### NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Fish and Wildlife, Bureau of Fisheries, Region 7 1285 Fisher Avenue, Cortland, NY 13045-1012 P: (607) 753-3095 | F: (607) 753-8532 www.dec.ny.gov

Wednesday, February 22, 2023

## To: Otisco Lake Volunteer Angler Diary Cooperators

## **Dear Fellow Anglers:**

It's nice to see things getting back to "normal" after the last couple of strange Covid-19 years, your efforts to keep recording your trips during all this craziness is greatly appreciated. A lot was going on in 2022 on Otisco Lake, it was surveyed three times by the Department including a spring trap-netting as part of the Big Panfish Initiative (BPI), a summer gill-netting as part of the Finger Lakes netting rotation (every four years), and a fall electrofishing survey looking for wild young-of-year walleye. There was a significant and highly visible walleye mortality event, and we wrapped up the tiger musky tagging cooperative program with Central New York Muskies Inc. Except for the BPI survey all others will be discussed below. The BPI Technical Brief (TB), along with the TBs for the other completed surveys, should be available to view on the DEC website soon. If you cannot find them on the website, please request a PDF copy from our office using the email address fwfish7@dec.ny.gov. On top of all that, we also have an angler survey taking place on Otisco and Skaneateles lakes, this survey started on April 23, 2022, and will run through March 31, 2023. As this survey is still ongoing, other than one brief mention, it will not be discussed. Because of all the "extra" reports this year I did not include the graphs in an Appendix as in the past. They will be included again in the 2023 report and as usual, if there is other information you would like to see from the angler diary data in future reports, please let me know by including a comment when you return your diaries next winter, or e-mail me directly.

We had another drop in Otisco Lake cooperators in 2022, from 12 to 11. Cooperators recorded 85 outings (an outing is a record of a cooperator's trip not including members of their party), which amounted to 139 angler trips (includes all participants) totaling 462 hours of fishing effort. On average, it took 1.6 hours to catch one legal gamefish in 2022, which is above the ten-year average of 2.6 hours. Cooperators were successful catching at least one legal gamefish in 71% of their trips, and caught a gamefish, regardless of its size, in 76% of their trips. Cooperators targeting tiger musky comprised 44% of the total cooperator effort (202 out of 462 hours) in 2022. Effort directed at walleye was 21% of the total (96 hours) followed by bass with 18% (84 hours). Details on species specific catch rates and effort are included in the discussion below.

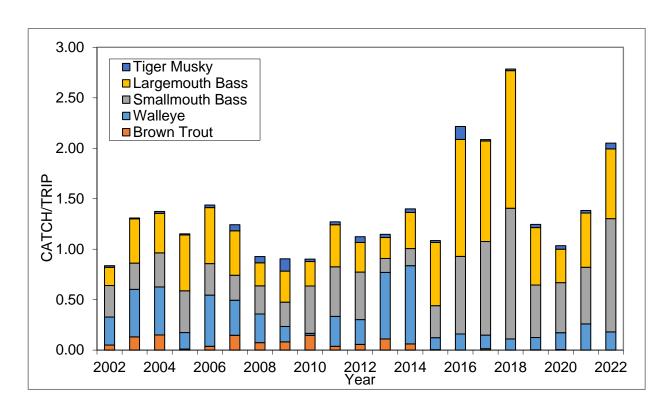


Figure 1. Catch per trip by species and year of legal sized fish caught by Otisco Lake Cooperating Anglers.

The above Figure 1 shows the long term catch rates by species for all legal sized gamefish. This includes all reported trips regardless of what cooperators were fishing for.

## Walleye

Cooperators caught 30 walleye in 2022, 25 of which were legal length (18-inches or greater). Walleye are highly prized table-fare and cooperators harvested the majority (72%) of the legal fish caught. The largest walleye caught in 2022 was 24.5 inches, while the average length was 20.4 inches. Area 3 (see map) accounted for most of the walleye catch with 23 fish, Area 2 provided six, and Area 4 the remaining one. Fishing in May produced most of the walleye, 26 of the 30, followed by June with three landed. Cooperators fishing from shore caught most of the walleye (21) and nine were caught by boat cooperators.

