

Walleye (*Sander vitreus*) reintroduction update: Walleye stocking, gill netting 2008

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INTRODUCTION

In 2000 a multi-year stocking program was initiated to re-introduce walleye to Otsego Lake with the management goal of re-establishing the fishery. Each year, Oneida strain 5-d old walleye fry were provided by the New York State Department of Environmental Conservation (NYSDEC) to private growers contracted by the SUNY Oneonta BFS. These growers were to provide pond (40-50mm) and advanced fingerling (100-150mm) walleye to stock Otsego Lake. Due to concerns about viral hemorrhagic septicemia (VHS) NYSDEC did not provide walleye fry to cooperators for grow-out in 2007 (Stang, pers. comm. 2007) but did provide fry in 2008.

In addition to fish grown privately, the NYSDEC fish culture section has annually (since 2004) provided 40,000 pond fingerling walleye to Otsego, which is half the recommended number, due to limited boat access. The goal of the project was to annually stock at the NYSDEC recommended stocking rate of 50 fish per hectare or 80,000 walleye lake-wide.

The primary goal of this stocking program was to re-establish the walleye fishery to Otsego Lake, bringing back a sportfishery that has grown in popularity in the last two decades. A benefit of stocking this predator was to provide additional predation pressure on abundant alewife. Walleye are opportunistic predators (Smith 1983) frequently occupying the open water areas of large lakes (Festa 1987) where they will encounter significant numbers of Otsego Lake alewife.

MATERIALS AND METHODS

State or privately reared walleye fingerlings were delivered to Three Mile Point in late June or early July and boat stocked along the littoral zone on the east and west shorelines. In most years, larger fall fingerlings were stocked in late October or early November. These fall fingerlings received a fin clip to differentiate them from pond fingerlings (Table 1).

Walleye-specific gill netting was performed by the NYSDEC Region 4 Fisheries office on 24, 25 and 26 September 2002 and 18, 19 and 20 September 2007, and 23, 24, and 25 September 2008 with 10 monofilament experimental gill nets. Gill nets were composed of six (6) twenty-five foot panels of $\frac{3}{4}$ ", 1", 1 $\frac{1}{4}$ ", 1 $\frac{1}{2}$ ", 1 $\frac{3}{4}$ ", 2" bar mesh for 150' of total net (Linhart, pers. comm. 2003). Nets were positioned around the lake (Figure 1) in the epilimnion following the percid sampling manual (Forney 1994). Length, weight and scale samples were collected from all fish.

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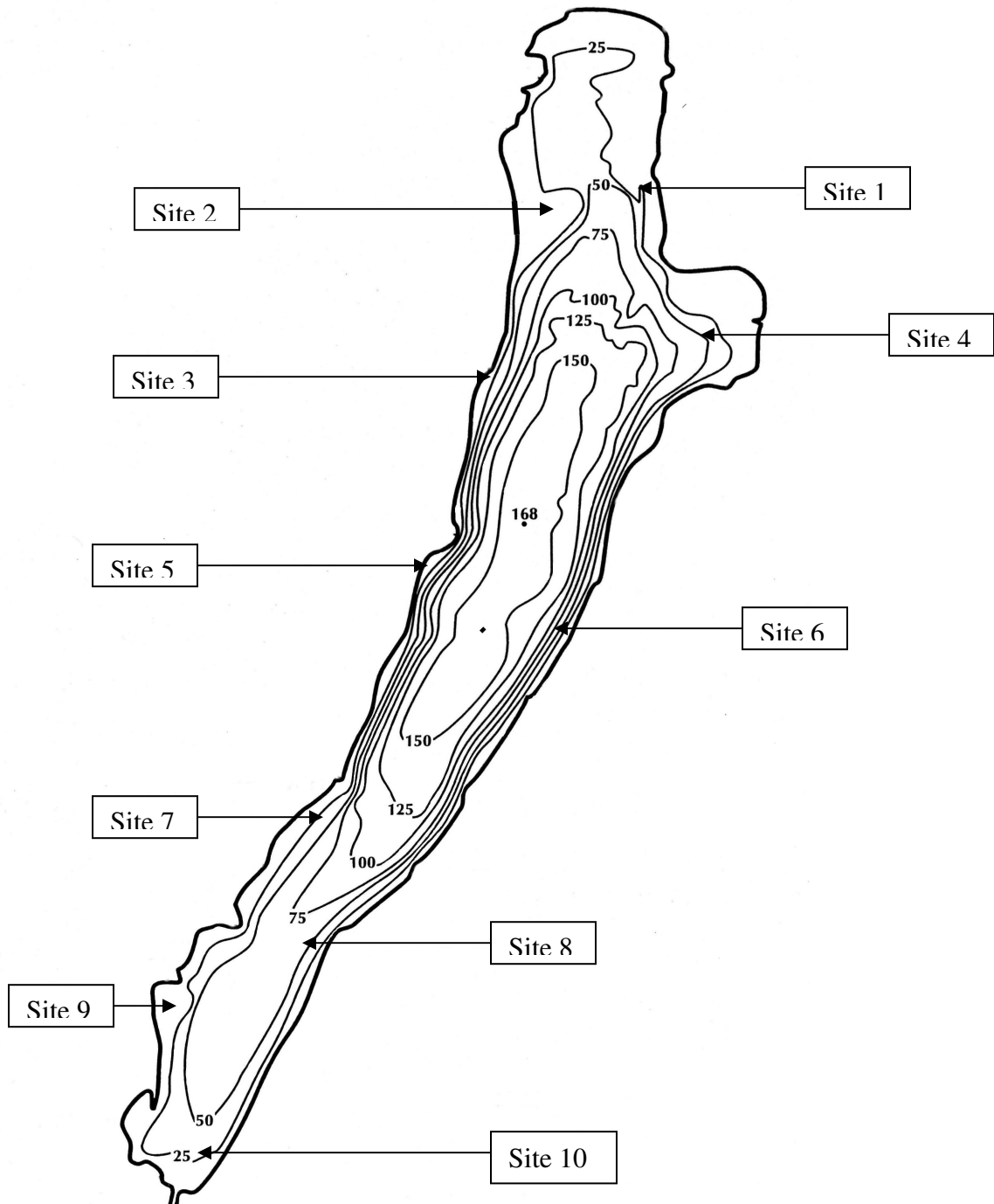


