Dollars Lake
(Blair and McConkey Townships)

Synoptic Trapnet Survey, Summer 2000

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Executive Summary:

During the late summer of 2000 a synoptic trapnet survey was conducted on Dollars Lake. The primary objectives were to assess the status of walleye and smallmouth bass populations and evaluate the impact of several years of walleye spawning bed enhancement projects under the Ministry's *Community Fisheries Involvement Program* (C.F.I.P.).

A total of 518.7 kilograms of fish comprised of 12 species were caught in 24 overnight, trapnet sets. The *Catch-Per-Unit-Effort by weight* (C.U.E. wt.) was 21.61 kg. / net set. This index of fish productivity is well above average for Parry Sound Area lakes similarly surveyed. However, game fish only accounted for 32.3% of this productivity – well below the 67.7% average for other Parry Sound Area lakes. Coarse fish accounted for 66.5% of the total catch by weight and pan fish accounted for 1.2%. Due to gear selectivity, we caution the reader that catch composition is not representative of species abundance in the fish community.

Walleye index of abundance (C.U.E no.) was 1.3 walleye per net set ± 0.33 (standard error) - well below the 4.5 walleye per net night average for other Parry Sound Area lakes. Furthermore, this index was down from that observed on Dollars Lake during the 1989 survey (3.1 walleye per net night) and the 1986 survey (4.3). The past walleye management strategy of maintaining harvest while attempting to increase productivity through spawning habitat enhancement and (unauthorized) stocking has not resulted in an increase in walleye abundance. In fact the reverse trend is apparent. We recommend a future strategy of significant walleye harvest reduction and cessation of walleye stocking and spawning habitat enhancement activities.

Smallmouth bass abundance was 'about average' relative to other Parry Sound Area lakes similarly surveyed, but fish size was considerably smaller. Abundance indices for largemouth bass and northern pike are less reliable due to gear selectivity. Notwithstanding, CUEs for these species were above average. This is probably attributable to habitat availability. Brown bullhead and bowfin indices of abundance were high.

This survey represents the first documentation of black crappie having colonized Dollars Lake – and undoubtedly the Upper Pickerel River system. Crappie abundance appeared to be 'moderate'. We consider the unauthorized introduction of this species a negative development with respect to walleye management.

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1.0 Introduction

For the purposes of this report, we refer to Dollar's Lake as being that portion of the Pickerel River extending from the Ess Narrows (Hwy 522) north to the Dollar's Lake dam and includes Smith Bay and all attached waters.

Dollars Lake forms a contiguous portion of the Upper Pickerel River system. This system is a long (approx. 35 kilometers), navigable and primarily riverine waterway that widens in several places that have arbitrarily been accorded "lake" status. These include: Mud Lake, Pigeon Lake, Duck Lake, Wilson Lake, Toad Lake, Little Long Lake, Kawigamog Lake, Dollar's Lake and Smith Bay. These lakes form a continuous waterway with an exceptionally diverse fish community that includes: walleye, northern pike, muskellunge, small and largemouth bass, cisco, lake whitefish, yellow perch, rock bass, pumpkinseed, common white sucker, northern redhorse sucker, bowfin, golden shiner, emerald shiner, common shiner, mimic shiner, bluntnose minnow, brown bullhead, johnny darter and log perch (OMNR, 1975; McIntyre & Thurston, 1990). Additionally, black crappies were captured in this survey documenting for the first time this species recent introduction to the system.

Dollar's Lake is a large lake at 970 hectares (approx. 2400 acres) (OMNR, 1975). Maximum depth is 28.1 metres (92 feet) and mean depth 5.2 metres (17 feet). The lake is mesotrophic in nature with darkly stained yellow-brown coloured water. Secchi disc reading was 2.9 metres (OMNR, 1975). The shoreline is highly irregular with numerous inlets and bays, some with abundant growth of aquatic vegetation. Morphology and fish habitat characteristics are highly suitable for walleye, which is a primarily sought game fish in these waters.

There are three primary sources of water into the lake. Most significant is the Pickerel River itself to the south, the Wolf River inlet in the northeast corner and Caribou Creek inlet on the east-side of the lake. The lake empties the MNR dam located at the extreme north end of the lake into the Pickerel River that continues its westward trek ultimately to Georgian Bay. The concrete MNR dam holds back about 3 metres of water and was constructed in the 1940s. Its sole purpose today is to maintain water level for recreational purposes. Forerunners of the present day dam probably date back to the later part of the 19th century when it was used to facilitate log transport down the Pickerel River.

