ONTARIO
Ministry of Natural Resources

Crane Lake
2005 Trapnet Survey Report

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Executive Summary:

In August of 2005, a netting survey using 8'-trapnets was conducted on Crane Lake. This survey partially duplicated similar surveys conducted in 1993 and 1997 on the lake and was primarily intended to ascertain the status of the walleye population relative to these previous studies. A secondary purpose of the study was to assess the over-all status of the near-shore fish community.

Over-all fish productivity as measured by *Catch-Per-Unit-Effort-by-weight* (CPUE-wt) was "approximately average", relative to other Parry Sound Area lakes similarly surveyed since 1994. It was also very similar to those observed in 1997 and 1993 on Crane Lake.

Our catch was dominated by smallmouth bass (68.7% of total catch weight) and walleye (27.9%). All other species combined (largemouth bass, rock bass, black crappie and brown bullhead) accounted for less than 4% of the total catch weight. There have been notable changes for walleye, smallmouth bass and muskellunge in the catch between surveys, which are discussed in the report.

Walleye biosampling data and indices of abundance indicate a small population with several years of recent recruitment failure. Clearly, very restrictive catch and size regulations implemented in 1999 have failed to rehabilitate this population. However, we believe the depressed state of this population is attributable to reproductive and recruitment failure, not excessive angler exploitation.

Indices of abundance for smallmouth bass were extremely high and the population is in an exceptionally healthy state. Due to inherently low catch rates for muskellunge and limited fishing effort in this survey, we feel there is insufficient data to comment on their abundance. Other fish species (largemouth bass, rock bass, black crappie and brown bullhead) were very scarce in the catch, as was observed in previous surveys on the lake. No pike were captured in this survey. The capture of a single black crappie represents the first documentation of this species in the lake, presumably from an unauthorized introduction.

Table of Contents

		Page
1.0	Introduction ……	3
2.0	Methods ……..	5
3.0	Results	
	3.1 Fish Productivity and Catch Composition ……	6
	3.2 Walleye …….	8
	3.3 Smallmouth Bass ……	9
	3.4 Largemouth Bass ……	11
	3.5 Northern Pike ……..	11
	3.6 Muskellunge ……	11
	3.7 Other Species ……..	11
4.0	Discussion ……	12
5.0	Acknowledgements ……..	13
6.0	Literature Cited ……..	13

Appendices

A-1.	2005 Catch Summary for Duplicate 8'-Trapnet Sets …….	14
A-1.	1997 Catch Summary for Duplicate 8'-Trapnet Sets …….	14
A-3.	1993 Catch Summary for Duplicate 8'-Trapnet Sets …….	15
B-1.	Catch-Per-Unit-Effort by number (CPUE-no) for Surveyed Lakes in the Parry Sound Area 8'-Trapnet Database, 1994 – 2003 …….	16
B-2.	Catch-Per-Unit-Effort by weight (CPUE-wt) for Surveyed Lakes in the Parry Sound Area 8'-Trapnet Database, 1994 – 2003 …….	17
C-1.	Walleye Biosampling Data, Crane Lake 2005 …….	17
C-2.	Smallmouth Bass Biosampling Data, Crane Lake 2005 ……	18
C-3.	Largemouth Bass Biosampling Data, Crane Lake 2005 ……	19
C-4	Mean Weight Summary for Other Species Captured, Crane Lake 2005 …….	19

1.0 Introduction:

Crane Lake is a medium size (513 hectares) lake located in the Geographic Township of Conger, now the municipal Township of the Archipelago. The lake is moderately developed with over 200 cottages along 50 kilometers of shoreline (OMNR, 1992). Most of the cottages are accessible by road. There is one public access point maintained by the Ministry of Natural Resources as well as one tourist resort operator. The water level is regulated by the "Crane Lake Dam", owned and operated by the Ministry of Natural Resources.

The lake is relatively deep with a maximum depth of 32 meters and a mean depth of 9.2 meters (OMNR, 1969). The lake is oligotrophic in nature, with low nutrient levels and high light transparency (secchi readings ranging from 5.5 – 7.0 m; OMNR, 1996 – 2005).

The stocking record for Crane Lake is long and convoluted. Smallmouth bass and walleye were the first species stocked, commencing in 1939 and continuing intermittently throughout the 1940s and 1950s (OMNR stocking record, undated). Muskellunge were planted on 5 occasions between 1954 and 1964, followed by lake trout plantings in 1972 that continue to present day. All of these plantings with the exception of lake trout were either rehabilitative or supplemental in nature as walleye, muskellunge and smallmouth bass are all reported to be indigenous species (Hart, 2004). Seemingly, all of the above stocking activities took place prior to any fisheries assessment or inventory work being done on the lake.

The first fisheries study on Crane Lake was a "Lake Survey", conducted by the then Department of Lands and Forests in 1969. From a series of six gill net sets, the survey documented the presence of lake herring, rainbow smelt, yellow perch and smallmouth bass. Despite not capturing any, they also noted a reasonably good muskellunge fishery, with a harvest of 15 reported by the lodge operator as of mid-July of that year. The walleye fishery was reported as "*good in (the) past but non-existent lately*." Recommendations from the survey were:

> "*Manage as self sustaining smallmouth bass, northern pike and minor muskellunge fishery. Consider transfer of walleye and establishment of lake trout.*"

The reference to northern pike was quite interesting, as they were not even caught in the 1969 lake survey. Nonetheless, in the 'history' comments for the survey, it was noted that a cottager had recently caught a 10 pound pike. This was the first indication of pike being present in the lake. Later anecdotal records lends further credence that pike are indeed an indigenous species (Hart, 2006). Also interesting - no walleye were caught in the 1969 lake survey. As per the anecdotal report in the lake survey, they were probably much depressed at that time and hence the recommendation for walleye plantings. The lake survey recommendation of lake trout plantings was a good one. Lake trout could readily take advantage of an open niche for a top predator in the deep waters of this oligotrophic lake. Lake trout plantings to create artificial angling opportunities commenced in 1972 and continue to present day. More recent rehabilitative walleye plantings have occurred in 1976, 1990, 1992 and 1994.

Raw biosampling data in Ministry files from an unknown project conducted on Crane Lake in the 1970's, further indicates mimic shiner, bluntnose minnow, pumpkinseed, rock bass and largemouth bass are native species.

Past fisheries management objectives and activities on Crane Lake have been directly related to those on near-by Blackstone Lake, which is immediately upstream. Both of these lakes are similar in lake characteristics and water quality and share a common fish community by virtue of a short connection comprising a portion of the Blackstone River.

