



Department of
Environmental
Conservation

LAKE CHAMPLAIN ICE FISHING CREEL SURVEY
2021 PROGRESS REPORT
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Lake Champlain Ice Fishing Creel Survey, 2021 Progress Report

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Introduction

The information on ice fishing angler use characteristics for the New York side of Lake Champlain is outdated. The last ice fishing survey conducted by New York was in 1999, in coordination with Vermont Fish and Wildlife (NYSDEC 2000). The 1999 survey predates significant changes to species composition, fisheries management practices, and environmental disturbances in the lake, including the introduction of aquatic invasive species, increased sediment and phosphorus inputs, and climate change.

An ice fishing season creel survey was developed to survey selected bays on the New York side of the lake to understand angler use and expectations to help guide management actions. Information collected includes preferred target species, catch and harvest rates, and angler opinions about the ice fishery. Information from this survey and surveys conducted over the next few years will inform the development of a Fisheries Management Plan for Lake Champlain.

Methods

Angler interviews were conducted on four selected bays (King's, Willsboro, Bulwagga and South) on the New York shoreline of Lake Champlain from January 1 through March 21, 2021 (Figure 1). Angler counts were conducted at each site every survey day. Angler effort and catch rates were estimated following the methods of Pollock (1994 for access point bus route surveys. Angler effort is estimated as angler days, using angler counts multiplied by the stratum specific mean trip length for completed interviews. Catch per unit effort is reported as fish per angler hour. Anglers who had not yet completed their fishing trips at the time of the interview were provided catch cards and were asked to complete them at the end of their fishing trip. Green metal boxes were available at access sites for catch cards to be returned.

Complete survey methods, including the interview (Appendix 1) and catch card forms, can be found in the Lake Champlain Creel Survey Plan (Balk 2020). Analyses for this report focused on identifying angler's preferred target species, estimating catch and harvest rates for each species, rating angler satisfaction with the fishery, and documenting opinions on the lake and fishery.

Results

Two creel clerks conducted 224 completed trip interviews. Interviews at each bay began when safe ice formed, which occurred January 1 on South Bay, January 16 on Bulwagga Bay, January 23 on King's Bay, and February 6 on Willsboro Bay. Ice out occurred in the reverse order soon after the end of the survey.

Catch cards were given to 85 anglers with 33 returned, for an overall return rate of 39%. Return rates vary by bay (Table 1).

Table 1. Catch cards given and returned during the 2021 Lake Champlain ice fishing season for each bay surveyed.

Bay	Catch cards given	Catch cards returned	Return rate (%)
King's Bay	10	3	30
Willsboro Bay	2	2	100
Bulwagga Bay	30	11	37
South Bay	43	17	40

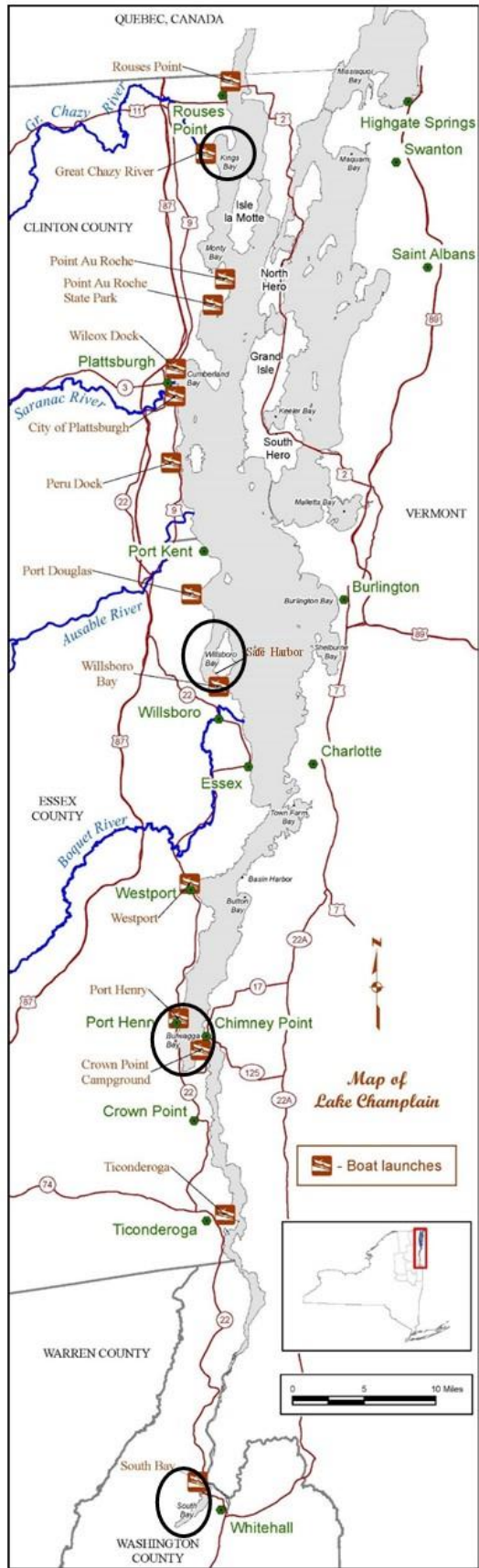


Figure 1. Map of New York access points (circled in black) on Lake Champlain for ice fishing creel survey interviews.

