



Otsego Lake is a popular fishing destination in Otsego Co., NY. Although oligotrophic and primarily managed for its native coldwater fishery (lake trout), this two-story lake also supports warmwater and coolwater species such as black bass, chain pickerel, walleye, and various panfish. Currently in the absence of invasive alewife, the lake ecosystem continues to rebound (Wells et al. 2015). However, the lake trout fishery has struggled with poor condition as the species recovers from an over-inflated population as it returns to a more natural lake-fish diet. The purpose of this coldwater gill net survey is to continue monitoring long-term changes/trends in the lake’s salmonid fishery that also includes native lake whitefish and non-native cisco.

Multifilament gill nets were set overnight (avg. 22.4 h) at six standard sites around the lake at depths ranging from 28-125 feet of water (fow) on September 19-21, 2022. Prior to setting nets, a more complete lake profile was taken by SUNY Oneonta staff on September 13. Water temperature (°F) and DO—dissolved oxygen (mg/l) recordings ranged from 72.9 and 8.6 at the surface, down to 41.8 and 8.0 near the bottom in 157 fow with a mean of 53.6 and 8.1, respectively. A thermocline existed between 39 and 46 fow, while DO was adequate for fishes (≥ 5 mg/l) throughout the entire water column.

A total of 125 fish comprising nine species were captured in the survey. Smallmouth bass were the most numerous, followed by rock bass, lake trout, and yellow perch with catch rates of 6.0, 4.5, 3.7, and 3.0 fish/net, respectively (Table 1). All five other species each accounted for $<10\%$ of the catch. Multiple year classes of smallmouth bass were caught with just over one-half of quality size (≥ 11 in.), with 19 legal size (≥ 12 in.) fish, 11 of those of preferred size (≥ 15 in.). The largest smallmouth bass measured 19.1 in. and weighed 3.4 lbs. All lake trout captured were older fish (Fig. 1), only one near stock size (10.4-13.5 in.), most of quality size (≥ 18.7 in., and four of legal size (≥ 23 in.). Only one lake trout was of preferred size (≥ 23.4 in., Table 1). The largest laker was only 24.2 in. (Fig. 1) and weighed just under 4.0 lbs. Similarly, all four lake whitefish were adults of preferable size (≥ 23.4 in.), with the largest measuring 25.7 in (Fig. 1) and weighing just over 7.0 lbs. One adult cisco was caught measuring 20.3 in. and weighing 3.6 lbs.

Table 1. Gill net results for nine fishes captured in Otsego Lake, NY on September 19-21, 2022.

----- Numbers by total length category¹ -----

| Species | Captured | Abundance | Fish/net | YY,SY ³ | \geq Stock | \geq Quality | \geq Preferred | \geq Memorable |
|-----------------------------|----------|-----------|----------|--------------------|--------------|----------------|------------------|------------------|
| Smallmouth bass | 36 | 28.8% | 6.0 | 0 | 15 | 8 | 8 | 5 |
| Rock bass | 27 | 21.6% | 4.5 | 1 | 8 | 9 | 8 | 1 |
| Lake trout ¹ | 22 | 17.6% | 3.7 | 0 | 1 | 20 | 1 | 0 |
| Yellow perch | 18 | 14.4% | 3.0 | 0 | 0 | 0 | 7 | 11 |
| Walleye | 8 | 6.4% | 1.3 | 2 | 0 | 5 | 1 | 0 |
| Lake whitefish ¹ | 4 | 3.2% | 0.7 | 0 | 0 | 0 | 4 | 0 |
| Pumpkinseed | 3 | 2.4% | 0.5 | 0 | 0 | 0 | 3 | 0 |
| Cisco ^{1,2} | 1 | 0.8% | 0.2 | 0 | 0 | 1 | 0 | 0 |

¹Total length categories per species below, modified from Gablehouse 1984 for coldwater species. Fish/net = overnight catch rate (6 nets).

²Cisco not listed, assumed same categories as lake whitefish (though cisco have a shorter life span). YY—young of year, SY—spring yearling fish

| | Lake Trout* | Lake whitefish ^{1/} Cisco ^{1,2} | Walleye | Smallmouth bass | Yellow perch | Rock bass | Pumpkinseed |
|-----------|----------------|--|--------------|-----------------|--------------|--------------|--------------|
| Stock | ≥ 10.4 in | ≥ 6.4 in | ≥ 10 in | ≥ 7 in | ≥ 5 in | ≥ 4 in | ≥ 3 in |
| Quality | ≥ 18.7 in | ≥ 11.4 in | ≥ 15 in | ≥ 11 in | ≥ 8 in | ≥ 7 in | ≥ 6 in |
| Preferred | ≥ 23.4 in | ≥ 14.3 in | ≥ 20 in | ≥ 14 in | ≥ 10 in | ≥ 9 in | ≥ 8 in |
| Memorable | ≥ 30.7 in | ≥ 18.7 in | ≥ 25 in | ≥ 17 in | ≥ 12 in | ≥ 11 in | ≥ 10 in |



Six of the eight walleye caught were adults of quality or legal size (≥ 15 in.) with a catch rate of 1.3 fish/net. Other notable bycatch were an abundance of mostly adult rock bass and yellow perch, followed by three adult pumpkinseed (Table 1), and six large adult white sucker. Many bycatch fishes were released alive after processing, but all salmonids were used in a diet study being performed by SUNY Brockport. Scale samples were taken from salmonids, and otoliths were extracted from Coregonids.

