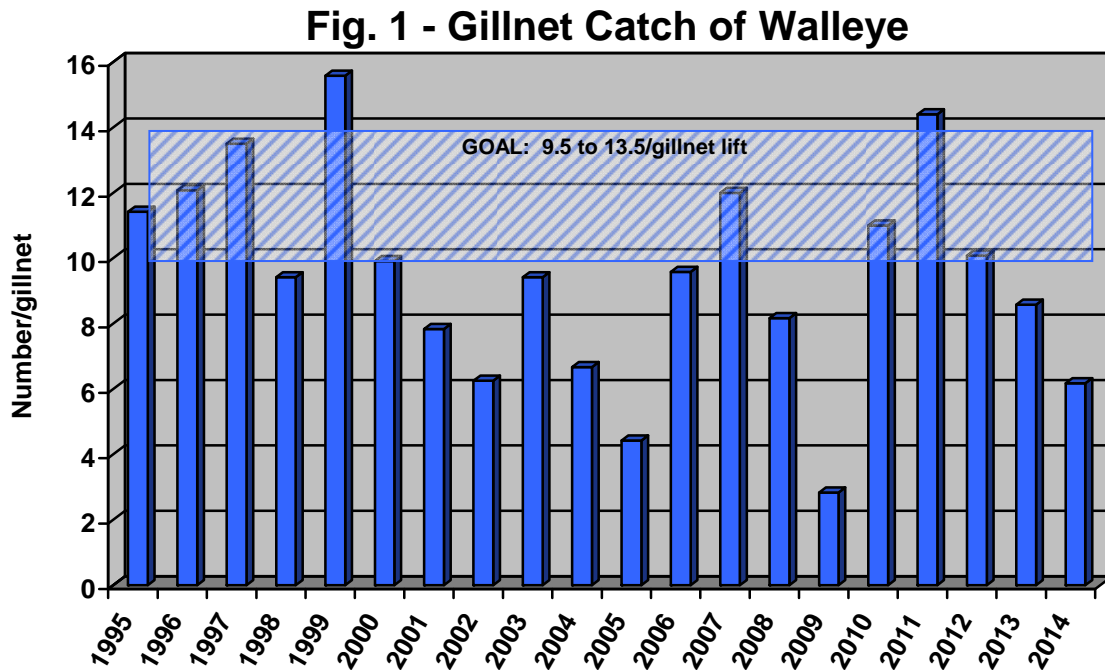


Status of Green Lake Walleye Population, 2014

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

Gillnet Results. After reaching the second highest count on record (14.4/net) in 2011, the walleye gillnet catch has dropped significantly for three consecutive years. It now stands at 6.17/net which is well below the DNR goal of 9.5 to 13.5 (Fig. 1). This fact, combined with many other negative biological/ecological changes occurring in the lake, is cause for serious concern.



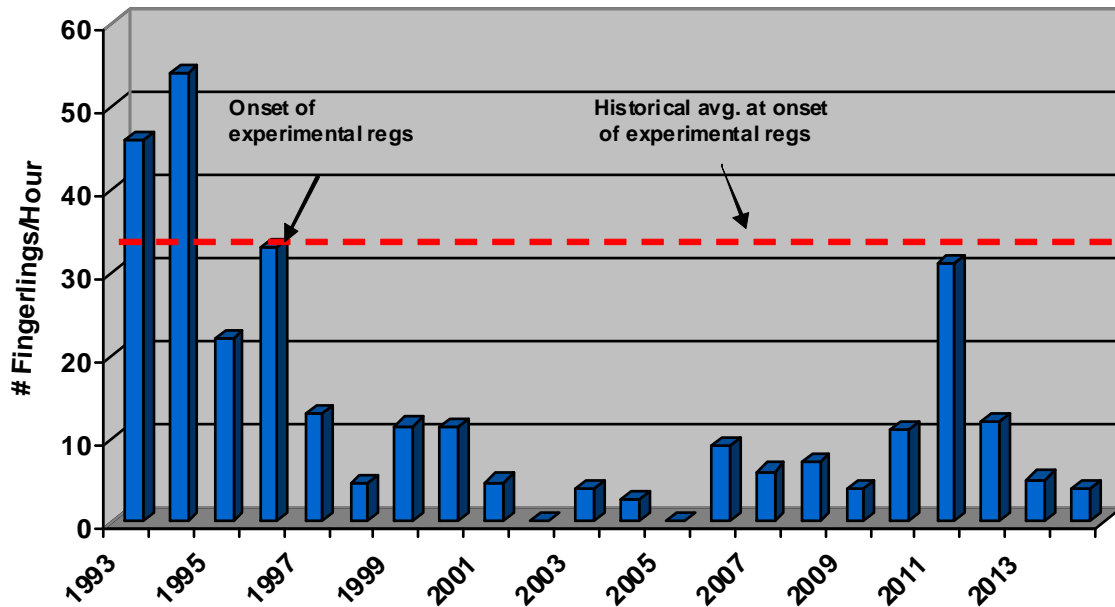
Electrofishing Results. Fall electrofishing is conducted annually to assess walleye reproductive success. Prior to the onset of special regulations in 1997, electrofishing captured an average of 33 young-of-the-year walleyes/hr. From 2001 to 2009, however, the count was less than 10 and in two of those years it was zero (Fig.2).