Effort and species targeted

Interviewed anglers fished for an average of 4.6 hours per fishing trip and spent 2,808 angler days ice fishing on Lake Champlain in 2021. The most effort was at South Bay with 1,223 angler days and an average trip length of 4.9 hours. King's Bay received 891 angler days of effort with an average trip length of 5.7 hours. Bulwagga Bay anglers fished 579 angler days and had an average trip length of 4.0 hours. Willsboro Bay had 115 angler days of effort with an average trip length of 3.3 hours. The low amount of effort at Willsboro Bay was due to the short window of safe ice; it was the last to form and the first to recede.

Most of the fishing effort occurred on the southern bays (64%) and on the weekends (70%). Overall, anglers were present evenly throughout the day (60% AM, 40% PM); however, more anglers were fishing in the mornings on Bulwagga Bay (88%). Anglers were only encountered on Willsboro Bay in the mornings, and this was the only bay with more effort on weekdays (54%).

Yellow perch were targeted by the highest percent of anglers than any other species (Table 2). Yellow perch were the primary target at three of the four bays, the exception being South Bay where anglers targeted a variety of species. Crappie were the primary targets of 11% of anglers. The next most common target was "anything" at 15%, followed by northern pike at 11% and crappie at 11%.

Anglers don't often differentiate between yellow and white perch when talking to the creel clerk. We believe anglers are referring to yellow perch when they say "perch", and thus the results are representative of yellow perch. When anglers are targeting crappie, they also don't distinguish between the species when being interviewed and will keep either type. There was only one mention of white crappie by an angler as a secondary target. In this report, "crappie" represents both black crappie and white crappie.

Table 2. Species or species group targeted, listed by rank with percent of anglers targeting them during the 2021 Lake Champlain ice fishing season.

Target species	Rank	Percent
Yellow perch	1	50
anything	2	15
northern pike	3	11
crappie	4	11
sunfish	5	7
walleye	6	3
lake trout	7	2
largemouth bass	8	0
pickerel	9	0

Results suggest that the ice fishery on King's Bay is primarily focused on yellow perch, with the majority of angler effort directed toward this species (54% of the 83 anglers). Catch and harvest rates for yellow perch were higher on King's Bay than the other surveyed bays (1.97/h). Northern pike are secondarily targeted (26% of the anglers), but catch rates are low (0.14/h).

On Willsboro Bay yellow perch were also the primary target with 100% of the 14 anglers targeting them. The targeted catch rate for yellow perch of 1.38/h. Only one angler had a secondary target of lake whitefish.

Anglers on Bulwagga Bay also primarily targeted yellow perch, with 90% of the 124 anglers targeting them. Catch and harvest rates for yellow perch were good (1.61/h). Lake trout were targeted by 8% of the anglers.

South Bay had the most angler effort of the four surveyed bays. On South Bay, anglers targeted a variety of species with no clear primary species. Of the 247 anglers interviewed, 28% were targeting “anything”, 23% crappie, 21% northern pike, and 15% yellow perch. A few anglers targeted sunfish (7%) or walleye (5%). Black crappie were only caught at South Bay and catch rates were good (1.7/h). The catch rate for yellow perch was the lowest of the surveyed bays (0.67/h). Secondary targets reported by anglers included crappie (54% of 216 anglers), sunfish (24%), and perch (19%).

Catch and harvest rates

Interviewed anglers caught 1,929 fish and harvested 52% of them. The overall catch and harvest rates for all species at all sites was 0.86 and 0.45/h (Table 3). Yellow perch were the most targeted fish in the 2021 ice fishing season, followed by northern pike and crappie. Yellow perch represented 70% of the fish harvested.

Table 3. Bay specific overall targeted catch and harvest rates for primary species.

Bay	Target species	Overall catch rate (fish/h)	Overall harvest rate (fish/h)	Targeted catch rate (fish/h)	Targeted harvest rate (fish/h)
King's	Yellow perch	1.15	0.73	3.10	2.00
	Northern pike	0.10	0.07	0.21	0.14
Willsboro	Yellow perch	1.97	1.39	2.00	1.40
Bulwagga	Yellow perch	3.28	1.46	3.60	1.60
	Lake trout	0.01	0.00	0.24	0.00
South	Yellow perch	0.17	0.08	1.40	0.70
	Northern pike	0.01	0.00	0.07	0.00
	Black crappie	0.41	0.29	1.75	1.25
	Sunfish	0.62	0.38	25.50	15.70

Targeted catch rates for yellow perch differed between the bays, with the best catch rate at Bulwagga Bay. Sunfish were only caught on South Bay and had the highest targeted catch rate of the primary species. Largemouth bass were often caught as bycatch (0.3/h), but all were reported released, indicating that anglers were following the winter catch and release regulations. Most anglers who had caught bass seemed surprised when asked if they had harvested any and would quote the regulation to the clerk. All crappie were caught at South Bay. Northern pike effort was relatively high with 128 angler hours focused on targeting them at King’s Bay and South Bay, but the targeted catch rate was low (0.13/h) as was harvest rate (0.06).

Angler opinions

Anglers were asked their opinion to several satisfaction questions using a scale of 1 to 5, with 1 being the worst and 5 the best. Of the 170 anglers who responded to the question “*How would you rate your fishing experience today?*”, 28% of them responded positively, choosing either 4 or 5 (Figure 2). About 45% of the anglers were dissatisfied with their daily fishing experience, selecting 1 or 2. About one quarter of the anglers surveyed did not answer this question (23%). Responses differed by Bay: anglers on Bulwagga and King’s Bay followed this pattern, whereas those on Willsboro Bay were generally dissatisfied (82%) (Note that this is based on only 11 interviews at Willsboro Bay). Fewer anglers on South Bay were dissatisfied (29%).

