Whitestone Lake

2004 Nearshore Community Index Netting (NSCIN) Survey Report

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Executive Summary:

During September and October of 2004, a *Nearshore Community Index Netting* (NSCIN) survey was conducted on Whitestone Lake. The purposes of this survey were:

- To assess the status of the near shore fish community and in particular the game fish populations;
- To evaluate the impact of existing "exception" walleye regulations implemented in 1998; and
- To make informed and appropriate recommendations for Whitestone Lake in anticipation of revised walleye regulations for the Southern Region expected in 2007.

The results of this survey are summarized in a 'hypothetical report card' in which we accord Whitestone Lake an over-all grade of B+. Productivity – as measured by *Catch-Per-Unit-Effort by weight* (CPUE-wt) for all species combined was "average", relative to the Parry Sound Area reference dataset for 6'-trapnet surveys. However, the catch composition, and by inference the community composition, was dominated by game fish species which comprised 81% of the total catch weight. For large and smallmouth bass, northern pike and black crappie; all indices of abundance were well above the reference dataset and greatly exceeded those observed in a similar survey conducted on the lake in 1982. Abundance indices for walleye were "average", but higher than those observed in the 1982 survey. Size distribution for game fish species was very good or excellent. Abundance indices for non-game fish (white sucker, brown bullhead, rock bass, pumpkinseed and yellow perch) were approximately "average".

Walleye abundance appears to be higher in 2004 than prior to implementation of "exception walleye regulations" (i.e. relative to the 1982 survey). However, it is inconclusive to what degree the *exception regulations* are responsible for the improvement observed. Considering the improved state of the walleye population, we recommend existing "walleye exception regulations" be revoked when new, comprehensive and Region-wide regulations are implemented in 2007.

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1.0 Introduction

Whitestone Lake is located in the Geographical Townships of Hagerman and Croft; now within the Municipality of Whitestone. At 698.2 hectares (1725 ac.) in size, it is considered to be a “medium-size” lake in the Parry Sound area (OMNR, 1974). The lake is bisected by Highway 124 at the Village of Dunchurch. Shoreline development is moderately heavy with approximately 600 cottages, all of which are accessible by vehicle. Public and private launching and docking facilities are available at the Village of Dunchurch. Approximately 10% of the shoreline is Crown land (OMNR, 1974).

Whitestone Lake is a contributor to the large Magnetawan River watershed. The lake has 17 inlets, but none of which are major. All water input comes from runoff from the surrounding land and numerous small upstream lakes. There is one major outlet – the Whitestone River, which flows into Wahwashkesh Lake to the northwest.

The lake has a maximum depth of 19.2m (63.4ft.) and a mean depth of 5.3m (17.5ft.) (OMNR 1974). Water colour is yellow brown with an average secchi reading of 2.65 meters observed during this survey.

The first documentation of Ministry work on the lake begins in 1929. A cursory survey was conducted which documented the presence of cisco, common white sucker and yellow perch. Unidentified “small minnows” were also noted. The survey also indicated that “*pickerel were abundant at one time, but are very scanty at present despite recent stocking*.” Perplexingly, our stocking records indicate the lake was first stocked with walleye in 1938, with the transfer of 150 – 200 adults from the Shawanaga River of Eastern Georgian Bay (Macfie, 1961). A historical note on the Ministry’s lake file indicates that walleye were native to Whitestone Lake, but disappeared around 1910 (Macfie, 1961). It would appear the above plantings were intended to reintroduce them. Walleye were intensively stocked throughout the 1940s and ’50 as well as two times in the 1990s.

Smallmouth bass were introduced in the 1920 (Macfie, 1961), followed by extensive Ministry plantings in the 1940s and ‘50s. In 1959, northern pike were first reported in the lake (Macfie, 1961), probably from an unauthorized planting.

In 1974 an Aquatic Habitat Inventory Survey (AHI), commonly called a “Lake Survey”, was conducted by the Ministry of Natural Resources. Additional species documented at that time included: rock bass, pumpkinseed, brown bullhead, bluntnose minnow and common shiner (OMNR, 1974). These are probably indigenous species to the lake. Largemouth bass were first documented in the lake in 1982 (Thurston, 1983). Whether largemouth are indigenous or introduced to the lake is uncertain. In 1986, black crappie were first reported in the lake, undoubtedly from an unauthorized introduction.

In 1982 a trapnet and gillnet survey was conducted on Whitestone to assess the health of the fish population at that time. Results of the survey indicated a healthy population of game fish. Walleye comprised 37% of the total catch weight, followed by smallmouth bass at 25% and northern pike at 11% (Thurston, 1983). We make several comparisons between the 1982 survey and this one.

Open water creel survey's conducted in 1982 and '83 (McCrudden and Thurston, 1984; OMNR, 1983) indicated exceptionally high fishing pressure on the lake. In 1982, fishing effort exceeded over 50 rod hours per hectare and in 1983 it exceeded 38 rod hours per hectare. In 1982, Thurston (1984) estimated walleye and northern pike harvest exceeded the annual allowable catch by 52 and 78% respectively.

In an effort to rebuilt walleye stocks promote natural rehabilitation, fishing regulations were changed in 1998. The walleye daily catch limit was reduced to two fish per day and a maximum size catch limit of 35.6 cm (14") was imposed. (That is, all fish over 35.6 cm had to be released.) This survey provided an opportunity to assess the impact these regulation have had on the walleye population in Whitestone Lake.

Several habitat enhancement projects conducted by the Hagerman Ratepayer's Association have also assisted in rehabilitating walleye stocks in Whitestone Lake.

The purpose of this survey was to assess the status of the nearshore fish community and in particular the game fish (walleye, small and largemouth bass, northern pike and black crappie). This survey also afforded an opportunity to assess the impact of "exception" regulations for walleye implemented in 1998. Furthermore, results will provide the Ministry with valuable data to make informed and appropriate recommendations with respect to new, Region-wide fishing regulations expected to be implemented in 2007.

2.0 Methods:

2.1 Field Operations:

Our survey followed field procedures as specified in the Ministry's *Manual of Instructions for Nearshore Community Index Netting* (NSCIN) projects (OMNR, 1999). Basically, this survey uses live capture, 6'-trapnets that are set overnight for approximately 24-hour duration. Net set locations were randomly selected. All fish captured were enumerated (Appendix A) and sampled for total and fork length as well as weight determination (Appendix F1-F5). All fish were live-released at the site of capture. Incidental mortality for this type of survey is generally negligible.

Our survey commenced September 28 and terminated on October 14th. A total of 30 trapnet sets were made in this survey.

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

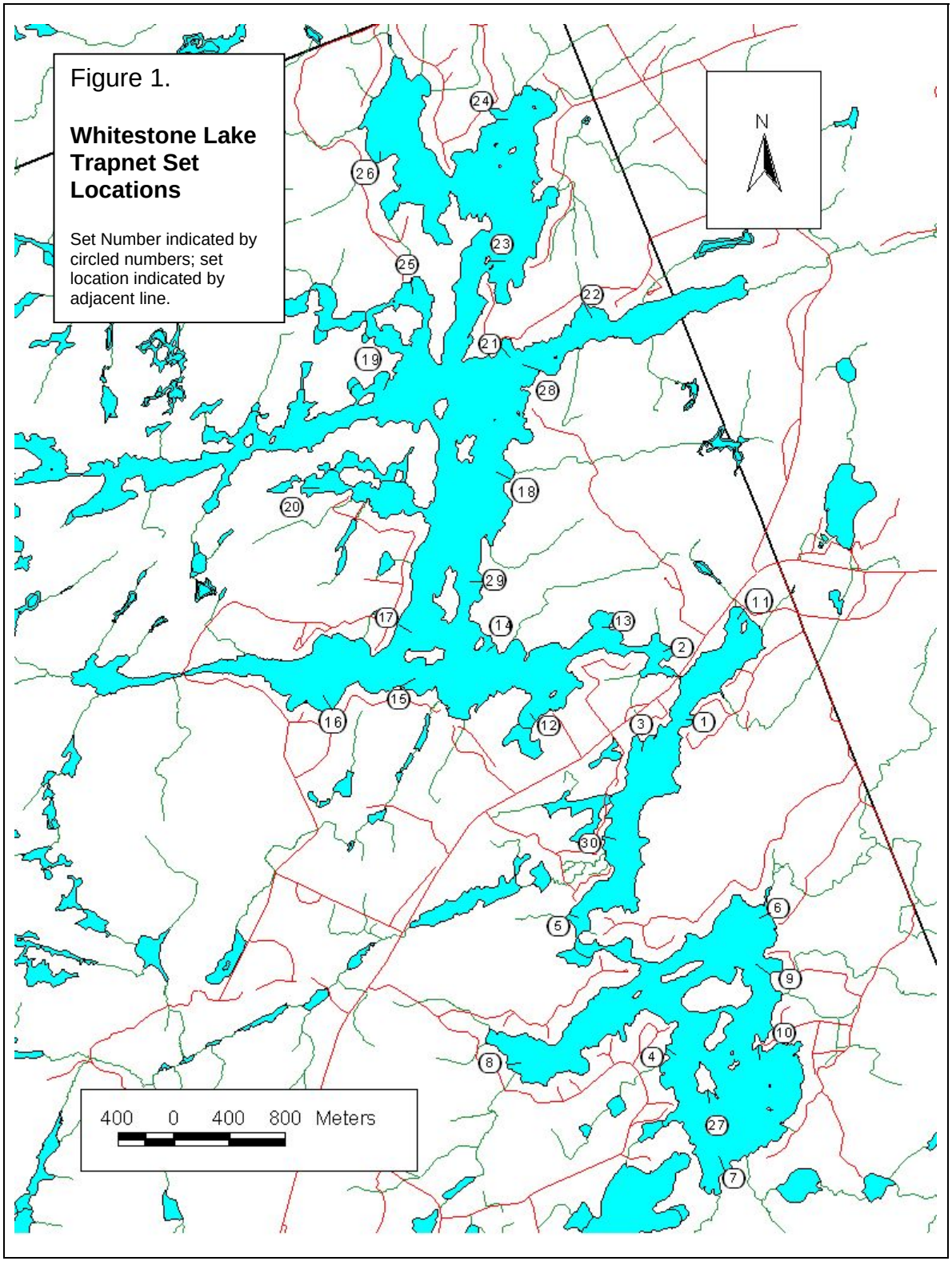
- Nets were to be approximately evenly dispersed throughout the lake in an effort to fish various fish habitats in the proportion of which they occurred in the lake. The intention here was that the catch would reflect the 'whole lake' as accurately as possible.
- The site had to be suitable for the net 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 (> 500 m) 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. 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 species (Appendix F1 – F6).

2.2 Data Analysis:

We used *Catch-Per-Unit-Effort by number* (CPUE-no), *Catch-Per-Unit-Effort by weight* (CPUE-wt) and *Probability of Capture* (POC) as indices of species abundance. CPUE-no and CPUE-wt are the average number and weight of a particular species caught per net set. POC is the likelihood of a particular species being caught in an individual net set. It can be expressed as a percentage or factor of 1.000. (Hence, a POC of 0.750 means a 75% likelihood that a particular species will be caught.)

