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NOTES ON THE BLUE SUCKER, CYCLEPTUS ELONGATUS (LESUEUR) IN THE LOWER CHIPPEWA AND RED CEDAR RIVERS, WISCONSIN

By

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INTRODUCTION

When the Wisconsin Department of Natural Resources prepared its first list of endangered species as required by law, it also developed a supplementary list of species in need of special observation. The latter was termed "Changing Status" and included species which may or may not be holding their own at the present time (Hine et al. 1973). The blue sucker, Cycleptus elongatus (Lesueur) was one of the fish species so designated.

In the fishery literature pertaining to the Upper Mississippi River basin, this species has been termed "rare", "very rare", "uncommon", and "not common". Hence it is of some note that the blue sucker has in recent years been collected in appreciable numbers in the lower Chippewa River and in the lower end of one of its major tributaries, the Red Cedar River, in west central Wisconsin. Its presence there has not been quantified but certainly the level of abundance is much higher than that indicated by the descriptors mentioned above.

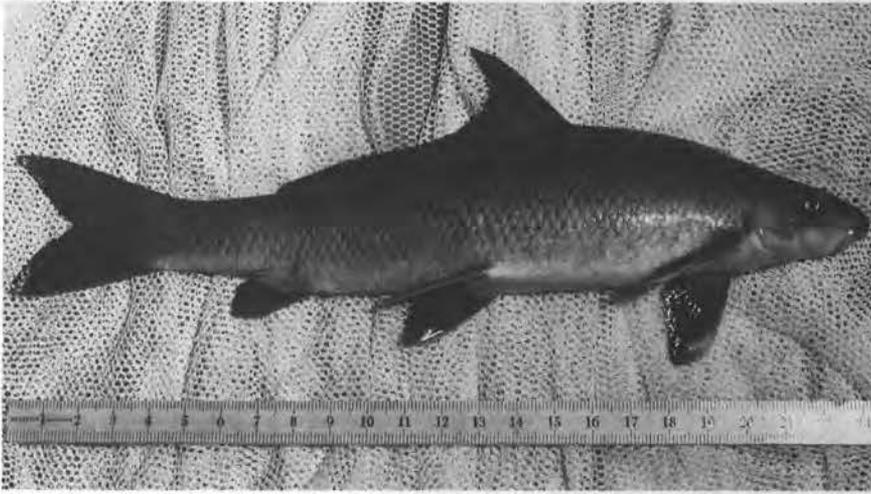
Because of the paucity of such information in the literature, this report, in addition to documenting the presence of the blue sucker, also includes limited data on length frequency and length-weight relationship of the species. To bring the known Wisconsin distribution record up to date, literature citations and entries from unpublished survey reports have also been incorporated.

MATERIALS AND METHODS

This report relies primarily on two data sources: (1) reports of fishery surveys conducted by Department of Natural Resources fish management personnel, and (2) collections by DNR fishery research personnel made incidental to a study of the shovelnose sturgeon, Scaphirynchus platyrhynchus (Rafinesque), in the Red Cedar River and Chippewa Rivers.

Red Cedar River

The entire portion of the Red Cedar River extending from a point approximately 0.5 mile below the dam at Menomonie, to the junction with the Chippewa River (approximately 17 miles) was surveyed by fish management personnel in 1963 (Fig. 1). Fish were collected by means of a 230-volt ac boom shocker. The river averaged approximately 200 ft in width and 2 ft in depth. The long-term average flow at Menomonie is 1,225 cfs.



Blue sucker. (Photo by Leon Johnson)