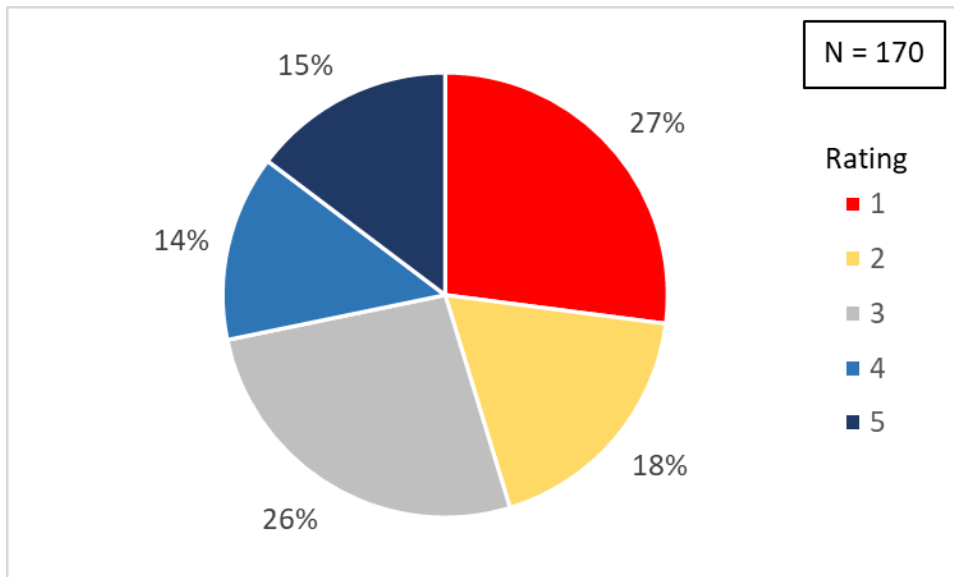


Figure 2. Angler rating of their fishing experience on the day of the interview. (Blue = good, red = bad, grey = neutral)

Of the 131 anglers who responded to the question “How would you rate your satisfaction with ice fishing on Lake Champlain *this year*?”, 40% of them indicated that they were satisfied and 26% were dissatisfied (Figure 3). About 42% of the anglers surveyed did not answer this question. The 11 anglers at Willsboro Bay again were less satisfied than anglers at the other bays (63% dissatisfied).

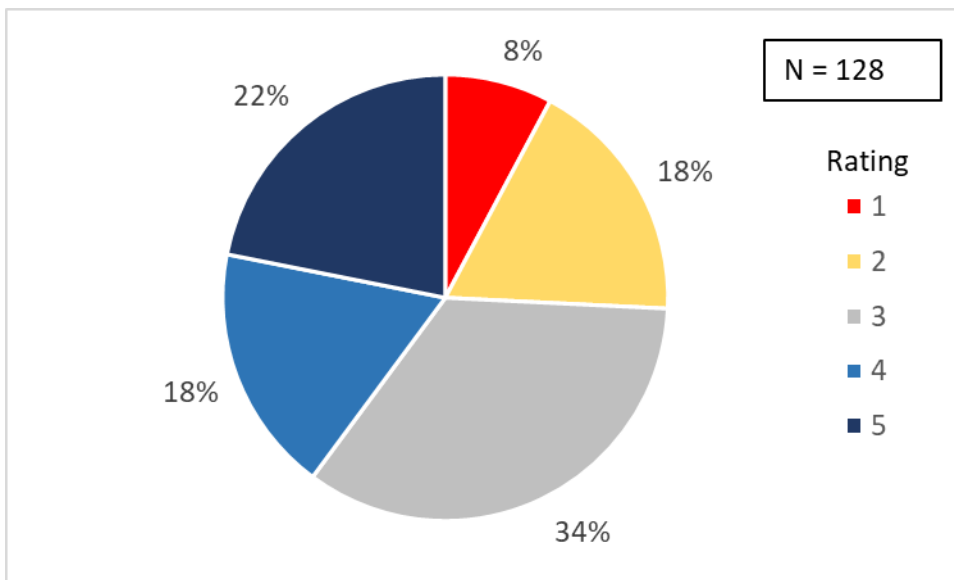


Figure 3. Angler rating their fishing experience this year for all Lake Champlain bays. (Blue = good, red = bad, grey = neutral)

Of the 93 anglers who responded to the question “How would you rate your satisfaction with ice fishing in Lake Champlain *this year for your target species*?”, 31% were satisfied and 32% were dissatisfied (Figure 4). Sixty percent of anglers interviewed did not answer this question. The Willsboro Bay anglers were also less satisfied than anglers on other bays in terms of satisfaction with catching their target species (75% dissatisfied).

