Big Chub Lake

Otsego County, T29N R03W Sec.14 & 23
Au Sable River Watershed

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Environment

Big Chub Lake is a 75-acre natural lake in south-central Otsego County in the North Branch Au Sable River watershed (Figure 1). The lake has 2.01 miles of shoreline distance, and a maximum depth of 74 feet (Figure 2). The lake has a catchment area of 1,669 acres (2.6 mi2), and drains an area comprised entirely of ice contact/outwash/alluvium surficial geology. There is an inlet from Linton Lake, and an outlet which flows into Bridge Lake to the south. Chub Creek flows out of Bridge Lake, eventually joining the North Branch Au Sable River. There is an unimproved road-ending (Chub Lake Road) on the west shore of Big Chub Lake. This road-ending serves as public access to Big Chub Lake and is accessed by taking Chub Lake Hill Road south off Old State Road. The lake is classified as a Type B Trout Lake, and is featured on the Michigan Department of Natural Resources (MDNR) Trout Trails website www.michigan.gov/trouttrails.

History

Fisheries Management in Big Chub Lake dates back to 1955-56, when the lake was initially mapped and inventoried by the Michigan Department of Conservation (the predecessor to the MDNR). The 1956 fisheries survey documented Yellow Perch, Rock Bass, Brook Trout, Brown Trout, Largemouth Bass, White Suckers, and Longear Sunfish in the catch, along with various forage fish including Common Shiner, Creek Chubs, Horneyhead Chubs, Bluntnose Minnows, Johnny Darters, Iowa Darters, Least Darters, Rainbow Darters, Mimic Shiners, and Banded Killifish. Survey effort consisted of experimental and straight-run gill-net lifts as well as some seining. A temperature profile was also measured in 1956, showing the lake stratified with the thermocline established below 15 feet in depth. The 1956 survey summary indicated that Big Chub Lake could become a very good trout lake. An angling survey of the lake in 1962 captured Bluegill, Rock Bass, and Yellow Perch.

The 1956 survey established Big Chub Lake as having potential as a trout lake, and it has been managed as such since that time. Fish stocking in Chub Lake began in 1959, when approximately 2,000 Brown Trout were stocked. Various strains of Brown Trout were stocked annually from 1959 through 1989, except in 1969 when Rainbow Trout were stocked, and in 1967 and 1971, when no fish were stocked. The stocking strategy changed in 1990, when stocking switched to Rainbow Trout. Various strains of Rainbow Trout have been stocked in Big Chub Lake annually from 1990-2019 (Table 1).

The next assessment of the Big Chub Lake fish community occurred in 1973. Survey effort consisted of 13 experimental gill-net lifts. Game fish captured during that survey were similar to the 1956 survey; namely, Brown Trout, Brook Trout, Yellow Perch, and Rock Bass. Rainbow Trout and Northern Pike showed up in this survey as well, although only one of each species was captured. Common White Suckers were abundant, with Common Shiners also present in the catch. All three trout species were growing above statewide average growth rates, while Rock Bass and Northern Pike growth was poor. Survey records note that the trout were in good condition.

The only fisheries survey of Big Chub Lake in the 1980s occurred in October 1981. The purpose of the survey was to check on trout survival because of complaints about poor Brown Trout fishing. Effort consisted of 16 experimental gill-net lifts. The survey report indicates that there were failures of recent trout plants, as no trout less than 16 inches was captured. Continued stocking and evaluation were recommended.

Trout management in Big Chub Lake shifted in 1990 from Brown Trout Stocking to Rainbow Trout stocking. The formal prescription for this change was submitted in December 1991, following two years of successful Rainbow Trout plants. Subsequent reports indicated good growth and survival of stocked Rainbow Trout and a significant increase in fishing effort. The prescription also cited the poor survival of recent Brown Trout plants. An October 1992 survey to assess the trout population used six experimental gill-net lifts. The survey found representatives of the two-story fish community, including Rainbow Trout and Brown Trout, as well as Smallmouth Bass, Bluegill, Pumpkinseed Sunfish, and Northern Pike. The survey report indicated good survival of Rainbow Trout and excellent growth for that species with Rainbow Trout 2.8 inches over the statewide average length at age. These fish were noted as providing a good fishery. The Brown Trout and Bluegill were growing slowly, while Yellow Perch and Northern Pike were growing at or above the statewide average growth rate.

