Go Home Lake

Fall, 2003 Synoptic Trap-net Survey Report

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Executive Summary:

A *Synoptic Trap-net Survey* (STNS) was conducted on Go Home Lake (Geographic Township of Gibson) in the fall of 2003. The primary purpose of the survey was to assess the status of the near-shore fish community and in particular that of walleye, smallmouth bass and northern pike. This survey also duplicates the objectives of a *Fall Walleye Index Netting* (FWIN) survey conducted in 2001, which was part of an initiative to monitor the status of walleye populations throughout the Ministry's Southcentral Region. Our study affords the opportunity of comparing the two survey techniques. Many of the key results between these two surveys were inconsistent and conflicting. Discrepancies are discussed in the report.

We also compared our results with 23 other STNS surveys recently (since 1994) conducted in the Parry Sound Area. Over-all fish productivity as measured by *Catch-Per-Unit-Effort-by-weight* (CPUE-wt) for all species combined was average. The percentage of game fish in the total catch weight was well below average of our 23-survey STNS dataset. Our catch (by weight) was dominated by common white sucker and channel catfish.

Relative abundance indices for walleye were well below average. There was however, positive evidence of successful reproduction and recruitment to the adult walleye population. Indices of abundance for large and smallmouth bass were approximately average. There was also good evidence of successful reproduction and recruitment to the smallmouth population. Indices of northern pike were below average. Size-structure of the pike catch suggests recent reproduction and recruitment may be weak. Relative to our STNS database, we rated the abundance of walleye, smallmouth bass and pike as "low", "intermediate" and "low", respectively.

We present a theoretical report card whereby we accord Go Home Lake an overall rating of C-. None of the indicators for population health were impressive in this survey.

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1.0 Introduction

At 667 hectares in area, Go Home Lake is a medium-size lake within the Parry Sound District of the Ministry of Natural Resources. The lake has both a colourful history as well as some unusual features. It is located at the 'bottom end' of the exceptionally large Muskoka River watershed. The naming and routes of rivers entering and exiting Go Home Lake is rather confusing. Water exits up-stream Lake Muskoka via the Moon River at the village of Bala. Approximately 4 kilometers downsteam of Bala, the Moon River forks and the southern branch that ultimately feeds into Go Home Lake is called the Musquash River. The northern fork continues to be called the Moon River. Go Home Lake on the southern fork is the last lake before water enters Georgian Bay. It does so via two outlets from Go Home Lake. It exits via the Go Home River at the north end of the lake, and the Muskoka / Gibson River at the south end. The Go Home Lake water level is regulated, with MNR dams at both outlets. Only the southern dam is controlled however; the Go Home River dam is a rock dam. The proportion of water discharged down either the Moon or Musquash River is controlled by the Ragged Rapids hydro-generating station located on the Musquash River, just downstream of the fork with the Moon River.

MNR dams are situated on the Go Home River outlet at the north end of the lake and the Muskoka / Gibson River outlet at the south end. They were originally constructed for log-driving purpose in the latter portion of the 1800s. *Muskoka Mills*, located at the mouth of Muskoka / Gibson River was at one time the largest saw mill in Eastern Canada. Log-driving activities began to wane in the 1920s, but the dams have been continuously maintained for recreational purposes. These dams have resulted in raising the water level of Go Home Lake by approximately 3½ meters. Without the presence of these dams the lake essentially becomes a riverine system. The current operating regime for the Go Home Lake Dam – at the south end, results in a substantial winter draw-down of 1.8 – 2.4 meters (Ken Molyneaux, pers. comm.).

The lake is generally elongated on a north-south axis, but it does have several irregular shaped bays throughout (Figure 1). It has a maximum depth of 32.6 meters and a mean depth of 8.6 meters (OMNR, 1974). Water colour is yellow-brown, but light transparency is high with secchi readings ranging from 4.5 meters (OMNR, 1998) to 5.3 meters (OMNR, 1974). Typical of Precambrian Shield lakes: alkalinity is low, total dissolves solids are low and pH is slightly acidic (OMNR, 1974). The littoral zone (zone of light penetration to the bottom) comprises 47% of lake surface area.

Relative to other lakes in the Parry Sound Area, Go Home Lake is highly-developed. At the time of the 1973 lake survey, 425 cottages were recorded. Undoubtedly that number is much larger today. The lake is readily accessible by road with two marina access points and one public landing. Approximately 60% of the shoreline is privately owned (OMNR, 1974).

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Go Home Lake has a very brief stocking record. Approximately 7,500 smallmouth bass fingerlings were planted in 1948, 1965 and 1966 (OMNR, undated). Approximately 23,000 lake trout fingerlings were planted in 1966, 1968, 1974 and 1976. Presumably, these were "introduction plantings" intended to create natural, self-sustaining populations for these species. If so, this was successful for smallmouth bass but a failure for lake trout.

The first fisheries related studies, conducted on the lake was a "Fish Collection Report" using non-standardized gill-nets, conducted in 1958. Observed species included: walleye, smallmouth

bass, northern pike, rock bass, pumpkinseed, burbot, cisco, channel catfish and common white sucker (OMNR, 1958). A provincially standard *Aquatic Habitat Inventory Survey* (commonly call a 'lake survey'), was conducted in 1974. In addition to the lake and water chemistry characteristics listed above, it further documented the presence of brown bullhead, largemouth bass and yellow perch (OMNR, 1974). In addition, the small fish component of the survey captured golden shiner, emerald shiner, spottail shiner, mimic shiner, bluntnose minnow, Iowa darter, Johnny darter and log perch – for a very diverse minnow component in the fish community. Lake Whitefish were later observed in a 1977 survey (Thurston, 1979), giving Go Home Lake a remarkable total of 21 fish species in the lake.

In 1977, a lake trout stocking assessment study was conducted that consisted of 15 overnight gill-net sets (Thurston, 1979). No lake trout were caught and plantings were subsequently discontinued. This survey also provided the first documentation of lake whitefish being present.

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Early in 1978, the Orillia Water, Light and Power Commission proposed the development of a hydro generating station on the Musquash River. To evaluate its potential impacts on Go Home Lake, the Ministry conducted a study in the summer of 1978 consisting of: 1) an intensive creel survey, 2) a gill-net survey to assess the walleye population and 3) monitoring of recreational activities such as rowing, sailing, canoeing, pleasure boating, water-skiing and camping. The previously mentioned lake tout stocking assessment survey (1977) was also incorporated into this study report (Thurston, 1979).

The summer creel survey estimated a total fishing effort of 3,116 angler hours with an estimated harvest of 195 smallmouth bass, 135 walleye, 22 northern pike and 22 channel catfish (Thurston, 1979). Fishing quality as measure by *Effort-Per-Unit-Catch* (EPUC) for walleye, smallmouth and pike were 9.61, 5.67 and 11.43 angler hours respectively.

The walleye population assessment component of the study consisted of 15-overnight gill-net sets (Thurston, 1979). A total of 75 walleye were captured in Go Home Lake and 20 in Flatrock Lake – immediately up-stream of Flatrock rapids. Age-structure of the walleye sample indicated excellent recruitment, but mortality also appeared high. Several older age classes were missing or had very poor representation. Thurston (1979) cited gill-netting results from the 1977 lake trout assessment and the 1978 walleye assessment and concluded that Go Home Lake supported "a fairly healthy fish community."

The proposed hydro development never came to fruition.

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A period of more than 20 years elapsed prior to additional fisheries work being conducted by MNR. As part of a Regional initiative to assess the status of walleye populations throughout the entire Southcentral Region of the Ministry of Natural Resources, a *Fall Walleye Index Netting* (FWIN) survey was conducted in 2001. This survey design used gill-nets and followed a standardized, provincial methodology intended specifically to assess the status of walleye populations. Go Home Lake was randomly selected for this study that encompassed 69 lakes throughout the entire Southcentral Region. Relative to the 69-lake dataset generated, Go Home Lake was found to have a "high" abundance of walleye and smallmouth bass, and an "intermediate" abundance" of northern pike (McIntyre, 2002).

Over a period of more than 20 years, the Parry Sound Area has developed its own technique of walleye assessment called the *Synoptic Trap-net Survey (STNS)*. This was the methodology used in this particular study. It is a non-lethal survey method that uses 8'-trapnets, set for approximately 24-hour duration. As part of the 2001 Regional FWIN study initiative cited above, 10 lakes from the Parry Sound area – including Go Home Lake, were included in the study. Fisheries staff in the Parry Sound Area, have been conscientiously conducting synoptic trap-net surveys (STNS) on those lakes that also had FWIN surveys conducted on them. The intent being to compare and correlate results between the FWIN and STNS surveys given they have the same purpose of walleye and near-shore fish population assessment.

Hence the purposes of this survey were:

- To compare results and determine correlation with the 2001 FWIN survey.
- Use the STNS methodology to ascertain the status of the near-shore fish community and in particular that of walleye, bass and pike.

2.0 Methods:

Synoptic trap-net surveys (STNS) are intended to provide a 'snapshot in time' of the status of the near-shore fish community and individual populations that comprise it. We used 8' trap-nets due to the non-lethal nature of the gear and its proven effectiveness at capturing walleye, smallmouth bass and northern pike – which were particular species of interest in this survey. We emphasize that catch results are not directly representative of the fish community and must be viewed with an understanding of 'species selectivity' of the gear.