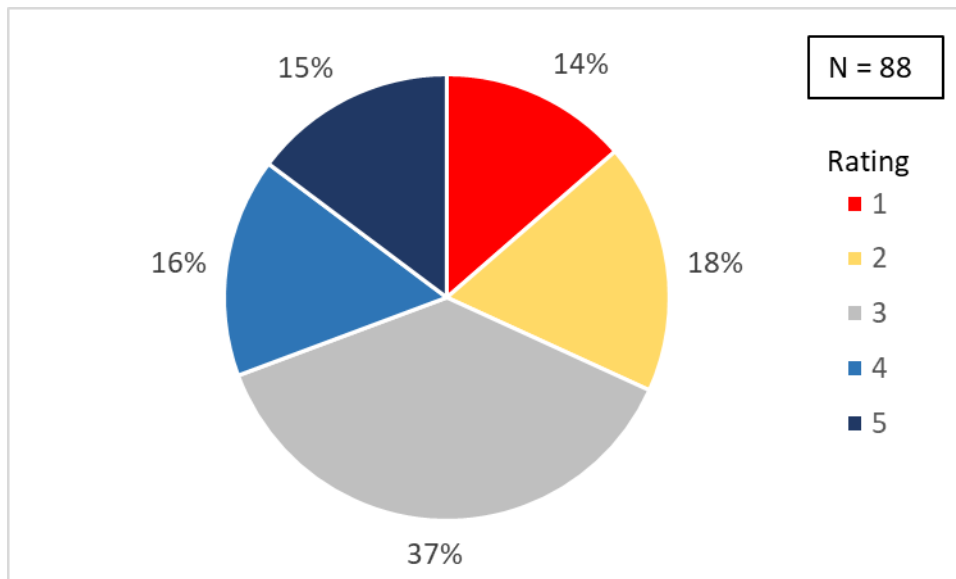


Figure 4. Angler rating of their satisfaction with their ice fishing experience this year for their target species.

Of the 33 anglers who responded to the question “How would you rate your satisfaction with ice fishing in Lake Champlain this year for your second target species?”, 36% were satisfied and 36% were dissatisfied (Figure 5). This question was not answered by 85% of the anglers interviewed.

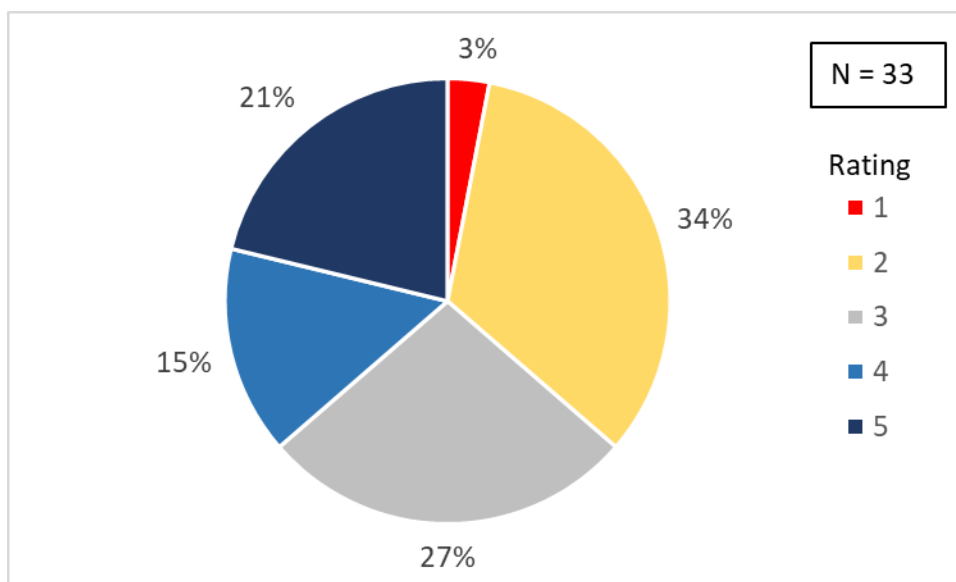


Figure 5. Angler ratings of their ice fishing experience this year for their secondary target species.

There were 164 anglers who responded to the question “How many days per year do you typically ice fish for Yellow perch in Lake Champlain?” Of the 136 anglers that fished for yellow perch, 86% of them said they typically fish for less than 30 days per year. The other 14% fish for more than 30 days per year, with the most being 200 days fished by an individual. At South Bay, 37% of the anglers only fished 1-4 days.

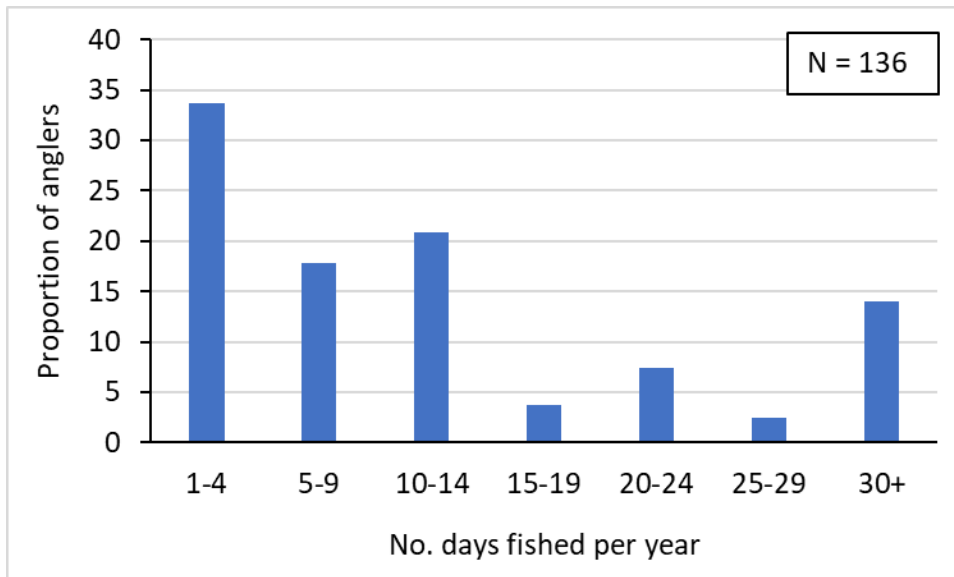


Figure 6. Number of days anglers target yellow perch in Lake Champlain during the 2021 ice fishing season.

