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Otsego Lake Salmonid Survey (Survey#:418029)

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Otsego Lake is a 4226-acre headwater to the East Branch of the Susquehanna River in Otsego Co., NY. Historically, this two-story oligotrophic lake supported a native population of lake trout and lake whitefish with biannual gill net surveys dating back to 1969. Currently in the absence of alewife, a more balanced lake ecosystem (Wells et al. 2015) includes an apparent rebound in the relic lake whitefish population. However, lake trout continue to struggle foraging during the summer resulting in decreased condition, especially for the numerous smaller and often very slender males. The purpose of this coldwater gill net survey was to continue long-term monitoring of native salmonids in the lake.

A water chemistry profile was completed by SUNY Oneonta staff on Sep 28, 2018. Water temperature (°F) and DO—dissolved oxygen (mg/l) ranged from 67.5 and 8.8 at the surface down to 40.1 and 3.8 near the bottom in 162 feet of water (fow) with a mean of 50.6 and 7.8, respectively. A thermocline existed between 33 and 40 fow but DO was adequate for fishes down to around 150 fow. Nets were set overnight (avg. 22 h) at 6 sites around the lake at depths ranging from 25-120 fow between September 25-27, 2018.

A total of 10 fish species were netted resulting in 106 fish captured in the survey. Lake trout were the most numerous (39), followed by lake whitefish (18), and their catch rates were 6.5 and 3.0 fish/net, respectively (Table 1). Only two lake trout were of quality or legal (≥ 23 in.) size but the majority >85% were within 3 in. below legal size. All lake trout captured were older fish and ranged from 16.9 to 27.6 in. (Fig. 1), with weights to 4 lbs. for one fish measuring 22.9 in. as the two largest fish were released alive and not weighed. Conversely, one-half of the lake whitefish were older fish of desirable (≥ 15 in.) size, and ranged from 16.2 to 25.9 in. (Fig. 1), with weights to 7.3 lbs. Walleye dominated the bycatch in the survey with 17 captured, followed by 12 rock bass, and 9 smallmouth bass. Only six walleye were ≥ quality or legal (≥ 15 in.) size, with four rock bass were of quality (≥ 8 in.) size, and six smallmouth bass were ≥ quality or legal (≥ 12 in.) size. No age (scale) data from this survey are available to report.

Table 1. Results from coldwater gill netting in Otsego Lake, NY on September 25-27, 2018.

			---------- Numbers by total length category[1] ----------				
Fish Species	N[2]	fish/net[3]	YY/SY[4]	≥Stock	≥Quality	≥Preferred	≥Memorable
*Lake whitefish	18	3.0					
*Lake trout	39	6.5					
White sucker	4	0.7	0	0	0	1	0
Rock bass	12	2.0	0	8	0	4	0
Pumpkinseed	3	0.5	0	0	0	3	0
Bluegill	1	0.2	0	0	0	1	0
Smallmouth bass	9	1.5	0	2	3	3	1
Yellow perch	2	0.3	0	0	0	1	1
Walleye	17	2.8	4	7	5	1	0
*Slimy sculpin	1	0.2					

[1]Total length categories for various fish species
[2]N—total number of individuals caught, [3]fish/net—catch per net effort at 6 sites, [4]YY/SY—young of year or spring yearling (age -1) fish, *calculations not available for these species

	Largemouth bass	Smallmouth bass	Walleye / Chain pickerel	Bluegill / Pumpkinseed	Yellow perch / Brown bullhead	Rock bass	White sucker
Stock	≥ 8 in	≥ 7 in	≥ 10 in	≥ 3 in	≥ 5 in	≥ 4 in	≥ 6 in
Quality	≥12 in	≥11 in	≥ 15 in	≥ 6 in	≥8 in	≥ 7 in	≥ 10 in
Preferred	≥15 in	≥14 in	≥ 20 in	≥ 8 in	≥10/11 in	≥ 9 in	≥ 13 in
Memorable	≥ 20 in	≥ 17 in	≥ 25 in	≥ 10 in	≥ 12/14 in	≥ 11 in	≥ 16 in

Immature rock bass and adult smallmouth bass comprised most of the Centrarchids in the gill net due to the steep/deepwater habitat, which also included three pumpkinseed and a bluegill (all adults). Similarly, only two adult yellow perch were netted, yet walleye were common and found in four of six nets with a moderate catch rate of 3.0. Four white sucker and a lone slimy sculpin rounded out the catch (Table 1).