Cooperators specifically targeting walleye caught 28 of the 30 (93%) recorded walleye. The resulting targeted catch rate was 1 fish every 3.4 hours (0.29 walleye per hour). As mentioned in the past, targeted catch rates over one walleye every 4 hours (0.25 fish per hour) are considered "excellent" for New York walleye fisheries, while those between 4 and 10 hours (0.25 to 0.10 fish per hour) are considered "very good to good" (Festa et al. 1987).

This was a non-stocking year and no surplus walleye were available, so no walleye were stocked in Otisco Lake in 2022. We understand that there is still concern from walleye anglers about the stocking change that took place in 2014, going from an annual to bi-annual stocking. As mentioned in previous diary reports we will continue to monitor this. But keep in mind that since 2002 there have only been four non-stocking years, 2007, 2014, 2016, and 2022. We also have evidence that some natural reproduction has occurred in recent years based on otolith ages. Plus, some walleye are living a long time in Otisco Lake. In gill-netting surveys in 2014, 2018 and 2022, the oldest aged walleye from each was a 22-year-old, 16-year-old, and a 17-year-old, respectively. As such, there are a lot of walleye year classes currently out there in Otisco Lake.

## **Walleye Mortality Event**

As most of you are probably aware there was a mortality event of adult walleye on Otisco Lake in early September. It was brought to our attention on September 9, 2022, and with help from a local fishing guide, some moribund (dying) walleye were collected. A special thank you to Justin Okrepki for taking us out on his boat to collect the walleye. The specimens were sent to the Cornell University and Aquatic Vet Program Laboratory for examination and diagnosis, which is typical with usable fish kill specimens. After thorough analysis of the Otisco Lake walleye samples collected following the mortality event, DEC's investigation found no obvious cause and all indications are still that this was an isolated incident. The following results were included in the report prepared by Cornell University Aquatic Vet Program Laboratory:

- Bacteriology and virology tests were both negative, ruling out an initial theory that
  the walleye were affected by Viral Hemorrhagic Septicemia (VHS), which in the
  past has caused significant fish kills in the Finger Lakes and other New York
  waters.
- None of the walleye submitted exhibited parasite issues or internal organ irregularities that might have contributed to their deaths.
- Low oxygen availability was ruled out as a cause because multiple species and size classes of fish would have been affected, not just a single size class of walleye. No additional testing or fish collection related to this incident is planned. DEC continues to monitor freshwater fisheries across the state to support future management decisions based on the latest science and data to protect public health.

## Otisco Lake Gill Netting Survey 2022 (#722015)

A gillnet survey was conducted in July 2022 to develop an overall picture of the fish community, to monitor the stocking programs for tiger musky, walleye, and brown trout, and to fulfill the sampling required as part of the four-year rotational sampling program for the eastern Finger Lakes. A total of seven DEC Standard Inland gill nets were set, 4/night on July 19 and 3/night on July 20.

Overall, 599 fish were caught, representing 16 species (Table 1). White perch were the most numerous with 265 caught. Gamefish captured were walleye (n=157), smallmouth bass (n=29), and largemouth bass (n=13). No brown trout or tiger musky were caught, which isn't unusual for these surveys. The average brown trout catch for the last four surveys was 0.75/net, and 1.5/net for tiger musky. The survey catch rate of 22.4 walleye per net is well above the 5/net that would suggest a high abundance (Forney et al 1994). The 2022 walleye/net rate was double the previous record for Otisco Lake of 11.6/net, recorded in 2018. Walleye lengths ranged from 9.4 to 23.2 inches with a mean length of 17.1 in. On average, Otisco Lake walleye are reaching legal size (18-inches or greater) between age-3 and 4; the NYS average is 18 inches at age-5 (Forney et al. 1994). Walleye were in very good condition with a mean Relative weight (Wr) of 104. Otoliths, along with scales, were taken from the fish to aid in age determination. Ages ranged from 1 to 17, with age-3 being most frequently represented. Interestingly, walleye were caught from the 2014 and 2016 year-classes (ages 6 and 8, respectively) which if aged correctly, were non-stocking years and thus would be wild fish (Figure 2). While the capture of several wild year classes is noteworthy, the presence of a robust alewife population in Otisco Lake has historically limited natural production due to predation on walleye fry. Factors that allowed for improved survival in the years mentioned previously are unknown. Given this finding we will conduct fall YOY walleye assessments in non-stocking years to better determine the frequency and extent of wild produced walleve in Otisco Lake. A survey of this type (#722070) was completed in the fall of 2022, as it was a non-stocking year, but no YOY walleye were found.