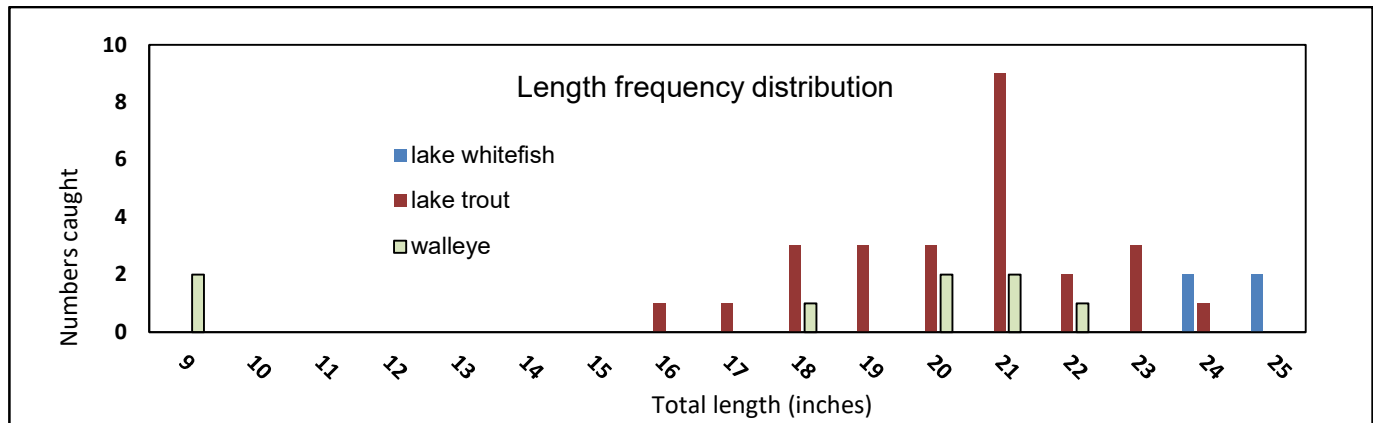


Figure 1. Gill net results for three sportfishes captured in Otsego Lake, NY on September 19-21, 2022.

Survey results for lake salmonids were poor compared with the 2020 netting. Lake trout, lake whitefish, and cisco catches were all down in 2022. The lake trout catch rate of 3.7 fish/net is the lowest since 1981 and well below the 10-y mean of 7.2 fish/net (2012-22). The catch rate for legal size (≥ 23 in.) lake trout was dismal at only 0.07 fish/net, though all but one fish were adults in the abundant size class over 20 in. but not quite 23 in. dominated by slender males. No large lake trout were caught/observed in 2022.

Lake whitefish had shown some rebound since 2012 but low catches in 2014 and 2022 reveal a 10-y mean of only 2.2 fish/net, up from the 20-y mean of 1.5 fish/net, but still well below historical numbers (Wells et. al. 2015). Overall, the catch was moderate at 125 fish but with 67% less salmonids versus the 2020 effort due to higher catches of warmwater bycatch (Table 1), at the shallow ends on several nets.

These results oppose the recent upward trend in lake whitefish (and non-native cisco) numbers over the last decade. However, a six-net two-night sampling effort is bound to fish poorly some years as indicated by the lack of fish at several key sites (i.e., Hyde Bay) in the survey. Routine contributions to this long-term dataset are essential in managing a reduced but resilient lake trout population with improved condition levels, compared to a low in 2016 (Wells and Clark 2020). Fewer slender fish are being observed in DEC sampling and reported by anglers. A two-year study by SUNY Brockport is underway with a goal of determining what are the primary forage items for lake trout in the lake.

Netting results confirm that the lake ecosystem is complex and ever-changing. Ongoing concerns about the lake trout population include very little evidence of recent recruitment, with apparent low numbers of large (i.e., spawning female) fish and high numbers of adult but sublegal males. The lake trout fishery will continue to be stocked and managed under the current special regulations in support of this unique upper Susquehanna River basin fishery.

References

Wells, S.M. and C.J. Clark. 2021. The ever-changing lake trout fishery of Otsego Lake (2020 update). In the 53rd annual report SUNY Oneonta BFS, Cooperstown, NY. p57-69.

Wells, S.M, Waterfield, H.A., and A.J. Reyes. 2015. Invasive species and native salmonids in Otsego Lake, NY, USA. *Poster* presented by S. Wells at the NY Chapter AFS mtg. Lake Placid, NY. Feb 2015

Gablehouse, D.W. 1984. A length-categorization system to assess fish stocks. *N. Amer. Jrnl. of Fish. Mgmt.* 4:273-285.