In the early 1990's, a concerted effort was made by the Ministry of Natural Resources to rehabilitate the walleye populations on both of these lakes. In 1990, a walleye spawning bed was created at the Alice Creek inlet through a partnership with the Parry Sound Anglers and Hunters. In 1990 and '92, over 20,000 fall fingerling walleye were planted. Concurrent with these plantings, the lake was closed to walleye fishing from October 1989 to December 1998. In 1999, the walleye fishery was reopened, but stringent catch and size restrictions were imposed that are currently still in effect.

In 1993, a synoptic trapnet survey was conducted to assess the status of the near-shore fish community and in particular the walleye population (Thurston, 1993). Relative to similar surveys conducted on other Parry Sound Area lakes, the Crane Lake walleye population was "low". It was doubtful however that rehabilitative efforts had sufficient time to take effect. Consequently, a duplicate synoptic trapnet survey was conducted in 1997. Abundance indices for walleye showed improvement in the '97 study (Blythe and Associates, 1998), probably a result of the preceding stocking efforts.

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The primary purpose of this survey was to assess the current status of the walleye population in Crane Lake, especially as it relates to existing catch and size limits that have been in place since 1999. This information is particularly useful in light of a Provincial initiative to re-write all sport fishing regulations in accordance with the "*New Ecological Framework for Fisheries Management in Ontario*" (OMNR, 2005) and regulatory recommendations contained in the new "Walleye Tool Kit" (in preparation). The current exception regulations for walleye on Crane Lake (prohibited slot size 46 – 70 cm; daily catch limit of 2 for sport fish licence holders and 1 for conservation licence) will be revoked for 2007. At the time of writing of this report, we are uncertain what new walleye regulations will apply to Ontario Fisheries Management Zone 15, which encompasses the Parry Sound Area and Crane Lake. It is anticipated however, that new walleye regulations to be imposed in 2007 will be very restrictive in nature and will address the rehabilitation needs of walleye lakes in the zone – such as Crane Lake.

We duplicated select portions of the 1993 and 1997 synoptic trapnet surveys on Crane Lake in order to compare indices of walleye population status between those surveys and this one.

Although an assessment of the walleye population was the primary purposes of this survey, it also afforded an opportunity to assess the status of the near-shore fish community as a whole, and fish species that comprise it.

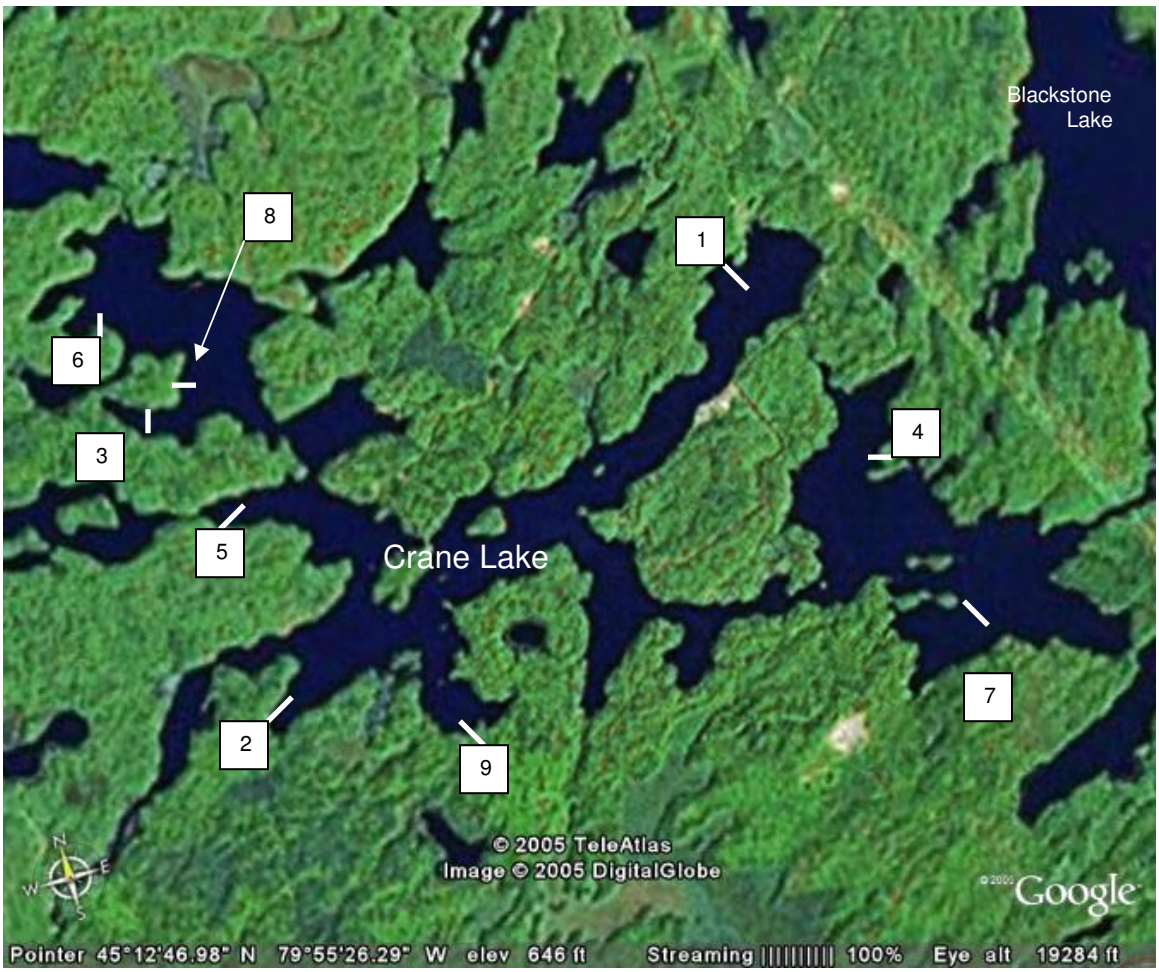
2.0 Methods:

This survey was intended to partially duplicate a synoptic 8'-trapnet survey conducted in 1997, which itself was a complete duplicate of one conducted in 1993. Consequently our methodology was essentially identical to that used for the two previously surveys, except not all net sets were duplicated. We used 8'-trapnets exclusively. All nets were set and relocated daily. Our unit of sampling effort was "an 8'-trapnet night", of approximately 24-hour duration. The survey was conducted from August 22 – 25 to coincide with the August sampling period for the 1997 survey (Blythe and Associates, 1998). The 1993 survey was conducted in June and July of that year (Thurston, 1993).