In recent years, stocked fry have been chemically marked which makes it possible to determine if a fish was stocked or produced naturally. The 2010 electrofishing count showed a marked improvement at 11/hr, and the majority (55%) were natural. The 2011 count of 31/hr was even more encouraging, although only 36.7 % of the fish were natural.

But the 2012 count plummeted to 12/hr with 45% of the fish being natural. The count dropped even farther in 2013 (5/hr.) and slipped a little more (4/hr.) in 2014. With counts that low it is not possible to accurately determine the percentage of stocked vs. natural fish.

=too large

Fig. 2 Electrofishing Catch of YOY walleye



Stocking. The stocking plan adopted in 2008 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 is 46,215 fish at a rate of 15-30 fish per pound. The plan was reviewed during the winter of 2010-2011 to determine if any changes were necessary, and no changes were made. Fingerling stocking will continue as long as electrofishing counts remain low and natural reproduction does not improve to a level that will sustain the fishery.

Table 1 shows that prior to the 2008 stocking plan, fish of the ideal size (15-30/lb) were stocked in only one of the previous 8 years. But despite the improved stocking plan, the walleye population appears to be declining. Larger fingerlings were stocked in 2014 and likely in 2015 and beyond to reduce predation and help stop the walleye decline.

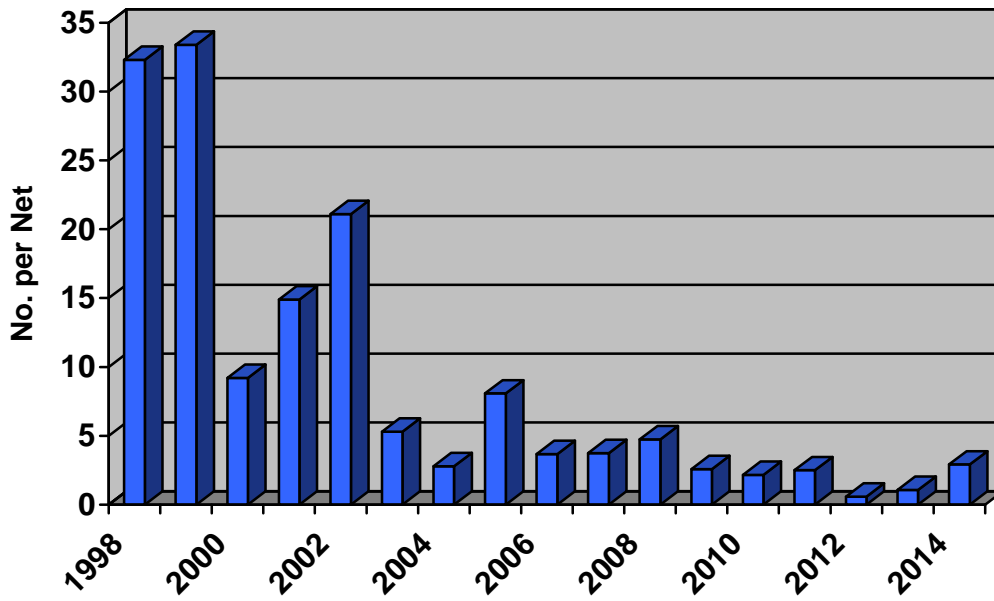
Table 1 – Green Lake Walleye Stocking, 2000-2014