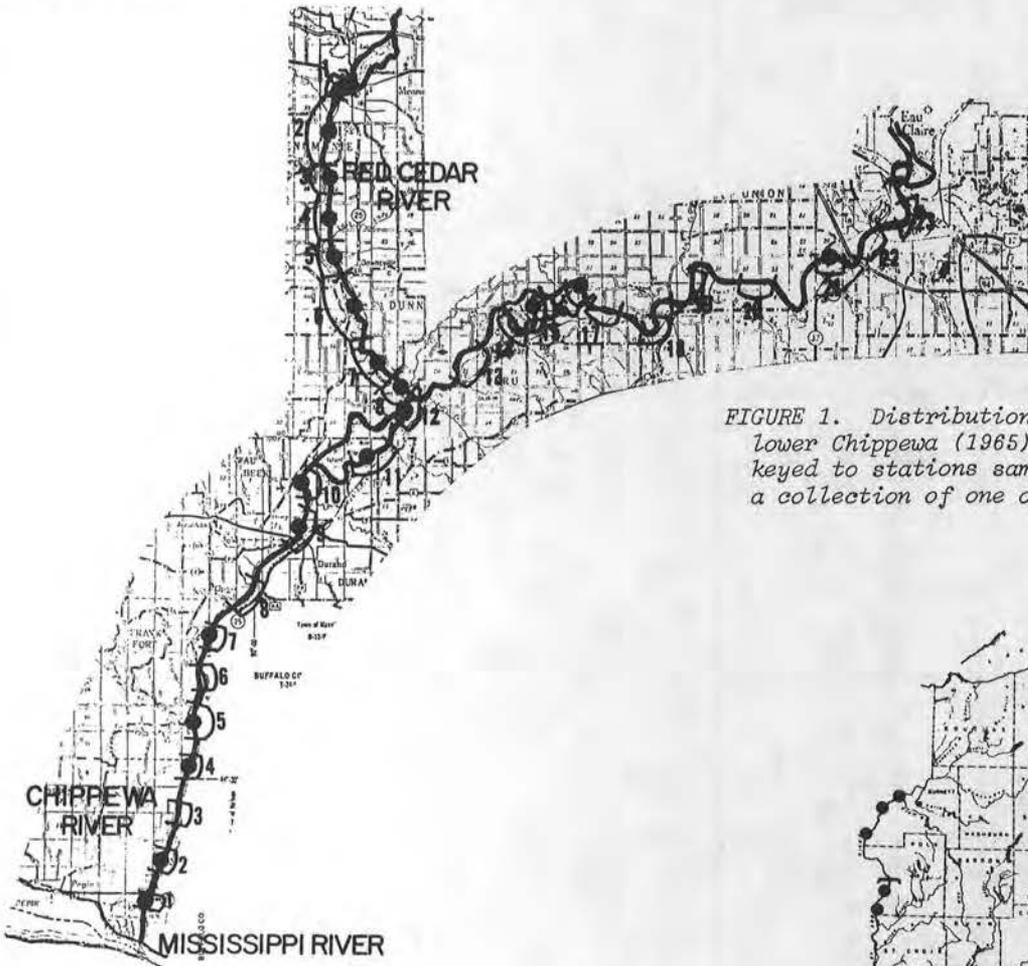


FIGURE 1. Distribution of the blue sucker in the Lower Chippewa (1965) and Red Cedar (1963) Rivers keyed to stations sampled. (Each dot represents a collection of one or more specimens.)

FIGURE 2. Distribution of the blue sucker in Wisconsin based on fishery survey reports and literature citations. (Each dot represents a collection(s) of one or more specimens. Location of dots in the pools associated with the numbered lock and dam system on the Mississippi River represents a collection made somewhere within the pool. See Figure 1 for detail on the Red Cedar and Chippewa Rivers.)



Employing a 230-volt ac boom shocker, fishery research personnel traversed the same stretch of river several times in 1972 and 1973 and weighed and measured samples of the blue sucker; however, no attempt was made to collect all specimens observed nor to record observation and collection sites.

Chippewa River

The Chippewa River between Eau Claire and the Mississippi River was surveyed by fish management personnel in July, 1965, and again in September of the same year. In July, 23 stations were sampled (Fig. 1) but in September, only 16 were resampled because lower water levels hampered navigability. Each station approximated 1 mile in length. Fish were collected primarily by means of a 230-volt ac boom shocker. The estimated width range of the river was 600-1,400 ft and depths of the areas sampled ranged from 1 to 6 ft. The long-term average flow at Durand is 7,404 cfs.

In 1972 and 1973, fishery research personnel several times traversed that reach of the Chippewa River extending from the mouth of the Red Cedar River downstream to Durand. Included in that stretch of the river were the earlier survey Station Numbers 9-12. A 230-volt ac boom shocker was the only collecting gear employed.