Several more surveys of Big Chub Lake took place in the 1990s. Hook and line surveys of the lake were done in the summers of 1994 and 1995. Growth and survival were noted as good, consistent with Conservation Officer reports of good fishing. The recommendation was made to continue Rainbow Trout stocking. A March 1997 note in the file also reported excellent fishing for Rainbow Trout in the summer and winter. Big Chub Lake was surveyed in October 1997 using 6 experimental gill-net lifts. The two-story fishery was again documented, with warmwater species such as Bluegill, Largemouth Bass, Northern Pike, Rock Bass, Smallmouth Bass, and Yellow Perch captured in addition to the coldwater species Brown Trout and Rainbow Trout. The coldwater species (Rainbow Trout and Brown Trout) were growing well, but many of the warmwater species (Bluegill, Northern Pike, and Yellow Perch) were growing below the statewide average rates. Note that Brown Trout were stocked in neighboring (and connected) Bridge Lake through 1989, then again starting in 1996. Different strains of Brown Trout were stocked in Bridge Lake, including Wild Rose strain in 1996 and Seeforellen in 1997, which could account for changes in growth for this species.

The first survey of the new millennium in Big Chub Lake took place in November 2001. Effort consisted of 10 gill-net lifts. Six species of fish were collected, with the usual mix for this lake of coldwater species (Brown Trout and Rainbow Trout) and warmwater species (Bluegill, Northern Pike, Rock Bass, and Smallmouth Bass). This is the last survey that reported catching Brown Trout. Ten Northern Pike, 20-30 inches in total length, were captured during the survey.

A Status and Trends survey of Big Chub Lake in May 2003 examined the overall fish community. Survey effort consisted of six large-mesh fyke-net lifts, 12 gill-net lifts, and one small-mesh fyke-net lift. Ten fish species were captured during this survey, with the catch dominated by yellow perch in terms of numbers. Growth was generally below statewide average for some of the warmwater species such as Bluegill and Rock Bass. Only one Rainbow Trout was captured, which was an age-3 fish that was about 6.5 inches larger than the statewide average. Gill nets were the primary gear used in this survey, as the steep drop-offs made it difficult to set trap and fyke nets.

Big Chub Lake was included in a Rainbow Trout strain evaluation in the 2000s, so much of the survey effort in that decade revolved around that study. Surveys of Big Chub lake for this study were done at least annually from 2004-2008. The study evaluated the relative performance of Eagle Lake strain Rainbow Trout (RBT-EL) and Michigan strain Rainbow Trout (RBT-MI, steelhead) in a number of inland lakes in Michigan. Equal numbers of each strain were planted in the lake each year with different fin clips for strain differentiation. Performance was evaluated through voluntary angler reports as well as fishery-independent surveys using graded-mesh gill nets and/or boat electrofishing. The study concluded that Steelhead (RBT-MI) were captured more frequently during surveys than RBT-EL and were caught more frequently by anglers, showing that Steelhead had better survival and return to creel than did RBT-EL (Caroffino and Nuhfer 2014).

An evaluation of the Rainbow Trout stocking was done in October 2013. The survey was done using nighttime boat electrofishing, with effort consisting of approximately 2.0 miles of shoreline distance over 0.85 hours of shocking time. A total of eight Rainbow Trout were captured, with total lengths of 12-17 inches. Three age class of Rainbow Trout (Ages 1-3) were present, again indicating excellent survival. Growth for these trout was again considered good, averaging 2.5 inches larger than the statewide average.

Current Status

Northern Lake Huron Management Unit personnel surveyed Big Chub Lake October 1-2, 2019, to evaluate the survival of stocked trout. Effort consisted of two experimental gill-net lifts, and four straight-run gill-net lifts. The straight-run gill nets had 2.5-inch stretch mesh.

A total of 33 fish were collected during this survey representing six species of fish (Table 2). Sixteen rainbow trout were encountered and were 12-16 inches in total length and were age-1 and age-2 (Table 3). The presence of age-2 fish indicates that there is over-winter survival. The rainbow trout were growing well, with a mean growth index of +2.5, meaning that these fish were on average 2.5 inches larger than the statewide average lengths-at-age.

Analysis and Discussion

Big Chub Lake provides a good two-story fishery, meaning it has both a warmwater fishery in the upper (epilimnion) portion of the lake and a coldwater fishery in the lower (hypolimnion) portion of the lake in summer. Good numbers of Rainbow Trout were captured including age-2 fish, indicating good survival. Growth rates for Rainbow Trout continue to be outstanding. Although warmwater species are available in the epilimnion, growth rates show that overall conditions in the lake are better for coldwater species.