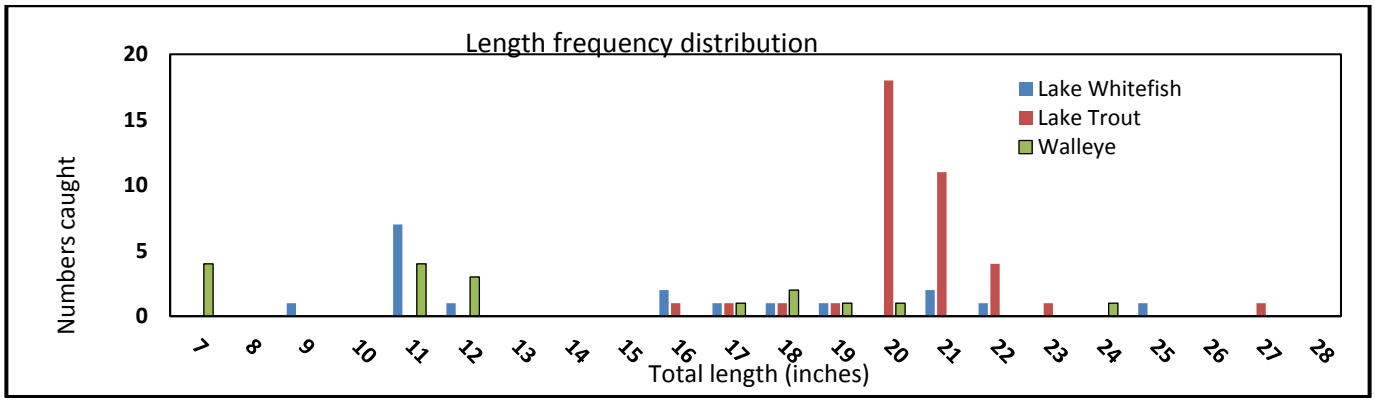

Figure 1. Gill net catches for three sportfish in Otsego Lake, NY between September 25-27, 2018.

Survey results were similar to the 2016 netting with only a slight catch rate increase for lake trout and decrease for lake whitefish, but the last decade shows a different pattern. With a high of 20.5 fish/net in 2008 down to a low of 6.0 in 2016, lake trout catch rate appears to be stabilizing at this new low compared with the 10-y mean of 10.67 fish/net. Lake whitefish numbers since 2008 show an abrupt rise in catch rate from a low of 0.1 fish/net in 2010 to a high of 3.3 in 2016. 1992 was the last year this survey caught over 20 lake whitefish. Long-term, the catch rate for lake whitefish increased from a 20-y mean of 1.2 to 1.6 fish/net over the last 10 years. Relatively good numbers of lake trout (albeit sublegal) along with substantially more lake whitefish in recent surveys indicates that Otsego Lake remains productive for salmonids, yet at a more balanced level as the lake ecosystem continues recover in the absence of non-natives like cisco (rare), rainbow smelt (present), and alewife (extirpated).

The major difference between recent surveys seems to be percent of (non-salmonid) by-catch, which was 55% in 2014, increasing to 67% in 2016, then decreasing to 46% in 2018 for unknown reasons. The 2014 netting was dominated by lake trout catch (49) with only six lake whitefish. More whitefish captures in the last two surveys may have decreased by-catch in the nets as lake whitefish continue to be more represented in their native deepwater niche at these sampling sites. Concurrently, as the recovering lake produces more and larger-bodied zooplankton, these changes are expected to directly favor a recovering lake whitefish population and a growing Percid community.

This lake trout fishery in Otsego Lake will continue to be managed under the current special regulations, yet lake managers may decide to lower the maximum creel length back down to 21 in. if future surveys continue to show high numbers of sublegal fish. A Percid population will help to offset the lack of coldwater forage for lake trout in Otsego, at least in the cooler months. Otsego Lake should continue to provide quality year-round fishing opportunities for a variety of fishes for many years to come.

Wells, S.M, and H.A. Waterfield, 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*