Anglers who fished for yellow perch were asked to rate their satisfaction with yellow perch fishing in Lake Champlain this year (N=108). About 22% of them were satisfied and 35% were dissatisfied (Figure 7).

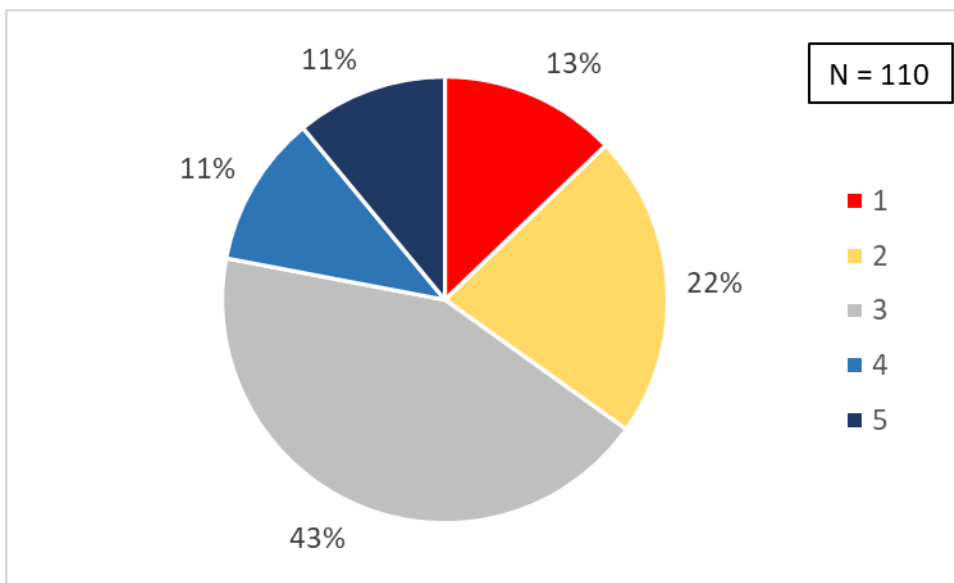


Figure 7. Angler rating of their satisfaction with yellow perch fishing this year.

There were 101 “other” comments from 83 angler parties (182 anglers). Most of the comments were negative in nature (73%), typically expressing things anglers want to see improved or changed on the lake.

Fish measurements

Anglers were asked if they would be willing to allow the clerk to measure their catch. Of the 432 anglers that kept fish, 197 agreed to let the clerk measure their catch. The clerks measured 108 fish, most of them yellow perch (82%). The most common sized yellow perch measured were between 7.5 to 9 inches, with a mean of 8.4 inches (Table 4). Compared to the lengths of yellow perch measured in 2015

(Figure 8), this year’s length frequency shows a shift toward the larger size classes (Figure 9). Those that chose not to have their catch measured typically appeared impatient to get out on the ice or to go home. The eight northern pike measured ranged between 18.4 to 36 inches, all over the statewide minimum of 18 inches.

Table 4. Number of fish measured, listed by species.

Species	Number	Size range (inches)
Yellow perch	89	4.8 - 12.5
Northern pike	8	18.4 - 36
Black crappie	4	10 - 11.5
White crappie	4	9.4 - 11.8
Chain pickerel	1	12
Walleye	1	3

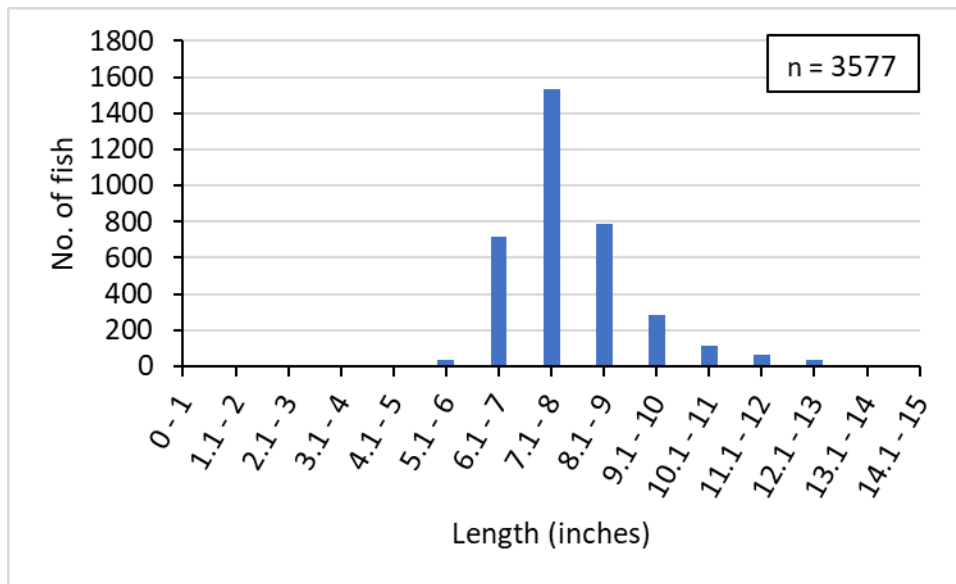


Figure 8. Length frequency of yellow perch harvested from Lake Champlain during the 2015 ice fishing season (Good 2016).