Comment re *Species Selectivity* of 8' trap-nets:

We intend that our nets will act like "random predators", being set throughout the lake in all types of fish habitat such that the catch gives an over-all, generalized representation of the fish community. In actuality – this seldom if ever happens. Invariably there are biases in gear that favours a particular species or size of species being captured.

Relative to smaller size trap-nets, 8' nets fish in deeper water and result in a higher catches of walleye and smallmouth bass. Conversely, they grossly under-represent species such as rock bass, pumpkinseed and yellow perch that occupy shallow-water. Also, species such as largemouth bass, black crappie and brown bullhead are usually very abundant in localized habitats and "random searching" for them reflects this – a series of 'nil' catches followed by the occasional set in the right habitat that catches a large number. There seems to be little difference in the number of pike caught in various size trap-nets, but considerable differences in the size range of pike caught. These biases need to be considered when interpreting catch data.

A good measure of *species selectivity* of our 8'-trapnet gear is a statistic called the '*probability of capture'* – or the likelihood of a particular species being caught. In our comparative lakes data base consisting of 23 synoptic trap-net surveys, the *probability of capture* is 67.5% for walleye, 66.3% for smallmouth bass, 65.1% for common white sucker, 57.3% for pike, 53.0% for brown bullhead, 48.7% for rock bass, 39.1% for pumpkinseed and 6.7% for yellow perch (Appendix I). (These figures are 'averages' presented for illustrative purposes only. The *probability of capture* for any particular species can vary greatly between individual lakes) (Appendix I).

Not only is there *species selectivity* with respect to *vulnerability*, but there is also *size selectivity* within species. Walleye, smallmouth bass and northern pike young-of-the-year, yearling and two-year olds are seldom caught, yet we know they are the most abundant age classes in the population.

Notwithstanding the fact that these biases exist, we account for them by trying to remain consistent in how we assess individual populations and fish communities. We use the same nets on comparison lakes such that the netting biases are consistently applied to all lakes. In actuality, we are not truly comparing the **fish communities** of lakes, but rather the **catch results** – acknowledging that those results are not directly representative of the abundance of individual species within the fish community. Consequently, our survey design is intended to give a measure of species abundance in the catch – "relative" to what has been observed on a number of similarly surveyed lakes.

The field crew selected net-set locations in accordance with the following guidelines:

- Nets were to be approximately evenly dispersed throughout the lake in an effort to fish various fish habitats in the proportion of which they occurred in the lake. The intention here is that the catch would reflect the 'whole lake' as accurately as possible.
- The site had to be suitable for the net to fish effectively. (Consequently – factors such as: contour of the lake bottom, absence of obstructions, depth, sufficient lead length, etc. were considered.)
- Nets were to be set far enough apart such that they were not competing with each other.
- Avoid areas of potential conflict where there is human habitation.
- Avoid areas where nets could act as a navigational hazard.

Nets set locations are indicated in Figure 1.

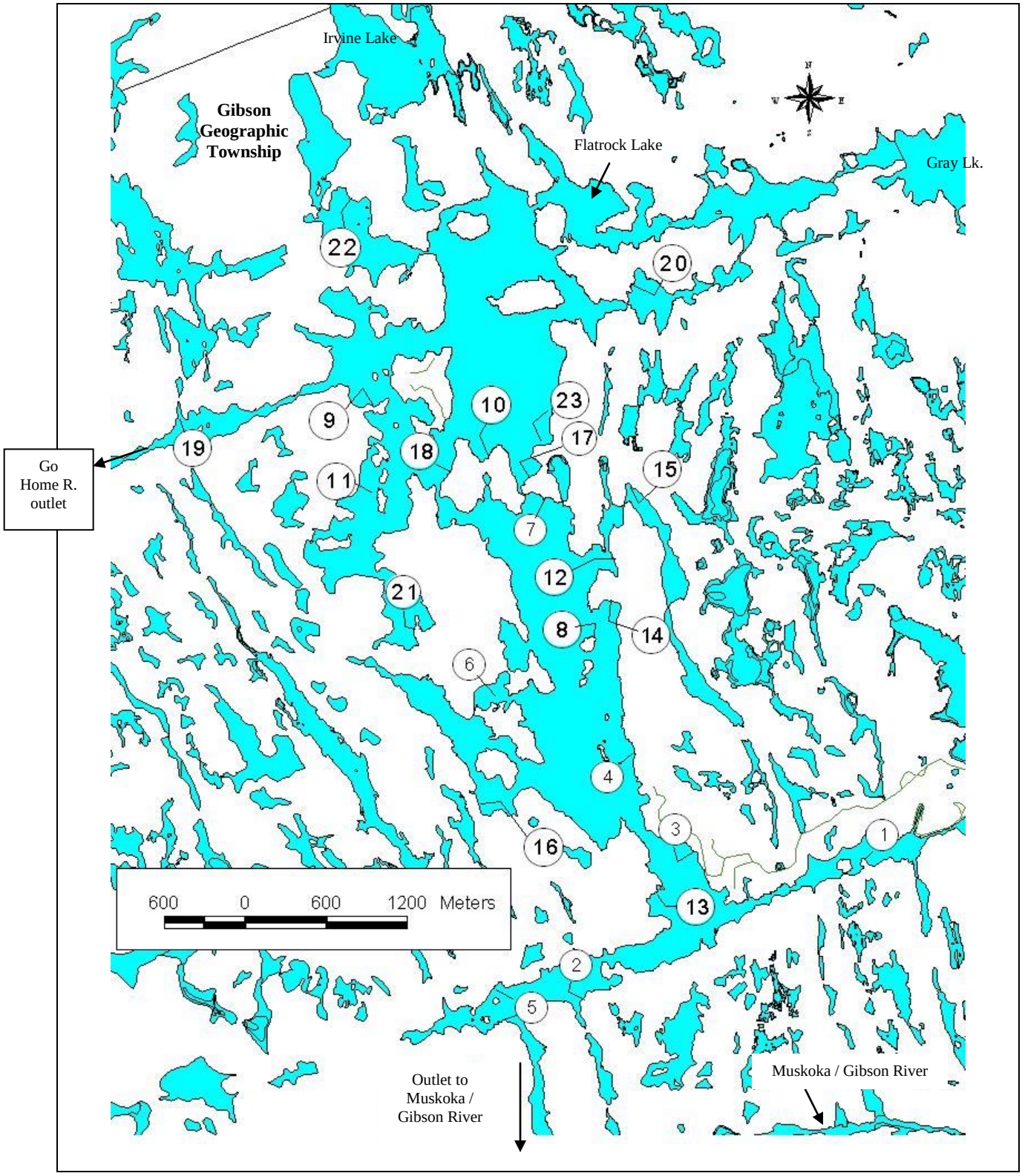
Field operations were conducted from September 22 to October 3, 2003. In this report, the unit of effort is recorded as a "net set" – and approximates a set of 24-hour duration. Nets were relocated daily.

Complete catch enumeration was conducted for all sets (Appendix A).

Biosampling data consisting of total length, fork length and round weight determination was conducted for all game fish (Appendix B – E). Mean weights were determined for non-game fish species (Appendix F).

Age determination for walleye was by the scale reading method. As there were no *known-age* walleye in these lakes – we had no method of validating the accuracy of our scale aging. Campbell and Babaluk (1979) concluded that scale aging consistently underestimate the true age of walleye – particularly in older age classes. The reader should bear in mind, our mean age determination (Appendix B) probably underestimates the true mean age of walleye that we sampled.

Figure 1. Go Home Lake Synoptic Trap-net Survey Net Set Locations.
Set location and number indicated by circles.



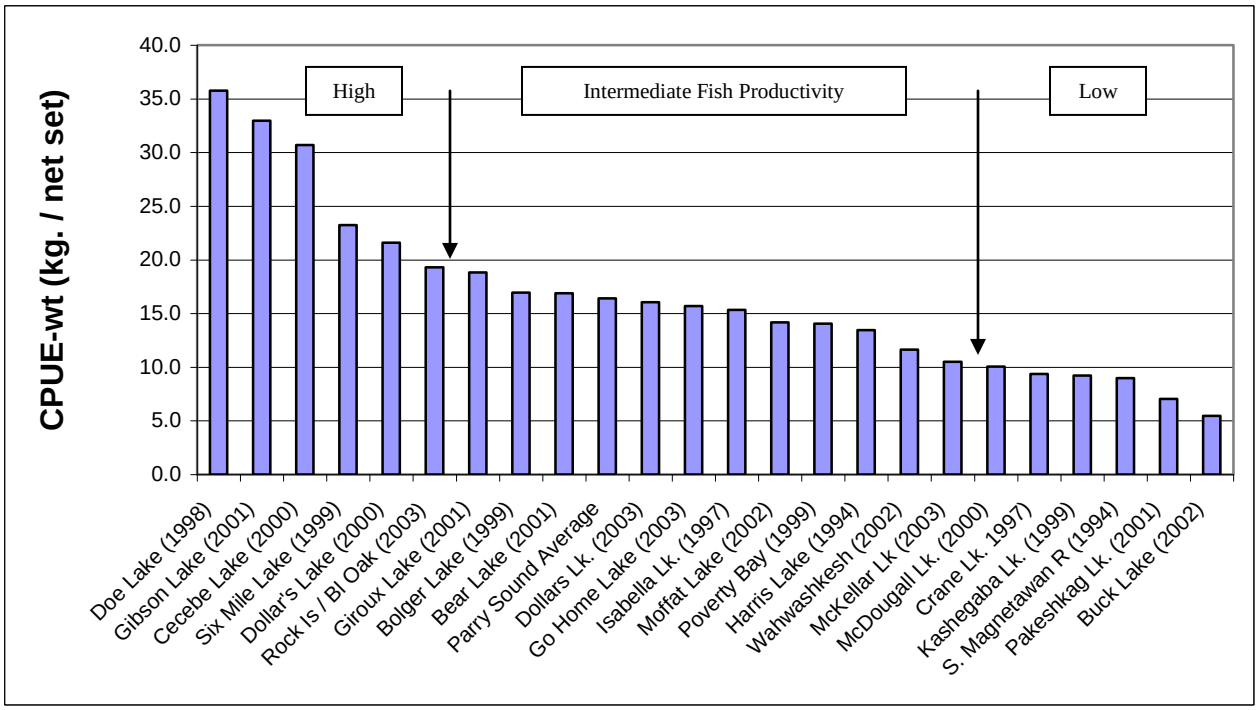
3.0 Results and Discussion:

