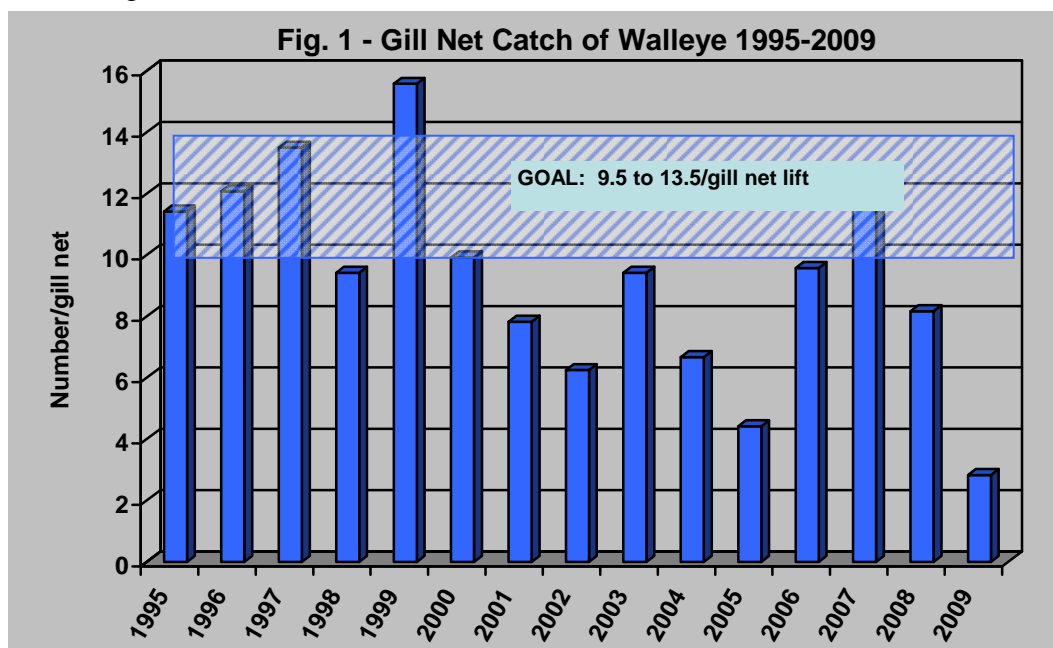


Status of Green Lake Walleye Population – 2009

Prepared by Dick Sternberg for Green Lake Fishery Project
and Green Lake Property Owners Association

The extremely cool summer of 2009 resulted in conditions that affected fish location in Green Lake and many other lakes throughout Minnesota. Because cool water holds more dissolved oxygen than warmer water, and the biological oxygen demand (BOD) is less, adequate dissolved oxygen was present at greater-than-normal depths. This allowed walleyes and other gamefish to roam deeper water than they would in a normal summer.

Gill-Net Results. Green Lake was gill-netted in late July 2009 at which time adequate levels of dissolved oxygen level (5 ppm) could be found down to 45 feet. This compares to 30 feet in July 2008 and 24 feet in July 2007. The walleye gill-net count was only 2.83 per lift, the lowest on record (Fig. 1).