Table 1. Species of fish caught during the 2022 Standard Inland gill netting of Otisco Lake. Catch per unit effort (CPUE) is fish/net-night.

Species	Total	CPUE	Frequency		
Alewife	22	3.1	4%		
Common Carp	4	0.6	1%		
Golden Shiner	1	0.1	0%		
White Sucker	4	0.6	1%		
Yellow Bullhead	5	0.7	1%		
Brown Bullhead	8	1.1	1%		
Channel Catfish	3	0.4	1%		
White Perch	265	37.9	44%		
Rock Bass	3	0.4	1%		
Pumpkinseed	5	0.7	1%		
Bluegill	62	8.9	10%		
Smallmouth Bass	29	4.1	5%		
Largemouth Bass	13	1.9	2%		
Black Crappie	2	0.3	<1%		
Yellow Perch	16	2.3	3%		
Walleye	157	22.4	26%		
Total	599	85.6			

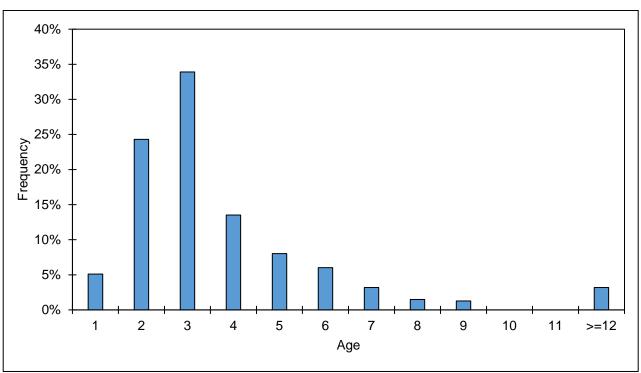


Figure 2. Age frequency distribution for walleye collected in 2022 gill netting survey on Otisco Lake, Onondaga County. Aged using otoliths (n=87) and scales (n=43).

# Tiger Muskellunge

In 2022, 37 tiger muskies were recorded by cooperators. Lengths ranged from 12 to 43 inches with an average length of 31.1 inches. Of the total caught in 2022, eight were legal length (36-inches or greater) and two were harvested. Those specifically targeting tigers caught 28 of the 37 reported (76%), and five of the eight (63%) legal length fish. Cooperators targeting any warmwater species caught five fish, one of which was legal while cooperators targeting walleye caught three including two of the legal length fish.

Cooperators specifically targeting tiger muskies completed 40 trips and logged 202 angler-hours. The 2022 targeted catch rate for tiger musky was 1 fish every 7.2 hours (0.14 per hour). This was above the 5-year average of 1 fish every 8.2 hours (0.12 per hour). Catch rates of muskellunge from diary programs on the St. Lawrence River yielded a rate of 1 fish every 25 hours (0.04 fish per hour) (Farrell et al. 2006). Creel survey data for Chautauqua Lake show average muskellunge catch rates of 1 fish every 20 hours (0.05 fish per hour) (McKeown and Einhouse 2000). The Otisco Lake cooperators success rate for tiger musky appears to be well above these renowned muskellunge fisheries.

All but two of the tiger musky caught in 2022 were landed by cooperators fishing from a boat. A shore and unknown method cooperator caught one each. Areas 3 and 4 produced most of the tiger muskies with 18 and 15, respectively. July was the most

productive month for tiger muskies accounting for 23, followed by June with seven and September with four.