3.1 Over-all Fish Productivity Index

From 23 overnight trap-net sets, we captured: 90 rock bass, 85 pumpkinseed, 84 smallmouth bass, 65 common white sucker, 41 channel catfish, 32 brown bullhead, 24 walleye, 20 largemouth bass and 14 northern pike (Appendix A). Cumulatively, our total catch weight was 361.055 kilograms, for an over-all *Catch-Per-Unit-Effort-by-weight* (CPUE-wt) of 15.694 kg. / net set (Appendix A). In our 23-survey dataset of similar and recently conducted surveys, this index of over-all fish productivity ranks 11th (Appendix F).

We consider lakes ranked in the top 25% to have high over-all fish productivity and those in the lower 25% to have low productivity. The middle 50% we consider intermediate. Go Home Lake is in the middle 50% or the intermediate range of over-all fish productivity, relative to our 23-survey comparison dataset (Figure 2).

Figure 2. Overall index of fish productivity as measured by Catch-Per-Unit-Effort by weight (CPUE-wt) for all species caught. Presented are 23 synoptic trap-net surveys conducted between 1994 and 2003.



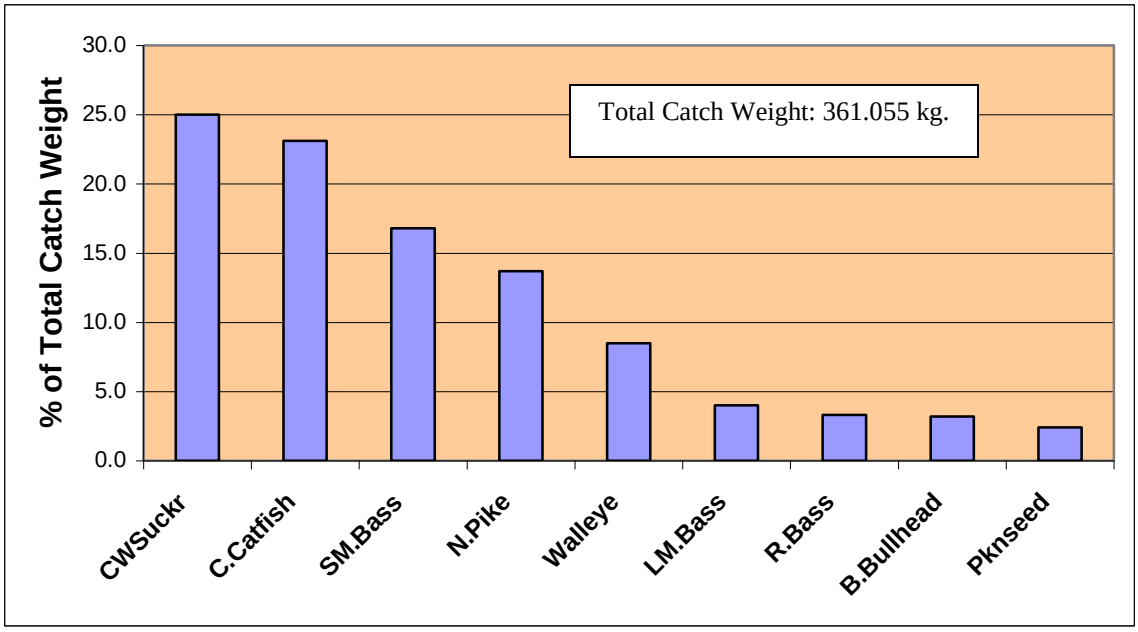
3.2 Catch Composition:

The total weight of fish caught during the survey was 361.055 kg. (Appendix A). Common white sucker accounted for the largest percentage of the total catch weight at 25.0% (Appendix A). This was followed by channel catfish at 23.1%, smallmouth bass 16.7%, northern pike 13.7%, walleye 8.5%, largemouth bass 4.0%, rock bass 3.3%, brown bullhead 3.2% and pumpkinseed 2.4% (Appendix A and Figure 3).

Game fish (walleye, large and smallmouth bass and pike) accounted for 42.9% of the total catch weight. This is well below the average of 62% in our 23-survey comparative lake database and is indicative of low game-fish species composition in the catch.

Walleye alone accounted for only 8.5% of the total catch weight; also well below the average of 23.8% in our comparative dataset (Appendix F).

Figure 3. Catch composition by weight from the Go Home Lake Synoptic Trap-net Survey conducted during the Fall of 2003. (See Appendix A for total catch weight by species)



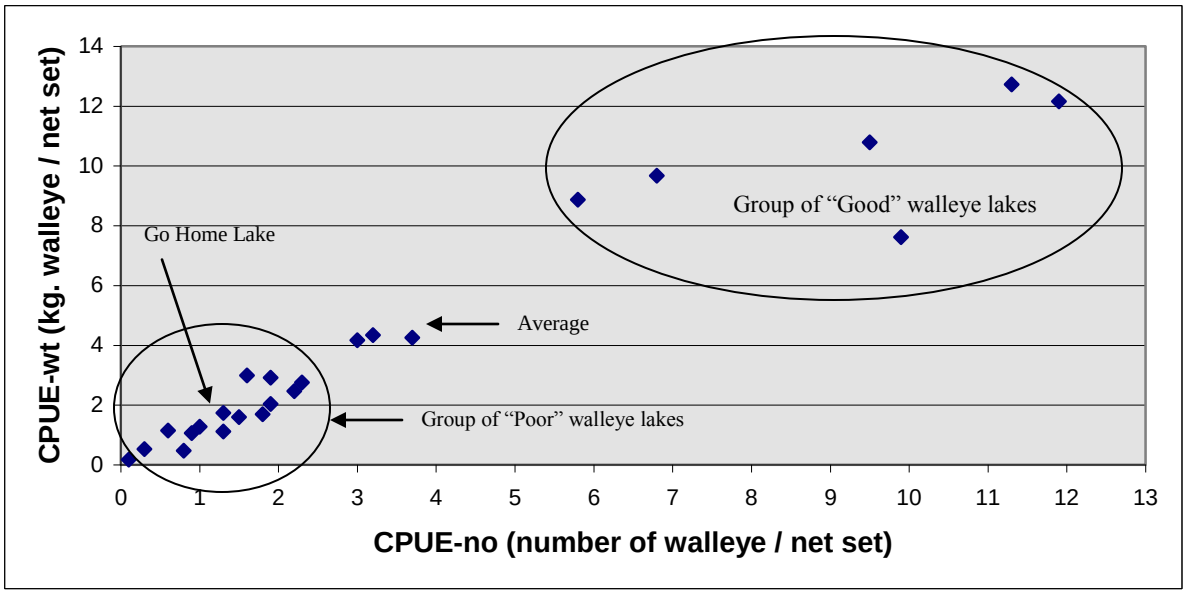
3.3 Walleye

3.3.1 Catch-Per-Unit-Effort by number (CPUE-no) and weight (CPUE-wt):

We captured a total of 24 walleye in 23-overnight trap-net sets for a *Catch-Per-Unit-Effort-by-number* (CPUE-no) of 1.04 walleye per net set ± 0.4 ($p<0.05$) (Appendix A). In our comparative lakes database, this index of walleye abundance ranks 18th out of 23-surveys (Appendix G). If we calculate walleye CPUE by weight, we caught 1.329 kg. / trap-net set (Appendix A). This ranks 17th in our 23-survey comparison dataset (Appendix F).

When we consider these two related indices of walleye abundance for our 23-survey dataset, we see that walleye lakes typically fall into two distinct categories (Figure 4). A group of lakes clusters well below the average for these two indices and we refer to these as "poor" walleye lakes. Another group clusters well above the average and we refer to these as "good" walleye lakes. Go Home Lake falls within the cluster of poor walleye lakes.

Figure 4. Walleye abundance indices (CPUE-wt and CPUE-no) for 23 synoptic trap-net surveys recently conducted in the Parry Sound Area.



We note that there are 15 lakes in the "poor" category and only six in the "good" category. Two lakes fall very close to the average, which itself is marked as a data point in Figure 4.

