Michigan Department of Natural Resources
Status of the Fishery Resource Report 91-14, 1991.

BOGART LAKE

Cass County (T06S, R13W, Section 3)
Surveyed June 25–26, 1990

James L. Dexter, Jr.

Environment

Bogart Lake is a small natural lake located in the Crane Pond State Game Area of north-central Cass County. It lies about 4 miles south of the City of Marcellus.

The watershed of Bogart Lake is dominated by cultivated farmland, woodlots, and pig farms. Small rolling hills characterize the immediate area around the lake. No information is available on the soil types in Cass County.

Bogart Lake covers about 31 acres and has a maximum depth of about 24 feet. The lake has not been mapped. No significant dropoffs or bottom structures were observed by use of a depth finder. Emergent and submergent plants are abundant around the entire perimeter of the lake. No inlets exist. There is one outlet (unnamed, second quality warmwater) on the east side of the lake. It flows to the Rocky River, then to the St. Joseph River.

Very little information exists for this lake. The only water quality data was collected on July 31, 1990. Water color at that time was light brown, and the Secchi disc reading was 5.0 feet. Alkalinities at the surface and lake bottom averaged 181 ppm, which indicates a good buffering capacity and very hard water. Water temperatures ranged from 77°F at the surface to 45.5°F at the lake bottom. A thermocline was present from 8 to 16 feet. Sufficient dissolved oxygen for most species fish was present only to 10 feet of depth.

Development on the lake is limited to a few homes on the north shore. The rest of the shoreline is marshy and wet. An access site developed by Fisheries Division in 1981 exists on the south shore. This gravel site can hold up to four vehicles with trailers.

Fishery Resource

Little historical data exists for Bogart Lake. Bluegill were stocked by the State for 3 years between 1935 and 1940. Yellow perch were also stocked in 1940. The first survey was conducted in 1982 with AC-electrofishing gear, gill nets, and fyke nets. The warmwater fishery at that time consisted of bluegill, largemouth bass, yellow perch, black crappie, and bullhead. All gamefish were growing at or above the state average rate and many were large. However, few legal–sized largemouth bass were caught,

even though the recruitment rate of age I–III bass was very good (electrofishing CPE was 97/hr.). Riparians also reported that few large bass were available.

The fishing effort in 1990 incorporated 6' x 3' x 1.5" standard trap nets, mini-mesh (¼") full-size fyke nets, and experimental gill nets set for 1 night. No electroshocking was conducted. The fish community today is virtually no different from that of 10 years ago (Table 1). Bluegills are still the dominant game species available to the angler. Bluegills up to 8.2 inches long were captured, and 20% exceeded 7.0 inches. Growth rates were above the state average. Schneider (1990) developed five criteria for ranking bluegill populations from survey catches in Michigan. These bluegills rank 4.3 (average) on a scale of 1–7. These results indicate no change in the bluegill population status in the last 10 years.

Black crappies are doing well. Crappies up to 10.7 inches in length and growth rates above the state average were found. Unfortunately, yellow perch and largemouth bass were not well represented in this current survey. Although the numbers collected of these two species were low, growth rates were above average for yellow perch, but much below state average for largemouth bass. Low bass growth rates may be due to the large amount of weed cover in the lake, making foraging difficult.

The age composition and survival characteristics of bluegills and black crappies can be found in Table 3. Bluegills experience tremendous mortality between age III and IV, if our sample is at all representative. This may be explained by either heavy angling pressure and high harvest rates, or high natural mortality from predation or other causes. Likewise, mortality (most likely a combination of both fishing and natural) appears to eliminate crappies after age IV. Not enough largemouth bass and yellow perch were collected to draw any conclusions.

The fishery of Bogart Lake is similar to those of Kirk and Belas lakes located in the same area. Bluegills in all these lakes are plentiful and grow to large size, and all seem to experience high mortality rates after age III or IV. One of the main differences between these three lakes is that Bogart has no northern pike population.