Using catch data from the 1993 and '97 surveys, we preferentially selected 9 sets that had the best walleye catches. These sets were duplicated in this survey; the locations of which are shown in Figure 1.

Complete catch enumeration was conducted for all sets (Appendix A1). Biosampling (determination of total length, fork length, round weight) was conducted for all smallmouth bass and largemouth bass captured (Appendix C2, C3). In addition to this for walleye, scales were collected for age determination (Appendix C1). Mean weight was determined for rock bass, black crappie and brown bullhead (Appendix C4).

Figure 1. Trapnet Set Location, Crane Lake, 2005



One of the primary purposes of this survey was to compare indices of abundance with those observed in previous surveys. In order to do so, we re-analyzed raw data from the 1997 and 1993 surveys such that only identical sets used in all three surveys were used for comparison purposes. The re-analyzed catch data for the 1997 and 1993 surveys is presented in Appendix A-2 and A-3. Catch data for this survey is presented in Appendix A-1.

3.0 Results:

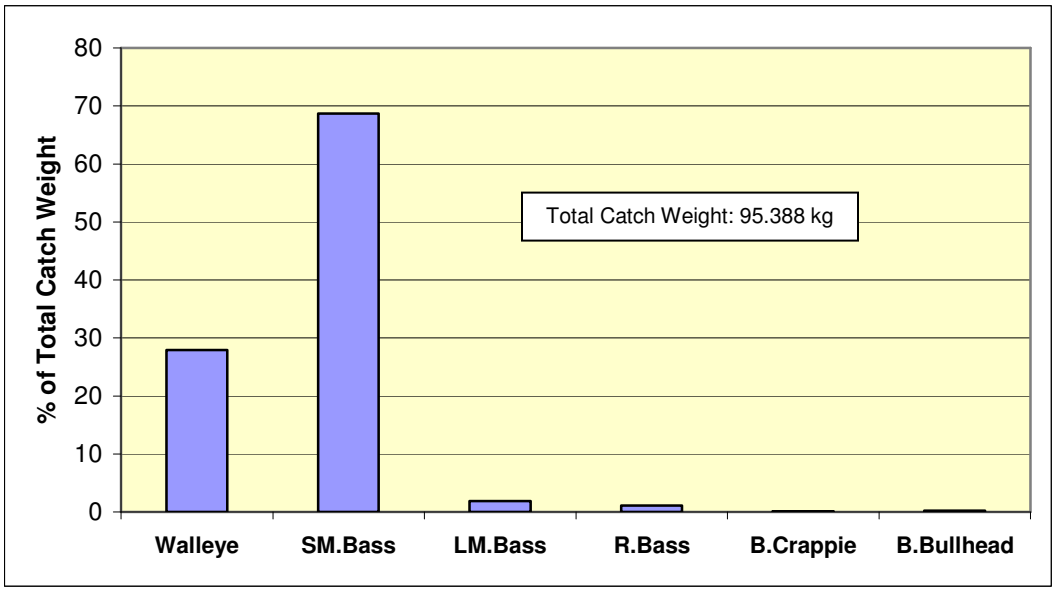
3.1 Fish Productivity and Catch Composition

From nine 8'-trapnet sets, we captured a total of 159 smallmouth bass, 15 rock bass, 8 walleye, 6 largemouth bass, 1 black crappie and 1 brown bullhead (Appendix A-1). The total weight of fish caught was 95.388 kg for an overall *Catch-Per-Unit-Effort-by-weight* (CPUE-wt) of 10.597 kg per net set (Appendix A-1). As a measure of over-all fish productivity, this index was below the average of 14.907 kg per net set for 23 synoptic 8'-trapnet surveys conducted in the Parry Sound Area since 1994 (Appendix B-2). However, because it is within the median 50% of values in the database, we consider fish productivity on Crane Lake to be "approximately average".

Our over-all CPUE-wt of 10.597 was similar to that observed in surveys conducted on Crane Lake in 1997 (10.707; Appendix A-2) and 1993 (8.816; Appendix A-3). Consequently, we conclude that fish productivity has remained relatively constant on Crane Lake between 1993 and 2005. Perhaps of interest also, our index of fish productivity was very similar to the CPUE-wt of 11.223 observed on Blackstone Lake in a similar survey also conducted in 2005 (McIntyre, 2005).

By both number and weight, our catch was dominated by smallmouth bass. They comprised 68.7% of the total catch weight of 95.388 kg (Appendix A-1). This was followed by walleye at 27.9%, largemouth bass at 1.9% and rock bass at 1.1%. Black crappie and brown bullhead comprised less than 1% (Appendix A-1 and Figure 2).

Figure 2. Catch Composition By Weight – Crane Lake, 2005.

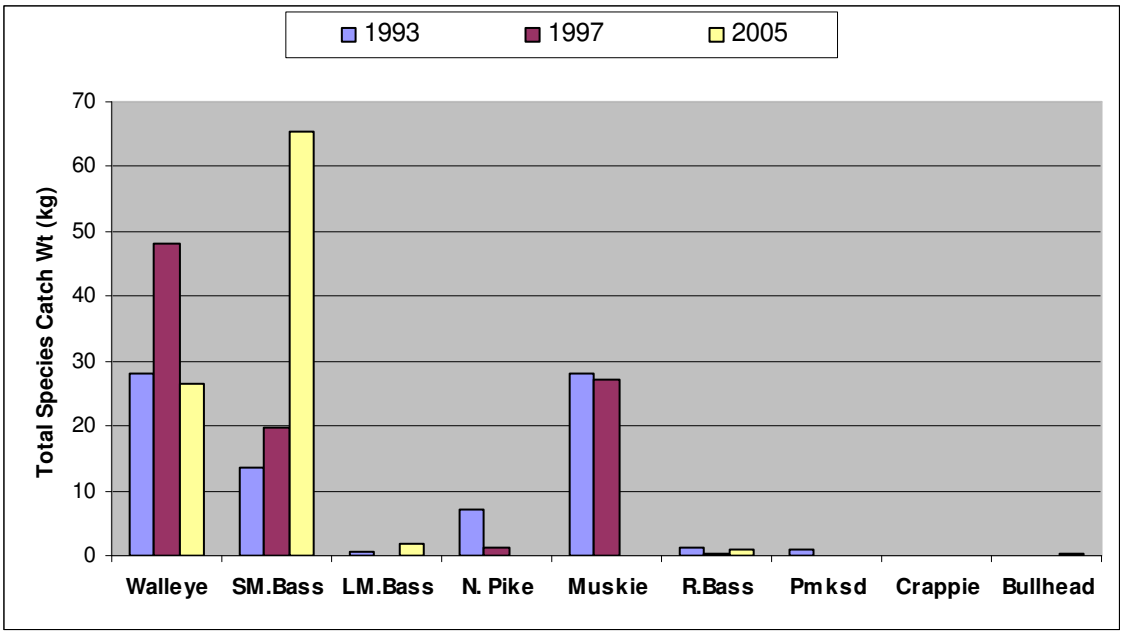


We caution our readers that catch composition is not representative of community composition. Eight-foot trapnets have variable 'catchability' for different species as well as size selectivity within species.