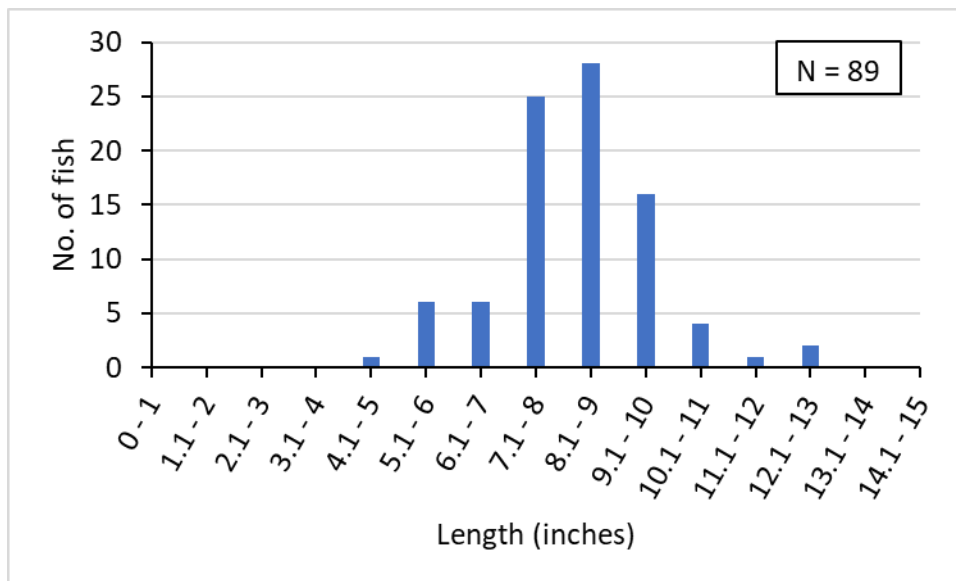


Figure 9. Length frequency of yellow perch harvested from Lake Champlain during the 2021 ice fishing season.).

Discussion

This survey was valuable in collecting the first year of information on angler use of the ice fishery of Lake Champlain. Information collected about anglers' preferred target species, catch and harvest rates, and opinions about the lake fishery will help inform management actions.

In summary, the Lake Champlain ice fishery is primarily focused on yellow perch with some anglers targeting northern pike. Targeted catch rates for yellow perch are good but are very low for northern pike. Ice fishing access to the popular ice fishing bays in New York need improvement.

Effort and species targeted

Total angler effort on each bay corresponds to the number of days with fishable ice. On Willsboro Bay, ice formed nearly two weeks later than other bays and the ice left sooner, leaving just three survey days. Based on angler testimony, this was not a typical year for Willsboro Bay; safe ice is usually available longer. More effort was likely expended on the southern bays due to a longer fishable safe ice period and higher diversity of species. South Bay had a longer season due to the shallow depth of the bay, allowing it to freeze soonest and stay frozen longest. The northern bays are deeper and more exposed to the wave action of the open lake, which usually prevents them from freezing as quickly and hastens ice out, effectively shortening the ice fishing season. Angler effort was concentrated on weekend days for three of the bays: King's Bay (92%), Bulwagga Bay (73%), South Bay (80%). Willsboro weekend effort was only 41%; however, anglers were only interviewed on 3 days during the month of February.

We anticipated yellow perch being the primary target species for the Lake Champlain ice fishery and it was, targeted by 50% of the anglers interviewed. Northern pike were also regularly targeted on some bays. We found that "anything" and crappie were targeted more often than expected.

Catch and harvest rates

Whole lake catch and harvest rates were lower than in the past. The 2021 overall catch rate was 0.86 fish/hour and the harvest rate was 0.45 fish/hour. The 1991 Lake Champlain ice fishing survey on the North Lake found a catch rate of 6.1 fish/hour and a harvest rate of 6.0 fish/hour (Chipman 1992). For yellow perch, the overall catch rate for all bays in 2021 was 3.1 fish/hour and the harvest rate was 1.5 fish/hour.

The species targeted have changed significantly over the years; therefore, the data do not lend themselves to direct comparison in terms of overall catch rates.

In 2021, the primary target was yellow perch, then northern pike, then crappie.

In 2015, the primary target was yellow perch, then anything, then sunfish.

In 1991, the primary target was rainbow smelt, then lake trout, then yellow perch.

The highest targeted catch rate for yellow perch was 3.6 fish/hour at Bulwagga Bay, with a harvest rate of 1.6 fish/hour (Table 5). These rates fall short of historically reported catch rates (Appendix 2).

Table 5. Targeted catch rates for yellow perch on Lake Champlain bays during the ice fishing season.

Bay	Catch rate (fish/h)	harvest rate (fish/h)
King's Bay	3.10	2.00
Willsboro Bay	2.00	1.40
Bulwagga Bay	3.60	1.60
South Bay	1.40	0.70

Northern pike accounted for 25% of the angler effort with a catch rate of just 0.11 fish/hour. Compared to previous surveys on Lake Champlain this is a higher catch rate; the 2015 South Lake survey found a targeted catch rate of 0.03 fish/hour (Good 2016). The 2021 northern pike targeted catch rate is a little lower than other waters in the state, like Sodus Bay where it was 0.16/h (Sanderson 2010) or Irondequoit Bay where it was 0.22/h (Sanderson 2009).

The extremely high targeted catch rate for sunfish was unexpected (25.5/h). Little is known about the sunfish or crappie populations in Lake Champlain.

Access

Campground and DEC boat launches were used by 86% of the anglers surveyed. Informal access points were used by the other 14% of anglers. South Bay boat launch received the most use with 106 anglers. The two Bulwagga Bay Campground beaches provided access to 78 anglers. King's Bay has no formal access, but 29 anglers used other means of getting on the ice, mostly from the King's Bay Wildlife Management Area. Willsboro Bay boat launch was the sole access point for this bay, providing access to 11 anglers. Formal, safe ice fishing access should be pursued at each of these locations.