	No. Fgls	Lbs. Fgls	No. Carryover	Lbs. Carryover	Total No.	Total Lbs.	Rate (no/lb)
2000	100,455	2,058	0	0	100,455	2,058	48.81
2001	144,490	4,188	0	0	144,490	4,188	34.50
2002	5,976	432	0	0	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	0	0	74,094	3,087	24.00
2010	70,717	3,086	852	259	71,569	3,345	21.40
2011	66,550	3,081	0	0	66,550	3,081	21.60
2012	59,672	3,081	0	0	59,672	3,081	19.37
2013	91,716	3,208	0	0	91,716	3,208	28.58
2014	41,344	3,652	?	?	41,344	3,652	11.32

=less than 15/lb
 =more than 30/lb
 =15-30/lb

Status of Other Species. The yellow perch population remains at a low level in Green Lake (Fig. 3). This is a major concern, because perch are the primary forage species for most large predators like walleye, northern pike and bass. Perch also help control the population of bluegills and other panfish that prey on walleye fry. Apparently there are still too many large predators to allow the perch population to reach the 30/net levels of the late 1990s.

Fig. 3 - Gill Net Catch of Yellow Perch



Beginning in 2000, when Eurasian water milfoil was first found in Green Lake, net counts of panfish including bluegills, crappies and rock bass have shown dramatic increases. The additional cover afforded by the milfoil along with the low perch population may explain the panfish boom.

While the bluegill population (Fig. 4) has leveled off in the last few years, it is still high compared to the pre-2000 levels.

Fig. 4 - Trap Net Catch of Bluegills

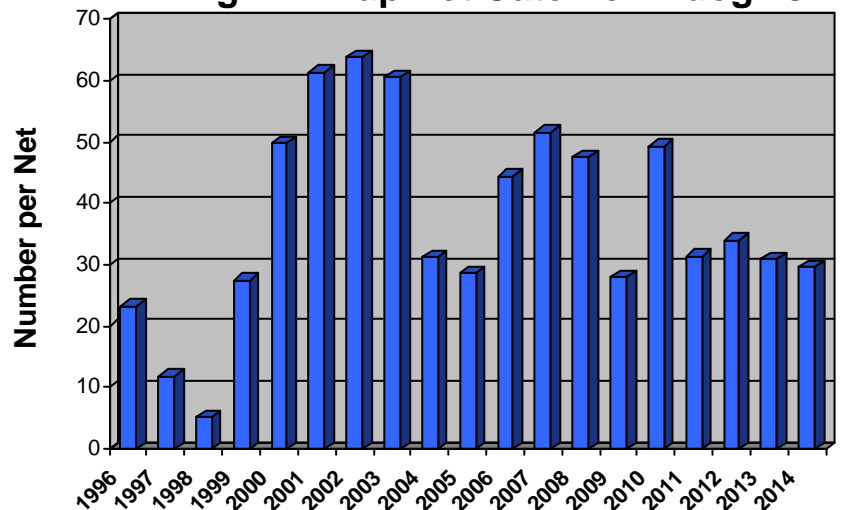
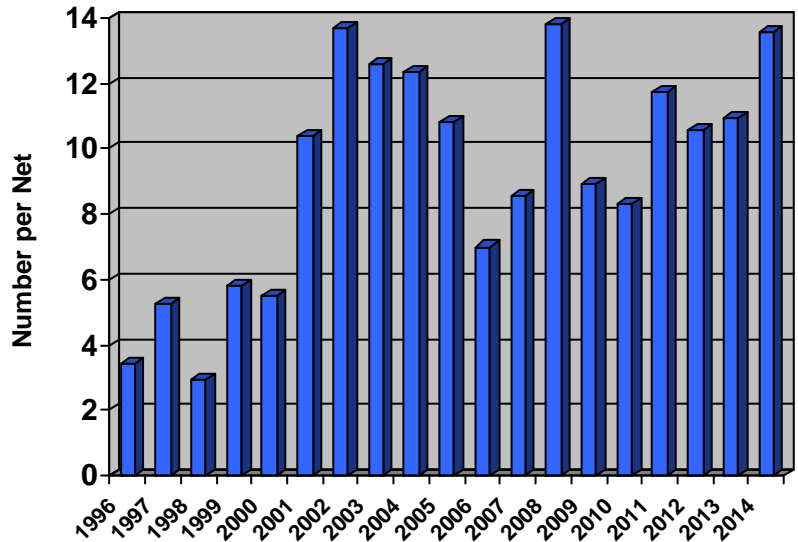