The total catch weight has remained fairly consistent between surveys: 95.388 kg for this survey (2005), 96.363 for the 1997 survey and 79.350 for the 1993 survey (Appendices A1–3). However, the composition of species by weight within the catch has undergone some notable changes between surveys. The total weight of walleye caught spiked in 1997, but by 2005 had returned to levels previously observed in 1993 (Figure 3). The total catch weight of smallmouth bass has shown a steady increase between surveys to become the dominant species caught in 2005. Conversely, muskellunge has shown a precipitous drop from 1993 and 1997 levels to become absent in the catch in 2005. This is probably not as alarming as it may first appear. The catch of a few large muskie can dramatically change survey catch composition by weight. We may have simply missed catching such specimens that are probably still present in the lake. The likelihood of capturing such fish is further reduced by our small netting effort (9 sets).

The catch weight and number for all other species has been very low for all three surveys. Notable however, is the capture of a single black crappie in this survey; a species formerly not present in the lake. It is reasonable to expect that the abundance of black crappie will increase, possibly substantially, and their presence is likely to have a detrimental impact on walleye as they are direct competitors and predators with one another (Kerr & Grant, 2000).

Figure 3. Catch Composition (By Weight) for Duplicate 8'-Trapnet Sets on Crane Lake – 1993, 1997 and 2005.



3.2 Walleye:

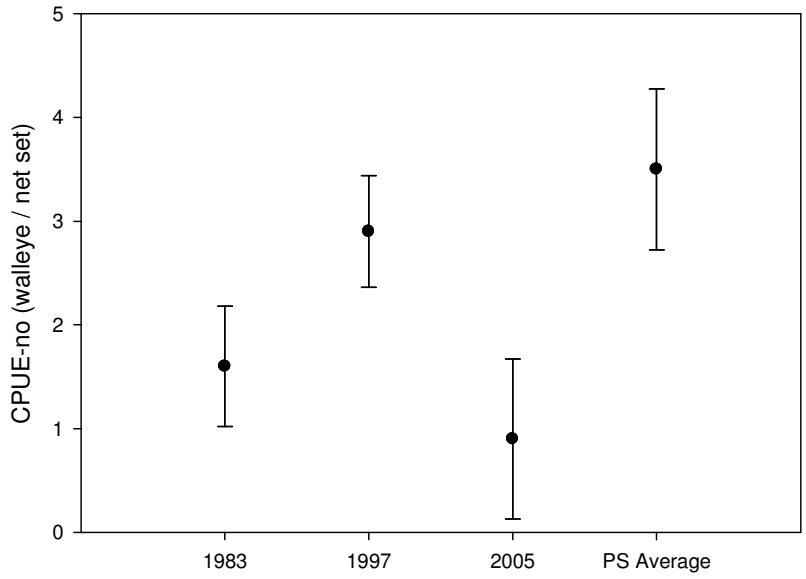
We captured only 8 walleye in this survey for a *Catch-Per-Unit-Effort-by number* (CPUE-no) of 0.9 walleye per net set ± 1.8 ($p<0.05$) (Appendix A-1). Although this is a considerably lower value than those observed in 1997 (2.9; Appendix A-2) and 1993 (1.6; Appendix A-3), they are not statistically different from one another (t-test @ $p<0.05$). Consequently, this particular index of walleye abundance shows no statistically significant change between surveys.

However, another index of walleye abundance – the Probability of Catch* (POC), does indicate a substantial decrease in 2005 relative to the two previous surveys. The walleye POC) was 0.222 in this survey, 0.888 in 1997 and 0.777 in 1993 (Appendices A-1 to A-3).

> Walleye Probability of Catch (POC): The likelihood of an individual net capturing at least one walleye. A POC of "1" indicates all nets captured at least one walleye; a POC of .500 indicates 50% of the nets caught at least one walleye; etc.

For all three surveys conducted on Crane Lake, the walleye CPUE-no has been well below the Parry Sound average of 3.5 walleye per net set, for similarly survey lakes (Appendix B-1 and Figure 4). The implication is that walleye abundance on Crane Lake is low relative other lakes in the Parry Sound Area.

Figure 4. Walleye Catch-Per-Unit-Effort-by number (CPUE-no) Observed in Three Trapnet Surveys Conducted on Crane Lake – 1993, 1997 and 2005 with Benchmark Parry Sound Area Data. Note: Error bars represent Standard Error. (See Appendices A-1 to A-3 and B for raw data.)

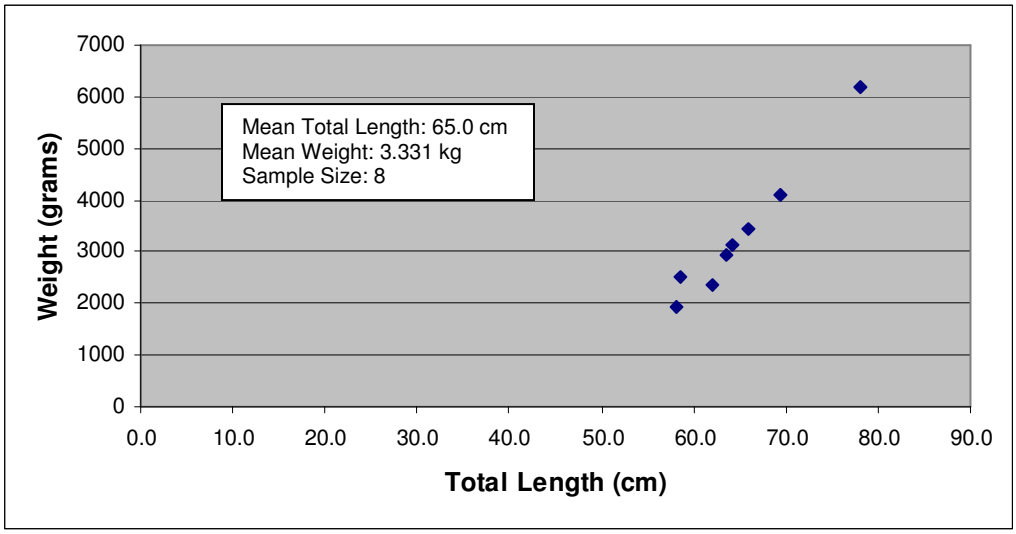


Note: There is no statistically significant difference in walleye CPUE-no values between Crane Lake surveys and the Parry Sound average.

