

# New Maximum Age of Bigmouth Buffalo, *Ictiobus cyprinellus*

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## INTRODUCTION and METHODS

Bigmouth buffalo, *Ictiobus cyprinellus*, inhabit large rivers and reservoirs from Saskatchewan, Canada to the Gulf of Mexico, including eastern Oklahoma (1). This species has long had commercial value (2); however, limited information on their age exists. The oldest reported bigmouth buffalo was 20 yr (696 mm total length) from a Saskatchewan Lake (3). Maximum size has been reported as 36 kg and 914 mm (1,4). Although Scott and Crossman (5) suggested bigmouth buffalo can exceed 20 yr of age, we know of no records to support this. In most waters maximum reported age has been less than 10 yr (6,7).

We collected bigmouth buffalo in Keystone Reservoir, Oklahoma, a 10,600 ha impoundment of the Arkansas and Cimarron rivers west of Sand Springs, Oklahoma. We used 152- and 203-mm bar measure monofilament gill nets set throughout the reservoir. Each bigmouth buffalo collected was measured (total length, mm) and the lapillus otolith removed by making a cut through the cranium from the dorsal region of the head just above the operculum. Otoliths were embedded in EMBED-812 (Electron Microscopy Services, Fort Washington, PA), sectioned in the sagittal plane to 30- $\mu$ m of thickness with a low speed diamond blade saw, sanded and polished, and interpreted under a dissecting scope with transmitted light. Annuli were interpreted as the opaque bands surrounding the kernel of the otolith. Because we had no bigmouth buffalo of known-age, we are assuming that these opaque bands were annuli. Two individuals independently interpreted the otoliths and recorded their ages. Ages were assigned when two readers agreed on an age. When agreement could not be reached, the more conservative (the younger) of the two ages was assigned.

## RESULTS and DISCUSSION

A total of six bigmouth buffalo (856-950 mm) were collected and aged (Table 1). Ages of these fish ranged from 19 to 26 yr, with five of the six fish exceeding 20 yr, the maximum reported age for bigmouth buffalo (6). Although age validation was not performed in our study and, to our knowledge, never with buffalo fishes, otoliths have been validated for other catostomids (e.g. white sucker, *Catostomus commersoni*)(8). Crowding at the edge and accumulation at the kernel of the otolith made it difficult to interpret and count annuli accurately. Consequently, our estimates may underestimate the true age.

Our findings indicated that bigmouth buffalo can attain ages greater than 20 yr and may exceed this age by a considerable margin.

TABLE 1. Vital statistics of bigmouth buffalo aged from Keystone Reservoir, Oklahoma, 1998.

Total Length (mm)	Weight (kg)	Age (yr)		
		Examiner 1	Examiner 2	Assigned
856	15.0	23	23	23
876	14.0	19	19	19
940	17.0	26	29	26
942	15.5	26	27	26
945	16.5	23	23	23
950	17.5	25	25	25

Although we aged otoliths from only six fish, many larger bigmouth buffalo were observed in gill netting efforts in Keystone Reservoir in 1996 and 1997 (C. Paukert Oklahoma State University, personal observation). Given the maximum size of 914 mm and 36 kg, we believe many bigmouth buffalo populations may contain fish older than 20 yr.

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