Figure 1. Map of Otsego Lake, NY showing NYSDEC walleye specific gill net locations Set on 24, 25 & 26 September 2002, 18, 19 & 20 September 2007, and 23, 24, 25 September 2008.

RESULTS AND DISCUSSION

A total of 464,500 pond fingerling (88.4%) and 61,000 clipped advanced fingerling (11.6%) walleye have been stocked from 2000-2007 for a total of 525,500 walleye (Table 1). The percentage of clipped fish caught in gill nets closely matched the stocking percentage of clipped and unclipped fish (Table 2).

Gill nets yielded 124 walleye (12.4 walleye per net) in 2002, 138 walleye (13.8 walleye per net) in 2007, and 156 walleye (15.6 walleye per net) in 2008 set in the same 24-hr locations (Figure 1). Figures 2, 3 and 4 provide length frequency distributions for walleye netted in 2002, 2007 and 2008 respectively. Table 2 summarizes sizes, diets and relative abundances of walleye caught, and Table 3 compares catch rates of walleye in Otsego to those of other NY state lakes.

	2000	2001	2002	2003	2004	2005	2006	2007	2008	Totals
# Pond Fings. Stocked	80,000	45,000	45,000	4,500	80,000	40,000	70,000	40,000	60,000	464,500
Mean Length (mm)	44.8	53.6	53.0	50.0	40.0	40-50	40-50	40-50	40-50	40-50
min	32.0	41.0	N/A	N/A	36	N/A	N/A	N/A	N/A	
max	56.0	65.0	N/A	N/A	56	N/A	N/A	N/A	N/A	
# Fall Fings. Stocked	0	8,000 (RV and RP)	8,000 (LV)	15,000 (RV)	0	15,000 (RV)	5,000 (LV)	0	10,000 (RP)	61,000
Mean Length (mm)		121.5	105.4	120.1	N/A	100-150	100-150	N/A	100-150	
min		93.0	76.0	72.0	N/A	N/A	N/A	N/A		
max		180.0	145.0	165.0	N/A	N/A	N/A	N/A		
Project Total										525,500

Table 1. Walleye stocking summary, 2000-2008.