The observation of a lower walleye abundance index (CPUE-no) relative to the 1993 survey (Figure 4) may seem inconsistent with CPUE-wt results, which were equivalent between surveys (Figure 3). This seeming discrepancy is accounted for by the fact that walleye captured in 2005 were much larger than those observed in previous surveys (Appendix A-1 to A-3).

Our meager sample of 8 walleye had a mean total length of 65.0 cm and mean weight of 3.331 grams (Appendix C1 and Figure 5). Assessed age ranged from 8 to 19 years of age with the mean being 11.6 years; no walleye were under 8 years of age.

Figure 5. Walleye Size Distribution, Crane Lake 8'-Trapnet Survey, 2005.
See Appendix C1 for raw data.



The low abundance of walleye along with increasing size and age distribution observed in the 2005 catch are compelling indicators of recent recruitment failure to this population. These results and conclusions with respect to walleye are similar to those observed on adjacent Blackstone Lake (McIntyre, 2005).

3.3 Smallmouth Bass:

We caught 159 smallmouth bass for a CPUE-no of 17.7 bass per set ± 14.5 ($p<0.05$) (Appendix A-1). This represents a substantial increase of smallmouth abundance relative to the 1993 survey (4.0; Appendix A-3) and the 1997 survey (6.3; Appendix A-2) (Figure 6). Not only is it well above the Parry Sound average of 4.8, for similar surveys conducted since 1994, it is the highest value in the data base (Appendix B-1). It is also well above the 7.2 value observed on Blackstone Lake in 2005 (McIntyre, 2005). Clearly, smallmouth bass abundance on Crane Lake is exceptionally high.

We randomly sampled 76 smallmouth bass and determined a mean total length of 29.4 cm (11½ “) and mean weight of 412 grams (0.9 lbs) (Figure 7 and Appendix C2). All size classes were well represented, indicating excellent levels of reproduction and recruitment, and moderate levels of mortality.

The observed indices of abundance in conjunction with biosampling data are persuasive indicator of a very healthy and highly abundant population of smallmouth bass.

Figure 6. Smallmouth Catch-Per-Unit-Effort-by number (CPUE-no) Observed in Three Trapnet Surveys Conducted on Crane Lake – 1993, 1997 and 2005 with Benchmark Parry Sound Area Data. Note: Error bars represent Standard Error. (See Appendices A1 to A3 and B for raw data.)

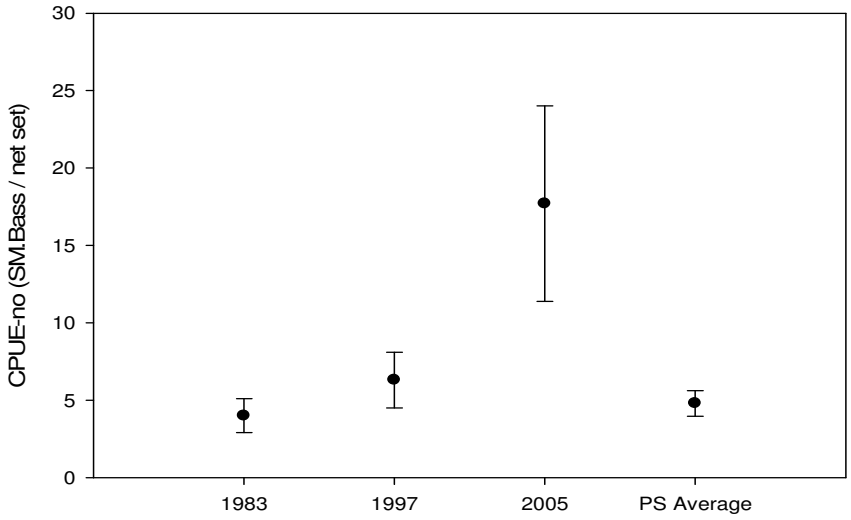
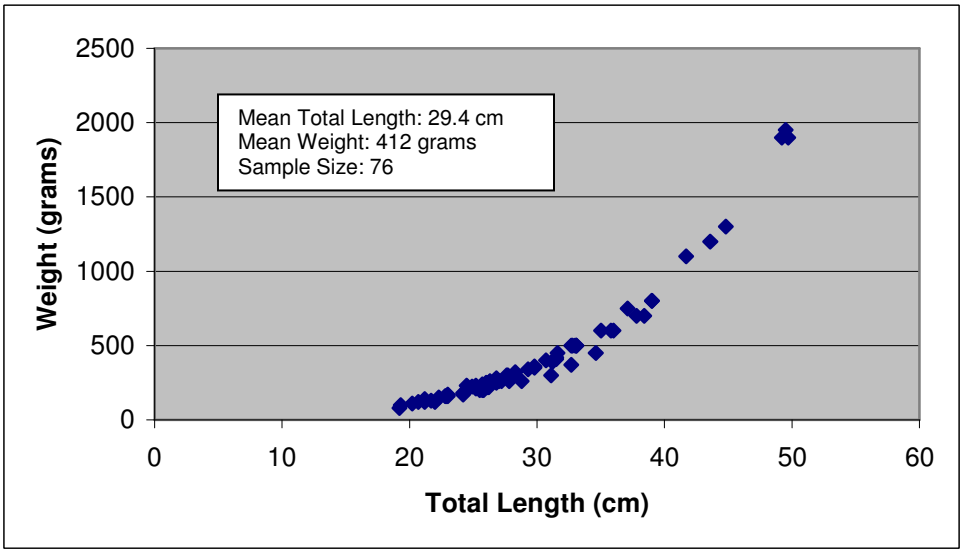


Figure 7. Size Distribution of Smallmouth Bass – Crane Lake, 2005.



3.4 Largemouth Bass:

We captured only six largemouth bass in this survey (Appendix A-1) suggesting largemouth bass is a very minor species in the Crane Lake fish community. For duplicates sets in 1993 only one largemouth was caught and in 1997 none were caught (Appendix A-2 and A-3).

3.5 Northern Pike:

No northern pike were caught in this survey, whereas in 1993 three were captured in duplicate sets and in 1997 only one. As with largemouth bass, pike is a minor species in the Crane Lake fish community.

