Bureau of Fisheries Technical Brief #2019049

DeRuyter Reservoir Centrarchid/General Biological Survey (Survey #:718010, 718014)

James Everard, Region 7 Fisheries 5/29/2019

DeRuyter Reservoir is a 557 acre mesotrophic waterbody located in the Towns of DeRuyter and Cazenovia, Madison County, and in the Town of Fabius, Onondaga County. A fee launch is available for boaters at The DeRuyter Lake General Store, a private marina located on the south end, and shore access exists from the dam at the north end, which is owned by NYS Canal Corp. DeRuyter Reservoir was stocked by the New York State Department of Environmental Conservation (DEC) with walleye fry from 1935-1990, and from 2001 to 2012. The Tioughnioga Lake Preservation Foundation, Inc. (TLPF) took over walleye stocking in 2013 to try a "top-down" predator control for Eurasian watermilfoil. For this program they decided to stock fall fingerling walleye, instead of fry, and from 2013 to 2017 they have stocked between 8,000 and 50,000 annually. Except for walleye, the reservoir's fish community is managed with "Statewide" fishing regulations. Starting in April 2017 the walleye regulation was changed to an 18-inch minimum size with a daily limit of 3 to accommodate TLPF wishes to reduce walleye harvest during their experimental watermilfoil control effort.

Two surveys were conducted in 2018 to evaluate age, growth, and abundance of the reservoir's sportfish community and to evaluate the success of the TLPF walleye fingerling stocking program. The last comprehensive survey conducted by the DEC took place in October,1996 but the TLPF has funded six recent electrofishing survey by SUNY Cobleskill.

A night boat electrofishing survey (survey #718010) was conducted on June 6 and 7 following protocols outlined in the new DEC Centrarchid Sampling Manual (Brooking et al. 2017). In total, 86% of the shoreline was sampled during four hours of "on-time" which included six half-hour game-fish only runs and six 10-minute all-fish runs. Survey #718014 consisted of three DEC standard inland gill nets set over night on July 17 and 18, for a total of six net nights, and one fyke net fished overnight on July 17 for and then relocated and fished overnight on July 18.

Overall, 1,233 fish were caught, representing 15 species (Table 1). Pumpkinseed were the most numerous with 288 caught. The next most numerous species was bluegill (n=265), followed by largemouth bass (n= 175). Other gamefish caught were walleye (n=38), smallmouth bass (n=30), and chain pickerel (n=25). The electrofishing and gill net catches of walleye contradict each other when it comes to estimating walleye population abundance. The electrofishing catch per unit effort (CPUE) of 2 walleye/h suggests low abundance while the gill net CPUE of 5/net suggests high abundance (Forney et al. 1994). It's likely that the population falls somewhere in between. Age data was used to assess the contribution of TLPF stocked walleye. Age determination was based on otoliths for the 29 captured in gill nets and scales for those captured by electrofishing. Assuming no natural reproduction, four of the five-year classes from the TLPF stockings, ages 2 to 5, were represented and they made up 32% of the walleye catch. The remaining 68% ranged in age from 6 to 11 and presumably originated from the DEC fry stocking program. While the TLPF fingerling stockings are represented in the fishery it doesn't appear that they are recruiting to the fishery any better than the fry stocked by NYS DEC. While

a sample size of 38 walleye is relatively small, the results, nonetheless, suggest that stocking DeRuyter Reservoir with the larger fingerlings is not worth the additional expense.

Recommended management actions based on these surveys would be to continue with the special regulation for walleye only if the TLPF decides to continue with their experimental walleye fingerling stocking program. However, if they decide to end that program, DEC should resume fry stocking and go back to the statewide walleye regulation (5/day with a minimum size of 15”).

Literature Cited

Brooking, T.E., J.J. Loukmas, J.R. Jackson, and A. J. VanDeValk. 2017. Black bass and sunfish sampling manual for lakes and ponds. New York State Department of Environmental Conservation, Albany, NY.

Forney, J.L., L.G. Rudstam, D.M. Green, and D.L. Stang. 1994. Percid sampling manual. New York State Department of Environmental Conservation, Albany, NY.

Table 1.Species caught by electrofishing (EF), gill net (GN), and fyke net (FN) during June and July 2018 on DeRuyter Reservoir, Madison County.

Species	EF	GN	FN	Total	Frequency
Chain Pickerel	15	10	0	25	2%
Golden Shiner	6	160	0	166	13%
Spottail Shiner	3	0	0	3	0%
White Sucker	2	2	0	4	0%
Yellow Bullhead	1	0	1	2	0%
Brown Bullhead	14	0	1	15	1%
Banded Killifish	3	0	0	3	0%
Rock Bass	78	3	5	86	7%
Pumpkinseed	136	31	121	288	23%
Bluegill	133	15	117	265	21%
Smallmouth Bass	25	5	0	30	2%
Largemouth Bass	131	40	4	175	14%
Black Crappie	3	72	6	81	7%
Yellow perch	26	25	1	52	4%
Walleye	9	29	0	38	3%
Total	585	392	256	1,233	