Management Direction

There have been no complaints about the fishery of Bogart Lake. No management activities need to be undertaken at this time. The fishery, the surrounding lakeshore area, and the watershed should not be undergoing any major changes in the near future. Bogart lake should continue to produce a high quality warm water fishery (except perhaps for bass) for years to come. Good growth rates and species mix will contribute to maintaining the good health of the fish community. All gear types should be employed during the next survey of this lake to get a better picture of recruitment rates and growth of young fish.

Report Completed: June, 1991.

Reference

Schneider, J.C. 1990. Classifying bluegill populations from lake survey data. Michigan Department of Natural Resources Fisheries Technical Report 90–10, Ann Arbor.

Table 1.-Number, weight, and length (inches) of fish collected from Bogart Lake with trap, fyke, and gill nets on June 26, 1990

Species	Number	Percent by number	Weight (pounds)	Percent by weight	Length range (inches)[1]	Average length	Percent legal size[2]
Bluegill	278	77.4	51.9	55.9	3-8	6.3	66.2 (6)
Black crappie	24	6.7	10.4	11.2	7-11	9.6	100.0 (7)
Bullhead	14	3.9	10.7	11.5	5-13	10.6	92.9 (7)
Warmouth	13	3.6	1.3	1.4	1-5	4.2	-
Pumpkinseed	10	2.8	1.6	1.7	4-6	5.7	30.0 (6)
Largemouth bass	8	2.2	7.8	8.4	6-9	8.4	-
Green sunfish	5	1.4	1.4	1.5	7-8	8.3	0.0 (6)
Yellow perch	3	0.8	1.7	1.8	9-10	10.0	100.0 (7)
Lake chubsucker	1	0.3	0.3	0.3	8	8.5	-
Bowfin	1	0.3	5.5	5.9	25	25.5	-
Total	241	100.0	84.4	90.9			

[1]Note some fish were measured to 0.1 inch, others to inch group: e.g. "5" = 5.0 to 5.9 inches, "12" = 12.0 to 12.9 inches; etc.

[2]Percent legal size or acceptable size for angling. Legal size or acceptable size for angling is given in parentheses.

Table 2. Average total length (inches) at age, and growth relative to the state average, for fish sampled from Bogart Lake with trap, fyke, and gill nets on June 25-26, 1990. Number of fish aged is given in parentheses. Upper average is weighted by length frequncy distribution; lower average is not weighted.

Species	Age								Mean growth index[1]
	I	II	III	IV	V	VI	VII	VIII	
Bluegill	-	3.5	6.1	7.4	8.1	-	-	-	+0.9
	-	(3)	(33)	(6)	(4)	-	-	-	-
	-	3.5	5.8	7.4	8.1	-	-	-	-
Black crappie	-	-	9.0	9.6	-	-	-	-	+0.9
	-	-	(7)	(8)	-	-	-	-	-
	-	-	8.9	9.8	-	-	-	-	-
Yellow perch	-	-	-	-	9.5	10.4	-	-	-
	-	-	-	-	(1)	(2)	-	-	-
	-	-	-	-	9.5	10.4	-	-	-
Largemouth bass	-	7.0	8.8	9.0	-	-	-	-	-
	-	(2)	(4)	(2)	-	-	-	-	-
	-	7.0	8.9	9.8	-	-	-	-	-

[1]Mean growth index is the average deviation from the state average length at age.

Table 3.-Estimated age frequency (percent) of fish caught from Bogart Lake with trap, fyke, and gill nets on June 26, 1990.

Species	Age								Number caught
	I	II	III	IV	V	VI	VII	VIII	
Bluegill	-	1	86	11	1	-	-	-	278
Black crappie	-	-	46	50	-	-	-	-	24
Yellow perch	-	-	-	-	25	50	-	-	3
Largemouth bass	-	25	63	13	-	-	-	-	8

Last Update: 08/06/02
Web Author: *Tina M. Tincher, Librarian*

Questions, comments and suggestions are always welcome! Send them to tinchert@michigan.gov