We compare the species indices of abundance observed in this survey with a "reference dataset". This reference dataset is an accumulation of 20 Parry Sound Area surveys conducted between 1982 and 2004 using 6'- trapnets. Unfortunately, most of these surveys (15 or 75%) were conducted prior to 1990, making it a rather antiquated dataset. The reader should bear this fact in mind when comparisons are being made. We also compare these indices to those observed in the 1982 survey on Whitestone Lake.


Figure 1.
Whitestone Lake Trapnet Set Locations
Set Number indicated by circled numbers; set location indicated by adjacent line.
N
400 0 400 800 Meters

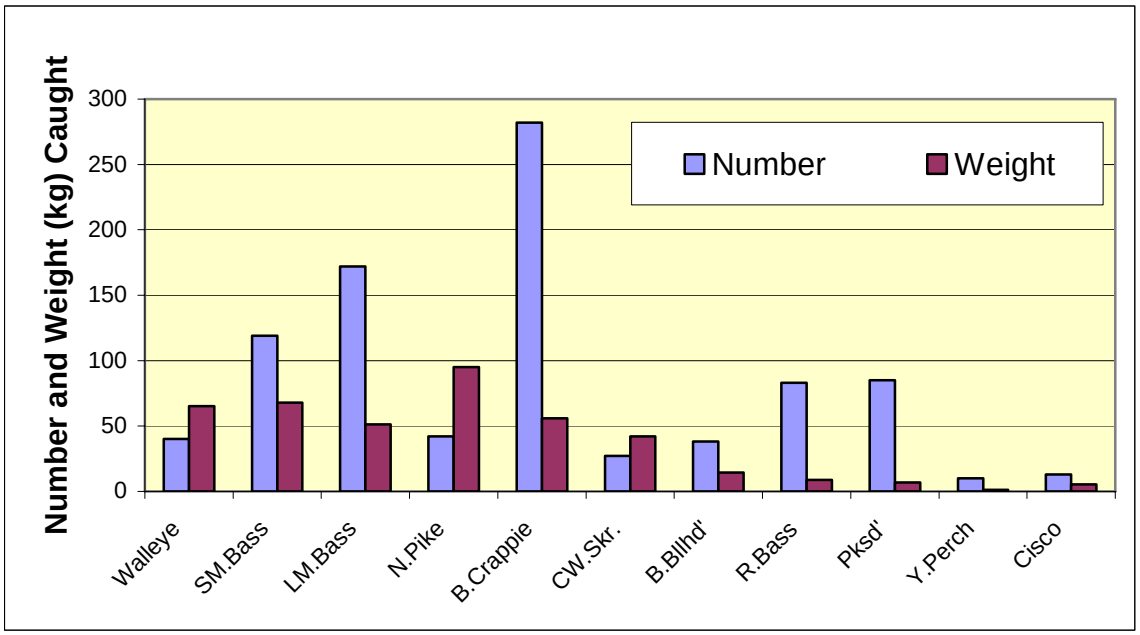
3.0 Results

3.1 Catch Composition:

We caught a total of 911 fish, comprised of: black crappie 282, largemouth bass 172, smallmouth bass 119, pumpkinseed 85, rock bass 83, northern pike 42, walleye 40, brown bullhead 38, common white sucker 27, cisco 13 and yellow perch 10 (Appendix A and Figure 2).

Total catch weight was 414.010 kilograms, comprised of: northern pike 95.025 kilograms, smallmouth bass 67.965 kg, walleye 65.150 kg, black crappie 55.949 kg, largemouth bass 51.230 kg, common white sucker 42.120 kg, brown bullhead 14.489 kg, rock bass 8.732 kg, pumpkinseed 6.800 kg, cisco 5.370 kg and yellow perch 1.180 kg (Appendix A and Figure 2).

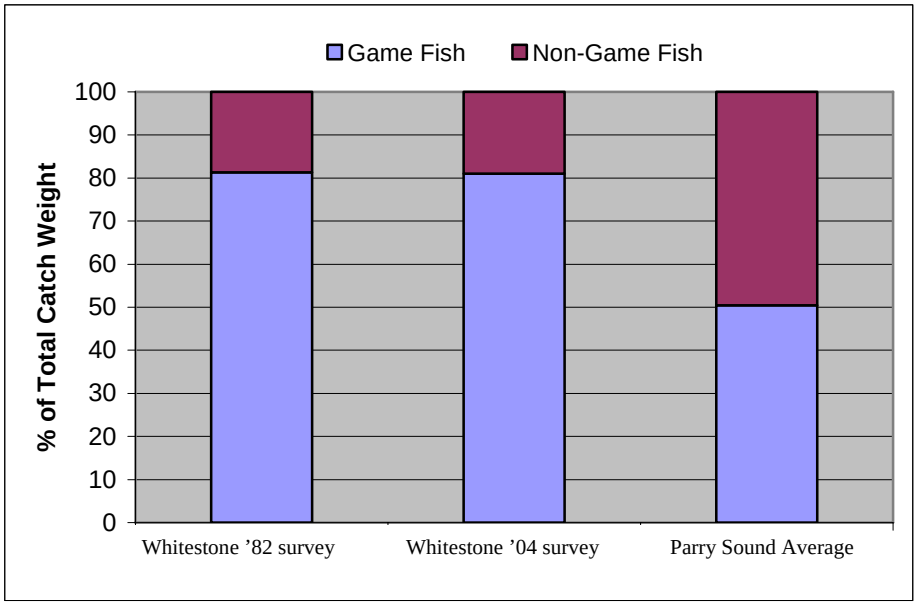
Figure 2. Catch Composition by Number and Weight (kg) for the 2004 NSCIN Survey on Whitestone Lake.
(Total Catch Number: 911; Total Catch Weight: 414.010 kg; Appendix A)



We are unsure to what extent our catch is reflective of the resident fish community in Whitestone Lake. This is due to various fish species and size ranges of species having different degrees of vulnerability to the 6'-trapnet gear used for this survey. In other words, the gear does not necessarily capture fish in direct proportion to their abundance in the fish community. We do know that our catch under-represents the forage base (small fish species) in the fish community. Although we are unsure of the degree of this sampling bias, we use our catch composition (by weight) as a surrogate of community composition with the acknowledgement that this bias exists.

Game fish (walleye, smallmouth bass, largemouth bass, northern pike and black crappie) comprised 81.0% of the total catch weight of 414.010 kg of fish. This percentage is equivalent to that observed in the 1982 trapnet survey on Wahwashkesh Lake and well above the average of 50.5% for lakes similarly surveyed in the Parry Sound Area (Figure 3 and Appendix B).

Figure 3. A Comparison of Catch Composition (by Game and Non-Game Fish) between surveys conducted on Whitestone Lake in 1982 and 2004 with the average for similarly surveyed Parry Sound Area Lakes.



We consider the very high representation of game fish in the catch weight to be indicative of a fish community dominated by highly desirable, top-predator fish species. In this regard, Whitestone Lake has an excellent catch composition, which we use as a surrogate of community composition.

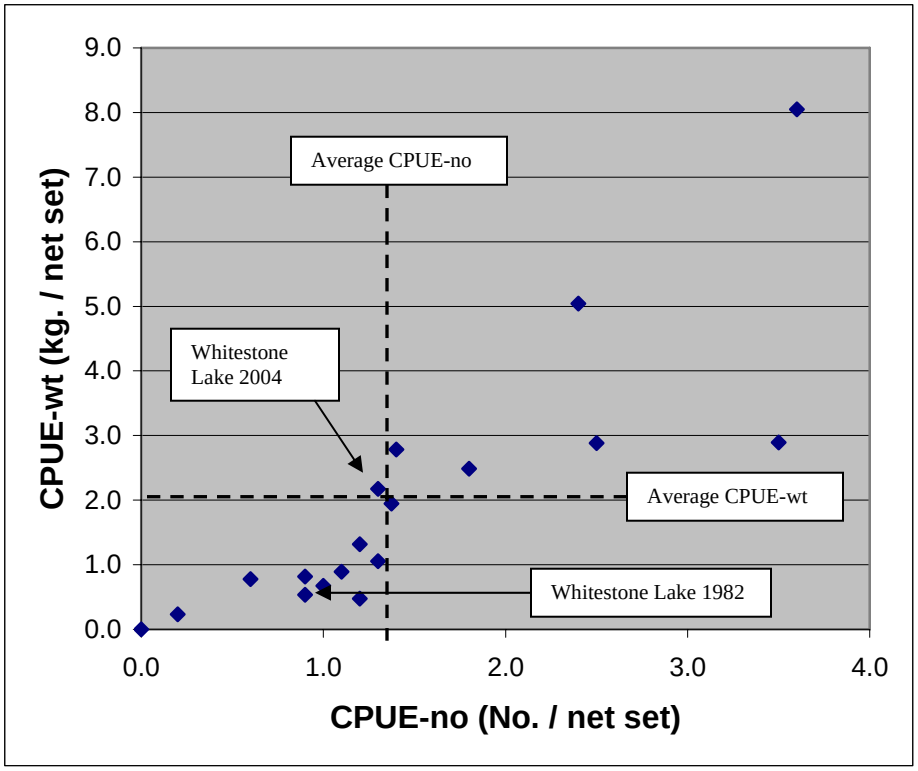
3.2 Productivity

For all species combined, our *Catch-Per-Unit-Effort by weight* (CPUE-wt) was 13.800 kg per net set (Appendix A). This over-all index of productivity is equivalent to the Parry Sound average of 13.088, but considerably higher than the 2.515 observed in the 1982 survey on Whitestone Lake (Appendix D).

3.3 Walleye

We use two indices to measure walleye abundance: *Catch-Per-Unit-Effort by number* (CPUE-no.), and *Catch-Per-Unit-Effort by weight* (CPUE-wt). We plotted these indices for all lakes in the Parry Sound Area 6'-Trapnet Survey database (hereafter referred to as "reference dataset") (from Appendix C and D). For the reference dataset, the average CPUE-no was 1.4 walleye per set and the average CPUE-wt was 1.947 kg of walleye per set. Our walleye abundance indices for Whitestone Lake in 2004 were almost identical to the mean values in our reference database (Figure 4). They also represent an increase over those observed in the 1982 survey on Whitestone Lake. From this, we conclude that walleye abundance on Whitestone Lake in 2004 is "average" relative to other lakes in the Parry Sound Area similarly surveyed, and higher than that observed on the lake in 1982.