Cumberland Bay was originally selected as one of the northern bays, but early scouting and angler counts found little angler activity. Cumberland Bay set up with poor ice by the end of January, which may have deterred anglers from using this typically popular bay. Ice on Willsboro Bay was not fishable until February 6, two weeks later than the other bays, and the ice left sooner than the other bays (February 24), leaving fewer survey days. Due to the slow ice formation, creel clerks conducted scouting missions to look for alternative sites on a couple of days in January. Rouse's Point or Deep Bay could be alternate sites for the northern bays.

Angler opinions

For the angler opinion ratings, the goal is to have more anglers satisfied than dissatisfied. Many factors play into this rating such as weather and ice conditions on the day of the interview.

When asked to rate their fishing experiences on Lake Champlain on the day of the interview, fewer anglers overall were satisfied (28%) than dissatisfied (45%). Willsboro Bay anglers had the highest percentage of dissatisfied anglers (82%) and Bulwagga Bay was also high (51%). When ranking their experience for the year, the opposite trend was found; more anglers overall were satisfied (29%) than dissatisfied (18%). A large portion of anglers had a neutral opinion (53%). King's Bay and South Bay had a high percentage of anglers satisfied with their yearly ice fishing (50 and 44%, respectively). Willsboro Bay again had the highest percentage of dissatisfied anglers (63%).

Anglers were also asked to rate the fishing for their primary and secondary target species. For the primary target species, 93 anglers responded and angler satisfaction was nearly equally divided with 29% satisfied and 30% dissatisfied. Many anglers had a neutral opinion (35%). For the secondary target species, only 33 anglers responded and angler satisfaction was equally divided (36% each). Again, many anglers had a neutral opinion (37%). Not all anglers had a secondary target or their primary target was anything; hence, the fewer responses. The questions about secondary targets can be removed from future surveys.

Anglers targeting yellow perch were asked how many days per year they spent fishing. Of the 163 anglers that responded, 61% of the anglers fished 1 to 10 days per year. Willsboro Bay and King's Bay had the highest percentage of anglers that fished more than 30 days per year, suggesting these are more local fisheries than the other bays and are targeted on all fishable days. These same anglers were asked to rate their satisfaction with yellow perch fishing this year. Only 22% were satisfied, 35% were dissatisfied, and a surprising 43% had a neutral opinion.

Angler Comments and concerns

There were 162 comments received, most negative in nature and many concerning things that anglers wanted to see improved that weren't necessarily fishery related (garbage at the launches and pollution in the lake). There were concerns about overharvesting and selling of fish, the negative effects of bass tournaments on the fishery, and Aquatic Invasive Species. As expected, there were requests for stocking of walleye, lake trout, rainbow smelt and sauger. Some anglers said they like the access provided on Lake Champlain, rating it higher than Vermont's access sites and higher than access in other parts of the state, and there were requests for more access to the lake. One angler requested that the docks get installed sooner.

Other comments were about yellow perch and the number of white grubs found in them; some think they have more this year while others think they have fewer. Several anglers said fishing was better in the past. The positive comments about the fishery said the fishery is great, they are glad to see DEC doing the survey, they enjoy the diversity of fish in the lake and the consistency of the fishery.

Regulations

One angler each requested a maximum length limit on walleye of 28 inches, a length limit on crappie of 10 inches, the northern pike minimum length increased to 30 inches, and a bag limit for yellow perch. Two anglers wanted to be able to catch their own bait and want clearer NY and VT bait regulations. One angler wants to reduce the number of tip-ups allowed per person. Another anglers thinks the bass season should be open during the winter.

Invasive species

Several anglers expressed concerns over Aquatic Invasive Species in Lake Champlain. They said the harvesting program for water chestnut is destroying young-of-year fish habitat. Others said aquatic vegetation is taking over the lake. A few anglers commented that sea lamprey wounding rates were low this year. One angler wanted DEC to address spiny water flea in the lake and two anglers wanted DEC to investigate tench in South Bay. One angler said double crested cormorants were a nuisance.

Fish measurements

One goal this year was to collect more fish length data from anglers' catches to track trends in populations during the ice fishing season. Clerks continued to encourage anglers to allow their catch to be measured, but not many fish were measured. Little can be said about the entire lake fishery with just 108 fish measurements, most of which were yellow perch (89). Most ice anglers are very friendly and happy to talk to the clerks about their fishing, but many are hesitant to show the clerk their catch. They may fear they will be reported to law enforcement if they have sublegal length fish or if they exceed the bag limit. Incentives like prizes might help overcome this fear and lead to more fish measurements. For sportfish species like yellow perch, northern pike, lake trout, bluegill, and black crappie, biological data may need to be collected using other survey methods as there were very few measurements for these species in the creel.

Survey response

The increasing non-response rate for the opinion questions toward the end of the survey was a clear indication that the survey was too long. By question 6, 24% of the anglers did not provide a response and by question 9, 85 % of the anglers did not respond. The survey should be shortened for next year, with fewer opinion questions.

Conclusions and Recommendations for 2022

- Only ask one opinion question in the 2022 survey. Clerks noted that anglers were visibly less interested in answering more than 5 questions in the survey; they wanted to get out on the lake or pack up and leave.
- Remove from the 2021 Questionnaire:

Q 1. Have you already been interviewed this winter? The season is too short and we found very few repeat interviews.

Q 4. From where did you access the ice today? There is only one access point at each bay.