The Rainbow Trout strain evaluation from 2004-2008 concluded that RBT-MI (Steelhead) outperformed RBT-EL, but the latter strain continues to be stocked in Big Chub Lake. This is because there are not any Steelhead available from the hatchery system; all of the Steelhead production is being allocated to other locations, primarily Great Lakes. If production of Steelhead increases in the future and those fish are available for inland stocking, that strain should be requested for Big Chub Lake.

Angler reports indicate that fishing for Rainbow Trout in Big Chub Lake can be very good. Anglers have reported success both during open water periods as well as during the winter ice-fishing season.

Management Direction

1. Continue to stock 5,000 yearling rainbow trout annually in Big Chub Lake. The fish are growing well, surviving, and appear to be providing a fishery based on angler reports.

2. Pursue a change to more liberal Northern Pike harvest regulations on Big Chub Lake to encourage harvest of this species and promote trout management.

References

Caroffino, D.C., and A.J. Nuhfer. 2014. Evaluation of two strains of rainbow trout stocked into inland lakes in Michigan. Michigan Department of Natural Resources, Fisheries Report 01, Lansing.

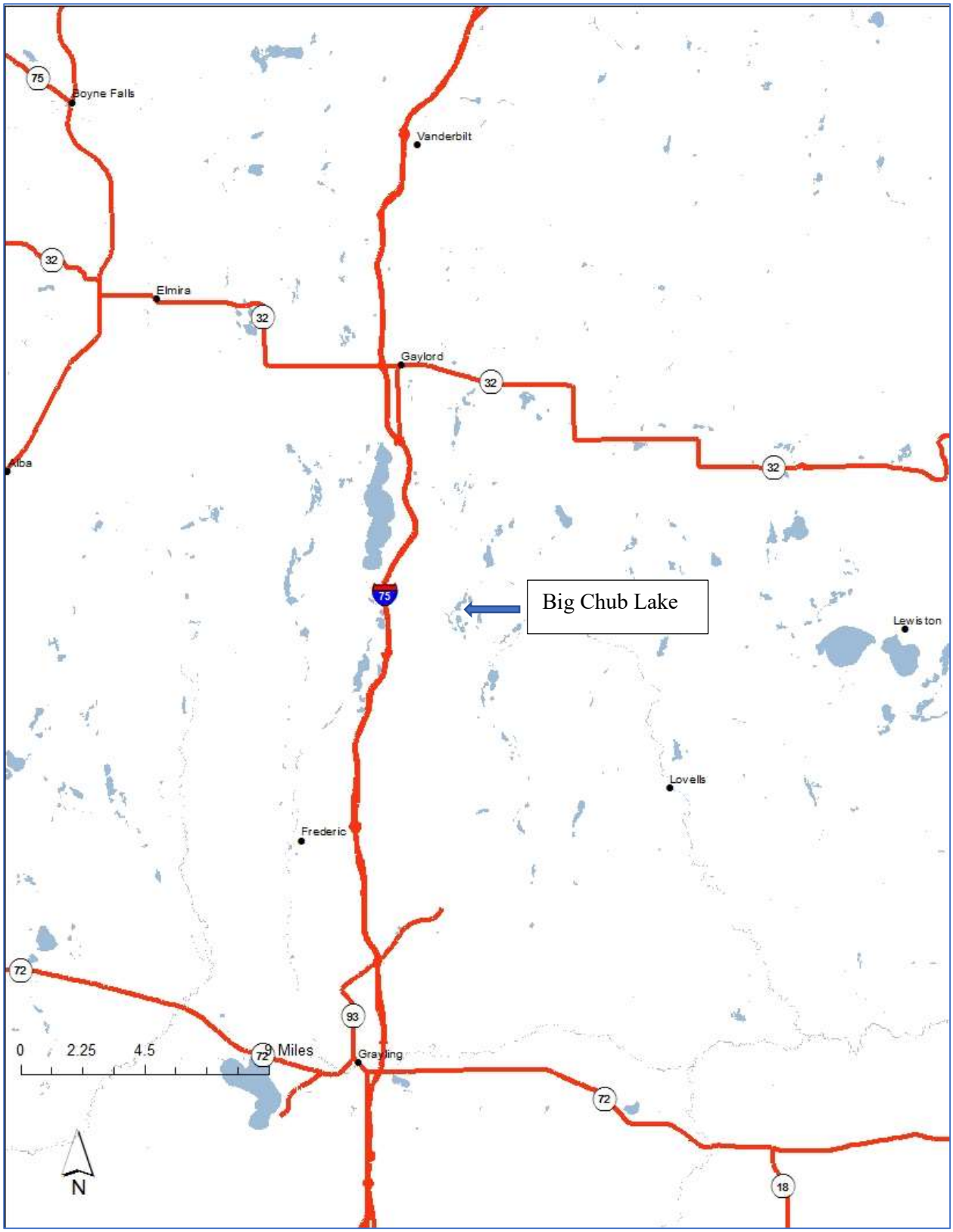

Figure 1. Locator map for Big Chub Lake, Otsego County.