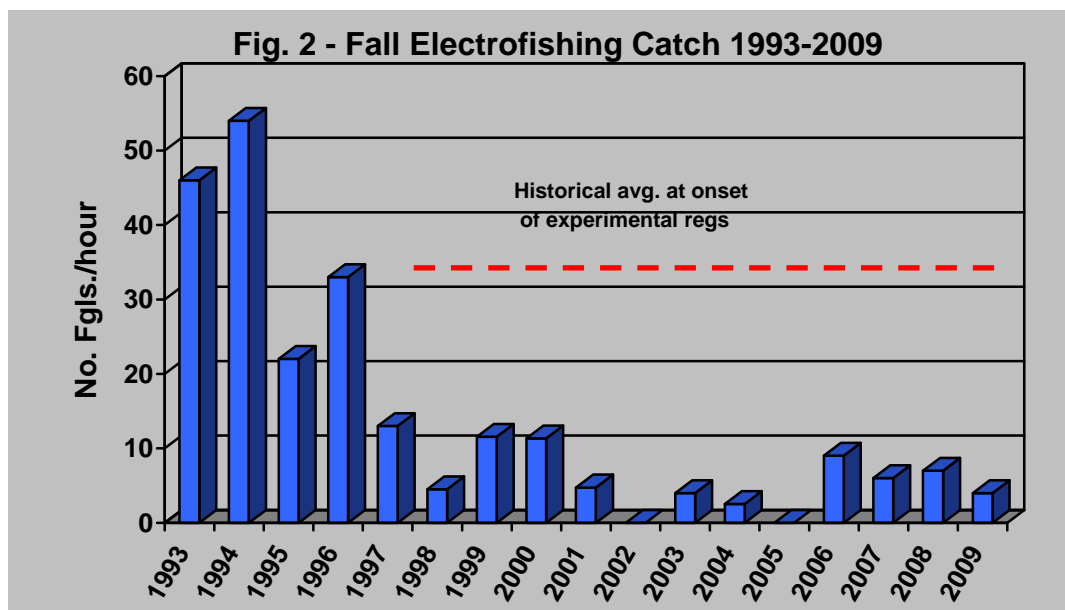


But the low gill-net count was probably an anomaly, resulting from the fact that the nets were set in the usual sampling sites, in water shallower than what many walleyes were using. Area Fisheries manager Bruce Gilbertson attributed the low net count to the “huge volume of available space” [compared to what would be available in a normal year].

Anecdotal reports from anglers confirm that many walleyes were caught in deep water during summer and fall, and that anglers who had good electronics and knew how to use them caught plenty of fish. Another positive indicator was the results of the Little Crow Anglers 2009 walleye tournament. Organizers reported “there was a total of 212 walleyes caught with a total weight of 462.83 pounds for an average weight of 2.18 pounds. With the quantity and size of the walleyes caught it appears that the Green Lake walleye population is in good condition.”

Electrofishing Results. Fall electrofishing is usually the best index of walleye reproductive success, but it really doesn't mean much when a lake is being fry stocked, as is the case in Green. Unless the fry are chemically marked, there is no way of distinguishing stocked fry from naturally produced fry.

In recent years, however, it hasn't made much difference because very few walleye fingerlings (marked or unmarked) have been caught. Prior to the onset of special regulations, the average walleye fingerling catch was 32/hour; since 2001, there has not been an electrofishing catch of more than 9/hour (Figure 2). The fry stocked in 2009 were chemically marked, but the electrofishing catch was only 4/hour, meaning that neither the stocked fry nor the naturally produced fry survived very well.



The lack of natural reproduction is most likely a result of predation by the abundant bass and panfish, particularly bluegills, along with siltation of walleye spawning areas. Mats of chara algae now cover most spawning areas, because bass have decimated the once-abundant crayfish that grazed on the chara and kept the bottom clean. Chara acts as a silt trap, allowing sediments to accumulate and cover the bottom, making it unsuitable for walleye spawning.

Stocking. The current walleye stocking plan, which will remain in effect through 2010, calls for annual fingerling stocking of 1.5 pounds per littoral acre (3,081 pounds) if the fall electrofishing count is below 30 young-of-the-year walleye per hour. The minimum number of fingerlings stocked will be 46,215 fish at an agreed-upon rate of 15-30 fish per pound.

Because the electrofishing count was below 30/hour this year, fingerling stocking was required. The quota was met, with 74,097 fingerlings weighing 3,087 pounds (24/lb) being stocked (Table 1). In terms of the number of fish of the right size, 2009 was the best year since fingerling stocking began in 2000.

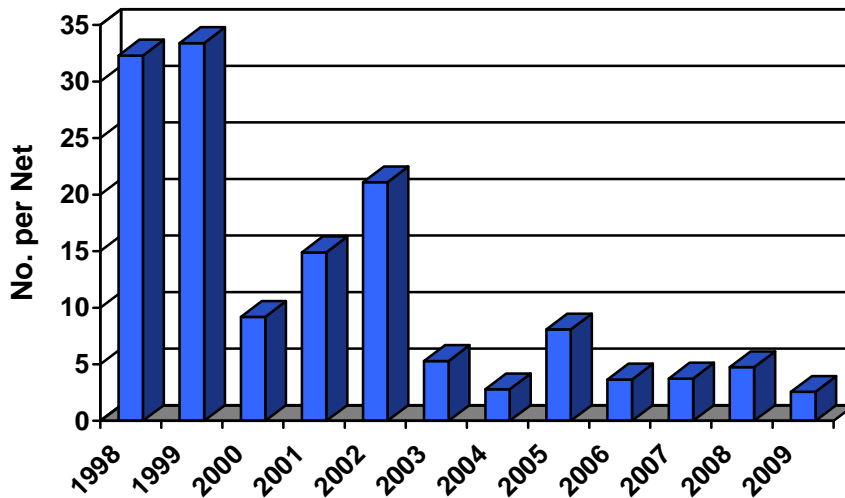
Should the lack of natural reproduction continue and the walleye gillnet catch remain below the stated minimum goal of 9.5/gill net lift, it may be necessary to increase the walleye stocking rate. That decision will have to be made in late 2010 or early 2011 in order to plan for the 2011 stocking.