Dollar's Lake is moderately developed with 122 cottages being recorded in 1975 lake survey. Undoubtedly there are many more today. There are also three tourist resorts present on the lake. The lake is readily accessible to the general public with public access points located at Ess Narrows and Smith Bay. Cumulatively, these factors combine such that the lake has the potential for intense fishing pressure. A open-water creel survey conducted on the Upper Pickerel River system during the summer of 1990 (May 19th – Sept. 14th) estimated an astounding 63,300 angler hours of fishing effort – over 24 rod hours per hectare! (Thurston and Emerson, 1990). Thirty-eight percent (38%) of the angling effort surveyed was directed at walleye. Estimated walleye harvest was 3,210 – of which most was reported to have been taken in the Dollars Lake area. Smallmouth bass harvest was estimated at 3,200; northern pike - 1,100 and largemouth bass – 380. These parameters point to a very intensive fishery with high yield and are symptomatic of high probability of overexploitation – particularly for walleye.

Anecdotal reports of poor angling quality for walleye on the Upper Pickerel River have been common place for decades. Throughout the 1980's, annual plantings of walleye summer fingerlings occurred throughout the system under the auspices of the Ministry's *Community Fisheries Involvement Program*. Several walleye spawning enhancement projects were also conducted concurrently with these walleye plantings. Assessment work conducted in 1986 and '89 (McIntyre & Thurston, 1990) concluded that planted walleye were making a minor contribution to the population and it was recommended that plantings cease.

Throughout the 1990's, there have been four years of walleye spawning enhancement projects conducted on Dollar's Lake (including Smith Bay) via the Ministry's CFIP program. Reportedly, seventeen sites have

been rehabilitated at a cost of $19,300. In 2000, another CFIP application was received by the Parry Sound Office of MNR to continue walleye spawning bed enhancement work on Dollar's Lake. The Ministry declined this application on the basis that similar extensive work had been conducted in the past but its impact on the walleye population had not been assessed. This report represents that assessment work.

2.0 Methods:

"Synoptic surveys" are intended to provide a 'snapshot in time' of the status of the fish community and individual populations that comprise it. We selected 8' trapnets as the gear of choice due to the non-lethal nature of the gear and it's proven effectiveness at capturing walleye and smallmouth bass – which were the particular species of interest in this survey. Results must be viewed in light of 'species selectivity' of the gear. This is further discussed in the *Results and Discussion* section of the report.

Due to severe limitations that the gear imposes on net set location, netting sites were not pre-determined. Site selection was at the discretion of the field crew. However, site selection was based on the following guidelines:

- The site had to be suitable for the net to fish effectively. (Consequently – factors such as: contours of the lake bottom, absence of obstructions, depth, sufficient lead length, etc. were to be considered.)
- Nets were to fish all habitat types in approximate proportion to their abundance on the lake in order that the catch would reflect the 'whole lake' as accurately as possible.
- Nets were to be set far enough apart such that they were not competing with each other.
- Nets were to be approximately randomly distributed throughout the study area.

We completed 24 over-night, trapnet sets that met the above guidelines. Nets set locations are indicated in Figure 1.

Field operations were conducted from September 11th to 22nd , 2000. In this report the unit of effort is recorded as a "net set" – and approximates a set of 24 hours duration. Nets were relocated daily.

Complete catch enumeration was conducted for all sets (Appendix A). Only fish captured in the "house" of the net were included in the catch. Fish caught in the wings or gilled in the lead were not considered part of the catch.

Biosampling data collection for all game fish included total length, fork length and round weight determination (Appendix B – F). Scale samples were also collected for age determination of walleye (Appendix B). For non-game fish, round weights were recorded in order that a total and mean weight for non-game fish could be determined (Appendix A).

Age determination for walleye was by the scale reading method. As there were no known-age walleye in Dollars Lake – 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, that our mean age determination (Appendix B) probably underestimates the true mean age of walleye that we sampled.