Since tiger muskellunge are sterile hybrids (a cross between muskellunge and northern pike), the fishery is supported entirely by stocking. This was the first year that all the tiger musky were raised at the Oneida Fish Hatchery, traditionally they have been raised at South Otselic. The stocking of 11,000 tiger muskies was divided in two, with half going in on August 15 and the other half on September 15. The August fish averaged 8.4 inches in length and were fin clipped with a right ventral clip (RV). September fish averaged 10.5 inches and had left ventral (LV) fin clip. So, we are asking that anglers who catch a small (21 inches or less) tiger musky in 2023 look for a ventral fin clip and record the appropriate RV or LV in their diary. This experiment is to see if the larger, later stocked tigers do better than the earlier smaller sized fish. Tiger musky are highly vulnerable to predation by bass, walleye and other tiger musky during their first 6-8 months in the lake. Although there has been no formal assessment, survival following stocking is believed to be low but variable. Despite this, many tigers ultimately do survive and prosper in Otisco, as evidenced by the monster tiger that was caught and released in October 2019 by Demetrio Ascioti. That fish was 50 inches long and would have likely been a new state record.

# Otisco Lake Tiger Musky Tagging Project with Central New York Muskies, Inc. 2019-2022

The tiger musky tagging cooperative study with members of the Central New York Chapter of Muskies Inc. concluded on December 31, 2022. The project consisted of two years of tagging and then two years of recording recaptured tiger musky. Below is a brief summary:

Anglers belonging to the Central New York Chapter of Muskies Inc. approached DEC Region 7 Fisheries staff about conducting a tiger musky tagging study on Otisco Lake. Tiger muskies are often difficult to collect during routine DEC sampling efforts and angling can often be a more effective means of collecting them. Because of this regional staff felt that a well-designed cooperative study with the Muskies Inc. Chapter could provide useful information to inform future management of fisheries of both Otisco Lake and other tiger musky waters. A total of 51 tiger musky were tagged by the chapter from October 2019 to December 2020 with lengths ranging from 19 to 46 inches. Seven-year classes were collected with Age-4 fish being the most frequently tagged group. The recapture rate for the 51 tagged fish through December 31, 2022, was 24% indicating that if properly handled these fish can be "recycled" and potentially be caught multiple times. Otisco Lake tiger musky appear to remain in specific home ranges, as most were recaptured in the general area they were tagged. Distribution based on tagging and recapture locations, would suggest that the north end of Otisco Lake is a preferred area. Dedicated cooperating anglers were effective at tagging and releasing tiger muskies, collecting population data, and providing information on the fishery. DEC should consider these types of effective partnerships for future studies when warranted.

### Black Bass

Overall, a total of 273 bass (163 smallmouth and 110 largemouth) were caught by Otisco Lake cooperators in 2022. Most bass recorded were legal sized (12 inches or greater) smallmouth (96%) and largemouth (86%). The harvest rate was 4% (9 of the 252 legal bass), which is below the five-year average of 6%. The average length of smallmouth bass caught was 16.3 inches and 14.5 inches for largemouth bass. The largest smallmouth and largemouth bass were 20.5 and 22.0 inches, respectively.

Cooperators specifically targeting bass took 38 trips for a total of 84 angler-hours in 2022 which was well below the five-year average of 226 angler-hours. Those targeting bass caught 208 collectively, 197 (95%) of which were legal length. This equates to a targeted overall catch rate of one bass every 24 minutes (2.5 bass per hour) and a targeted legal catch rate of one bass every 26 minutes (2.3 legal bass per hour). These bass catch rates are well above the statewide average of one every two hours (0.51 bass per hour) for all sized bass and one every 3.9 hours (0.26 per hour) for legal length bass (Green et al. 1986). It should be noted that the majority of the smallmouth bass were caught by just one cooperator, so the targeted bass catch rates are likely biased.

Boat based cooperators accounted for most of the bass catch with 98% of smallmouth bass and 58% of the largemouth bass. Though cooperators fishing from shore caught just three smallmouth bass, they caught an impressive 42% of the largemouth bass. Areas 2 and 3 produced the most smallmouth bass with 92 and 69, respectively. The most productive region for largemouth bass was Area 3 with 82 caught, while Area 4 accounted for 22. For smallmouth bass, May was once again the top producer (142) followed by June (16). July was the big month for largemouth bass (60) followed by Oct (16).

## **Brown Trout**

In 2022, no cooperators made trips specifically targeting brown trout. This is the sixth consecutive year with zero angler diary cooperator brown trout effort.