Table 1 – Green Lake Walleye Stocking, 2000-2009

	No. Fgls	Lbs. Fgls	No. Carryover	Lbs. Carryover	Total No.	Total Lbs.	Rate (no/lb)
2000	100,455	2,058			100,455	2,058	48.81
2001	144,490	4,188			144,490	4,188	34.50
2002	5,976	432			5,976	432	13.83
2003	18,650	654	18,597	3,550	37,247	4,204	8.86
2004	63,160	2,383	1,466	922	64,626	3,305	19.55
2005	5,466	264	12,219	4,106	17,685	4,370	4.05
2006	25,349	1,383	25,942	3,487	51,291	4,870	10.53
2007	48,577	2,455	6,520	2,193	55,097	4,648	11.86
2008	56,657	3,314	5,016	209	61,673	3,523	17.51
2009	74,094	3,087			74,094	3,087	24.00

Status of Other Species. Yellow perch are the primary forage species for most large predators like walleye, northern pike and bass, but they have shown no sign of rebounding (Fig. 3). Perch serve yet another important function: controlling the population of bluegills and other panfish that prey on walleye fry. It may be that there are still too many large predators to allow the perch population to reach the 30/net levels of the late 90s.

Fig. 3 - Gill Net Catch of Yellow Perch



Beginning in 2000, when Eurasian water milfoil was first found in Green Lake, the trap net count of bluegills has increased dramatically (Fig. 4). Although the count appeared to decline somewhat in 2009, it is impossible to say whether the decline was real or just another weather-related anomaly. Angler reports of huge schools of small bluegills in milfoil beds would seem to indicate no significant change. Rock bass showed a slight decline in 2009 as well, but the long-term trend of higher counts seems to be intact (Fig. 5). Crappies also remain at levels much higher than they were a decade ago (Fig.6). Net surveys do not provide a reliable index of bass abundance, but anglers report that bass populations, while still high, have declined somewhat since all special regulations were dropped in 2006.