FINDINGS

Distribution

The blue sucker was found throughout the 17-mile length of the Red Cedar River sampled during the 1963 survey (Table 1). Although collection sites were not recorded in 1972-73, that same general distribution pattern was evident.

In the Chippewa River in 1965, this species was found in much greater abundance in the lower three-fourths of the approximately 55-mile reach than in the upper fourth. Stations 9-12 comprised one sector of apparent concentration; this is the area in which the random collection of 43 specimens was made in 1972-73.

Trautman (1957) suggested that the blue sucker may be relatively intolerant of turbidity and pollution. Symptoms of pollution were evident immediately downstream from the City of Eau Claire in 1969-70 (WDNR, 1971) which could conceivably account for the limited 1965 upstream distribution of the blue sucker in the Chippewa River, particularly at Stations 21-23. However, bottom fauna samples taken during that survey 3 and 9 miles downstream from the Eau Claire sewage treatment plant indicated a clean environment.

Length-Frequency

In the combined collection of 181 specimens for which lengths were recorded, total lengths ranged from 18.0-18.9 to 29.0-29.9 inches (Table 2). The modal length interval was 24.0-24.9.

Length-Weight Relationship

Weights which were recorded only in 1972-73 ranged from 2.8 to 8.8 lb in the combined collections (Table 3). The average weight was 4.8 lb. In the mid-ranges, there is an indication that the Red Cedar specimens are appreciably heavier than those of the Chippewa River. This is best illustrated in the 25.0- to 25.9-inch size interval where 9 Chippewa River specimens and 6 Red Cedar fish averaged 4.6 and 5.5 lb, respectively. This weight differential suggests that the habitat in the Red Cedar River may be more favorable. In that regard, it should be noted that a shifting sand bottom with, by implication, limited bottom fauna production, is characteristic of the lower Chippewa River but not of the lower Red Cedar River.

OTHER WISCONSIN RECORDS

The blue sucker has been collected in five other rivers in Wisconsin as described below. For the record, this species was not taken in electrofishing surveys of two other Mississippi River tributaries -- the Trempealeau River in 1963 and 1967 and the Buffalo (Beef) River in 1969.

Mississippi River

Smith, Lopinot, and Pflieger (1971) reported the presence of the blue sucker in all navigational pools bordering Wisconsin except Pool 3. But they also state, with reference to the upper Mississippi River, "The blue sucker is widely distributed but not common."

That the species is indeed not common in the upper Mississippi River is well illustrated by the results of several DNR surveys. In the 1962 survey of Pools 4, 5, 5A, and 6 (Hubley and Finke 1963), the blue sucker was collected in Pools 4, 5, and 6 at 4 of 13 stations, but only one specimen at each of the 4 stations. It was collected in 1961 at only one -- and then only a single specimen -- of 18 stations in Pools 9-12 (Hubley 1962). Although not recorded by Hubley (1961) in a 1960 survey of Pools 6-8, I caught a single specimen in a trawl in 1959 near the mouth of the Root River (Minnesota), Pool 8.

Wisconsin River

In 1962, Becker (1966) collected 6 specimens between Spring Green and Lone Rock and observed 3 others in the same section (Fig. 2). He also collected a single young-of-the-year specimen 34 mm long farther downstream at approximately the Grant-Iowa County line and another specimen between the mouth of the Kickapoo River and Bridgeport.

La Crosse River

A single specimen was collected in 1966 at a station which extended from the junction with the Mississippi River upstream for a distance of 1 mile (Fig. 2).

Black River

One specimen was taken in 1968 in southern Jackson County and another in 1969 farther downstream on the Trempealeau-La Crosse County line (Fig. 2).

St. Croix River

During a 1959 survey of the St. Croix River conducted jointly by personnel of the Wisconsin and Minnesota Conservation Departments, the blue sucker was collected in 3 of 6 sectors above the dam at St. Croix Falls, Wisconsin and in each of the two sectors below the dam (Kuehn, Niemuth, and Peterson, 1961) (Fig. 2). Here too the species can be termed "not common", since only 5 specimens were collected above the dam and 6 below; of the latter, 5 were taken in the Dalles area, within 1 mile of the dam.