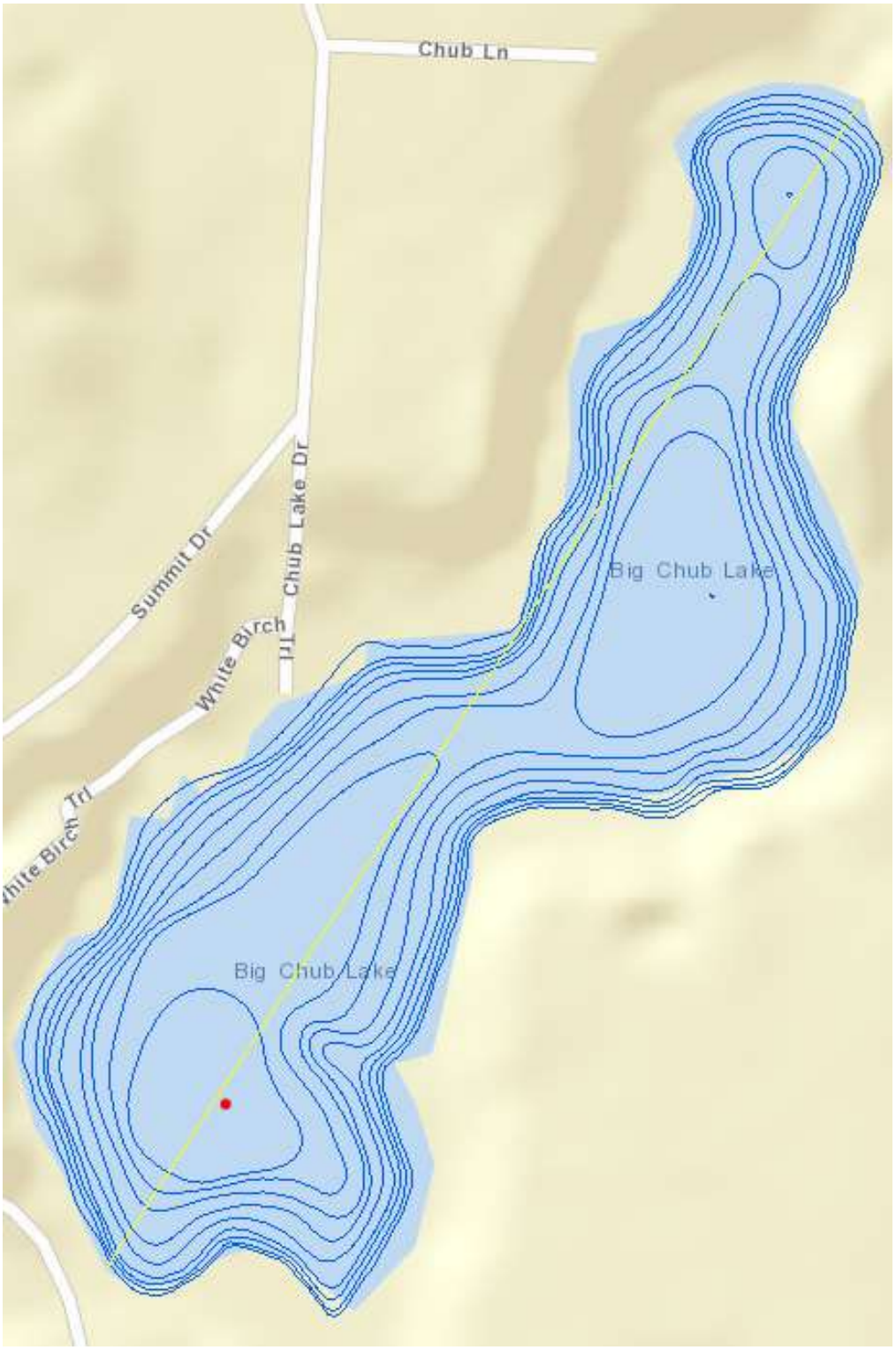

Figure 2. Depth contour map for Big Chub lake, Otsego County. The first depth contour offshore is at 5 feet depth, then are at 10-foot depth contours (10', 20', 30', etc.)