## **Angler Survey**

As mentioned earlier, the Angler Survey is still taking place but one interesting thing to report at this time is the difference between targeted catch rates from angler diary cooperators and the angler survey (Figure 3). This is noteworthy because historically we have assumed that cooperators had higher catch rates than an "average angler" on Otisco Lake. The 2022 data does support that theory.

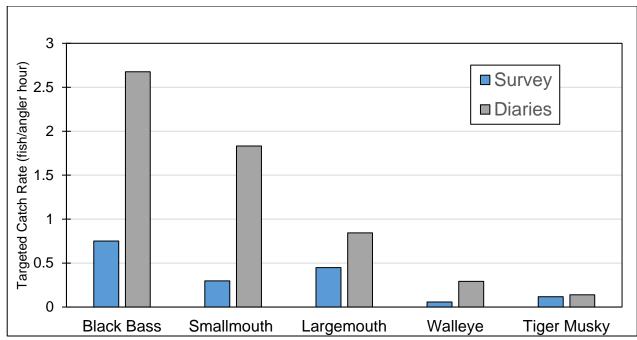


Figure 3. Comparison of 2022 angler survey and angler diary cooperators targeted catch rates for Otisco Lake.

We are still working on the Finger Lakes Management Plans but expect to finish them sometime in 2023. When completed they will be posted for public comment and to find out when that happens, please go to the DEC website and sign up for DEC Delivers-The Fishing Line, if you haven't already. It's a bimonthly e-newsletter for freshwater fishing, fisheries management, and fishing access news. In closing I want to again thank all the cooperators who work so hard to maintain the diaries for us. As always, I encourage anyone who fishes any of our Finger Lakes to consider becoming a diary cooperator. If you know of someone who fishes any of these lakes, please let them know about our program. **Good luck fishing in 2023!** 

Sincerely,

James Everard Biologist 1 (Aquatic)

### **Literature Cited**

- Green, D.M., B.J. Schonhoff, III and W.D. Youngs. 1986. The New York State bass study, 1977- 1980: Use of angler collected data to determine population dynamics. New York State Department of Environmental Conservation, Albany, NY.
- Farrell, J.M., R. Klindt, J.M. Casselman, S.R. Lapan, R.G. Werner, and A. Schiavone. 2006. Development, implementation, and evaluation of an international muskellunge management strategy for the upper St. Lawrence River. Environ. Biol. Fish (2006).
- Festa, P.J., J.L. Forney, and R.T. Colesante. 1987. Walleye Management in New York State. 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.
- McKeown, P. E., and D.W. Einhouse. 2000. The Chautauqua Lake Creel Survey 1998-1999. New York State Department of Environmental Conservation, Albany, NY
- Richards, K., and R. Ramsell. 1986. Quantifying the Success of Muskellunge Catch and Release Programs: A Summary of Cooperative Angler Tagging Studies. American Fisheries Society Special Publication 15: 309-315.
- Wilkinson, M. 1993. Summary of Upper Niagara River Muskellunge Angler Cooperator Activities from 1979 to 1985. New York State Department of Environmental Conservation. Buffalo, NY.