Phillips and Underhill (1971) alluded to reports of commercial fishermen catching blue suckers occasionally in Lake St. Croix but did not actually see any specimens. Eddy and Surber (1947) indicated that this species was taken in Lake St. Croix in 1941.

COMMENTARY

The evidence indicates that the current level of abundance of the blue sucker in the lower Chippewa and Red Cedar Rivers is well above that reported for other waters. Those areas may well represent the northernmost bastion of this species if not the last outpost throughout much of its range. If so, Wisconsin has a custodial responsibility for this species which extends well beyond its borders. Indeed the situation can be likened to that of the lake sturgeon wherein Wisconsin is one of two North American foci of that species which on the national level is considered to be a threatened species.

ACKNOWLEDGEMENTS

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TABLE 1. Numbers of Blue Suckers collected and observed in the Red Cedar and Chippewa Rivers.

Station Number	Red Cedar River		Chippewa River			
	June-July, 1963	1972-73	July 1965	Sept. 1965	Total 1965	1972-73
1	9 (3)*	 22 	3 (1)	2	5 (1)	 43
2	7 (5)		2 (1)	5	7 (1)	
3	7		0	-**		
4	5		6 (2)	4	10 (2)	
5	5		2 (1)	9	11 (1)	
6	11 (12)		0	-		
7	14 (10)		0 (3)	-	(3)	
8	1	0	0			
9		2 (1)	1	3 (1)		
10		0 (2)	16 (5)	16 (7)		
11		4 (1)	-	4 (1)		
12		0 (1)	2 (3)	2 (4)		
13		0	-			
14		0	0			
15		3 (3)	11 (3)	14 (6)		
16		0	1	1		
17		0	0	0		
18		0	-			
19		0	0	0		
20		0	0	0		
21		0	1	1		
22		0	0	0		
23		0	0	0		
Total	59	22	22 (16)	52 (11)	74 (27)	43

*Numbers observed indicated in parentheses.

** - Station not sampled in September survey.

TABLE 2. Length-Frequencies of the Blue Sucker, Chippewa and Red Cedar Rivers.

Size Interval Total Length (inches)	Chippewa River		Red Cedar River		Total	
	1965	1972-73*	1963	1972-73**	Number	Percent
18.0-18.9	1				1	0.6
19.0-19.9						
20.0-20.9						
21.0-21.9	3	1		1	5	2.8
22.0-22.9	9	2	1		12	6.6
23.0-23.9	18	7	3	3	31	17.1
24.0-24.9	18	11	7	4	40	22.1
25.0-25.9	9	9	15	6	39	21.5
26.0-26.9	10	7	7	4	28	15.5
27.0-27.9	5	4	5	1	15	8.3
28.0-28.9	1		3	3	7	3.9
29.0-29.9		2	1		3	1.7
Total	74	43	42	22	181	

*Study area includes Stations 9-12 of the 1965 survey.

**Study area includes all stations of the 1963 survey.

TABLE 3. Length-Weight Relationships of the Blue Sucker, Chippewa and Red Cedar Rivers, July-August, 1972-73.

Size Interval Total Length (inches)	Chippewa River			Red Cedar River			Total		
	No.	Weight (lb) Range	Avg.	No.	Weight (lb) Range	Avg.	No.	Weight (lb) Range	Avg.
21.0-21.9	1	-	2.8	1	-	2.8	2	2.8-2.8	2.8
22.0-22.9	2	2.6-3.0	2.8				2	2.6-3.0	2.8
23.0-23.9	7	2.8-3.8	3.3	2	3.9-4.3	4.1	9	2.8-4.3	3.5
24.0-24.9	11	2.8-5.2	4.0	3	4.6-4.8	4.7	14	2.8-4.8	4.2
25.0-25.9	9	3.5-5.6	4.6	6	4.1-6.8	5.5	15	3.5-6.8	5.0
26.0-26.9	7	4.4-5.6	5.0	3	5.0-6.5	5.8	10	4.4-6.5	5.2
27.0-27.9	4	4.6-7.5	6.5	1	-	6.8	5	4.6-7.5	6.6
28.0-28.9				3	7.1-8.2	7.5	3	7.1-8.2	7.5
29.0-29.9	1	-	8.8				1	-	8.8
Total	42			19			61		