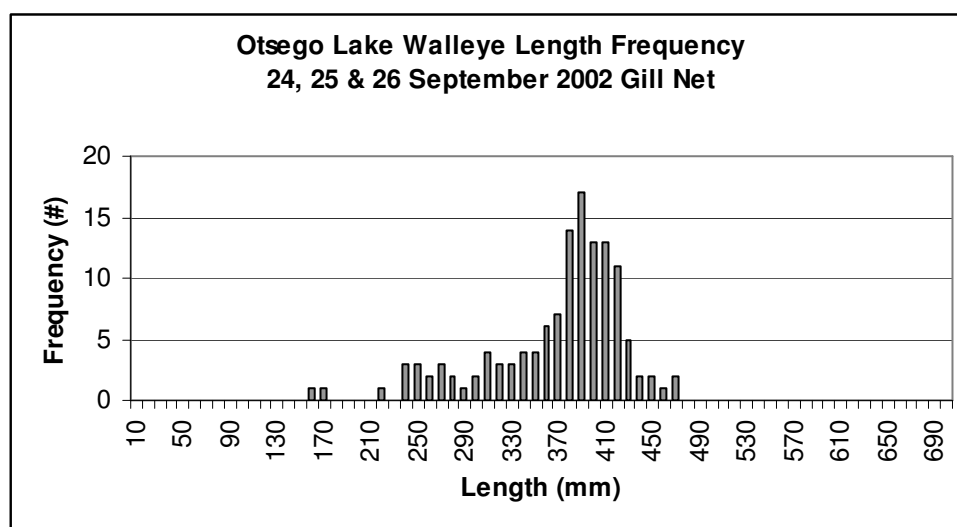


Figure 2. Length frequency distribution of walleye caught in gill nets set by NYSDEC on 24, 25 and 26 September 2002.

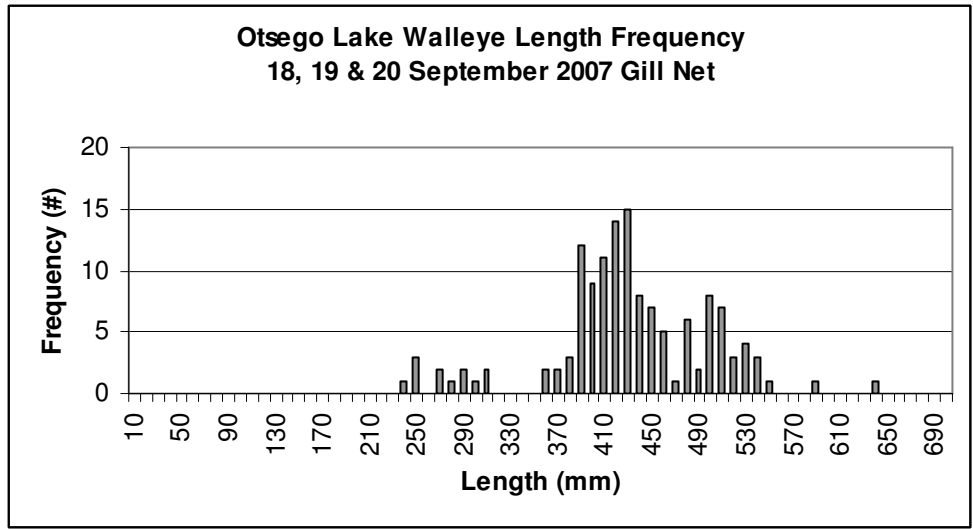


Figure 3. Length frequency distribution of walleye caught in gill nets set by NYSDEC on 18, 19 and 20 September 2007.

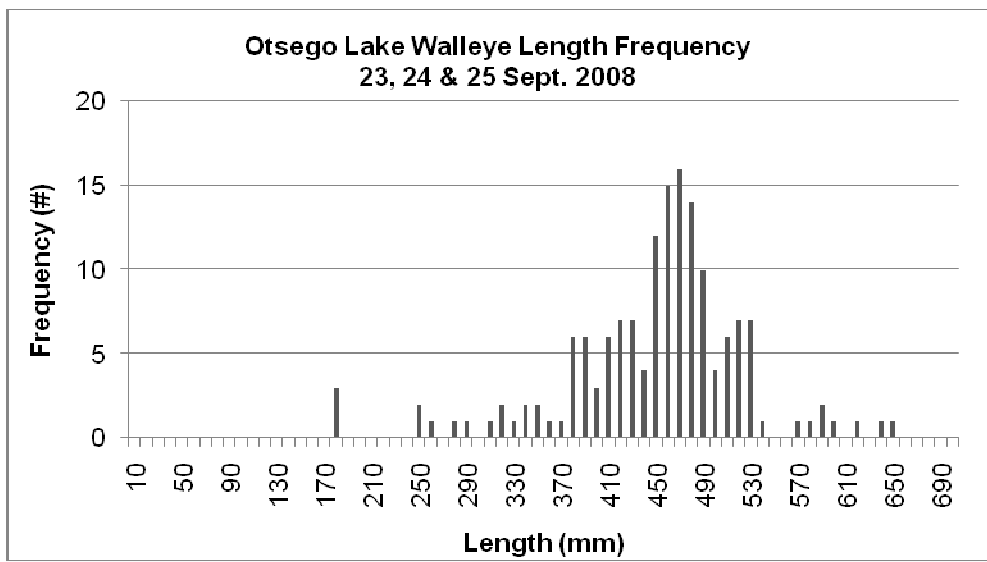


Figure 4. Length frequency distribution of walleye caught in gill nets set by NYSDEC on 23, 24 and 25 September 2008.