Figure 4. Walleye CPUE-no vs. CPUE-wt for surveys from the Parry Sound Area 6'-Trapnet Survey database. (N=17) (Data points from Appendix C and D)

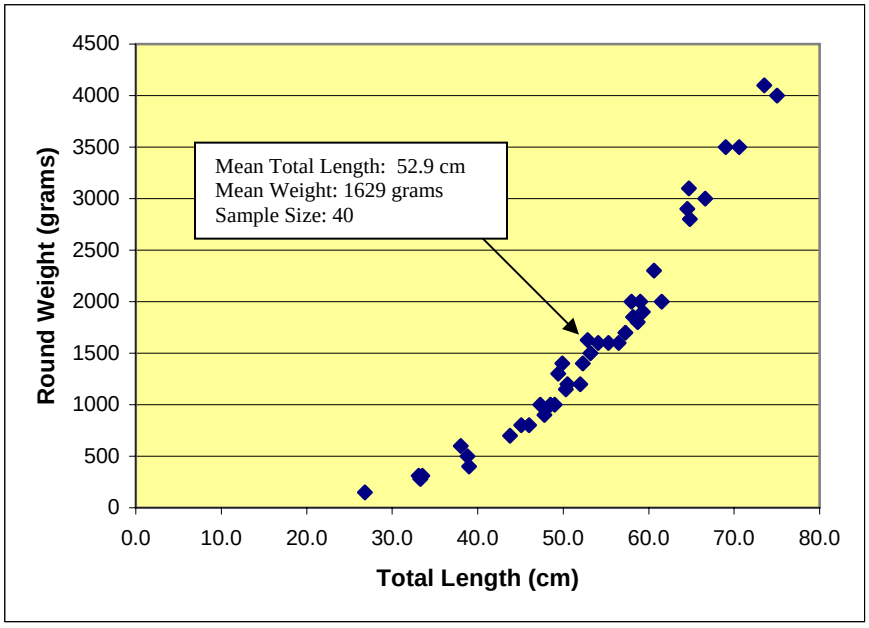


Another simple index we use for species abundance is the "Probability of Capture" (POC), or the percentage of nets that captures at least one walleye. The walleye probability of capture for this survey was 0.533 (also expressed as 53.3%), which is identical to the mean of our reference dataset (Appendix E). This also represents a slight increase over the POC of 0.417 observed in the 1982 survey on Whitestone Lake (Appendix E).

We size sampled all 40 walleye captured in this survey and calculated a mean total length of 52.9 cm (20.75”) and a mean weight of 1629 grams (3.6 lb) (Appendix F-1 and Figure 5)

Our size distribution of walleye (Figure 5) exhibited an excellent wide range, suggesting that a large number of age classes were represented in the catch. The somewhat low abundance of smaller size walleye (17.5% less than 40 cm total length; Appendix F-1) may suggest low recruitment in recent years. Older and large size walleye are well represented; suggesting mortality is probably not excessive in this population. The size class distribution of walleye on Whitestone Lake in 2004 is indicative of a healthy, self-sustaining population.

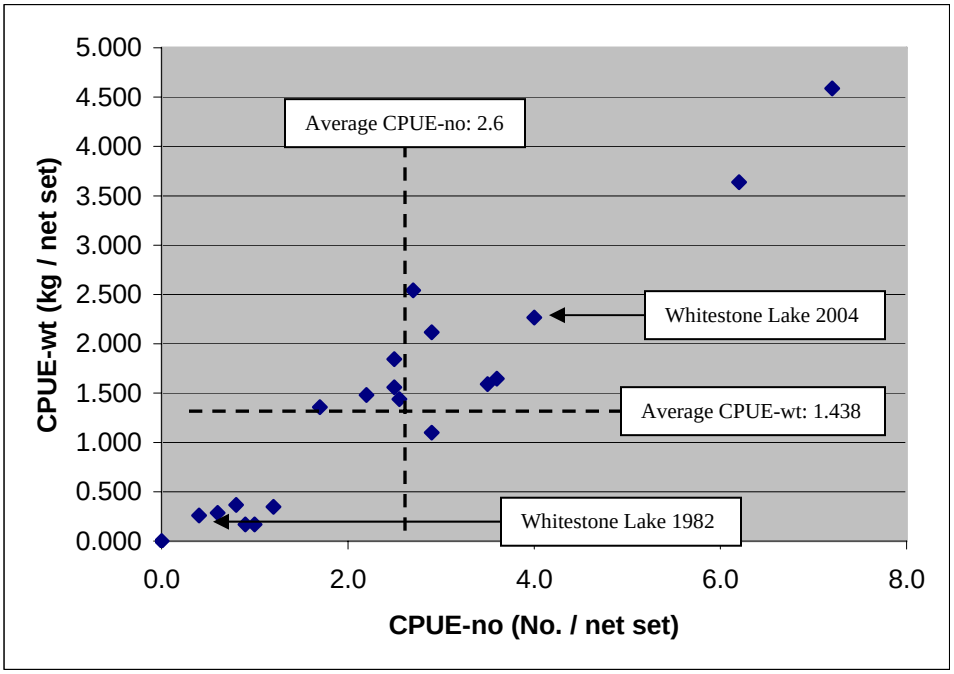
Figure 5. Walleye Size Distribution – Whitestone Lake, 2004.



3.4 Smallmouth Bass

Indices of abundance for smallmouth bass were: CPUE-no of 4.0 smallmouth bass per set and CPUE-wt of 2.266 kg per set (Appendix A). Both these indices are well above the mean from our reference database and represent an increase over that observed in the 1982 survey on the lake (Figure 6). Our smallmouth bass Probability of Capture (POC) was a remarkably high 0.967, also well above the reference mean of 0.634 (Appendix E). All these indices are indicative of a high relative abundance of smallmouth bass on Whitestone Lake.

Figure 6. Smallmouth Bass CPUE-no vs. CPUE-wt for surveys from the Parry Sound Area 6'-Trapnet Survey database. (N=19)

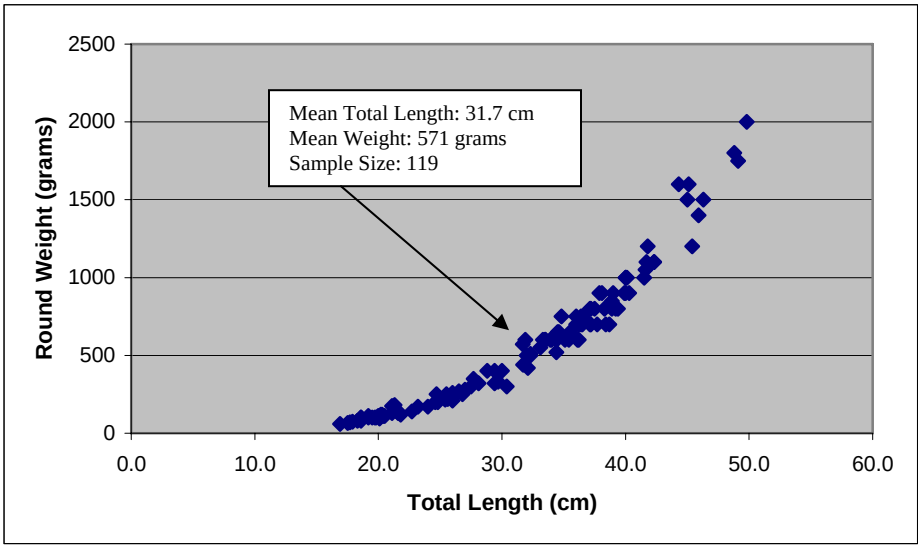


We size sampled all 119 smallmouth bass captured in the survey. Mean total length was 31.7 cm (12.5") and mean weight was 571 grams (1.25 lb) (Appendix F-2 and Figure 7).

The size distribution of smallmouth bass on Whitestone Lake in 2004 was excellent. There was a wide range of size classes and all were well represented. There was a high abundance of juvenile smallmouth bass (total length less than 25 cm) suggesting recent reproduction and recruitment levels have been quite high. Similarly, the good representation of larger smallmouth (total length greater than 40 cm) suggests that mortality levels are not excessive in this population.

All abundance and biosampling indices point to an abundant and very healthy population of smallmouth bass on Whitestone Lake.

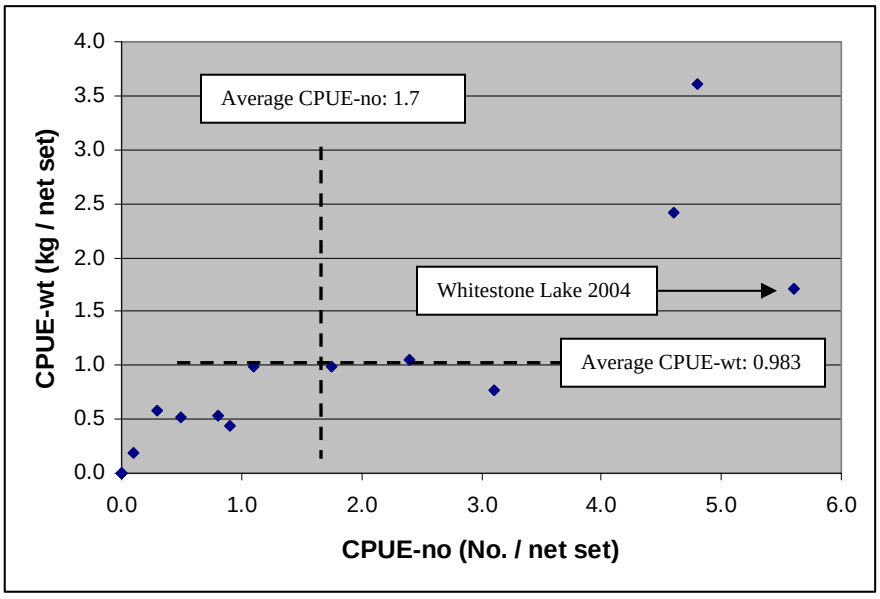
Figure 7. Smallmouth Bass Size Distribution, Whitestone Lake – 2004.



3.5 Largemouth Bass:

Indices of abundance for largemouth bass were: CPUE-no of 5.7 smallmouth bass per set and CPUE-wt 1.708 kg per set (Appendix A). Both these indices are well above the mean of our reference database (Figure 8). In the 1982 survey on Whitestone Lake, no largemouth bass were captured. Our largemouth bass Probability of Capture (POC) was a remarkably high 0.800, also well above the reference mean of 0.398 (Appendix E). All of these indices point to a high relative abundance of largemouth bass on Whitestone Lake.

Figure 8. Smallmouth Bass CPUE-no vs. CPUE-wt for surveys from the Parry Sound Area 6'-Trapnet Survey database. (N=14) (Data from Appendix C and D)

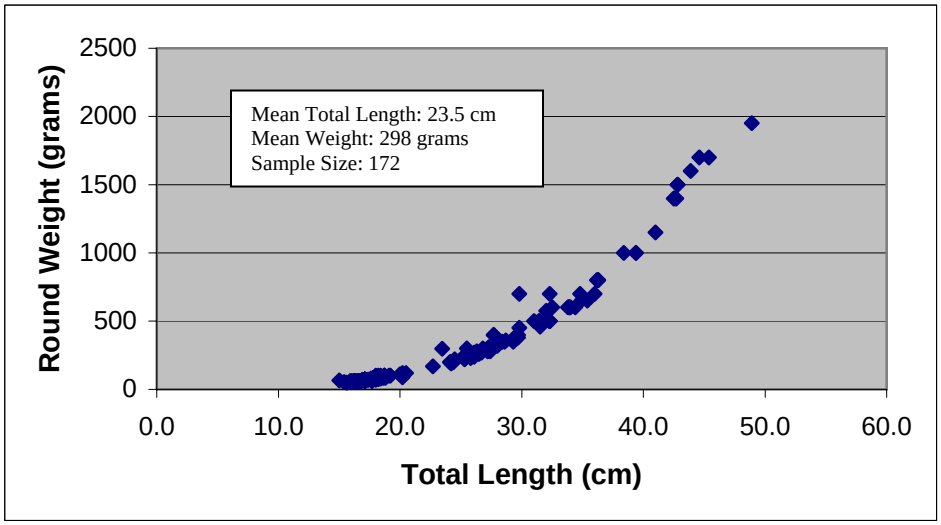


We size sampled all 172 largemouth bass captured (Appendix F-3), with the exception of set number 13. This set had a remarkably high catch of 61 largemouth bass, but almost all of them (55) were of such uniform size that we accorded them a total length of 17.1 cm and a weight of 70 grams (Appendix F-3). Mean total length was 23.5 cm (9.75") and mean weight was 298 grams (0.7 lb) (Appendix F-3 and Figure 9).