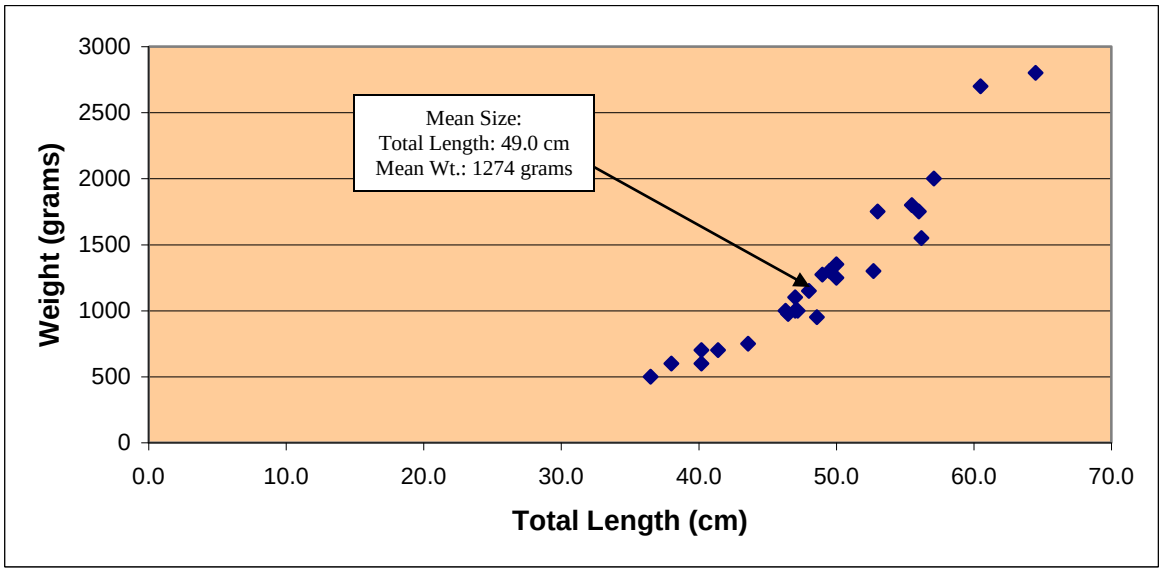
3.3.2 Probability of Capture

Another index of walleye abundance we use is the "probability of capture", or the likelihood that any individual net will capture at least one walleye. We captured at least one walleye in 15 net sets (Appendix A), for a probability capture of 0.625 or 62.5%. This probability of capture is very close to the 67.5% average in our 23-survey comparative dataset (Appendix H).

3.3.3 Walleye Size and Age Distribution:

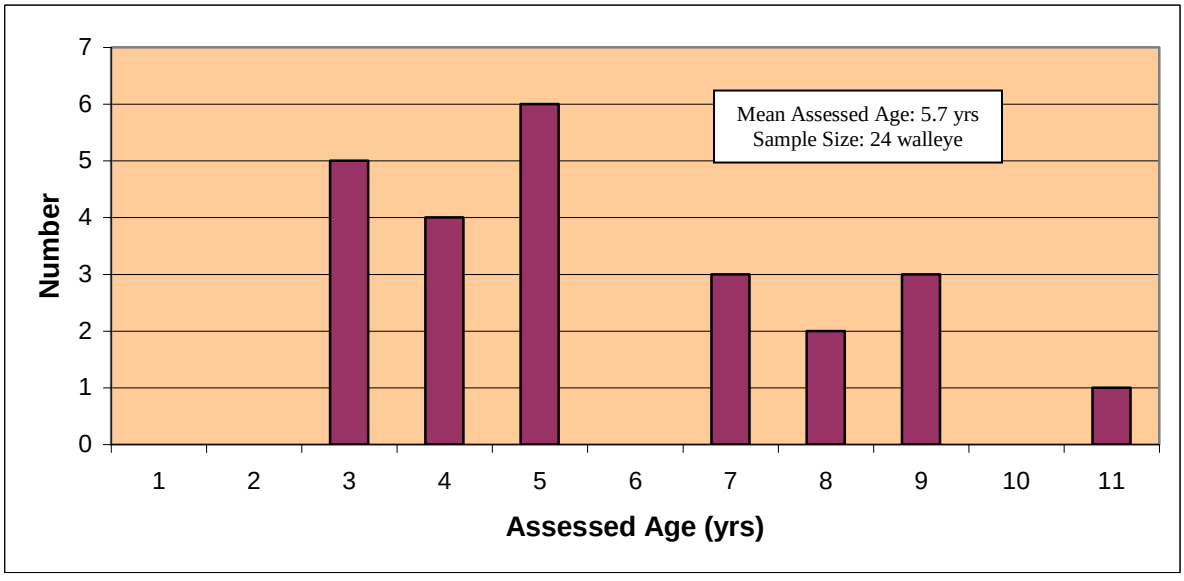
From 24 walleye captured during the survey, we calculated a mean total length of 49.0 cm. and mean weight of 1274 grams (2.8 lbs.) (Appendix B).

Figure 5. Size distribution of walleye, Go Home Lake synoptic trap-net survey, Fall 2003. (Sample Size = 24)



The mean age of our 24-walleye sample was 5.7 years (Appendix B). Walleye in age-classes 3-5 were well represented in our sample – comprising over 60% of the walleye we observed. Although our sample size is small and the numbers not impressive, the presence of these young walleye do indicate some measure of successful reproduction and recruitment in recent years. The scarcity of 1 and 2 year old fish is undoubtedly related to the selectivity of the gear and is not indicative of the actual abundance of these age-classes.

Figure 6. Age distribution of walleye, Go Home Lake synoptic trap-net survey, Fall 2003.



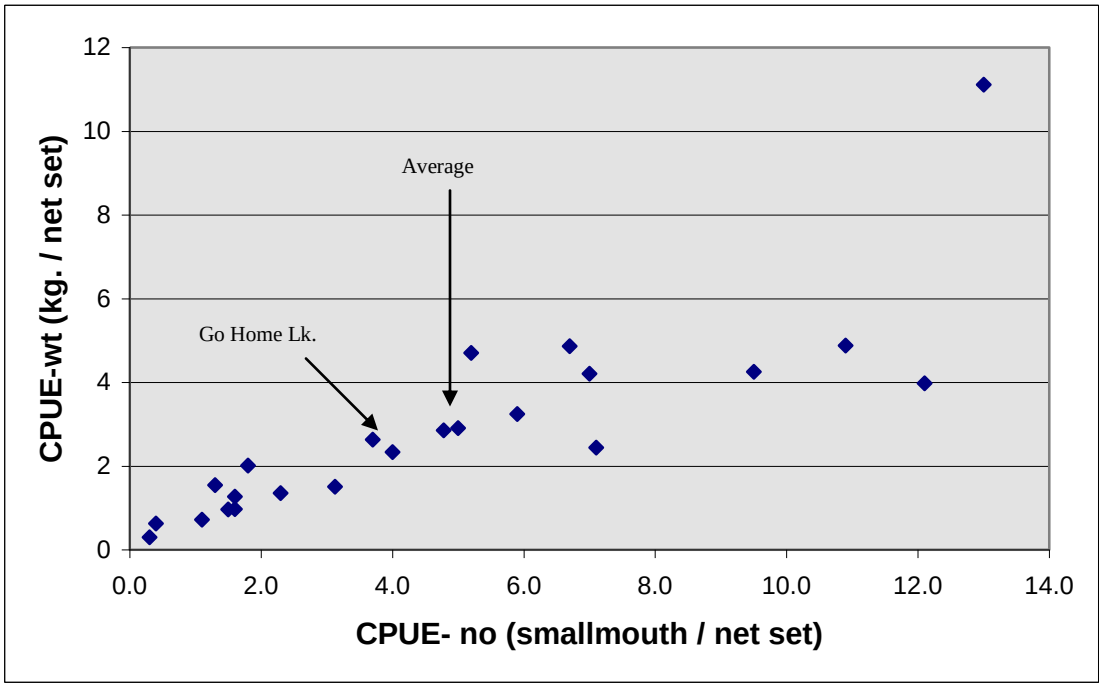
We used the scale-reading method of age determination which is well known for underestimating the age of walleye – especially in older age-classes. (Campbell and Babaluk, 1979). Because we have no known-age fish in our sample, we are unable to validate the accuracy of our age assessment.

3.4 Smallmouth Bass

Smallmouth bass comprised 16.8% of the total catch weight, being surpassed by common white sucker (25.0%) and brown bullhead (23.1%) (Appendix A). By weight, it was the most abundant game-fish in the catch.

Our smallmouth bass CPUE-no was 3.7 fish / set ± 2.2 ($p<0.05$) (Appendix A), slightly below the average of 4.8 in our 23-survey comparative dataset (Appendix G). A similar trend was evident for our smallmouth CPUE-wt of 2.632 kg. / set, versus the average of 2.854 in our comparative STNS dataset (Appendix F). In combination, both these indices of smallmouth bass abundance indicate the Go Home Lake population is very close to average relative to our comparative dataset (Figure 7).