3.6 Muskellunge:

We caught no muskie in this survey, compared to eight being captured in 1993 and four in 1997. Although there is the appearance of a dwindling muskie population, such would be a very dubious conclusion based on the limited fishing effort for this survey (i.e. only 9 net sets). The capture of even a couple of exceptionally large specimens can dramatically alter muskie representation in the catch by weight. As is the nature of an exceptionally large-size, top predator species; muskie abundance is normally extremely low. This makes it very difficult to index their abundance without extensive fishing effort.

3.7 Other Species:

In addition to the previously mentioned species, we captured only 15 rock bass, 1 black crappie and 1 brown bullhead in this survey. In previous surveys these species were also very seldom caught. The captured of a single black crappie represents the first documentation of this species in the lake. The introduction of this species is via an unknown source, but presumed to be from an unauthorized introduction. The introduction of black crappie will likely have detrimental impacts on the walleye population through direct competition and predation between species (Kerr and Grant, 2000).

Although the suggestion of low abundance of rock bass, crappie and bullhead by virtue of their low catch rate seems reasonable, such a conclusion would be premature. Our net sets were preferentially selected based on previous walleye catches. Consequently, the fish habitat present at these locations may have been ill-suited for other species. Also, these fish species prefer shallow, near-shore habitats and 8'-trapnets select for species preferring deeper, off-shore habitats.

4.0 Discussion

Upon initial inspection, the walleye results presented in this report seems to present a dismal picture of a population characterized by low abundance and chronic reproductive and / or recruitment failure. Although we concede this population is not in a healthy state, there are several factors which should be considered when evaluating its current state and likelihood for improvement.

First off, Crane Lake is ill-suited for walleye. Low nutrient levels and exceptionally clear water are unfavorable characteristics for walleye. The Ministry has no documentation to indicate that walleye were ever plentiful in the lake, although early records are non-existent. If walleye were ever abundant in Crane Lake, it probably pre-dated walleye plantings of the late 1930's and 1940's. The fish community of Crane Lake is extremely hostile towards walleye. The presence of muskellunge and smallmouth bass are stressors on walleye. These species are direct predators and / or competitors with one another. The same can be said for the newly introduced black crappie, notwithstanding their abundance is presently very low. Although the introduction of crappie has not contributed to the recent woes of the walleye population, their presence will undoubtedly be an unwelcome stressor on walleye in the future. Even the routine stocking of lake trout is a stressor on walleye when their spatial habitat overlaps for a large portion of the year. Both the habitat and fish community of Crane Lake are hostile to walleye, and it is doubtful the fortunes of walleye will improve significantly in the foreseeable future.

There is some circumstantial evidence in MNR survey data, which suggests the population did benefit from walleye plantings in the early 1990's. Walleye catch composition by weight was highest in 1997 (Figure 3), as was the CPUE-no (Figure 4). Walleye POC (Probability of Catch) was also highest in the 1997 survey (Appendix A-2). Unfortunately, that benefit did not result in improved reproduction and recruitment.

Although it is tempting to point an accusing finger at excessive walleye harvest as being the cause of decreasing walleye numbers, we very much doubt that is applicable in this case. Indeed, current walleye restrictions are very stringent and they follow on the heels of a 10-year walleye closure on the lake. We believe walleye harvest over the past 15 years has been very low. We suspect the current low abundance of walleye is more attributable to reproductive and recruitment failure – as indicated by our biosampling data, as opposed to excessive angler harvest.

Somewhat related to our first point of marginal habitat for walleye, is the fact that Crane Lake does not have a historically significant walleye spawning site. The closest we can come to one, is an anecdotal report in Ministry files that walleye use to spawn in the Blackstone River connecting Crane and Blackstone Lakes. The report further states this section of river was dredged to facilitate the barging of hardwood sawlogs. Although the timing of such activity was not specified, it was probably sometime in the early 20th century. Seemingly, the creation of a walleye spawning bed at Alice Lake creek inlet in 1990 has not resulted in improved walleye production on the lake.

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In 2005, the Ministry of Natural Resources unveiled a new strategic initiative called the "New Ecological Framework for Recreational Fisheries Management in Ontario" (OMNR, 2005). One of the cornerstones of this initiative is to manage the fishery resource of Ontario on a landscape basis according to new Fisheries Management Zones (FMZ). It is intended that new walleye regulations will be implemented in 2007 across the Southern Region of the Province. Although at this present time we are unsure exactly which regulatory options will eventually be applied to the FMZ in which the Parry Sound Area resides, we do know that all options are very restrictive and rehabilitative in nature. Consequently, it is the intention of the Parry Sound Office to revoke existing exception regulations that currently apply to Crane Lake and replace them in 2007 with the FMZ standards for the zone.

5.0 Acknowledgements

Field work was supervised by Jim Palmer, Senior Fish and Wildlife Technician, with assistance from Parry Sound Area staff including: Ken Molyneaux, Bart Brown, Joe Johnson, Kirt Nelson, Eric McIntyre and Pat Walsh.

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Appendix A-1. 2005 Catch Summary for Duplicate 8'-Trapnet Sets

Net Set No.	Effort (Net-nights)	Walleye	SM. Bass	L.M. Bass	Rock Bass	Black Crappie	Brown Bullhead	Grand Total
1	1	0	1	0	0	0	1	
2	1	0	7	1	1	0	0	
3	1	0	3	0	1	0	0	
4	1	0	40	0	1	0	0	
5	1	0	18	0	0	0	0	
6	1	1	4	0	1	1	0	
7	1	7	52	0	0	0	0	
8	1	0	31	5	11	0	0	
9	1	0	3	0	0	0	0	
Sum		8	159	6	15	1	1	190
CPUE-no.		0.9	17.7	0.7	1.7	0.1	0.1	21.1
Standard Error		0.772	6.307	0.553	1.179	0.111	0.111	
Standard Deviation		2.315	18.921	1.658	3.536	0.333	0.333	
Confidence Level(95.0%)		1.780	14.544	1.275	2.718	0.256	0.256	
Sample Size (# Sets)		9	9	9	9	9	9	
Probability of Catch		0.222	1.000	0.222	0.555	0.111	0.111	
Species Total Catch Weight (Kg)		26.650	65.508	1.860	1.050	0.130	0.190	95.388
CPUE-wt		2.960	7.279	0.206	0.117	0.014	0.021	10.597
Mean Weight (grams)		3331	412	310	70	130	190	
% of total Catch Wt.		27.9	68.7	1.9	1.1	0.1	0.2	99.8