The size distribution of largemouth bass on Whitestone Lake in 2004 was also excellent. There was a wide range of size classes, most of which were very well represented. There was an exceptionally high abundance of juvenile largemouth bass (total length less than 25 cm) suggesting recent reproduction and recruitment levels have been quite high. The representation of larger largemouth bass (total length greater than 40 cm) was perhaps a little light, but on the whole of little concern with respect to the sustainability of the population.

All abundance and biosampling indices point to an exceptionally abundant and very healthy population of largemouth bass on Whitestone Lake.

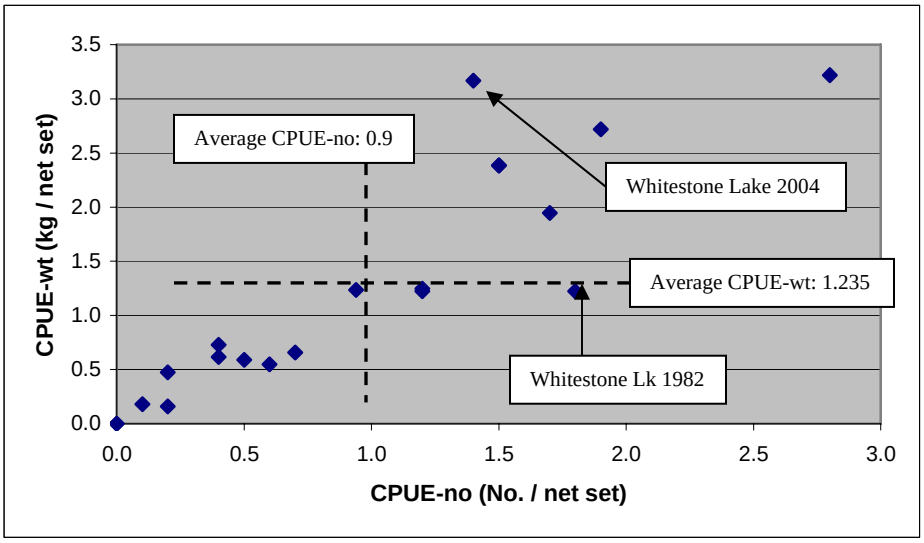
Figure 9. Largemouth Bass Size Distribution, Whitestone Lake – 2004.



3.6 Northern Pike:

Indices of abundance for largemouth bass were: CPUE-no of 1.4 smallmouth bass per set and CPUE-wt 1.708 kg per set (Appendix A). Both these indices are well above the mean of our reference database (Figure 10). Interestingly, our CUE-no is lower than that observed in 1982, but CUE-wt is higher (Figure 1). We caught fewer pike in 2004, but they were considerably larger than those captured in 1982. Our northern pike Probability of Capture (POC) was 0.600, also above the reference mean of 0.4.38 (Appendix E). All of these indices point to a high relative abundance of northern pike on Whitestone Lake.

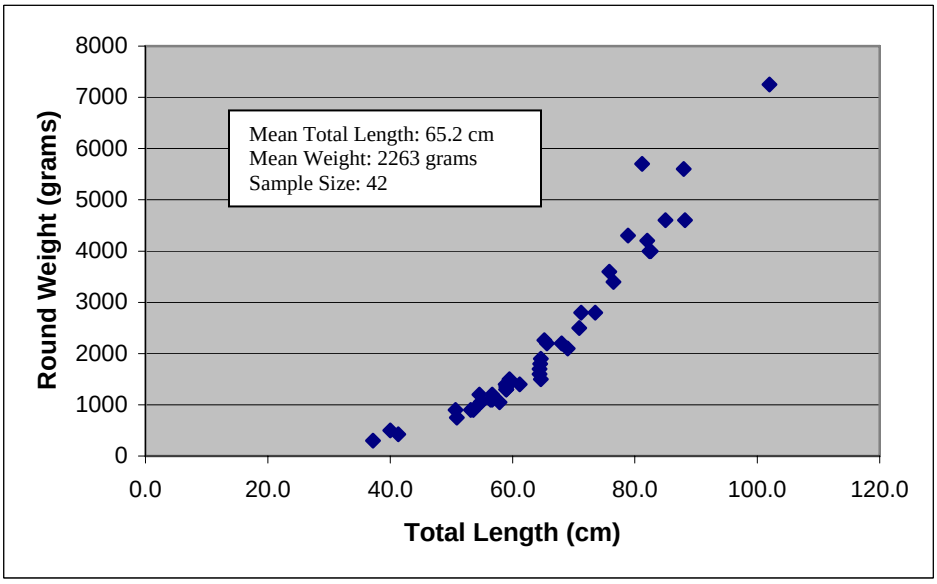
Figure 10. Northern Pike CPUE-no vs. CPUE-wt for surveys from the Parry Sound Area 6'-Trapnet Survey database. (N=19) (Data from Appendix C and D)



We size sampled all 42 northern pike captured (Appendix F-4). Mean total length was 65.2 cm (25.75") and mean weight was 2263 grams (5 lb) (Appendix F-4 and Figure 11).

The size distribution of northern pike was reasonably good; however, we did observe only 3 pike whose total length was less than 50 cm (Appendix F-4). This suggests that recent recruitment levels may be low. Conversely, the representation of larger pike (i.e. total length greater than 60 cm) was very high, suggesting the mortality rate is not excessive for this population.

Figure 11. Northern Pike Size Distribution, Whitestone Lake – 2004.



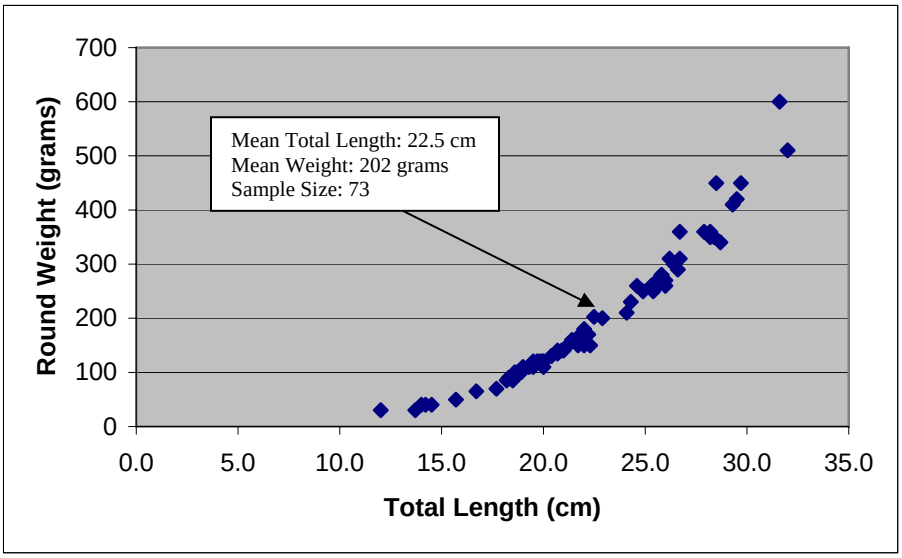
3.7 Black Crappie

Black crappie is a recently introduced species to Whitestone Lake. This survey represents the first occasion to assess its status. Our crappie CPUE-no was remarkably high at 9.4 fish per set (Appendix A). The CPUE-wt was also correspondingly high at 1.865 kg per set. Our reference dataset (Appendix C and D) is of little utility as only four surveys have caught crappie, and one is this survey. Nevertheless, from eight previous netting surveys using 8'-trapnets where black crappie were captured, the CPUE-no averaged 3.2 fish per set for this species. Consequently, we consider our catch of 9.4 to be indicative of a very high abundance for this species.

We randomly size sampled 73 of the 282 black crappie captured in the survey (Appendix F-5 and Figure 12). Mean total length was 22.5 cm (8.75") and mean weight was 202 grams (0.45 lb) (Appendix F-5).

We observed a wide range of size classes, all of which were well represented. Reproduction and recruitment appeared excellent and mortality is not excessive. Black crappie have firmly established themselves as a significant part of the fish community and all indices indicate a healthy and thriving population.

Figure 12. Black Crappie Size Distribution, Whitestone Lake, 2004.



3.8 Non-Game Fish

The CPUE-no for non-game fish was not significantly different from those in our reference dataset (Appendix C and Table 1). We conclude that the abundance of these species on Whitestone Lake is "average" for the Parry Sound Area.

3.9 Results Summary (Report Card)

We prepared a hypothetical 'report card' in which we accord Whitestone Lake an overall grade of B+ (Table 1).

Table 1. Whitestone Lake Fisheries Report Card – 2004.