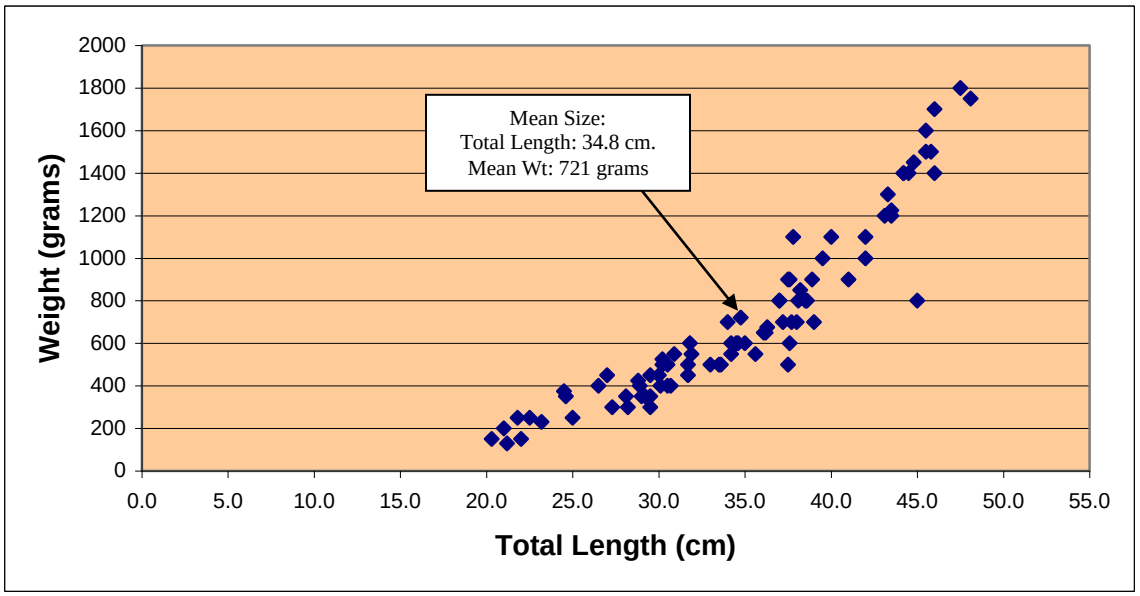
Figure 7. Smallmouth Catch-Per-Unit-Effort-by-number (CPUE-no) verses Catch-Per-Unit-Effort-by-weight (CPUE-wt) for 22-synoptic trap-surveys recently completed in the Parry Sound Area.



The smallmouth probability of capture was 58.3%, also below the comparative dataset average of 66% (Appendix I).

The size distribution of smallmouth bass (Figure 8) indicates a wide range and complete representation of all size-classes. This suggests good levels of reproduction and recruitment balanced by reasonable levels of annual mortality. The size distribution and abundance indices suggest a healthy and sustainable smallmouth bass population in Go Home Lake.

Figure 8. Size distribution of smallmouth bass sampled from the Go Home Lake synoptic trap-net survey, Fall 2003. (Sample size 84)



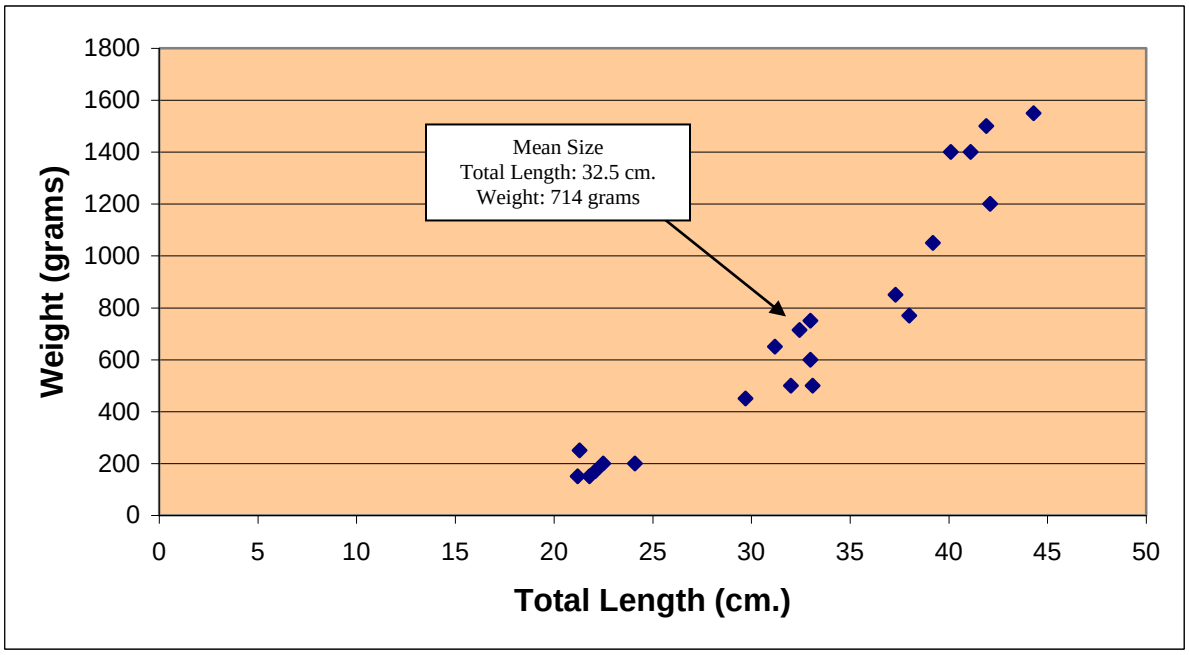
3.5 Largemouth Bass:

We caught a total of 20 largemouth bass weighing 14.29 kg. (Appendix A). Largemouth bass comprised 4.0% of the total catch weight. In surveys where largemouth bass are present in the fish community, they typically comprise a very small percentage of the catch. This is largely attributable to their very specific habitat preferences that are usually quite limited in Precambrian Shield lakes.

Our largemouth bass CPUE-no was 0.9 fish / set ± 0.6 ($p<0.05$) (Appendix A). This index of abundance is slightly below the average of 1.2 in our comparison dataset and it ranks 5th highest out of the 14 surveys that caught largemouth. The same trend is evident for our CPUE-wt for largemouth bass (Appendix F). Our probability of capture was 39.1%, slightly above the average of 35.3% in our comparative dataset. The above indices indicate that largemouth bass abundance on Go Home Lake is approximately average, relative to 14-other surveys in our STNS dataset that caught this species.

Our sample of 20 largemouth bass is rather small to be making inferences regarding reproduction, recruitment and mortality. Nonetheless, our size distribution indicates the presence of both young and old fish and a good representation of most size classes (and by inference age-classes) in between (Figure 9).

Figure 9. Size-class Distribution of Largemouth Bass Sampled from the Go Home Lake Synoptic Trap-net Survey, Fall 2003.



Abundance indices in conjunction with size distribution suggest the Go Home Lake largemouth bass population is healthy, stable and self-sustaining with reasonable levels of reproduction, recruitment and mortality.

3.6 Northern Pike

We captured 14 pike weighing a total of 13.740 kg (Appendix A). Pike accounted for 13.7% of the total catch weight, surpassed by common white sucker, channel catfish and smallmouth bass.

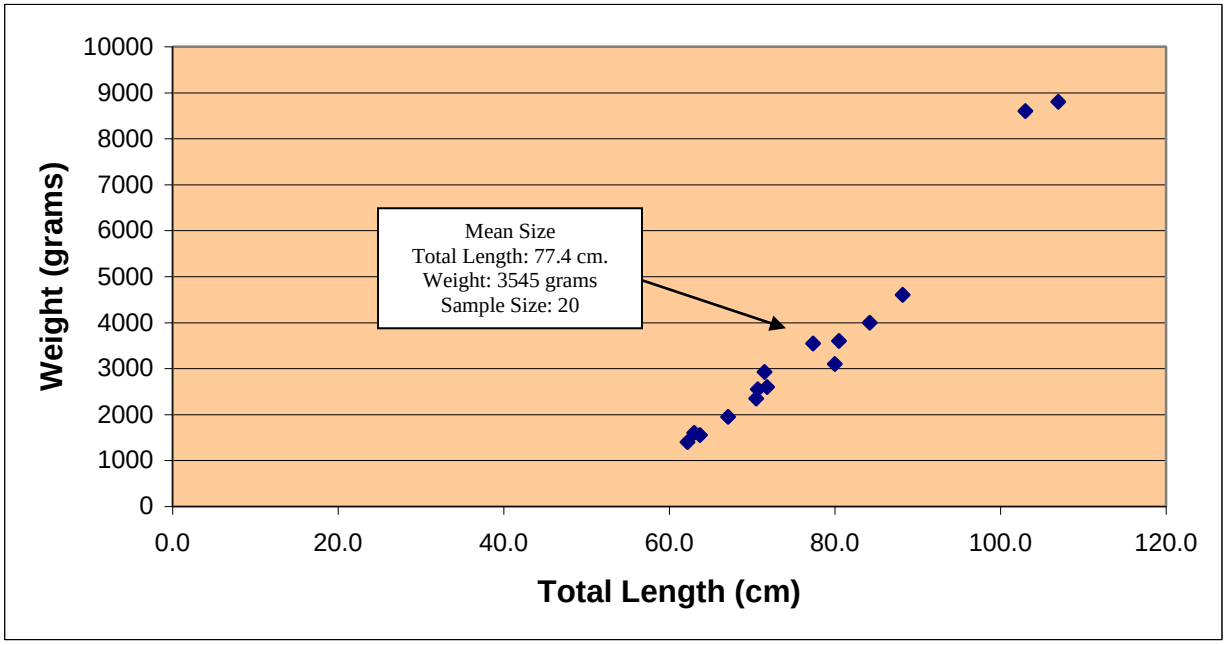
Our pike CPUE-no was 0.6 fish per set ± 0.3 ($p<0.05$) (Appendix A). This index of abundance is well below the average of 1.1 pike / set in our STNS database (Appendix F). Our pike CPUE-wt was 2.157 kg. / set (Appendix A), above the average of 1.952 kg. / set in the STNS dataset. This is an unusual circumstance in which we caught fewer pike than average, but the weight of pike caught per set was above average. This is wholly attributable to the exceptionally large size of pike caught – reflected in the mean size (Appendix D).

