakes of eastern South Dakota. The smallmouth buffalo (*I. bubalus*) is less common and appears to be restricted to the Missouri River and the lower courses of the larger tributaries.

Morphological similarity among the three species, their association with each other, and an undetermined degree of hybridization often lead to misidentification. The bigmouth buffalo is easily separated from the other two species but the smallmouth buffalo is often difficult to distinguish from the black buffalo. Bailey and Allum (4) stated, "In some waters they usually can be separated; in others they seem to grade into one another. Whatever the systematic relationships, we know of no evidence that the black buffalo occurs in South Dakota, except for Cleary's records and he did not map the smallmouth buffalo from the Big Sioux or Missouri rivers." On this basis they considered Cleary's (5) record of black buffalo in the Big Sioux river as "probable misidentifications."

Biologists of the Bureau of Commercial Fisheries have examined several thousand buffalo from Lake Oahe since 1963. Only bigmouth and smallmouth buffalo have been identified; specimens having characteristics of the black buffalo were usually judged to represent variants of these two species, or possibly hybrids. Benson (6), in an extensive review of fishery studies on Missouri River main stem reservoirs, did not list the black buffalo among the 59 species collected in these reservoirs. Black buffalo, however, were listed among the fishes of North Dakota by Dotson (7). He reported that four buffalo collected in Lake Sakakawea (Garrison reservoir) in 1959 and examined by Dr. C. J. D. Brown and L. H. Carufel were identified as *Ictiobus niger*.

The occurrence of black buffalo in South Dakota was confirmed when about 25 individuals were caught in experimental hoop nets during test netting in Lake Mitchell, June 25, 1968. These fish were among several hundred pounds of

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Table 1. Biological characteristics of eight black buffalo from Lake Mitchell, South Dakota, June, 1968.

Total Length (mm)	Fork Length (mm)	Standard Length (mm)	Weight (kg)	Sex	Age	Number lateral line scales	Body depth (mm)	Head length (mm)	Eye diameter (mm)
574	524	476	2.83	M	VII	41	146	105	18
586	546	485	3.19	M	VII	42	150	113	17
751	690	609	5.88	M	XII	41	190	133	19
564	513	462	2.68	F	VII	41	144	107	16
727	659	594	5.29	F	XIII	41	186	151	20
756	696	625	5.93	F	XI	41	188	140	21
771	705	627	7.09	F	XII	41	198	149	21
798	727	658	8.17	F	XV	40	200	167	22

bigmouth buffalo brought to the Walker Fish Company processing plant at Mobridge, South Dakota. At the processing plant eight black buffalo were selected for general examination, photographs, and morphological measurements. One fish was shipped to Dr. Reeve M. Bailey, Curator of Fishes, University of Michigan Museum of Zoology, who verified the 798 mm specimen (table 1) as *Ictiobus niger* (UMMZ No. 189200).

Lake Mitchell is an artificial impoundment on Firesteel Creek (T103-R60 - Sects. 4, 5, 9 and 32) a tributary to the James River, Davis County. The dam was constructed by the city of Mitchell in 1929. At normal water levels the reservoir has a surface area of about 670 acres, a maximum depth of 29 feet and an average depth of 15 feet.

Biological Characteristics of the black buffalo

The three male and five female black buffalo examined for biological characteristics were large, mature fish in spawning condition (table 1). The males were ripe; four females were nearly ripe and one was partially spent. Both males and females had a much darker bluish-black coloration than bigmouth buffalo caught in the same nets. Other general and specific characters used to identify black buffalo agreed with published descriptions and keys (2, 3, 8, 9) and need not be repeated here. The presence of five age groups among the eight fish indicates that the black buffalo had spawned successfully during several spawning seasons and may be well established in Lake Mitchell.

Although there is no confirmatory evidence it seems probable that the black buffalo was introduced into Lake Mitchell. The fact that the lake is artificial and the species is not known to occur naturally in this region gives support to the likelihood that this is an introduced population.

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