	Diagnostic Indicator	Whitestone Lk 2004 Survey Value	Reference Value PS 6-'TNS mean	Grade	Comment
General	Over-all Productivity CPUE-wt (all species)	13.800 kg / set	13.088 kg / set	C+	Average productivity levels relative to similarly surveyed Parry Sound Lake. Catch (community) composition dominated by game fish species.
	Game Fish Productivity CPUE-wt	11.179 kg / set	7.027 kg / set	B	
	game fish % of total catch wt.	80.99%	50.48%		
	non-game fish % of total catch wt.	19.01%	49.52%	B+	
Walleye	CPUE-no (# walleye / set)	1.3 walleye / set	1.4 walleye / set	C+	Indices point to a healty and self-sustaining population with average abundance
	CPUE-wt (kg walleye / set)	2.172 kg / set	1.947 kg / set	C+	
	Probability of Capture (POC)	0.533	0.533	C	
	Size Distribution	As per Figure 5		B	
Smallmouth Bass	CPUE-no (# smallmouth / set)	4.0 smallmouth / set	2.6 smallmouth / set	B	High indices of abundance and size distribution is excellent.
	CPUE-wt (kg smallmouth / set)	2.266 kg / set	1.438 kg / set	B	
	Probability of Capture (POC)	0.967	0.634	A	
	Size Distribution	As per Figure 7		A	
Largemouth Bass	CPUE-no (# largemouth / set)	5.6 largemouth / set	1.7 largemouth / set	A+	Very high indices of abundance and size distribution is excellent.
	CPUE-wt (kg largemouth / set)	1.708 kg / set	0.983 kg / set	A	
	Probability of Capture (POC)	0.800	0.398	A+	
	Size Distribution	As per Figure 9		B	
Northern Pike	CPUE-no (# pike / set)	1.4 pike / set	0.9 pike / set	B	Good indices of abundance. Recent recruitment may be low.
	CPUE-wt (kg pike / set)	3.168 kg / set	1.235 kg / set	A	
	Probability of Capture (POC)	0.600	0.438	C+	
	Size Distribution	As per Figure 11		C+	
Black Crappie	CPUE-no (# crappie / set)	9.4 crappie / set	Reference data set has insufficient sample size for comparative purposes	B+	Very high indices of abundance and size distribution is excellent.
	CPUE-wt (kg crappie / set)	1.865 kg / set			
	Probability of Capture (POC)	0.667			
	Size Distribution	As per Figure 12		A	
Non-Game Fish	CPUE-no (# fish / set)	White sucker: 0.9 Br.Bullhead: 1.3 Rock Bass: 2.8 Pumpkinseed: 2.8 Y.Perch: 0.3	Wt. Sucker: 2.0 Br.Bullhead: 10.6 Rock Bass: 4.2 Pumpkinseed: 3.4 Y.Perch: 0.8	C	"Average" indices of abundance.
Over-all Grade: B+. Community appears well balanced with "average" overall productivity. For all game fish, indices of abundance are well above reference values and size distributions are generally excellent.					

4.0 Management Implications and Recommendations:

In 1998, walleye “exception” regulations were implemented on Whitestone Lake. These included: a daily and possession catch limit of 2 walleye, which must be less than 35.6 cm (14”) in total length.

The above regulations were largely based on findings from a *spawning adults index netting project* conducted on the lake in 1996 (McIntyre, 1997). In 2003, the Ministry duplicated this survey in order to compare walleye abundance before and after regulation implementation. Indices of walleye abundance were lower in the 2003 survey, although methodological and environmental factors may have played a significant role in this observation (McIntyre, 2003).

The inconclusive nature of the above surveys prompted the Ministry to conduct this comprehensive Nearshore Community Index Netting (NSCIN) survey. Unfortunately however, we have no pre-treatment (i.e. before regulation change), baseline date from Whitestone Lake with which to make comparisons. We consider data from the 1982 trapnet survey to be somewhat inappropriate as pre-treatment data, because it was collected so far in advance of the regulation change.

Consequently, we have no effective method of evaluating the impact of the 1998 walleye regulation change. Notwithstanding this however, we do know that walleye abundance indices on Whitestone Lake in 2004 are “average” relative to our Parry Sound reference database and is improved over that observed in 1982. Hence, there appears to be no continued need to provide additional harvest protection to this population. We recommend that current walleye “exception” regulation be revoked when new, comprehensive and Region-wide regulations are implemented in 2007.

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6.0 Acknowledgements

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Appendix A. Whitestone Lake -2004, 6'-Trapnet Survey Catch Summary.

Set No	Date Set	Date Lifted	Effort	Catch (number by species) Walleye	SM.Bass	LM.Bass	N.Pike	B.Crappie	CW.Skr.	B.Bllhd'	R.Bass	Pksd'	Y.Perch	Cisco
1	Sep-28	Sep-29	1	1	3	3	2	14	1	1	7	33	3	0
2	Sep-28	Sep-29	1	5	3	1	0	1	0	0	8	0	0	0
3	Sep-28	Sep-29	1	4	6	3	1	59	0	0	3	2	0	0
4	Sep-29	Sep-30	1	3	15	3	0	4	3	0	18	8	0	0
5	Sep-29	Sep-30	1	2	6	1	1	48	0	2	2	0	0	1
6	Sep-30	Oct-01	1	1	5	3	3	8	0	1	5	2	0	0
7	Sep-30	Oct-01	1	1	4	1	0	15	0	0	4	1	0	0
8	Sep-30	Oct-01	1	0	4	0	0	1	0	0	0	1	0	0
9	Oct-04	Oct-05	1	1	2	0	1	5	0	0	2	0	0	2
10	Oct-04	Oct-05	1	0	5	3	3	2	4	1	1	0	0	0
11	Oct-04	Oct-05	1	0	2	4	3	21	2	0	5	2	0	0
12	Oct-04	Oct-05	1	2	2	15	1	13	0	2	6	1	0	0
13	Oct-05	Oct-06	1	0	1	61	4	63	0	25	6	33	7	0
14	Oct-05	Oct-06	1	0	1	4	0	9	0	0	0	0	0	0
15	Oct-05	Oct-06	1	8	1	1	4	4	1	0	0	0	0	0
16	Oct-05	Oct-06	1	4	2	0	0	0	3	0	0	0	0	4
17	Oct-06	Oct-07	1	1	8	3	1	6	5	0	0	1	0	3
18	Oct-06	Oct-07	1	1	2	4	0	3	1	0	0	0	0	1
19	Oct-06	Oct-07	1	0	5	4	2	3	0	0	2	0	0	0
20	Oct-06	Oct-07	1	0	0	0	0	0	0	1	1	0	0	1
21	Oct-07	Oct-08	1	0	3	16	3	1	1	0	0	1	0	0
22	Oct-07	Oct-08	1	0	5	2	0	0	0	0	0	0	0	0
23	Oct-07	Oct-08	1	3	2	5	5	0	4	0	1	0	0	0
24	Oct-07	Oct-08	1	0	6	1	0	0	1	0	1	0	0	0
25	Oct-12	Oct-13	1	0	3	9	0	2	0	3	6	0	0	0
26	Oct-12	Oct-13	1	0	6	20	1	0	1	0	0	0	0	0
27	Oct-12	Oct-13	1	0	6	0	3	0	0	1	0	0	0	0
28	Oct-13	Oct-14	1	1	3	3	2	0	0	0	5	0	0	0
29	Oct-13	Oct-14	1	2	3	2	0	0	0	1	0	0	0	1
30	Oct-13	Oct-14	1	0	5	0	2	0	0	0	0	0	0	0

Total Catch by Species	40	119	172	42	282	27	38	83	85	10	13
CPUE-on (fish / set)	**1.3**	**4.0**	**5.7**	**1.4**	**9.4**	**0.9**	**1.3**	**2.8**	**2.8**	**0.3**	**0.4**
Standard Error	0.347	0.520	2.107	0.274	3.107	0.264	0.830	0.704	1.523	0.251	0.177
% Relative Std. Error	0.267	0.130	0.370	0.196	0.331	0.293	0.638	0.251	0.543	0.837	0.443
Standard Deviation	1.900	2.846	11.540	1.499	17.020	1.447	4.548	3.857	8.342	1.373	0.971
Confidence Level(95.0%)	0.709	1.063	4.309	0.560	6.356	0.540	1.698	1.440	3.115	0.513	0.363
Skewness	1.941	2.026	4.128	0.765	2.424	1.650	5.236	2.327	3.473	4.486	2.619
Median	1	3	3	1	2.5	0	0	1	0	0	0
Count	30	30	30	30	30	30	30	30	30	30	30
Probability of Capture	**0.533**	**0.967**	**0.800**	**0.600**	**0.667**	**0.400**	**0.333**	**0.600**	**0.367**	**0.067**	**0.233**
Mean Weight (g)	1628.8	571.1	297.8	2262.5	198.4	1560.0	381.3	105.2	80.0	118.0	413.1
CPUE-wt	**2.172**	**2.266**	**1.708**	**3.168**	**1.865**	**1.404**	**0.483**	**0.291**	**0.227**	**0.039**	**0.179**
Catch Weight (kg)	65.150	67.965	51.230	95.025	55.949	42.120	14.489	8.732	6.800	1.180	5.370
% of total catch weight	15.74	16.42	12.37	22.95	13.51	10.17	3.50	2.11	1.64	0.28	1.30
Total Catch Weight (kg):	**414.010**										
All Species CPUE-wt (kg/set) :		**13.800**									

Appendix B. Species Percentage of Total Catch Weight for 6'-Trapnet Surveys Conducted in the Parry Sound Area, 1982 – 2004.

Survey Year	No. Sets	Tot Catch Wt. (kg.)	% game	% non-game	% of total Catch Weight										
					Wal.	SMBass	LMBass	Bl.Cp.	Pike	Y.Prch	CWS	B.Bllhd.	R.Bass	Pksd'	Other
Ahmic ('83)	17	168.230	71.84	28.16	50.96	16.10			4.78	0.30	10.91	8.40		7.39	1.06
Ahmic ('87)	15	172.228	88.82	11.18	70.10	13.58			5.14		1.78	7.44		1.97	
Bear ('86)	8	66.064	32.00	68.00	0.00	3.14			28.86	0.37	31.35	7.83	26.34	2.11	
Cecebe ('83)	14	33.802	34.94	65.06	19.71	15.23			0.00	8.61	44.97	0.70		10.74	
Doe ('82)	11	57.372	56.64	43.36	15.63	28.40			12.61	0.60	17.38	13.61		11.45	0.32
Doe ('88)	12	233.511	45.83	54.17	14.87	18.70			12.26	1.82	8.00	31.84	2.45	10.05	
Harris Lk ('94)	11	354.487	35.53	64.47	8.63	5.73	11.18		9.99		43.00	19.13	0.75	1.59	
Healey Lk ('83)	12	70.896	38.97	61.03		4.72	29.72		4.53	0.35	24.31	0.00	27.05	9.31	
Kapikog Lk ('83)	5	18.659	69.37	30.63		4.53	64.84		0.00	6.84			7.88	15.92	
Manitouwabing ('82)	9	79.160	25.63	74.37	8.84	0.00	2.18		13.90	0.71	14.27	0.00	7.45	2.12	50.53
Manitouwabing ('88)	24	782.798	23.36	76.64	7.63	7.80	1.76		5.97	0.20	1.24	72.08	2.01	1.31	
Moon R. ('85)	80	251.629	52.01	47.99	21.44	11.02	0.00	0.00	19.55	0.21	13.50	0.00	9.49	3.52	21.27
S. Mag. R. ('94)	16	150.166	50.52	49.48	14.04	17.56	5.63		13.29		26.62	10.26	2.34	8.83	1.42
U. Pickkerel R ('89)	28	207.890	42.61	57.39	12.01	14.81	6.00		9.79		14.09	8.28	4.44	6.23	
Whitestone Lk ('82)	12	30.156	81.34	18.66	21.36	11.32	0.00		48.66	0.57	12.35	0.60	3.51	1.59	
Manitouwabing ('04)*	30	1435.578	15.60	84.40	6.02	2.84	1.06		5.68	0.00	6.34	74.31	2.51	0.01	1.09
Salmon Lk ('04)	16	92.170	79.62	20.38		79.62	13.23		3.15						
Shebeshekong ('04)	16	340.100	33.48	66.52	4.98	9.96	4.63	11.33	2.58		30.89	34.55	0.85	0.23	
Whitestone ('04)	30	414.010	80.99	19.01	15.74	16.42	12.37	13.51	22.95	0.28	10.17	3.50	2.11	1.64	1.30
Mean			50.48	49.52	18.25	14.81	11.74	8.28	11.77	1.60	18.30	17.21	7.08	5.33	11.00
Standard Error			5.112	5.112	4.479	3.937	4.966	4.188	2.706	0.770	3.198	5.693	2.332	1.117	7.180
Standard Deviation			22.282	22.282	17.915	17.162	17.906	7.253	11.797	2.776	13.188	23.474	8.727	4.738	18.996
Confidence Level(95.0%)			10.740	10.740	9.546	8.272	10.820	18.018	5.686	1.677	6.780	12.069	5.039	2.356	17.568
Median			45.83	54.17	14.455	11.32	5.63	11.33	9.79	0.37	14.09	8.28	3.01	2.82	1.3
Count			19	19	16	19	13	3	19	13	17	17	14	18	7

Appendix C. Species Catch-Per-Unit-Effort by number (CPUE-no) for the Parry Sound Area 6'-Trapnet Survey Database.