Our observed northern pike probability of capture was 45.8%, below the average of 57.3% in our comparative survey dataset for lakes where pike were present (Appendix H).

We sampled 20 northern pike and determined a mean total length of 77.4 cm. and mean weight of 3545 grams (7.8 lbs) (Appendix D). This is an exceptionally large mean size for northern pike. The scarcity of small size pike suggests reproduction and recruitment rates may have been low in

recent years. The presence of several large fish suggests mortality may also be low and surviving fish are likely to live to a considerable age. We caution that our small sample size reduces the reliability of inferences with respect to reproduction, recruitment and mortality rates.

Figure 10. Size distribution of northern pike captured during the Go Home Lake Synoptic Trap-net Survey, Fall 2003.



3.7 Other 'non-game' fish species:

In this survey, common white sucker and channel catfish were ranked number one (25.0%) and two (23.1%) respectively, in terms of their contribution to the total catch weight (Appendix A). Brown bullhead, rock bass and pumpkinseed comprised 3.2, 3.3 and 2.4% respectively. Cumulatively, non-game fish comprised 57% of the total catch weight, well above the average of 38% in our STNS database.

Channel catfish is a seldom seen species in our STNS surveys. In 23-surveys, Go Home Lake is only the second lake to record channel catfish in the catch. The other lake was Six-Mile Lake to the south, in Baxter Ward of Georgian Bay Township.

Indices of abundance (CPUE-wt, CPUE-no and probability of capture) for white sucker, brown bullhead, rock bass and pumpkinseed were approximately close to average values (Appendix G, H and I).

4.0 Summary of Synoptic Trap-net Survey Results:

Table 1. Comparison of fisheries assessment indicators between Go Home Lake Lake and Parry Sound Area STNS database reference values.

Indicator	Go Home Lake	Reference Value 'Area Average'	Grade	Comments
Overall Productivity CPUE-wt (all species)	15.694 kg. / set ranks 11^{h} out of 23 surveys	16.404 kg. / set	C	Overall productivity very close To STNS average
Game fish - % of total catch weight	42.9%	61.9%	D	Well below average. Catch dominated by non-game fish species.
Walleye Abundance CPUE-no. CPUE-wt Probability of Capture % of total catch weight	 1.0 (ranks 18th) 1.329 kg (ranks 17th) 62.5 % 8.5 %	 3.5 walleye / set 4.101 kg. / set 67.5 % 25.0 %	 D- D- C D-	Indices of walleye abundance well below average
Walleye Size Structure Walleye Age Structure	Mean TL 49.0 cm. Mean 5.7 yrs.	- -	C C	Evidence of recent successful reproduction and recruitment.
Smallmouth Bass CPUE-no CPUE-wt % of total catch weight Probability of Capture Age and Size Structure	 3.7 (ranks 12th) 2.632 kg. / set 16.8 % 58.3% Good	 4.8 fish / set 2.854 kg. / set 17.3% 66.3%	 C- C C C- C+	 Indices of abundance slightly below average. Good reproduction & recruitment
Largemouth Bass CPUE-no CPUE-wt Probability of Capture	 0.9 fish / set 0.621 kg / set 39.1%	 1.2 fish / set 0.814 kg / set 35.3%	 C- C- C	 Indices of abundance approximately average
Northern Pike CPUE-no CPUE-wt Probability of Capture Size Structure	 0.6 (ranks 21st) 2.157 kg. / set 45.8 % mostly large fish	 1.1 fish / set 1.952 kg. / set 57.3%	 D C C- D	 Indices of abundance at or below average Poor recent recruitment
Non-game fish % of total catch weight	 57%	 38.0%	 D	 Catch dominated by white sucker and channel catfish.
Over-all Rating: C-. A pretty mediocre report card. Indices for large and smallmouth bass are approximately average. Walleye indicators are low and northern pike slightly better. The catch was dominated by non-game fish species.				

5.0 Comparison of STNS Results with 2001 FWIN Results:

One of the primary objectives of this survey was to compare and correlate results with those of the 2001 Fall Walleye Index Netting (FWIN) survey. Because both surveys had the objective of assessing the status of walleye and other near-shore fish species, we would expect the results to be very consistent in displaying similar trends in terms relative abundance – especially for target species. We are dismayed and concerned to report that many results between the two surveys were not consistent in this regard.

In both survey types, the criteria used to define species abundance was the same. Mean catch rate, or *Catch-Per-Unit-Effort by number* (CPUE-no.) was determined for individual fish species for each survey type. Relative abundance was considered "high" if the species CPUE-no fell into the top 25% of the CPUE-no generated for either the STNS of FWIN datasets. Species abundance was considered "low" if the CPUE-no fell into the lower 25%. If the CPUE-no fell within the middle 50%, then it was considered to be "intermediate" with respect to relative abundance. Species abundance according to these criteria for the two surveys is shown in Table 2.

Table 2. Comparison of species abundance according to the 2001 FWIN survey and the 2003 STNS survey conducted on Go Home Lake.

Survey Type and Year	Index of Relative Abundance based on CPUE-no ranking within respective dataset		
	Walleye	Smallmouth Bass	Northern Pike
2001 FWIN Survey	High	High	Intermediate
2003 STNS Survey	Low	Intermediate	Low

Some further anomalies between the surveys included:

- In the FWIN survey, white sucker CPUE-no was a meagre 0.8 fish / set; ours was 2.8
- In the FWIN survey, channel catfish CPUE-no was only 0.3 fish / set; ours was 1.8
- The FWIN survey caught 7 yellow perch, 1 burbot and 1 muskellunge; our survey caught none of these species.
- The FWIN survey caught 46 cisco; our survey caught none. (Undoubtedly, gear-type was responsible for this anomaly. The FWIN survey used over-night gill-net sets whereas we used over-night trap-net sets.)

We find the inconsistencies in the above results rather disconcerting. Furthermore, inconsistencies are also evident for other lakes where both FWIN and STNS surveys were conducted. These include Dollars Lake, Isabella Lake, Cecebe Lake, Giroux Lake and Rock Island Lake. Most disconcerting is the fact that not only are the results different in terms of relative abundance indices, but they are inconsistently different. We are left wondering: 'Which

survey most accurately reflects the actual population status within these lakes?' At this point in time we don't have an answer to this question.

(Note: It is planned that a more in-depth analysis comparing the results of FWIN and STNS surveys in the Parry Sound Area, will be reported upon later in 2004.)

6.0 Literature Cited:

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7.0 Acknowledgements:

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Appendix A.

Catch summary for the Go Home Lake Synoptic Trap-net Survey, Fall 2003.

Set No.	Date Set 2003	Date Lifted 2003	Catch (number) Walleye	S.mouth Bass	L.mouth Bass	Northern Pike	C.white Sucker	Brown Bullhead	Rock Bass	Pumpkin-seed	Channel Catfish
1	Sept.22	Sept.23	1	0	0	0	5	1	0	1	0
2	Sept.22	Sept.23	1	8	1	0	8	5	7	0	5
3	Sept.22	Sept.23	1	0	0	0	3	0	0	0	0
4	Sept.23	Sept.24	2	10	1	1	8	6	1	0	9
5	Sept.23	Sept.24	2	9	0	1	13	2	1	0	3
6	Sept.23	Sept.24	0	1	0	0	0	0	0	0	0
7	Sept.24	Sept.25	3	19	1	0	2	5	1	0	1
8	Sept.24	Sept.25	2	5	0	1	2	1	2	0	0
9	Sept.24	Sept.25	1	0	2	0	0	0	0	0	0
10	Sept.25	Sept.26	2	13	3	0	0	1	5	2	5
11	Sept.25	Sept.26	1	3	0	1	3	0	1	0	7
12	Sept.25	Sept.26	0	1	0	0	1	0	0	0	0
13	Sept.29	Sept.30	0	0	0	0	4	0	0	0	0
14	Sept.29	Sept.30	0	1	2	1	4	4	2	0	0
15	Sept.29	Sept.30	1	1	6	1	5	4	1	37	0
16	Sept.30	Oct.1	0	0	0	0	0	0	0	0	0
17	Sept.30	Oct.1	0	7	0	2	0	0	0	0	1
18	Sept.30	Oct.1	2	5	3	2	0	1	2	1	5
19	Oct.1	Oct.2	2	0	1	0	0	0	0	0	0
20	Oct.1	Oct.2	1	0	0	1	1	0	3	0	2
21	Oct.1	Oct.2	2	1	0	1	6	2	4	4	0
22	Oct.2	Oct.3	0	0	0	0	0	0	60	40	0
23	Oct.2	Oct.3	0	0	0	2	0	0	0	0	3
Sum			24	84	20	14	65	32	90	85	41
CPUE (Number)			1.04	3.7	0.9	0.6	2.8	1.4	3.9	3.7	1.8
Standard Error			0.194	1.072	0.310	0.151	0.716	0.411	2.578	2.300	0.555
Confidence Level(95.0%)			0.401	2.223	0.643	0.312	1.485	0.852	5.347	4.770	1.151
Standard Deviation			0.928	5.140	1.486	0.722	3.433	1.971	12.365	11.031	2.662
Sample Variance			0.862	26.419	2.209	0.522	11.787	3.885	152.901	121.676	7.087
Count (Sample Size)			23	23	23	23	23	23	23	23	23
Probability of Capture			0.625	0.583	0.375	0.458	0.583	0.458	0.541	0.208	0.416
CPUE (Weight) (kg./set)			1.329	2.632	0.621	2.157	3.925	0.502	0.516	0.38	3.632
Mean Weight (gr)			1274	720	714	3544	1389	361	132	103	2038
Total Wt. Caught (kg.)			30.575	60.535	14.29	49.625	90.285	11.552	11.88	8.755	83.558
% of Grand total Wt. caught			8.46	16.77	3.96	13.74	25.00	3.19	3.29	2.42	23.14
Grand Total Catch Wt. (kg.)			361.055								
All Sp. CPUE-wt			15.694								

Appendix B.