	2002	2007	2008
Total walleye captured	124	138	156
Nets set	10	10	10
CPUE (walleye/net)	12.4	13.8	15.6
Largest walleye (mm)	479 (19")	646 (25.4")	650 (25.6")
Smallest walleye (mm)	163 (6.5")	248 (9.8")	180 (7.1")
Avg length (mm)	373 (14.7")	434 (17.1")	453 (17.8")
Avg weight (g)	398 (.88 lbs)	906 (2.0 lbs)	1030 (2.3 lbs)
Number Legal size walleye > 15" (381mm)	78 (56%)	121 (87.6%)	138 (88.5%)
Number of stomachs examined	86	137	N/A
Number of stomachs with at least 1 alewife	56 (65%)	50 (37%)	N/A
Number of Stomachs w/ non-alewife prey	0	3 (3.9%)	N/A
Number of empty stomachs	30 (35%)	81 (59.1%)	N/A
Total number alewife found in stomachs	97	77	N/A
Average # alewife/stomach	1.12	0.54	N/A
Number of walleye with right pectoral clip (RP)	6	0	1
Number of walleye with right ventral clip (RV)	1	11	12
Number of walleye with left ventral clip	0	2	3
Number of unclipped walleye (pond fingerling origin)	117 (94.5%)	125 (90.5%)	140 (89.7%)

Table 2. Comparison of size, diet and relative abundance of walleye caught in gill nets in September 2002, September 2007 and September 2008.

Lake	Catch/net	Date Sampled	Status
Otsego	12.4	September 2002	stocked
Otsego	13.8	September 2007	stocked
Otsego	15.6	September 2008	stocked
Canadarago	18.1	2001	wild
Canadarago	21.6	2003	wild
Canadarago	19.6	2004	wild
Canadarago	15.6	2006	wild
Canadarago	12.8	2008	wild
Crescent	1.4	June 1979	wild
Vischer Ferry	0.8	June 1980	wild
Schoharie Reservoir	3.2	June 2002	wild
Goodyear Lake	2.9	September 2004	wild
Alcove Reservoir	5.6	1970	wild
Tomhannock Reservoir	6.8	July, 2007	wild
Dyken Pond	2.0	Sept 01	stocked

Table 3. Comparison of Otsego Lake and other NYSDEC Region 4 walleye waters

Walleye are doing well in Otsego Lake after 9 years of stocking. The catch of 12.4, 13.8, and 15.6 walleye per net in 2002, 2007, and 2008 respectively is indicative of an abundant walleye population. Walleye are foraging on almost exclusively alewife with most stomachs either empty or containing alewife.

Adult walleye have been observed in Cripple Creek in April 2004, 2005, 2006, 2007 and 2008 (Cornwell 2006; Golding et al. 2006, Lydon et al. 2008) and 50 walleye (size range 355mm- 598mm) were captured by cast net on 6, 9, 10 and 11 April 2006. Eight of these walleye had fin clips (16% of total), indicating that they had been stocked as advanced fall fingerlings (100-150mm) in October and not as pond fingerlings (40-50mm) in June. Walleye were successfully trap netted on Sunken Island and in Leatherstocking, Hayden, Shadow and Cripple Creeks in 2008 (Lydon et al, 2008).

Temperature sensitive sonic tags were implanted in spawning walleye in 2007 and 2008 (see Stich et al., 2007 and Byrne, 2008) and a large mark and recapture study was initiated in 2008. The goal of this mark and recapture study is to obtain a lake wide population estimate for walleye using trap nets on the tributaries. Study elements will include visible implant (elastomer) marks on captured walleye and gill nets and/or electro fishing to recapture fish later in the year. See Lydon et al (2008) for this population estimate.

During the SUNY Cobleskill population study of walleye in the spring 2008, 490 legal (≥ 15 in) walleye were jaw tagged to determine angler exploitation. A total of 11 tags were returned during the open water season and none during the 2008-09 winter ice fishery for an estimated annual exploitation rate of 2.2% to 6.6%, which is very low. Even when doubled or tripled for non-reporting, exploitation of Otsego Lake walleye remains very low. In the lower Mohawk River, the minimum and maximum angler exploitation of walleye in a 1984 tagging study was 15% and 44%, respectively (McBride 1988). Of the 65 walleye tagged in a 1995 study below Southside Dam in Oneonta, the minimum and maximum angler exploitation was 6% and 18%, respectively (McBride pers. comm. 2008).

Because alewives commonly consume walleye fry (Brooking et al. 2001), walleye recruitment in lakes with abundant alewife tends to be limited. Due to the abundant alewife population in Otsego Lake it is unlikely that any walleye fry from natural reproduction will survive in significant numbers to maintain a wild walleye population. Therefore it is likely that stocking will be needed to maintain the walleye population in Otsego Lake. The NYSDEC stocking of fingerling walleye ended in 2008 but the cooperator program will continue pending further evaluation.

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