	Catch-Per-Unit-Effort (CPUE)										
Survey	Wal	SMB	LMB	Bl.Cp.	NP	CWS	BBr	RB	Pksd	Y.Perch	Other
Ahmic Lk ('83)	2.4	3.5			0.2	2.6	3.6		6.7	1.7	0.1
Ahmic Lk ('87)	3.6	2.5			0.5	0.2	4.1		2	0.4	
Bear Lk ('86)	0.0	0.4			1.5	3.9	3.3	18.1	4.3	0.5	
Cecebe Lk ('83)	1.2	0.8			0.0	1.4	0.1		2.4	2.3	
Cecebe Lk ('89)	2.5	5.1			1.0	1.5	2.5	1.6	10.5	0.6	
Doe Lk ('82)	0.9	2.2			0.7	0.9	2.9	0.0	4.1	0.1	0.1
Doe Lk ('88)	3.5	6.2			1.5	1.3	18.8	2.1	11.5	1.4	
Harris Lk ('94)	1.4	2.5	4.8		2.8	13.5	31.5	1.3	4.6	0.0	
Healey Lk ('83)		0.9	2.4		0.2	0.7	0.0	6.9	3.0	0.1	
Kapikog ('83)		1.0	4.6		0.0		0.0	4.2	5.4	4.4	0.2
Manitouwabing ('82)	0.6	0.0	0.1		1.2	0.1	0.0	5.0	1.6	0.4	0.6
Manitouwabing ('88)	1.8	2.7	0.3		1.7	0.3	49.9	5.2	1.8	0.5	
Mill Lk ('90)	0.1	2.4		0.3	0.4	0.4	0.8	1.0	0.1		
Portage Lk ('86)	0.0	0.0	2.0		1.5	3.9	3.3	18.1	4.3	0.5	
S. Magnetawan R ('94)	1.2	3.6	0.8		1.2	2.6	2.8	2.9	4.9		0.1
U. Moon R. ('85)	1.0	1.2	0.0	0.0	0.4	0.5	0.0	2.2	1.0	0.1	0.2
U. Pickerel R. ('89)	1.1	2.9	0.9		0.4	1.0	1.5	2.4	2.9		0.7
Whiteston Lk ('82)	0.9	0.6	0.0		1.8	0.3	0.1	0.8	0.5	0.3	
Wahwashkesh Lk ('87)	0.2	4.4	0.0		0.6	0.2	0.7	3.9	0.8	0.0	
Manitouwabing ('04)	2.5	1.7	0.5		1.9	1.9	82.0	3.0	2.0	0.0	0.4
Salmon Lk ('04)		7.2	3.1		0.1	0.4	0.1	0.6	0.3		
Shebeshekong ('04)	1.3	2.9	1.1	8.4	0.6	4.4	34.9	1.3	0.5		
Whitestone Lk ('04)	1.3	4.0	5.6	9.4	1.4	0.9	1.3	2.8	2.8	0.3	0.4
Mean	1.4	2.6	1.7	4.5	0.9	2.0	10.6	4.2	3.4	0.8	0.3
Standard Error	0.237	0.401	0.498	2.535	0.153	0.616	4.279	1.133	0.626	0.261	0.075
Standard Deviation	1.060	1.925	1.931	5.070	0.736	2.890	20.521	5.069	3.000	1.108	0.226
Confidence Level(95.0%)	0.496	0.833	1.069	8.067	0.318	1.281	8.874	2.372	1.297	0.551	0.174
Median	1.2	2.5	0.9	4.35	0.7	0.95	2.5	2.6	2.8	0.4	0.2
Count	20	23	15	4	23	22	23	20	23	18	9

Appendix D. Species Catch-Per-Unit-Effort by weight (CPUE-wt) for the Parry Sound Area 6'-Trapnet Survey Database

Survey & Year	No. Sets	CPUE-wt (kg. per net set) Wal	SMB	LMB	Bl.Cp.	NP	CWS	BBr	RB	Pksd	Y.Prch	Other	**All**
Ahmic ('83)	17	5.043	1.592			0.473	1.080	0.833		0.728	0.039		**9.788**
Ahmic ('87)	15	8.049	1.559			0.590	0.204	0.854		0.226			**11.482**
Bear ('86)	8	0.000	0.260			2.384	2.589	0.647	2.103	0.174	0.031		**8.258**
Cecebe ('83)	14	0.476	0.368			0.000	1.086	0.018		0.259	0.208		**2.414**
Doe ('82)	11	0.815	1.481			0.657	0.906	0.710		0.597	0.031		**5.216**
Doe ('88)	12	2.895	3.638			2.387	1.558	6.196	0.477	1.955	0.354		**19.459**
Healey Lk ('83)	20		0.167	1.054		0.161	0.862	0.000	0.959	0.330	0.000		**3.545**
Harris Lk ('94)	11	2.782	1.845	3.604		3.218	13.858	6.165	0.242	0.511			**32.225**
Kapikog Lk ('83)	5		0.169	2.420		0.000		0.000	0.294	0.549	0.255		**3.732**
Manitouwabing ('82)	9	0.778	0.000	0.192		1.222	1.256	0.000	0.655	0.187	0.062	4.444	**8.796**
Manitouwabing ('88)	24	2.488	2.543	0.575		1.945	0.404	23.511	0.656	0.429	0.064		**32.615**
Moon R. ('85)	80	0.674	0.347	0.000	0.000	0.615	0.425	0.000	0.298	0.111	0.006	0.669	**3.145**
S. Mag. R. ('94)	16	1.318	1.648	0.529		1.247	2.498	0.963	0.220	0.829		0.133	**9.385**
U Pickerel R ('89)	28	0.891	1.099	0.446		0.727	1.046	0.615	0.330	0.463		1.807	**7.424**
Whitestone Lk ('82)	12	0.537	0.285	0.000		1.223	0.313	0.015	0.088	0.040	0.014		**2.515**
Wahwashkesh ('87)	32	0.233											
Manitouwabing ('04)*	30	2.883	1.359	0.510		2.717	3.033	35.559	1.201	0.070	0.000	0.520	**47.852**
Salmon Lk ('04)	16		4.587	0.762		0.181	0.174	0.120	0.033	0.011			**5.761**
Shebeshekong ('04)	16	1.057	2.116	0.983	2.408	0.548	6.566	7.344	0.183	0.049			**21.254**
Whitestone ('04)	30	2.172	2.266	1.708	1.865	3.168	1.404	0.483	0.291	0.227	0.039	0.179	**13.800**
Mean		**1.947**	**1.438**	**0.983**	**1.424**	**1.235**	**2.181**	**4.423**	**0.535**	**0.408**	**0.085**	**1.292**	**13.088**
Standard Error		0.497	0.285	0.288	0.729	0.246	0.774	2.149	0.140	0.102	0.031	0.677	2.853
Standard Deviation		2.048	1.244	1.039	1.263	1.074	3.282	9.368	0.541	0.445	0.113	1.659	12.436
Confidence Level(95.0%)		1.053	0.599	0.628	3.138	0.518	1.632	4.515	0.299	0.214	0.068	1.741	5.994
Median		1.057	1.481	0.575	1.865	0.727	1.083	0.647	0.298	0.259	0.039	0.5945	8.796
Count		17	19	13	3	19	18	19	15	19	13	6	19

Appendix E. Species Probability of Capture (POC) for Lakes in the Parry Sound Area 6'-Trapnet Survey Database, 1982 – 2004

Survey	No. Sets	Wal	SMB	LMB	NP	B.Cp.	CWS	BBr	RB	Pksd	Y.Perch	Other
Ahmic ('83)	17	0.529	0.529		0.176		0.706	0.176		0.529	0.471	
Ahmic ('87)	15	0.867	0.800		0.400		0.200	0.600		0.533	0.267	
Bear ('86)	8	0.000	0.250		0.500		0.750	0.625	1.000	0.875	0.375	
Cecebe ('83)	14	0.643	0.429		0.000		0.429	0.071		0.357	0.571	
Cecebe ('89)	30	0.633	0.700		0.400		0.433	0.533	0.466	0.733	0.333	
Doe ('82)	11	0.545	0.818		0.364		0.455	0.182		0.636	0.090	0.090
Doe ('88)	12	1.000	0.917		0.583		0.583	0.833	0.667	0.917	0.333	
Harris Lk ('94)	11	0.545	0.545	0.727	0.818		0.909	0.909	0.364	0.909		
Healey Lk ('83)	20		0.600	0.500	0.200		0.200	0.000	0.500	0.700	0.050	
Kapikog Lk ('83)	5		0.800	0.400	0.000			0.000	1.000	0.800	0.800	
Manitouwabing ('82)	9	0.333	0.000	0.111	0.666		0.111	0.000	0.666	0.666	0.444	0.111
Manitouwabing ('88)	24	0.417	0.583	0.208	0.625		0.250	0.845	0.833	0.416	0.208	
S. Mag. R. ('94)	16	0.563	0.688	0.375	0.688		0.625	0.500	0.813	0.625		0.063
U Pickerel R ('89)	28	0.464	0.643	0.288	0.321		0.357	0.107	0.357	0.429		0.429
Whitestone Lk ('82)	12	0.417	0.25	0.000	0.75		0.167	0.083	0.25	0.083	0.167	
Wahwashkesh ('87)	32	0.156	0.844	0.031	0.438		0.125	0.25	0.594	0.25	0.000	
Manitouwabing ('04)*	30	0.723	0.500	0.233	0.733		0.600	0.967	0.800	0.167	0.000	0.233
Salmon Lk ('04)	16		0.875	0.937	0.063		0.063	0.063	0.250	0.125		
Shebeshekong ('04)	16	0.687	0.937	0.562	0.437	1.000	0.750	0.937	0.437	0.312		
Whitestone Lake ('04)	30	0.533	0.967	0.800	0.600	0.667	0.400	0.333	0.600	0.367	0.067	0.233
Mean		**0.533**	**0.634**	**0.398**	**0.438**	**0.834**	**0.427**	**0.401**	**0.600**	**0.521**	**0.278**	**0.193**
Standard Error		0.058	0.058	0.082	0.056	0.167	0.058	0.079	0.061	0.058	0.059	0.056
Standard Deviation		0.239	0.258	0.296	0.251	0.235	0.252	0.354	0.243	0.261	0.230	0.136
Confidence Level(95.0%)		0.123	0.121	0.179	0.118	2.116	0.122	0.166	0.129	0.122	0.128	0.143
Median		0.545	0.666	0.375	0.438	0.834	0.429	0.292	0.597	0.531	0.267	0.172
Count		17	20	13	20	2	19	20	16	20	15	6

Appendix F-1. Walleye Biosampling Data – Whitestone Lake, 2004.