Appendix A-2. 1997 Catch Summary for duplicate 8'-Trapnet Sets

Net Set No.	Effort (Net-nights)	Walleye	SM. Bass	Rock Bass	Northern Pike	Muskie	Grand Total
2	1	2	0	0	0	0	
10	1	3	3	0	0	0	
14	1	4	12	1	0	0	
7	1	3	4	1	0	1	
12	1	5	9	0	0	2	
18	1	4	2	1	0	0	
5	1	1	13	0	0	0	
15	1	4	13	1	1	1	
9	1	0	1	0	0	0	
Sum		26	57	4	1	4	92
CPUE-no		2.9	6.3	0.4	0.1	0.4	10.2
Standard Error		0.539	1.795	0.176	0.111	0.242	
Standard Deviation		1.616	5.385	0.527	0.333	0.726	
Confidence Level(95.0%)		1.242	4.139	0.405	0.256	0.558	
Sample Size		9	9	9	9	9	
Probability of Catch		0.888	0.888	0.444	0.111	0.333	
Species Total Catch Weight (Kg)		48.178	19.608	0.352	1.225	27.000	96.363
CPUE-wt		5.353	2.179	0.039	0.136	3.000	10.707
Mean Weight (grams)		1853	344	88	1.225	6720	
% of total Catch Wt.		50.0	20.3	< 0.1	1.3	28.0	99.6

Appendix A-3. 1993 Catch Summary for Duplicate 8'-Trapnet Sets

Net Set No.	Effort (Net-nights)	Walleye	SM. Bass	L.M. Bass	Rock Bass	Northern Pike	Muskie	Pksd	Grand Total
8	1	5	1	0	0	1	2	0	
9	1	1	4	0	0	1	0	0	
21	1	1	9	0	0	1	0	1	
2	1	1	9	0	4	0	1	0	
12	1	0	4	0	4	0	0	2	
22	1	0	3	0	0	0	0	4	
3	1	4	0	0	1	0	1	0	
16	1	1	1	0	0	0	2	1	
11	1	1	5	1	4	0	2	0	
Sum		14	36	1	13	3	8	8	83
CPUE-no		1.6	4.0	0.1	1.4	0.3	0.9	0.9	9.2
Standard Error		0.580	1.093	0.111	0.648	0.167	0.309	0.455	
Standard Deviation		1.740	3.279	0.333	1.944	0.500	0.928	1.364	
Confidence Level(95.0%)		1.338	2.520	0.256	1.494	0.384	0.713	1.049	
Sample Size (#sets)		9	9	9	9	9	9	9	
Probability of Catch		0.777	0.888	0.111	0.444	0.333	0.555	0.444	
Species Total Catch Weight (Kg)		28.000	13.500	0.600	1.114	7.200	28.000	0.936	79.350
CPUE-wt		3.111	1.500	0.066	0.124	0.800	3.111	0.104	8.816
Mean Weight (grams)		2000	375	600	88	2400	3500	117	
% of total Catch Wt.		35.29	17.01	0.76	1.40	9.07	35.29	1.18	100

Note: Inexplicably, no weights were recorded for fish sampled in this survey. However, total and fork lengths were recorded for walleye, muskie, northern pike, largemouth bass and smallmouth bass. Based on mean fork lengths for walleye and smallmouth bass, we were able to estimate mean weights using reference data from the 1997 trapnet survey on Crane Lake. However, no such reference data was available for muskie, northern pike and largemouth bass. For these species we estimated mean weights based on data from numerous other Parry Sound Area lakes. For rock bass and pumpkinseed, for which no length data was available, we used mean weight data from the 1997 Crane Lake trapnet survey.

Appendix B-1. Catch-Per-Unit-Effort by number (CPUE-no) for Surveyed Lakes in the Parry Sound Area 8'-Trapnet Survey Database, 1994 - 2003

	Walleye	SM. Bass	LM. Bass	N. Pike	Blk. Crapp.	Msky	C.Wt. Suckr	Br. Bllhd.	Y. Perch	R. Bass	Pmk seed
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	0.9	0.8						
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		0.6				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	0.8	1.9		2.4	23.8	0.8	1.2	1.1
Dollars Lake (2003)	1.5	5.0	1.5	0.6	4.8		3.2	3.6		1.7	1.7
Gibson Lake (2001)	3.1	6.7	0.9	1.0	9.1		2.3	12.7		0.7	0.1
Giroux Lake (2001)	6.8	1.8		2.1			3.5	3.7	0.1	0.3	
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	0.0	1.0	2.3
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		1.3	0.8		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	0.1	0.8	0.3
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	0.0	1.3	2.1
Six-Mile L. (1999)	0.6	5.9	4.6	0.8	4.7	0.1	1.7	9.4		2.0	4.4
Wahwashkesh L. (02)	3.1	4.0	0.2	1.3	0.5		0.3	4.6		2.4	0.6
Mean	3.5	4.8	1.2	1.1	3.2	0.4	3.1	4.9	0.2	2.9	2.1
Standard Error	0.775	0.822	0.419	0.136	1.197	0.250	0.464	1.238	0.125	0.855	0.647
Confidence Level(95.0%)	1.607	1.708	0.904	0.283	2.929	3.177	0.967	2.583	0.321	1.779	1.365
Standard Deviation	3.716	3.853	1.566	0.654	3.167	0.354	2.125	5.674	0.306	4.012	2.745
Count	23	22	14	23	7	2	21	21	6	22	18

Appendix B-2. Catch-Per-Unit-Effort by weight (CPUE-wt) for Surveyed Lakes in the Parry Sound Area 8'-Trapnet Survey Database, 1994 - 2003