## **Otisco Lake Fishing Diary Summary**

	Total #							-				Hours to Catch			
	Angler	% Trips	Average			al Gamefis				Average Ler		h Caught (i		1 Legal	# of
Year	Trips	Successful	Hours/Trip	ВТ	WAE	SMB	LMB	TGR	ВТ	WAE	SMB	LMB	TGR	Gamefish	Cooperator
1979*	174	63	4.0	2	165	26			16.8	23.1	14.3			6.0	8
1980*	43	32	4.6		17	18				22.4	13.3			11.8	4
1981*	40	43	4.2			17	5				14.5	14.9		9.1	7
1982*	27	33	3.1		3	13				24.0	13.0			8.1	4
1983*	36	55	7.3	7	13	9	1		13.9	24.0	13.2	14.0		7.3	9
1984*	40	18	4.0	5	1	6			19.8	23.6	13.1			29.6	8
1985*	18	22	4.9	5					19.1					20.6	5
1986*	6	84	5.6	1		3			23.3		13.7			14.2	2
1987*	21	38	2.8		9					24.3				4.5	4
1988	10	29	3.4		2					24.4				6.3	2
1989	9	50	3.3		3	1				25.8	16.5		28.5	7.4	2
1990	96	21	5.8	11	2	1	1	7	20.7	26.3	10.8	9.7	28.8	30.1	7
1991	506	27	4.1	27	10	45	68	20	18.0	23.7	13.0	13.4	29.2	24.0	15
1992	434	49	3.1	123	4	61	75	14	15.5	16.3	14.3	13.8	29.2	5.5	21
1993	328	45	3.9	34	14	43	25	18	17.2	24.0	15.3	13.5	29.7	9.6	19
1994	397	34	4.0	29	7	45	27	12	13.9	23.2	14.3	14.1	27.1	11.9	27
1995	277	45	3.7	42	51	62	40	15	16.4	25.1	13.5	14.7	28.7	4.9	23
1996	213	48	4.0	11	59	47	65	31	15.1	23.4	14.4	14.2	29.9	4.0	15
1997	149	50	4.5	11	36	39	52	15	17.2	24.1	14.3	13.1	31.8	4.4	11
1998	179	62	4.9	12	71	41	64	38	16.6	21.4	13.5	14.0	34.6	3.9	11
1999	139	71	5.0	14	71	40	66	14	18.4	20.7	14.7	15.5	36.6	3.3	14
2000	113	71	5.0	7	142	17	8	1	15.7	20.1	14.1	14.9	36.0	3.3	6
2001	94	65	5.4	23	30	33	1	1	15.8	19.6	14.2	12.0	40.0	5.7	10
2002	61	53	4.6	3	17	19	11	1	17.2	20.1	14.0	15.0	26.5	5.5	8
2003	123	71	3.9	16	58	32	54	1	14.8	20.3	13.1	13.4	34.0	3.0	11
2004	107	72	4.3	16	51	36	42	2	15.2	21.0	14.2	14.1	26.2	3.0	11
2005	92	63	4.2	1	16	38	51	1	13.8	20.3	13.7	14.7	28.3	3.6	11
2006	316	69	3.5	35	162	99	175	8	15.4	21.1	14.7	13.8	24.9	2.3	16
2007	367	71	4.2	54	127	90	162	22	14.9	21.2	14.2	14.8	27.1	3.4	18
2008	162	71	3.5	12	46	45	37	10	15.0	20.2	13.9	14.2	29.9	3.8	13
2009	316	68	4.1	26	48	76	97	39	14.9	21.3	13.2	13.5	28.2	4.6	16
2010	211	76	3.8	31	4	99	51	5	14.8	15.7	12.4	12.1	25.5	4.2	10
2011	326	72	3.9	12	97	160	136	9	13.4	20.3	13.8	13.5	26.3	3.1	19
2012	106	65	3.7	6	26	50	31	6	13.7	22.0	14.5	14.8	24.2	3.3	12
2013	381	62	3.5	42	251	53	79	12	13.8	22.6	15.5	14.3	29.7	3.1	18
2014	379	60	3.6	23	294	64	136	13	14.3	22.6	14.4	14.3	30.2	2.6	16
2015	259	52	3.7	1	31	82	162	5	17.0	21.4	15.1	14.2	28.8	3.4	16
2016	195	65	2.3	0	31	150	226	25		21.9	16.1	14.6	31.2	2.3	16
2017	223	73	3.7	3	30	207	222	3	15.0	22.3	15.4	13.7	29.2	1.8	16
2017	190	73 71	3.6	0	21	246	259	3		21.2	14.9	14.1	27.6	1.3	14
2019	411	61	4.3	1	50	214	234	13	20.0	22.5	14.8	14.0	28.2	3.5	20
2019	320	56	3.9	2	53	159	106	11	12.5	21.7	16.4	13.8	28.4	3.8	16
2020	162	68	3.2	0	42	91	87	4		20.7	15.8	14.8	28.0	2.3	12
2021	102	00	3.3	0	25	156	96	8		20.1	10.0	17.0	20.0	2.0	14

<sup>1 -</sup> Success = One or more legal target fish caught.

Gamefish = BT-Brown Trout, WAE-Walleye, SMB-Smallmouth Bass, LMB-Largemouth Bass, TGR-Tiger Musky.

<sup>\* 1979-1987</sup> Lengths are from kept fish only.