Set No.	Fish No.	Fk. Lg. (cm)	Tot. Lg. (cm)	Weight (grams)
1	1	53.4	49.9	1400
2	2	72.0	75.0	4000
2	3	35.6	38.0	600
2	4	42.4	45.1	800
2	5	41.0	43.8	700
2	6	53.2	56.5	1600
3	7	47.0	50.3	1150
3	8	31.4	33.5	310
3	9	44.5	47.3	1000
3	10	56.0	58.2	1850
4	11	64.4	66.6	3000
4	12	31.5	33.3	280
4	13	61.5	64.5	2900
5	14	55.2	58.7	1800
5	15	56.1	59.0	2000
6	16	31.5	33.1	310
7	17	49.1	52.3	1400
9	18	54.0	57.3	1700
12	19	46.4	49.4	1300
12	20	49.2	52.0	1200
15	21	57.5	60.6	2300
15	22	49.7	53.2	1500
15	23	56.0	59.3	1900
15	24	57.5	61.5	2000
15	25	66.4	70.6	3500
15	26	66.1	49.0	1000
15	27	36.7	38.8	500
15	28	25.3	26.8	150
16	29	45.7	48.5	1000
16	30	50.6	54.1	1600
16	31	43.0	46.0	800
16	32	54.8	58.0	2000
17	33	47.5	50.5	1200
18	34	61.0	64.8	2800
23	35	61.5	64.7	3100
23	36	36.9	39.0	400
23	37	52.0	55.3	1600
28	38	65.6	69.0	3500
29	39	70.3	73.5	4100
29	40	45.0	47.8	900
Mean		50.6	52.9	1628.75
Standard Error		1.799	1.825	165.822
Standard Deviation		11.376	11.539	1048.748
Confidence Level (95.0%)		3.638	3.690	335.406
Median		51.3	52.75	1450
Sum				65150
Count		40	40	40

Appendix F-2. Smallmouth Bass Biosampling Data

Fk. Lg. (cm)	Tot. Lg. (cm)	Weight (grams)	Fk. Lg. (cm)	Tot. Lg. (cm)	Weight (grams)	Fk. Lg. (cm)	Tot. Lg. (cm)	Weight (grams)
20.4	21.6	130	27.8	29.4	320	27.9	30.0	400
20.0	21.1	175	19.6	20.5	110	32.4	34.4	600
17.1	17.9	75	21.3	22.7	140	33.5	35.4	600
42.0	45.0	1500	16.9	17.7	70	31.8	33.3	600
34.0	36.4	700	19.0	20.1	95	33.9	36.2	600
17.6	18.6	80	37.7	40.1	1000	42.1	45.9	1400
36.5	39.4	800	26.5	28.1	320	32.3	34.4	520
34.6	36.4	750	37.4	40.0	1000	24.0	25.4	215
34.3	36.5	750	42.2	45.4	1200	17.2	18.3	80
30.0	31.7	440	36.2	38.7	700	25.4	26.8	250
34.4	36.1	600	35.0	37.1	800	20.8	21.8	120
33.1	35.1	600	43.2	46.3	1500	34.5	36.5	700
19.8	21.1	130	20.3	21.5	140	31.8	34.0	600
20.2	21.3	180	42.9	45.1	1600	20.4	21.6	140
26.0	27.5	300	37.3	39.9	900	30.0	31.9	600
24.4	25.5	250	31.2	33.1	550	32.6	34.4	600
24.5	26.0	260	31.6	33.9	600	36.7	39.0	900
17.7	18.6	100	28.1	30.4	300	32.5	34.6	650
31.7	33.5	600	18.3	19.2	110	32.4	34.5	650
39.7	42.3	1100	34.5	37.1	700	16.0	16.9	60
18.4	19.5	100	37.4	40.0	1000	33.6	35.5	650
21.9	23.2	170	23.2	24.7	250	33.7	36.0	750
19.3	20.4	110	22.8	24.0	170	46.7	48.8	1800
19.0	20.1	100	36.0	38.4	700	35.1	37.5	800
19.4	20.3	120	37.5	40.0	900	26.1	27.7	350
19.2	20.2	120	24.2	25.6	220	35.6	38.1	900
18.9	19.8	100	25.0	26.5	270	34.8	37.2	800
30.3	32.3	510	33.8	36.0	700	35.3	37.7	700
39.2	41.8	1200	34.0	36.2	700	31.7	33.5	600
17.7	18.6	100	47.0	49.8	2000	36.5	38.9	800
18.8	19.7	100	41.5	44.3	1600	27.8	29.4	400
18.2	19.2	100	30.4	32.0	500	32.4	34.4	600
19.0	20.0	110	30.2	32.1	420	30.0	32.3	500
16.7	17.5	65	35.7	38.3	800	34.8	37.2	700
39.0	41.7	1100	25.4	27.0	280	23.5	24.8	200
33.9	34.8	750	23.1	24.6	200	39.7	42.3	1100
39.1	41.6	1050	37.9	40.3	900	39.2	41.5	1000
46.2	49.1	1750	27.7	28.8	400	36.4	39.2	800
28.3	29.7	330	24.6	26.0	210	35.6	37.9	900
31.2	33.5	600	36.4	38.9	850			

Mean	29.8	31.7	571.1
Standard Error	0.730	0.785	39.173
Standard Deviation	7.962	8.567	427.323
Confidence Level (95%)	1.445	1.555	77.572
Median	31.7	33.5	600
Sum			67965
Sample Size	119	119	119

Appendix F-3. Largemouth Bass Biosampling Data

Fk. Lg. (mm)	Tot. Lg. (mm)	Weight (grams)	Fk. Lg. (mm)	Tot. Lg. (mm)	Weight (grams)	Fk. Lg. (mm)	Tot. Lg. (mm)	Weight (grams)	Fk. Lg. (mm)	Tot. Lg. (mm)	Weight (grams)
34.8	36.0	700	16.5	17.1	60	16.5	17.1	70	28.3	29.8	450
16.3	17.1	65	17.0	17.7	60	16.5	17.1	70	34.8	36.2	800
16.0	16.8	60	42.0	43.9	1600	16.5	17.1	70	37.0	38.4	1000
30.2	31.4	500	24.2	25.3	250	16.5	17.1	70	24.2	25.5	300
17.5	18.4	80	23.4	24.4	200	16.5	17.1	70	19.6	20.5	120
16.8	17.4	70	40.9	42.6	1400	16.5	17.1	70	33.5	35.4	650
17.1	17.6	80	24.1	25.3	220	16.5	17.1	70	24.5	25.8	230
23.2	24.2	200	27.5	28.7	360	16.5	17.1	70	30.2	31.5	500
28.5	29.4	380	39.4	41.0	1150	16.5	17.1	70	40.9	42.5	1400
23.5	24.5	220	23.1	24.2	190	16.5	17.1	70	30.8	32.3	500
26.5	27.7	400	37.8	39.4	1000	16.5	17.1	70	25.5	26.4	270
26.1	27.2	300	26.6	27.7	400	16.5	17.1	70	16.5	17.1	60
17.8	18.8	85	33.4	34.9	650	16.5	17.1	70	30.8	32.3	500
17.9	18.6	85	17.0	17.8	80	16.5	17.1	70	25.5	26.4	270
24.5	25.4	250	41.1	42.8	1500	16.5	17.1	70	17.6	18.4	100
26.2	27.3	310	23.0	24.1	200	16.5	17.1	70	15.5	16.0	60
28.4	29.7	380	26.0	27.2	280	16.5	17.1	70	16.0	16.7	60
23.2	24.2	200	30.4	31.5	460	16.5	17.1	70	17.1	17.7	70
25.0	26.1	240	46.6	48.9	1950	16.5	17.1	70	15.5	16.2	60
27.5	28.6	350	32.1	33.9	600	16.5	17.1	70	18.2	19.2	100
25.7	26.7	270	33.3	34.8	700	16.5	17.1	70	15.6	16.3	60
23.1	24.2	200	25.0	26.3	280	16.5	17.1	70	15.6	16.2	60
41.0	42.8	1500	26.5	28.0	320	16.5	17.1	70	14.8	15.4	55
34.8	36.3	800	28.8	29.8	700	16.5	17.1	70	37.6	39.4	1000
24.9	25.9	250	14.8	15.6	50	16.5	17.1	70	40.9	42.7	1400
24.3	25.4	240	15.7	16.5	60	16.5	17.1	70	18.0	18.7	100
43.5	45.4	1700	42.8	44.6	1700	16.5	17.1	70	25.7	26.8	300
34.9	36.3	800	15.9	16.6	60	16.5	17.1	70	31.1	32.3	500
24.4	25.4	230	16.1	16.8	60	16.5	17.1	70	14.1	15.0	65
32.5	33.9	600	19.2	20.0	110	16.5	17.1	70	19.3	20.2	90
26.0	27.4	280	18.0	18.7	100	16.5	17.1	70	16.6	17.3	70
30.1	31.0	500	17.2	17.8	85	16.5	17.1	70	16.3	16.9	70
28.7	29.7	400	16.2	17.1	65	16.5	17.1	70	18.0	18.7	95
24.9	26.1	270	15.6	16.2	60	16.5	17.1	70	15.6	16.3	60
32.6	34.0	600	17.4	18.2	75	16.5	17.1	70	16.2	17.1	60
31.0	32.3	700	17.9	18.7	100	16.5	17.1	70	15.8	16.6	60
25.5	26.5	260	17.4	18.2	100	16.5	17.1	70	31.4	32.5	600
22.0	22.7	170	17.3	18.0	100	16.5	17.1	70	32.5	33.8	600
33.0	34.4	600	16.4	17.1	65	16.5	17.1	70	30.6	32.0	1300
16.8	17.7	70	15.6	16.4	60	16.5	17.1	70	27.2	28.4	350
27.2	29.3	350	18.4	19.1	100	16.5	17.1	70	16.5	17.1	70
19.6	20.2	120	15.2	15.9	60	16.5	17.1	70	16.5	17.1	70
17.3	18.0	70	16.2	16.7	60	16.5	17.1	70	16.5	17.1	70

Mean	22.5	23.5	297.8
Standard Error	0.597	0.625	29.563
Standard Deviation	7.831	8.193	387.710
Confidence Level(95.0%)	1.179	1.233	58.355
Median	17.85	18.65	97.5
Sum			51230
Count	172	172	172