Walleye Biosampling Data – Go Home Lake Synoptic Trap-net Survey, 2003.

	Total Length (cm.)	Fork Length (cm.)	Round Weight (grams)	Assessed Age years
	50.0	46.9	1350	7
	53.0	51.5	1750	8
	60.5	57.4	2700	9
	57.1	54.1	2000	9
	43.6	41.0	750	3
	55.5	53.2	1800	7
	38.0	36.0	600	3
	64.5	61.0	2800	11
	40.2	38.1	700	3
	49.5	46.8	1300	5
	52.7	50.0	1300	7
	47.0	44.5	1100	5
	46.3	43.7	1000	5
	47.0	43.7	1000	5
	48.0	45.0	1150	5
	50.0	46.8	1250	5
	40.2	37.8	600	3
	46.5	43.7	975	4
	56.2	52.7	1550	8
	47.2	44.1	1000	4
	48.6	46.2	950	4
	56.0	53.1	1750	9
	41.4	38.9	700	4
	36.5	33.8	500	3
Mean	49.0	46.3	1274	5.7
Standard Error	1.448	1.407	124.887	0.480
Confidence Level(95.0%)	2.996	2.912	258.347	0.994
Standard Deviation	7.096	6.895	611.817	2.353
Sum			30575	
Count	24	24	24	24

Appendix C. Smallmouth Bass Biosampling Data – Go Home Lake Synoptic Trap-net Survey, Fall 2003.

Total Length (cm.)	Fork Length (cm.)	Round Weight (grams)	Total Length (cm.)	Fork Length (cm.)	Round Weight (grams)
31.7	29.7	500	27.3	25.6	300
36.2	34.0	650	20.3	19.0	150
34.2	32.2	550	44.2	42.0	1400
24.5	23.2	375	30.7	29.1	400
38.2	35.8	850	28.1	26.4	350
26.5	25.0	400	25.0	23.7	250
21.2	20.0	130	28.9	28.2	400
23.2	22.2	230	38.9	37.0	900
34.6	32.6	600	46.0	43.0	1400
31.9	29.7	550	42.0	39.5	1100
37.6	35.6	900	37.8	35.2	1100
38.6	36.8	800	45.5	42.5	1500
34.2	32.1	600	39.0	36.8	700
44.5	42.3	1400	33.5	31.4	500
44.2	41.3	1400	35.0	33.2	600
43.3	41.0	1300	29.5	27.7	300
46.0	44.0	1700	45.0	43.0	800
37.5	36.5	900	37.5	35.0	500
45.8	43.2	1500	37.7	35.2	700
37.0	34.8	800	37.2	34.8	700
37.0	34.3	800	34.5	32.5	600
30.1	28.6	400	31.8	30.0	600
33.0	31.2	500	27.0	25.3	450
31.7	30.2	450	22.0	21.1	150
21.8	20.5	250	41.0	38.7	900
21.0	20.0	200	30.2	28.4	525
37.6	31.9	600	38.5	36.3	800
35.6	33.6	550	30.5	28.7	400
30.0	28.2	450	43.1	40.4	1200
42.0	39.6	1000	29.2	27.7	350
30.2	28.6	500	47.5	44.2	1800
39.5	37.3	1000	45.5	43.0	1600
40.0	37.9	1100	48.1	45.1	1750
30.5	28.4	500	43.5	41.0	1200
29.5	27.7	450	44.8	42.5	1450
28.8	27.0	425	36.3	34.1	675
24.6	23.2	350	43.5	40.5	1225
22.5	21.4	250	38.0	36.1	700
36.1	34.1	650	29.0	27.2	350
34.0	31.8	700	28.2	26.3	300
30.9	29.4	550	33.6	32.6	500
38.1	35.7	800	29.5	27.4	350

Mean	34.8	32.7	720.7
Standard Error	0.782	0.735	45.408
Confidence Level(95.0%)	1.556	1.462	90.315
Standard Deviation	7.171	6.739	416.173
Sum			60535
Count	84	84	84

Appendix D.

Largemouth Bass Biosampling Data – Go Home Lake Synoptic Trap-net Survey, Fall 2003.

	Total Length (cm.)	Fork Length (cm.)	Round Weight (grams)
	21.3	20.3	250
	41.1	39.4	1400
	33.1	31.6	500
	41.9	40.1	1500
	40.1	38.6	1400
	38.0	37.0	770
	31.2	29.8	650
	33.0	31.5	750
	33.0	31.3	600
	42.1	40.8	1200
	24.1	23.0	200
	22.1	21.2	170
	32.0	30.7	500
	37.3	35.8	850
	21.8	21.0	150
	21.2	20.3	150
	44.3	43.0	1550
	22.5	22.0	200
	29.7	28.6	450
	39.2	37.6	1050
Mean	32.5	31.2	714.5
Standard Error	1.782	1.725	108.629
Confidence Level(95.0%)	3.730	3.611	227.363
Standard Deviation	7.969	7.716	485.803
Sample Variance	63.505	59.533	236005.000
Sum			14290
Count	20	20	20

Appendix E.

Northern Pike Biosampling Data – Go Home Lake Synoptic Trap-net Survey, Fall 2003.

	Total Length (cm.)	Fork Length (cm.)	Round Weight (grams)
	103.0	99.0	8600
	107.0	103.0	8800
	84.2	79.8	4000
	70.7	67.0	2550
	71.8	67.8	2600
	62.2	58.9	1400
	80.0	75.5	3100
	63.7	59.7	1550
	63.0	60.1	1600
	71.5	68.6	2925
	80.5	76.8	3600
	67.1	63.7	1950
	88.2	83.1	4600
	70.5	67.0	2350
Mean	77.4	73.6	3544.6
Standard Error	3.781	3.697	634.592
Confidence Level(95.0%)	8.168	7.987	1370.953
Standard Deviation	14.147	13.832	2374.427
Sample Variance	200.124	191.336	5637902
Sum			49625
Count	14	14	14

Appendix F.

Mean Weights for Non-game fish species captured in the Go Home Lake Synoptic Trap-net Survey, Fall 2003

	Common Wt. Sucker		Brown Bullhead		Rock Bass		Pumpkinseed		Channel Catfish	
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.
	6	9100	1	350	7	690	1	200	6	9300
	3	4550	5	1155	1	110	2	675	9	17750
	8	11950	10	4575	1	250	24	1950	3	7550
	13	17000	2	1150	1	110	1	130	1	1900
	2	3500	5	2050	2	270	4	350	5	13800
	2	25	1	150	5	800			7	13950
	3	5900	1	180	1	90			1	2150
	1	1400	2	400	2	190			5	7900
	4	5100	1	150	4	660			2	6200
	2	2500							3	5100
	1	1500								
Total	45	62525	28	10160	24	3170	32	3305	42	85600
Mean		1389		361		132		103		2038

Appendix G.

CPUE-wt for synoptic Trap-net surveys recently conducted in the Parry Sound Area.