Insert Figure 1 here

3.0 Results:

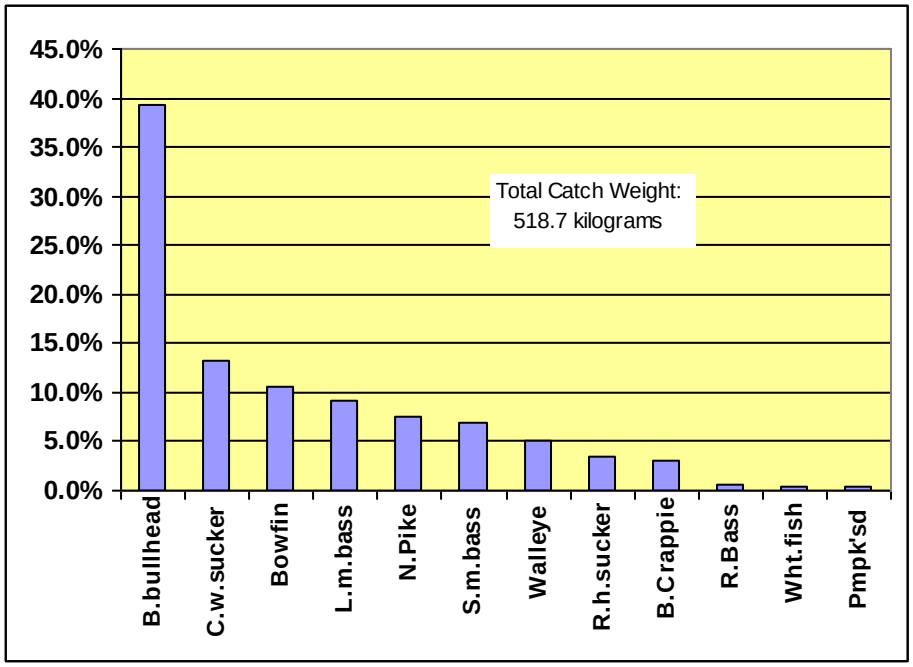
3.1 Catch Composition and Productivity:

A total of 518.7 kilograms of fish comprised of 12 species were caught in 24 overnight, trapnet sets (Appendix A). The Catch-Per-Unit-Effort by weight (C.U.E. by wt.) was 21.61 kilograms of fish caught per net set (Appendix A). Relative to 15 synoptic trapnet surveys conducted in the Parry Sound Area since 1986 for which comparative data is available, this index of fish productivity ranks 3rd and above the average of 16.19 kg./ net set.

Although this may seem like a positive indicator of good fish productivity, only 32.3% of our total catch weight was accounted for by game fish (walleye, large and smallmouth bass, northern pike and black crappie). This is well below the 'game fish average' of 67.7% for other Parry Sound Area lakes similarly surveyed.

Coarse fish (brown bullhead, common white sucker and redhorse sucker) accounted for 66.5% of all fish caught by weight and panfish (rock bass and pumpkinseed) 1.2% (Figure 2 and Appendix A). Although fish productivity is high on Dollar's Lake it appears to be heavily concentrated in coarse fish species.

Figure 2. Catch Composition by weight from a synoptic trapnet survey conducted on Dollars Lake During the late summer of 2000. Total fish weight of 518.7 kilograms.



We emphasize to the reader that the catch composition results from our nets are not representative of species abundance in the fish community. Eight-foot trapnets exhibit species selectivity in their catch due to the nature of the gear. These nets are usually placed 30 – 50 metres (100 –150') offshore in depths of 2½ to 5½ metres (8 to 18'). Consequently near-shore species such as largemouth bass, rock bass, pumpkinseed and yellow perch are not particularly vulnerable and are often under-represented in the catch relative to their actual abundance in the fish community. This is normally also true for brown bullhead, but apparently set #19 was in a location and depth where there was an exceptionally high concentration of bullhead that greatly inflated the catch number for this species (Appendix A). Also, because the gear relies on fish to

actively contact it, northern pike – which is a relatively sedentary "ambush feeder", is probably under-represented in the catch relative to its actual abundance in the fish community. Conversely, eight-foot trapnets are very effective at capturing walleye and smallmouth bass which are normally the species we are most interested in and target in this survey design.

The catch on Dollar's Lake was comprised of 12 fish species. This represents a high diversity of species in the fish community. For the 15 other synoptic trapnet surveys referenced above, they averaged 7.8 different fish species caught in those surveys.

3.2 Relative Abundance and Biosampling Data:

Since 1982, the Ministry of Natural Resources has conducted over 30 synoptic trapnet surveys on various lakes throughout the Parry Sound Area. The primary focus on these investigations has been to assess the status of walleye and smallmouth bass populations and secondarily those of other species in the fish community. The catch rate or *Catch-per-Unit-Effort by number (C.U.E. no.)* is the statistic used to indicate the abundance of a particular species. We call this a "relative abundance index" because it does not specifically delineate the size of a population. Rather the C.U.E. statistic for a particular species generated on one lake is compared - "relative" to that generated on a number of other lakes. Hence the abundance of a fish species on one lake is based on its position relative to a host of other lakes similarly surveyed.