	CPUE-wt (kg. / 8' trapnet set)										
Survey & Year	Walleye	S.M. Bass	L.M. Bass	Bl. Crappie	N.Pike	C.W. Sucker	Br. Bullhd.	Rock Bass	Pump-kseed	Other Total	All
Bear Lake (2001)	7.619	1.268			3.547	1.443	2.609	0.383	0.061		16.930
Bolger Lake (1999)	10.790	4.250	0.050		1.290	0.030	0.270	0.220	0.030		16.930
Buck Lk (2002)	1.694	1.542	0.129	0.424	1.746						5.535
Cecebe Lake (2000)	12.154	4.700			3.990	3.636	4.727	0.254	1.200	0.045	30.706
Crane Lk. 1997)	2.986	2.443			0.136			0.064	0.007	3.733	5.636
Doe Lake (1998)	12.727	11.115			0.954	5.573	1.521	1.530	2.336		35.756
Dollar's Lake (2000)	1.112	1.503	1.994	0.661	1.621	2.869	8.479	0.136	0.107	3.028	18.482
Dollars Lake (2003)	1.595	2.903	1.475	1.725	1.072	3.865	1.476	0.132	0.106	1.690	14.349
Gibson Lake (2001)	4.265	4.866	0.738	3.255	1.097	2.683	3.952	0.089	0.016	12.005	20.961
Giroux Lake (2001)	9.670	2.010			1.600	4.490	1.020	0.020		0.010	18.820
Go Home Lake (2003)	1.329	2.632	0.621		2.157	3.925	0.502	0.516	0.380	3.632	12.062
Harris Lake (1994)	2.909	0.722	0.485		0.752	7.783	0.481	0.184	0.144		13.460
Isabella Lk. (1997)	0.530	4.203			3.630	5.895	0.415	0.620	0.050		15.343
Kashegaba Lk. (1999)	1.060	4.880	0.480		1.340		0.530	0.740	0.180		9.210
McKellar Lk (2003)	1.735	0.295	0.092		3.571	4.250	0.308	0.240			10.491
McDougall Lk. (2000)	2.460	0.961		0.291	1.948	2.358	0.685	0.028		1.330	8.731
Moffat Lk. (2002)	0.467	0.628			3.578	8.610	0.900				14.183
Pakeshkag Lk. (2001)	0.167				3.508	0.892	2.375	0.061	0.014	0.008	7.025
Poverty Bay (1999)	2.757	3.976	2.871		0.164	3.150	0.920	0.113	0.098		14.049
Rock Is / Bl Oak (2003)	8.873	0.971	0.158		2.958	6.085	0.180	0.057	0.015		19.297
S. Magnetawan R (1994)	2.035	1.355	0.112		1.067	3.708	0.214	0.137	0.342		8.970
Six Mile Lake (1999)	1.145	3.242	2.044	1.140	1.133	2.350	2.538	0.211	0.513	8.911	14.316
Wahwashkeksh (2002)	4.236	2.330	0.148	0.160	2.031	0.425	1.901	0.242	0.135		11.608
Mean CPUE-wt	4.101	2.854	0.814	1.094	1.952	3.701	1.714	0.285	0.319	3.439	14.907
Standard Error	0.838	0.505	0.243	0.415	0.248	0.509	0.435	0.075	0.137	1.274	1.515
Standard Deviation	4.019	2.367	0.911	1.097	1.192	2.278	1.993	0.345	0.579	4.030	7.264
Confidence Level(95.0%)	1.738	1.050	0.526	1.015	0.515	1.066	0.907	0.157	0.288	2.883	3.141
Sample Size	23	22	14	7	23	20	21	21	18	10	23

Appendix C1. Walleye Biosampling Data.

Net Set Number	Total Lg. (cm)	Fork Lg. (cm)	Weight (grams)	Assessed Age *
6	69.5	66.6	4100	14
7	66.0	63.0	3450	11
7	58.2	55.5	1950	8
7	62.0	59.0	2350	11
7	64.2	61.8	3150	11
7	58.5	55.5	2500	9
7	63.5	60.6	2950	10
7	78.0	75.0	6200	19
Mean	65.0	62.1	3331	11.6
Median	63.85	61.2	3050	11
Standard Error	2.278	2.262	473.865	1.224
Standard Deviation	6.443	6.398	1340.292	3.462
Confidence Level(95.0%)	5.387	5.349	1120.512	2.894
Sum			26650	
Sample Size	8	8	8	8

Appendix C2. Smallmouth Bass Biosampling Data.

Total Lg (cm)	Fork Lg. (cm)	Weight (grams)	Total Lg (cm)	Fork Lg. (cm)	Weight (grams)	Total Lg (cm)	Fork Lg. (cm)	Weight (grams)
19.2	19	80	26.1	24.6	230	25.2	23.7	230
31.6	30	450	22.9	21.8	160	26.8	25.6	280
35	32.8	600	26.2	24.7	250	27.7	26.3	300
26.1	24.6	220	25.7	24.2	210	25.7	24.5	200
24.2	22.9	180	25.8	23.8	200	31.2	29.4	390
28	24.6	290	26	24.6	230	28.3	26.9	320
26.2	25.6	250	24.5	23	200	27.2	25.6	260
22	20.9	120	26	24.5	250	21.2	20.3	120
39	36.6	800	28.8	27.3	260	22.3	21.3	150
20.2	19.2	110	37.1	35	750	26.3	25.2	260
21.2	20	140	24.9	24.3	225	49.2	46.3	1900
33	32.3	500	24.5	24	230	44.8	42.8	1300
38.4	36.4	700	22.8	21.7	160	41.7	40	1100
43.6	41.1	1200	23	21.9	170	49.7	46.6	1900
32.7	30.8	500	25.2	24.4	210	33.1	31.5	500
33.1	31.6	500	31.5	29.4	410	31.1	29.5	300
32.8	30.9	500	21.7	20.9	130	30.7	29.7	400
28.2	26.7	300	26	24.5	220	26.8	25.6	250
35.8	34.2	600	27.8	26.7	260	19.3	18.2	100
34.6	32.5	450	39	36.8	800	24.2	22.8	170
29.8	28.2	360	49.5	46.8	1950	27	25.6	260
29.8	28.2	350	37.8	35.6	700	27.6	26.3	300
26.7	25.2	270	36	34.2	600	25.5	24.5	200
26.2	24.7	220	32.7	31	370	20.7	19.8	120
25.7	24.4	240	31.5	29.8	420	23	21.8	160
29.3	27.9	340						

Mean	29.4	27.9	412.3
Standard Error	0.798	0.750	44.836
Standard Deviation	6.960	6.535	390.869
Confidence Level(95.0%)	1.591	1.493	89.318
Sum			31335
Count	76	76	76

Appendix C3. Largemouth Bass Biosampling Data

	Total Lg. (cm)	Fork Lg. (cm)	Weight (grams)
	35.6	34.8	800
	26.2	25.4	240
	24.6	23.8	200
	27.1	25.9	260
	23.1	22	150
	25.2	24.2	210
Mean	27.0	26.0	310
Standard Error	1.815	1.843	99.197
Standard Deviation	4.446	4.514	242.981
Confidence Level(95.0%)	4.665	4.737	254.993
Sum			1860
Sample Size	6	6	6

Appendix C4. Mean Weight Summary for other species Captured.

Species	Mean Weight (grams)	Sample Size
Brown Bullhead	190	1
Black Crappie	130	1
Rock Bass	70	15