Fig. 4 - Trap Net Catch of Bluegills

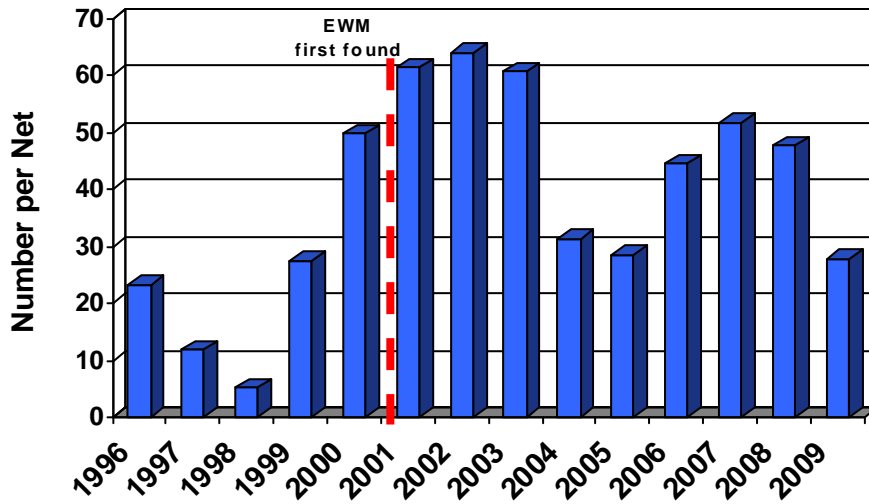


Fig. 5 - Gill Net Catch of Rock Bass

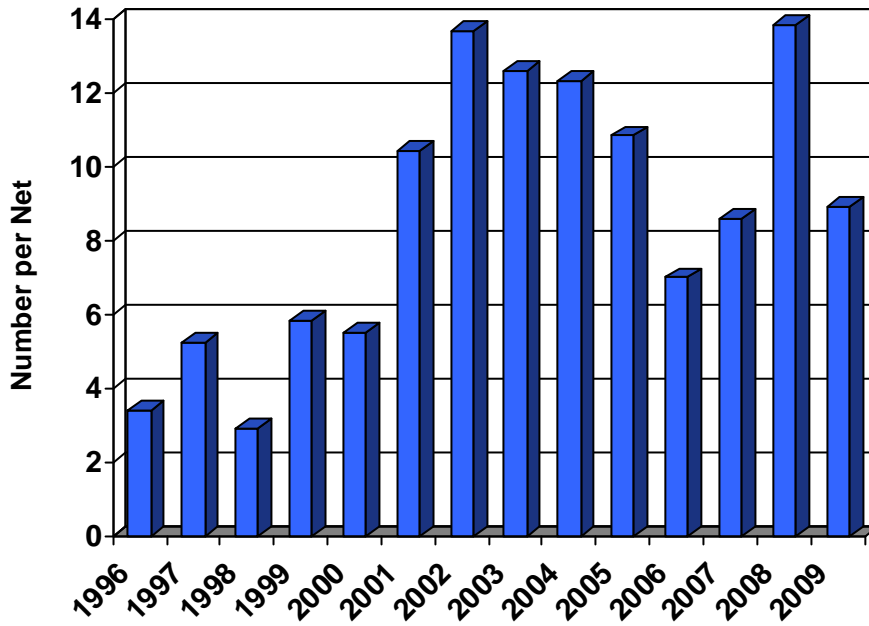
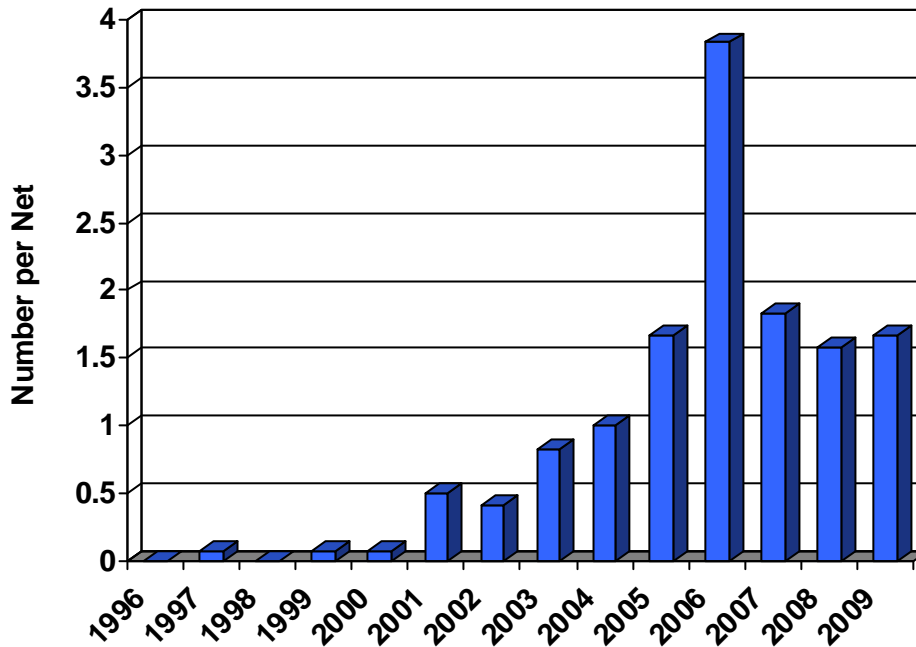


Fig. 6 - Gill Net Catch of Crappies



Conclusion: No solid conclusions can be drawn about the status of the walleye population, or that of other fish populations in Green Lake, because of the highly unusual weather pattern during the past open-water season. The improved walleye stocking program should begin to pay dividends, but it is still too early to evaluate its success. If the new program is working, we should begin to see positive signs in 2010. However, if natural reproduction remains poor, and the walleye count remains below the DNR's minimum goal of 9.5/gill net, we should ask the DNR to increase the stocking rate from the current 1.5 lbs/littoral acre/year to 2 lbs/littoral acre/year.

While increased stocking may be able to keep the walleye population at an acceptable level, perch numbers must increase and panfish numbers decrease in order for the walleye population to return to pre-2000 levels. With few perch to control panfish numbers and more Eurasian water milfoil to provide cover, panfish populations will likely remain high and walleye reproduction low, limiting gains in walleye abundance.