Appendix F-4. Northern Pike Biosampling Data

	Fk. Lg. (cm)	Tot. Lg. (cm)	Weight (grams)
	74.5	81.2	5700
	67.9	70.9	2500
	92.5	102.0	7250
	56.0	59.5	1500
	47.8	50.9	750
	55.5	59.0	1350
	34.9	37.2	300
	38.6	41.3	425
	55.0	59.0	1300
	50.2	53.2	900
	80.0	82.4	4000
	53.4	56.7	1100
	51.6	54.8	1050
	57.5	61.2	1400
	47.6	50.7	900
	72.0	75.8	3600
	72.6	76.5	3400
	63.7	68.0	2200
	60.5	64.4	1700
	83.0	88.0	5600
	37.7	40.0	500
	55.4	58.9	1400
	81.0	85.0	4600
	85.0	88.2	4600
	79.0	82.6	4000
	60.6	64.6	1900
	77.5	82.0	4200
	66.9	71.2	2800
	60.8	64.4	1600
	55.3	59.0	1300
	61.9	65.6	2200
	51.5	54.6	1200
	74.9	78.9	4300
	53.0	56.4	1100
	53.8	56.7	1200
	60.3	64.5	1800
	51.8	54.8	1050
	54.1	57.9	1050
	60.8	64.6	1500
	69.8	73.5	2800
	65.1	69.0	2100
	50.5	53.6	900
Mean	61.5	65.2	2262.5
Standard Error	2.041	2.157	253.262
Standard Deviation	13.229	13.980	1641.323
Confidence Level(95.0%)	4.123	4.356	511.472
Median	60.4	64.4	1550
Sum			95025
Count	42	42	42

Appendix F-5. Black Crappie Biosampling Data

Fk. Lg. (cm)	Tot. Lg. (cm)	Weight (grams)	Fk. Lg. (cm)	Tot. Lg. (cm)	Weight (grams)
26.5	27.9	360	20.0	20.9	140
24.8	25.8	280	25.7	26.7	310
11.5	12.0	30	24.7	26.0	260
19.0	20.0	120	24.7	25.6	260
19.9	20.7	140	24.3	25.4	250
17.5	18.2	85	24.2	25.3	260
16.0	16.7	65	18.4	19.3	110
16.9	17.7	70	24.4	25.6	270
27.1	28.2	360	27.1	28.4	350
28.6	29.7	450	17.9	18.8	100
21.4	22.2	170	21.2	22.0	180
25.7	26.7	360	17.7	18.7	100
27.2	28.5	450	18.8	19.5	115
13.5	14.2	40	23.3	24.3	230
27.6	28.7	340	25.1	26.2	310
20.8	21.7	150	26.8	28.2	350
23.9	24.9	250	21.9	22.9	200
24.6	25.9	270	24.4	25.6	270
20.5	21.4	160	19.0	19.7	120
27.8	29.3	410	21.1	22.1	170
24.9	26.0	270	31.0	32.0	510
19.0	19.9	120	25.0	25.8	280
13.2	13.7	30	15.2	15.7	50
18.7	19.8	120	18.7	19.5	110
20.6	21.7	165	25.4	26.6	290
20.3	21.2	150	30.4	31.6	600
24.8	25.7	265	25.3	26.4	300
23.5	24.6	260	17.6	18.5	85
20.9	22.0	150	21.5	22.3	150
19.4	20.4	130	17.6	18.5	90
28.5	29.5	420	17.8	18.6	100
23.0	24.1	210	18.0	18.9	100
13.2	14.0	40	17.5	18.3	90
13.9	14.5	40	18.5	19.5	120
19.0	20.0	110	19.0	20.0	120
20.0	21.0	140	18.2	19.0	110
19.5	20.7	135			
		Mean	21.5	22.5	202.4
		Standard Error	0.510	0.528	14.531
		Standard Deviation	4.354	4.510	124.150
		Confidence Level (95.0%)	1.016	1.052	28.966
		Sample Size	73	73	73

Appendix F-6 Non-Game Fish Biosampling Data.

Common White Sucker:	Fk. Lg. (cm)	Tot. Lg. (cm)	Weight (grams)	Fk. Lg. (cm)	Tot. Lg. (cm)	Weight (grams)
	26.7	28.7	240	43.5	46.3	1350
	5202.0	56.2	2100	36.5	39.2	700
	49.0	53.0	1800	30.1	32.0	360
	49.4	52.8	1800	50.5	54.1	1800
	34.9	37.1	550	47.0	51.0	1600
	45.1	47.9	1500	49.3	52.2	1750
	51.6	55.9	2000	50.2	53.8	1800
	46.5	49.6	1400	44.0	47.0	1400
	50.7	54.1	1900	49.2	54.2	1900
	48.5	51.9	1900	48.5	52.0	1650
	51.5	55.1	2300	49.4	52.9	2220
	47.5	50.4	1600	49.0	52.8	1700
	45.0	48.0	1500	45.3	48.2	1300
	50.5	54.1	2000			
		Mean		236.7	49.3	1560.0
		Standard Error		190.976	1.366	102.798
		Standard Deviation		992.342	7.097	534.156
		Confidence Level(95.0%)		392.558	2.808	211.305
		Sum				42120
		Count		27	27	27

Brown Bullhead	Tot. Lg. (cm)	Weight (grams)	Tot. Lg. (cm)	Weight (grams)
	26.3	230	32.5	600
	34.3	600	32.6	600
	34.1	550	28.2	400
	23.8	220	30.5	450
	31.2	500	24.0	200
	34.4	500	29.6	400
	22.1	150	27.3	270
	31.5	500	26.0	250
	18.9	100	26.2	250
	28.5	375	28.6	340
	29.5	390	27.3	320
	25.4	240	24.2	240
	30.3	450	34.6	700
	30.8	400	27.3	450
		Mean	28.6	381.3
		Standard Error	0.750	29.045
		Standard Deviation	3.968	153.693
		Confidence Level(95.0%)	1.539	59.596
		Count	28	28

Rock Bass

Fk. Lg. (cm)	Tot. Lg. (cm)	Weight (grams)	Fk. Lg. (cm)	Tot. Lg. (cm)	Weight (grams)	Fk. Lg. (cm)	Tot. Lg. (cm)	Weight (grams)
14.8	15.4	75	15.3	15.6	80	150.0	15.3	80
16.4	17.1	100	17.8	18.4	150	15.7	16.4	90
11.6	12.1	40	17.6	18.3	150	18.7	19.5	150
17.9	18.5	115	24.5	25.3	350	14.9	155.0	80
14.5	15.1	65	16.4	16.9	100	12.0	12.5	50
16.7	17.1	100	17.8	18.6	130	18.0	18.7	140
16.7	17.2	100	14.4	15.1	65	18.1	18.5	130
14.3	14.7	60	17.1	17.8	110	19.8	20.5	185
16.3	16.7	90	16.1	16.6	75	15.0	15.4	70
14.0	14.4	60	17.0	17.6	100	18.5	19.3	160
16.7	17.3	100	18.6	19.1	140	14.9	15.3	60
15.6	16.2	90	17.8	18.3	120	15.7	16.1	80
12.8	13.2	40	18.3	18.8	140	16.7	17.3	90
18.0	18.6	140	18.6	19.3	140	21.7	22.5	240
13.6	14.1	50	12.5	13.0	50	15.1	15.5	80
13.2	13.6	50	17.4	18.0	100	18.3	19.0	115
10.2	10.7	20	13.3	13.8	40	17.3	17.8	100
13.2	13.4	40	16.5	17.1	100	15.4	16.0	70
15.6	16.2	70	21.4	23.2	220	21.7	22.3	210
10.3	10.7	30	17.3	17.9	130	11.0	11.4	30
13.8	14.4	60	19.5	20.3	150	17.6	18.2	120
15.4	15.8	80	14.1	14.5	60	24.0	24.6	340
11.7	12.2	40	18.1	19.0	130	14.3	14.7	60
18.7	19.2	150	16.2	16.8	120	13.2	13.6	60
17.2	17.8	110	19.4	20.1	170			

Rock Bass			
Mean	18.1	18.7	105.2
Standard Error	1.837	1.898	7.076
Standard Deviation	15.800	16.327	60.869
Confidence Level(95.0%)	3.660	3.783	14.102
Count	74	74	74

Pumkinseed	Fk. Lg. (cm)	Tot. Lg. (cm)	Weight (grams	Fk. Lg. (cm)	Tot. Lg. (cm)	Weight (grams
	15.4	16.3	90	14.4	15.2	70
	13.8	14.7	65	13	13.6	60
	12.5	13	40	15.6	16.3	90
	14.5	15.3	70	19.1	19.7	170
	13.7	14.4	60	16.4	17.4	110
	12.9	13.6	50	11.5	12.1	40
	13	13.8	50	19.3	20.3	190
	11.9	12.6	50	13.5	14.2	50
	16.6	17.4	110	13.7	15.2	60
	13.6	14.4	70	17.2	17.9	130
	14.8	15.7	100	13.4	13.6	60
	12.7	13.6	50	12.3	13	50
	10.7	11.3	40	12.7	14	60
	10.3	10.9	25	17.4	18.4	130
	15.2	16	90	19.2	20.2	190
	13.2	14	60	12.1	12.9	40
	14.5	15.3	100	16.3	17.1	110
	14.1	14.6	80	13.8	14.5	60
	12.6	13.5	60	13.7	14.5	60
	17.7	18.8	150	13.4	14.1	60

Mean	14.2925	15.085	80
Standard Error	0.35169	0.36333	6.472328
Standard Deviation	2.22427	2.29789	40.93459
Confidence Level(95.0%)	0.71136	0.7349	13.09151
Sum			3200
Count	40	40	40

Yellow Perch	Set No.	Fish No.	Fk. Lg. (cm)	Tot. Lg. (cm)	Weight (grams)
	1	1	16.9	17.9	70
			15.7	16.7	50
			15.6	16.4	50
	13	1	17.5	18.6	70
			27.5	28.9	260
			19.5	20.5	90
			20.5	22	120
			17.3	18.2	70
			27.3	28.4	300
			19.6	20.6	100
	Mean		19.7	20.8	118.0
	Standard Error		1.376	1.419	28.000
	Standard Deviation		4.353	4.486	88.544
	Confidence Level(95.0%)		3.114	3.209	63.340
	Sum				1180
	Count		10	10	10

Cisco	Set No.	Fish No.	Fk. Lg. (cm)	Tot. Lg. (cm)	Weight (grams
	5	1	30.80	34.00	450
	9	1	35.20	38.60	600
			350.00	38.70	700
	16	1	33.30	36.90	520
			32.80	36.20	600
			26.60	30.20	250
			24.50	27.60	200
	17	1	38.50	42.70	1000
			26.00	29.00	220
			22.00	24.60	130
	18	1	21.60	24.40	140
	20	1	28.10	31.90	310
	29	1	26.60	29.80	250
	Mean		53.5	32.7	413.1
	Standard Error		24.745	1.585	72.088
	Standard Deviation		89.220	5.715	259.916
	Confidence Level (95.0%)		53.915	3.453	157.066
	Median		28.1	31.9	310
	Sum				5370
	Count		13	13	13