Q 7. On a scale of 1 to 5, with 1 being the worst and 5 being the best, how would you rate your satisfaction with ice fishing on Lake Champlain this year? Combine Q 7 and Q 8 so the question reads, "On a scale of 1 to 5, with 1 being the worst and 5 being the best, how would you rate your satisfaction with ice fishing for [target] on Lake Champlain this year?"

Q 9. On a scale of 1 to 5, with 1 being the worst and 5 being the best, how would you rate your satisfaction with ice fishing in Lake Champlain this year for [secondary target]? Most anglers only had one target, or their target was anything.

Q 11. On a scale of 1 to 5, with 1 being the worst and 5 being the best, how would you rate your satisfaction with yellow perch fishing in Lake Champlain this year? This is duplicative; we know their target species and we are asking them to rate their target species.

- Catch cards were an effective method in this survey and should continue to be given out.
- Collect more Yellow perch length data from angler catches to better track trends
- Work on improving the access points on these popular ice fishing bays. Some are unsafe (crossing a busy highway or illegally crossing railroad tracks) and others need consistent snow removal.

Acknowledgements

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Literature Cited

- Chipman, B. D. 1992. 1991 Lake Champlain Creels Surveys Zones 2-5 Job Performance Report. Study: Restoration and Enhancement of Salmonid Fisheries in Lake Champlain. Vermont Fish and Wildlife Department. Project No.: F-23-F-2
- Good, S.P. 2016. Annual Report for Study No. VI: Creel and Angler Surveys. Southern Lake Champlain Winter Creel Survey 2015. Vermont Fish and Wildlife Department. Project No.: F-35-R-18
- McKeown, P.E. and D.W. Einhouse. 2000. The Chautauqua Lake Creel Survey 1998-1999. New York State Department of Environmental Conservation.
- Pientka, B. 2016. Annual Report for Study No. VI: Creel and Angler Surveys. Northern Lake Champlain Winter Creel Survey 2016. Vermont Fish and Wildlife Department. Project No.: F-35-R-18
- Sanderson, M. 2009. A Recreational Fishery Survey of Irondequoit Bay. New York State Department of Environmental Conservation. Study 2: New York State Freshwater Angler Creel Census. Grant F-56-R
- Sanderson, M. 2010. A Recreational Fishery Survey of Sodus Bay. New York State Department of Environmental Conservation. Study 2: New York State Freshwater Angler Creel Census. Grant F-56-R
- Strait, L.E. 2000. Federal Aid in Sportfish Restoration Job Completion Report. Study 8: New York State Angler Creel Survey. Job: 119 North and South Lake Champlain Warmwater Creel Survey. New York State Department of Environmental Conservation.

Appendix 1. 2021 Ice Fishing Creel Survey Questionnaire

Clerk: _____ Bay: _____ Interview #: _____

Date: ____/____/2021 (circle) Weekday / Weekend Time: ____:____ # anglers in party: _____

- 1. Have you already been interviewed this winter? Yes / No
- 2. What time did you START fishing today? ____: ____AM / PM **Catch card given: Y / N**
- 3. What time did you STOP fishing today? ____: ____AM / PM
- 4. From where did you access the ice today? _____ [launch, marina, private]

5. What species were you fishing for today?		Number	
Target 1: _____	Caught: _____	Kept: _____	
Target 2: _____	Caught: _____	Kept: _____	
Other 1: _____	Caught: _____	Kept: _____	
Other 2: _____	Caught: _____	Kept: _____	

Angler opinion questions: [Circle angler's response]

6. On a scale of 1 to 5, with 1 being the worst and 5 being the best, how would you rate your fishing experience today?

1 2 3 4 5

7. On a scale of 1 to 5, with 1 being the worst and 5 being the best, how would you rate your satisfaction with ice fishing on Lake Champlain this year?

1 2 3 4 5 NA

8. On a scale of 1 to 5, with 1 being the worst and 5 being the best. How would you rate your satisfaction with ice fishing in Lake Champlain this year for [record target species]_____?

1 2 3 4 5

9. On a scale of 1 to 5, with 1 being the worst and 5 being the best. How would you rate your satisfaction with ice fishing in Lake Champlain this year for [record 2nd target species]_____?

1 2 3 4 5 NA

10. How many days per year do you typically ice fish for Yellow Perch in Lake Champlain? _____

11. [If they answer 1 or more to Q 10, ask:] On a scale of 1 to 5, with 1 being the worst and 5 being the best, how would you rate your satisfaction with Yellow Perch fishing in Lake Champlain this year?

1 2 3 4 5

12. Do you have any comments or concerns about the fishery?

13. Can I measure the fish you kept? Y / N [Record kept species on Fish form]

Appendix 2. Historical catch and harvest rates for Yellow perch on Lake Champlain.

Past surveys on Lake Champlain

- The 2015 Lake Champlain ice fishing survey (North Lake) found a Yellow perch catch rate of 16.0/h and a harvest rate of 11.0/h (Pientka 2016).
- The 2015 South Lake survey found a Yellow perch catch rate of 12.2/h and a harvest rate of 8.0/h (Good 2016).
- The 1999 Lake Champlain ice fishing survey found a Yellow perch catch rate of 18.0/h and harvest rate of 11.0/h (Strait 2000).

Other lakes in New York state

- An Irondequoit Bay ice fishing survey from December 2007 to March 2008 found the Yellow perch catch rate to be 5.4/h (Sanderson 2009).
- The catch rate from an ice fishing survey on Sodus Bay from December 2008 to March 2009 was 5.39/h (Sanderson 2010).
- Chautauqua Lake ice fishing survey from January through March 1999 found the Yellow perch catch rate to be 4.38/h (McKeown and Einhouse 2000).