Fig. 5 - Gill Net Catch of Rock Bass



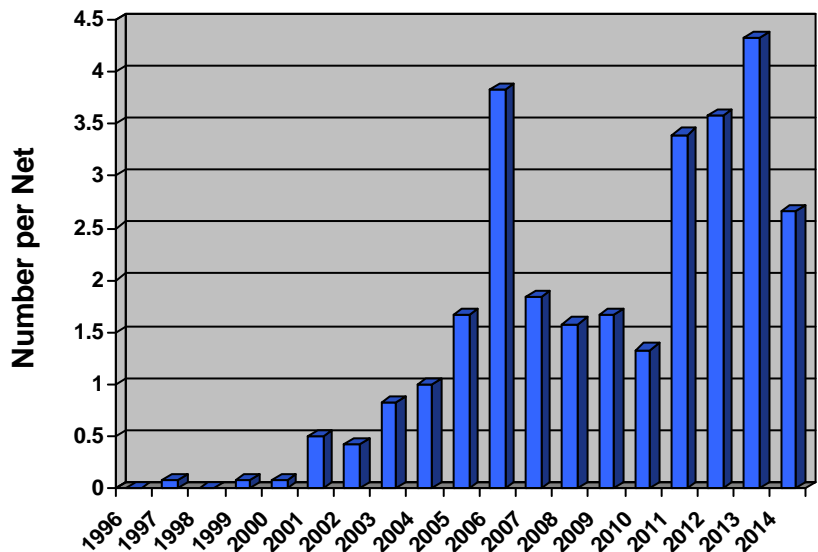
Rock bass (Fig. 5) remain very abundant and are now close to an historic high. Crappies (Fig. 6) dropped considerably in 2014 but remain far more numerous than they were in the early 2000s.

Net surveys generally do not provide a reliable index of bass abundance, but the 2014 gillnetting found fewer and smaller smallmouth than normal. This may not be a real change, however, since most of the bass sampled were young ones from the 2012 and 2013 year classes.

Crayfish, which are an important forage species for bass, remain at a very low level. Only 0.8 crayfish/net were caught in the 2014 gillnet survey.

The northern pike gillnet count of 3.17/net slightly exceeded the historical average of 2.77, but the fish

Fig. 6 - Gill Net Catch of Crappies



were “notably lean,” which may be a reflection of low perch and tullibee numbers. Pike have been known to feed on young walleye, especially when perch and tullibee counts are low. We should oppose the new plan to impose a 24-inch minimum size for pike along with a 2-fish limit for lakes south of Highway 55, including Green. The fear is that this regulation would result in more small pike and more predation on young walleye.

Discussion: In last year's annual report, we were reluctant to conclude that the Green Lake walleye population was in decline. We speculated that the weather-shortened fishing season and deeper-than-normal dissolved oxygen limit at survey time could account for the downturn. But we also said: "if the lower walleye net count persists into 2014, that will definitely be cause for concern."

It now appears that the ecological balance of Green Lake is shifting toward bass/panfish and away from walleye. Dead plant and algal material now cover the boulder/rubble substrates that once were prime walleye spawning beds, reducing spawning success. Also to blame for the lack of natural reproduction is heavy predation by panfish on walleye fry and predation by pike, bass and larger walleye on walleye fingerlings. The shortage of yellow perch and tullibee only exacerbates the predation problem.

Assuming that predation is a major part of the problem, it makes sense to stock walleye fingerlings larger than are currently called for in the Lake Management Plan. That has already occurred in 2014 and we expect that it will continue for the next few years. Then we should be able to tell if this approach is helping.

In the meantime, the DNR will be experimenting with stocking of different walleye strains in area lakes to determine if there is a strain better suited to the present Green Lake environment.