Table 1. Stocking history of Big Chub Lake, Otsego County, 1979-2019.

Year	Species	Strain	Number of fish stocked	Avg. length (in.)
1979	Brown Trout	Unspecified	3500	6.44
1980	Brown Trout	Unspecified	3325	5.04
1981	Brown Trout	Harrietta	3500	5.2
1982	Brown Trout	Harrietta	3500	6.76
1983	Brown Trout	Harrietta	3690	5.32
1984	Brown Trout	Harrietta	3510	5.84
1985	Brown Trout	Unspecified	3500	7.04
1986	Brown Trout	Plymouth Rock	3500	5.72
1987	Brown Trout	Harrietta	4000	6.36
1988	Brown Trout	Plymouth Rock	4000	6.44
1989	Brown Trout	Plymouth Rock	4000	6.24
1990	Rainbow Trout	Shasta	4000	6.72
1991	Rainbow Trout	Arlee	3840	7.28
1992	Rainbow Trout	Shasta	4000	6.64
1993	Rainbow Trout	Shasta	3161	6.52
1993	Rainbow Trout	Shasta	835	7.32
1994	Rainbow Trout	Harrison Lake	4000	6.84
1995	Rainbow Trout	Arlee	4000	8.08
1996	Rainbow Trout	Eagle Lake	3997	7.2
1997	Rainbow Trout	Eagle Lake	3999	7.04
1998	Rainbow Trout	Eagle Lake	3852	6.4
1999	Rainbow Trout	Eagle Lake	3900	7.92
2000	Rainbow Trout	Eagle Lake	4000	6.56
2001	Rainbow Trout	Eagle Lake	4000	6.48
2002	Rainbow Trout	Eagle Lake	4000	6.44
2003	Rainbow Trout	Eagle Lake	4000	6.2
2004	Rainbow Trout	Eagle Lake	2500	7
2004	Rainbow Trout	Michigan (Steelhead)	2500	7.68
2005	Rainbow Trout	Eagle Lake	2500	6.72
2005	Rainbow Trout	Michigan (Steelhead)	2500	8.08
2006	Rainbow Trout	Eagle Lake	2500	7.56
2006	Rainbow Trout	Michigan (Steelhead)	2500	7.96
2007	Rainbow Trout	Eagle Lake	2500	7.04
2007	Rainbow Trout	Michigan (Steelhead)	2500	8
2008	Rainbow Trout	Eagle Lake	2500	6.84
2008	Rainbow Trout	Michigan (Steelhead)	2500	7.52

Table 1.-cont.

Year	Species	Strain	Number of fish stocked	Avg. length (in.)
2009	Rainbow Trout	Eagle Lake	2500	7
2009	Rainbow Trout	Michigan (Steelhead)	2500	7.36
2009	Rainbow Trout	Eagle Lake	27000	3.95
2010	Rainbow Trout	Eagle Lake	5200	6.48
2011	Rainbow Trout	Eagle Lake	5200	6.32
2012	Rainbow Trout	Eagle Lake	5000	6.48
2013	Rainbow Trout	Eagle Lake	5100	7.32
2014	Rainbow Trout	Eagle Lake	5200	7.16
2015	Rainbow Trout	Eagle Lake	5200	6
2016	Rainbow Trout	Michigan (Steelhead)	5000	8
2017	Rainbow Trout	Eagle Lake	5500	7.28
2018	Rainbow Trout	Eagle Lake	5400	7.2
2019	Rainbow Trout	Eagle Lake	5500	7.52

Table 2. Number, weight, and length by species of fish captured during the October 2019 survey of Big Chub Lake, Otsego County. Growth index is reported for Rainbow Trout relative to statewide average growth rate.

Species	Number	Percent by Number	Weight (lb.)	Percent by Weight	Length Range (in.)	Growth Index
Rainbow Trout	16	48.5	15.8	59.2	12-16	+2.5
Rock Bass	9	27.3	2.2	8.2	5-7	
White Sucker	3	9.1	7.2	26.7	16-19	
Bluegill	2	6.1	0.1	0.4	4-4	
Largemouth Bass	2	6.1	1.4	5.0	10-11	
Yellow Perch	1	3.0	0.1	0.4	6-6	

Table 3. Length frequency and age of Rainbow Trout captured during the October 2019 survey of Big Chub Lake, Otsego County.

Inch Group	Number of Rainbow Trout	Age
12	7	I
13	4	I
14	--	--
15	1	II
16	4	II