Survey	Walleye	S.M. Bass	L.M. Bass	Bl. Crappie	N. Pike	C.W. Sucker	Br. Bullhd.	Rock Bass	Pump-kseed	All Species *	Rank
	(kg. / 8' trapnet set)										
Bear Lake (2001)	7.619	1.268			3.547	1.443	2.609	0.383	0.061	16.896	9
Bolger Lake (1999)	10.790	4.250	0.050		1.290	0.030	0.270	0.220	0.030	16.930	8
Buck Lk (2002)	1.694	1.542	0.129	0.424	1.746					5.535	23
Cecebe Lake (2000)	12.154	4.700			3.990	3.636	4.727	0.254	1.200	30.706	3
Crane Lk. 1997)	2.986	2.443			0.136			0.064	0.007	9.369	19
Doe Lake (1998)	12.727	11.115			0.954	5.573	1.521	1.530	2.336	35.756	1
Dollar's Lake (2000)	1.112	1.503	1.994	0.661	1.621	2.869	8.479	0.136	0.107	21.610	5
Dollars Lake (2003)	1.595	2.903	1.475	1.725	1.072	3.865	1.476	0.132	0.106	16.044	10
Gibson Lake (2001)	4.265	4.866	0.738	3.255	1.097	2.683	3.952	0.089	0.016	32.966	2
Giroux Lake (2001)	9.670	2.010			1.600	4.490	1.020	0.020		18.820	7
Go Home Lake (2003)	1.329	2.632	0.621		2.157	3.925	0.502	0.516	0.380	15.694	11
Harris Lake (1994)	2.909	0.722	0.485		0.752	7.783	0.481	0.184	0.144	13.460	15
Isabella Lk. (1997)	0.530	4.203			3.630	5.895	0.415	0.620	0.050	15.343	12
Kashegaba Lk. (1999)	1.060	4.880	0.480		1.340		0.530	0.740	0.180	9.210	20
McKellar Lk (2003)	1.735	0.295	0.092		3.571	4.250	0.308	0.240		10.492	17
McDougall Lk. (2000)	2.460	0.961		0.291	1.948	2.358	0.685	0.028		10.061	18
Moffat Lk. (2002)	0.467	0.628			3.578	8.610	0.900	0.000		14.183	13
Pakeshkag Lk. (2001)	0.167				3.508	0.892	2.375	0.061	0.014	7.025	22
Poverty Bay (1999)	2.757	3.976	2.871		0.164	3.150	0.920	0.113	0.098	14.049	14
Rock Is / Bl Oak (2003)	8.873	0.971	0.158		2.958	6.085	0.180	0.057	0.015	19.310	6
S. Magnetawan R (1994)	2.035	1.355	0.112		1.067	3.708	0.214	0.137	0.342	8.970	21
Six Mile Lake (1999)	1.145	3.242	2.044	1.140	1.133	2.350	2.538	0.211	0.513	23.227	4
Wahwashkeksh (2002)	4.236	2.330	0.148	0.160	2.031	0.425	1.901	0.242	0.135	11.637	16
Mean CPUE-wt.	4.101	2.854	0.814	1.094	1.952	3.701	1.714	0.272	0.319	16.404	
Standard Error	0.838	0.505	0.243	0.415	0.248	0.509	0.435	0.073	0.137	1.677	
Standard Deviation	4.019	2.367	0.911	1.097	1.192	2.278	1.993	0.342	0.579	8.043	
Confidence Level(95.0%)	1.738	1.050	0.526	1.015	0.515	1.066	0.907	0.152	0.288	3.478	
Count	23	22	14	7	23	20	21	22	18	23	

*** - Note: Not all species caught are necessarily listed here. Consequently "All Species" weight may not necessarily be the sum of those species shown in this table. "All species" weight comes from individual reports.**

Appendix H.

CPUE-no for Synoptic Trap-net Surveys Recently Conducted in the Parry Sound Area, 1994 – 2003.

Survey	Walleye	S.M. Bass	L.M. Bass	Black Crappie	N. Pike	C.Wt. Sucker	Brown Bullhead	Rock Bass	Pump-kseed	Yellow Perch
Bear Lake (2001)	9.9	1.6			2.6	2.1	4.5	2.6	0.2	
Bolger L. (1999)	9.5	9.5	0.1		0.7	0.1	1.0	3.1	0.6	
Buck Lake (2002)	1.8	1.3	0.1	0.8	0.9					
Cecebe Lk. (2000)	11.9	5.2			2.5	3.4	6.4	2.3	5.3	
Crane Lk (1997)	1.6	7.1			0.1			0.7	0.1	
Doe Lk. (1998)	11.3	13.0			0.7	4.5	3.9	17.8	11.1	
Dollar's Lake (2000)	1.3	3.1	2.3	1.9	0.8	2.4	23.8	1.2	1.1	0.8
Dollars Lake (2003)	1.5	5.0	1.5	4.8	0.6	3.2	3.6	1.7	1.7	
Gibson Lake (2001)	3.1	6.7	0.9	9.1	1.0	2.3	12.7	0.7	0.1	
Giroux Lake (2001)	6.8	1.8			2.1	3.5	3.7	0.3		0.1
Go Home Lk. (2003)	1.0	3.7	0.9		0.6	2.8	1.4	3.9	3.7	
Harris Lk. (1994)	1.9	1.1	0.5		0.7	7.8	1.8	1.0	2.3	0.0
Isabella Lake (1997)	0.3	7.0			1.2	5.1	1.5	5.7	0.2	
Kashegaba L. (1999)	0.9	10.9	0.9		0.7	0.0	1.9	10.3	3.0	
McKellar Lake (2003)	1.3	0.3	0.1		1.3	2.8	0.8	2.0		
McDougall L. (2000)	2.2	1.5		0.8	1.3	1.5	1.6	0.4		
Moffat Lake (2002)	0.8	0.4			1.6	5.7	1.7	0.1		0.1
Pakeshkag Lk (2001)	0.1				2.0	1.8	13.5	0.8	0.3	0.1
Poverty Bay (1999)	2.3	12.1	4.6		0.3	7.0	3.8	2.4	1.4	
Rock Is / Bl Oak (2003)	5.8	1.6	0.3		1.0	5.3	0.6	0.8	0.2	
S. Mag. R. (1994)	1.9	2.3	0.1		0.7	2.6	1.5	1.3	2.1	0.0
Six-Mile L. (1999)	0.6	5.9	4.6	4.7	0.8	1.7	9.4	2.0	4.4	
Wahwashkesh L. (02)	3.1	4.0	0.2	0.5	1.3	0.3	4.6	2.4	0.6	
CPUE-no (no. / net set)	3.5	4.8	1.2	3.2	1.1	3.1	4.9	2.9	2.1	0.2
Standard Error	0.775	0.822	0.419	1.197	0.136	0.464	1.238	0.855	0.647	0.125
Confidence Level(95.0%)	1.607	1.708	0.904	2.929	0.283	0.967	2.583	1.779	1.365	0.321
Standard Deviation	3.716	3.853	1.566	3.167	0.654	2.125	5.674	4.012	2.745	0.306
Count	23	22	14	7	23	21	21	22	18	6

Appendix I.

Probability of capture of select species from recently conducted Parry Sound Area synoptic trap-net surveys.

Survey & year	Walleye	SM Bass	LM Bass	Bl. Crappie	N. Pike	C.Wt. Sucker	Br Blhd.	Pump-kseed	Rock Bass	Yellow Perch	# sets
Bear Lake (2001)	0.765	0.470			0.705	0.529	0.647	0.059	0.529		17
Bolger Lake (1999)	0.823	0.882	0.588		0.470	0.059	0.294	0.294	0.588		17
Buck Lake (2002)	0.500	0.417	0.083	0.417	0.500						12
Cecebe Lake (2000)	1.000	0.909			0.818	0.818	0.636	0.818	0.636		11
Crane Lk. 1997)	0.611	0.888			0.111			0.111	0.500		18
Doe Lake (1998)	0.970	0.941			0.470	0.794	0.529	0.941	0.205		34
Dollars Lake (2003)	0.727	0.909	0.454	0.636	0.454	0.636	0.727	0.454	0.636		11
Dollar's Lake (2000)	0.666	0.833	0.625	0.500	0.583	0.708	0.458	0.375	0.416		24
Gibson Lake (2001)	0.666	0.866	0.400	0.933	0.733	0.800	0.733	0.067	0.400		15
Giroux Lake (2001)	1.000	0.333			0.666	0.750	0.333		0.166	0.083	12
Go Home Lake (2003)	0.625	0.583	0.391		0.458	0.583	0.458	0.208	0.541		23
Harris Lake (1994)	0.516	0.387	0.322		0.484	0.871	0.501	0.612	0.355		31
Isabella Lk. (1997)	0.333	0.800			0.600	0.900	0.400	0.200	0.900		10
Kashegaba Lk. (1999)	0.467	1.000	0.466		0.533		0.467	0.667	1.000		15
McDougall Lk. (2000)	0.846	0.538		0.461	0.692	0.615	0.307		0.154		13
McKellar Lk. (2003)	0.667	0.083	0.083		0.750	0.583	0.250		0.500		12
Moffat Lake (2020)	0.333	0.167			0.833	0.917	0.833		0.083	0.083	12
Pakeshkag Lk. (2001)	0.083				0.750	0.417	0.833	0.250	0.416	0.083	12
Poverty Bay (1999)	0.714	0.857			0.286	1.000	0.857	0.428	0.571		7
Rock Is / Bl Oak (2003)	1.000	0.583	0.083		0.667	0.583	0.333	0.083	0.333		12
Six Mile Lake (1999)	0.722	0.967	0.866	0.700	0.433	0.667	0.933	0.866	0.666		30
S. Magnetawan R (1994)	0.714	0.510	0.081		0.510	0.673	0.204	0.489	0.551	0.020	49
Wahwashkesh (2002)	0.788	0.667	0.151	0.030	0.670	0.121	0.394	0.121	0.575		33
Mean	0.675	0.663	0.353	0.525	0.573	0.651	0.530	0.391	0.487	0.067	
Standard Error	0.048	0.058	0.069	0.106	0.036	0.054	0.048	0.068	0.048	0.016	
Confidence Level(95.0%)	0.100	0.120	0.151	0.259	0.075	0.113	0.101	0.143	0.100	0.050	
Count	23	22	13	7	23	20	21	18	22	4	