We use size distribution data of various game fish species to help give us some insight regarding reproductive, recruitment and mortality rates. We acknowledge that we do not know actual reproductive, recruitment or mortality rates. We simply draw inferences about these rates based on the abundance of size classes.

3.2.1 Walleye

The Dollars Lake *Catch-Per-Unit-Effort by number* (C.U.E. by no.) for walleye was 1.3 walleye caught per net night ± .33 (standard error) (Appendix A). Relative to 30 other walleye lakes similarly surveyed in the Parry Sound Area, this ranks 23rd out of 30 and well below the average of 4.5 walleye per net-night (Figure 3). Consequently, the abundance of walleye on Dollars Lake is low relative to these other surveys.

From 32 walleye captured, mean size was 40.8 cm. total length and 834 grams (1.83 lb.) (Figure 3 and Appendix B). Assessed mean age was 4.4 years. The modest number of small size walleye in the size distribution (Figure 4) suggests that reproduction and recruitment are occurring at low but probably sustainable levels. This is further supported by the presence of several young walleye in our age assessment and our mean age calculation of 4.4 years (Appendix B). We do acknowledge however that aging by the scale reading method is well known to underage fish, especially older age classes (Campbell and Babaluk, 1979). Our calculated mean age of 4.4 years may well underestimate the true mean age of our sample. The presence of a few large (and presumably old) walleye in the size distribution suggests that the mortality rate is 'high' but probably at a sustainable level. We characterize the Dollars Lake walleye population as being well below average in abundance with '*low*' levels of reproduction and recruitment and '*high*" levels of total mortality. (We emphasize that we do not know actual reproductive, recruitment and mortality rates. We are simply drawing inferences about these based on abundance of size and age classes of walleye in our catch.)

We consider it very significant that we captured an additional 5 yearling walleye that were gilled in the lead of our nets. (Eight-foot trapnets seldom catch young of the year or yearling walleye because they either swim through the mesh or become 'gilled' in it.) These fish are technically not counted as part of the catch because they were not captured in the method intended. Nonetheless, their very presence clearly suggests that a strong 1999-year class may well be present in Dollars Lake and the Pickerel River system.

Environmental conditions in 1998 and 1999 were excellent for walleye incubation and growth. We are optimistic that these may be strong walleye year classes throughout the entire Parry Sound Area. However, only four walleye caught in our sample of 32 were assessed as being from the 1998-year class (age 2).

Figure 3. Walleye and smallmouth Catch-Per-Unit-Effort (C.U.E.) by number (no. / net set) from several synoptic surveys recently conducted in the Parry Sound Area.

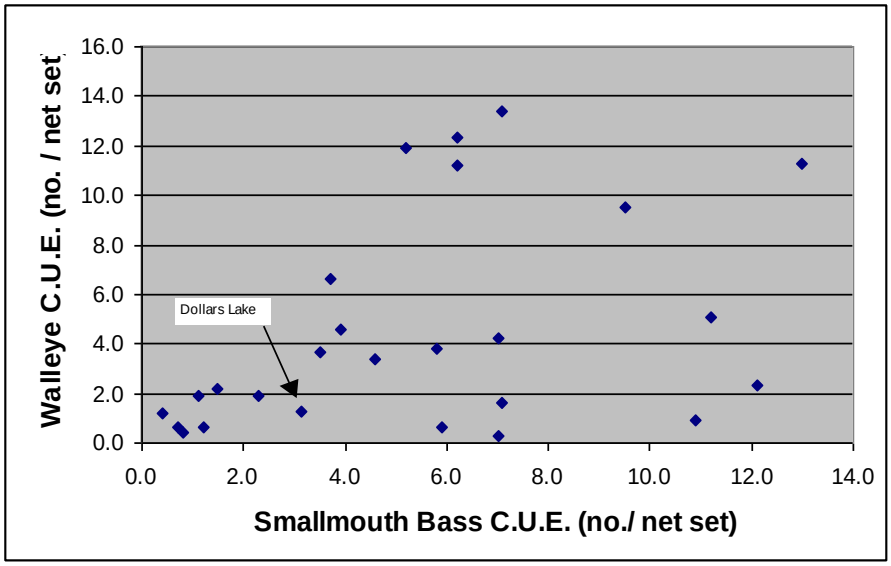
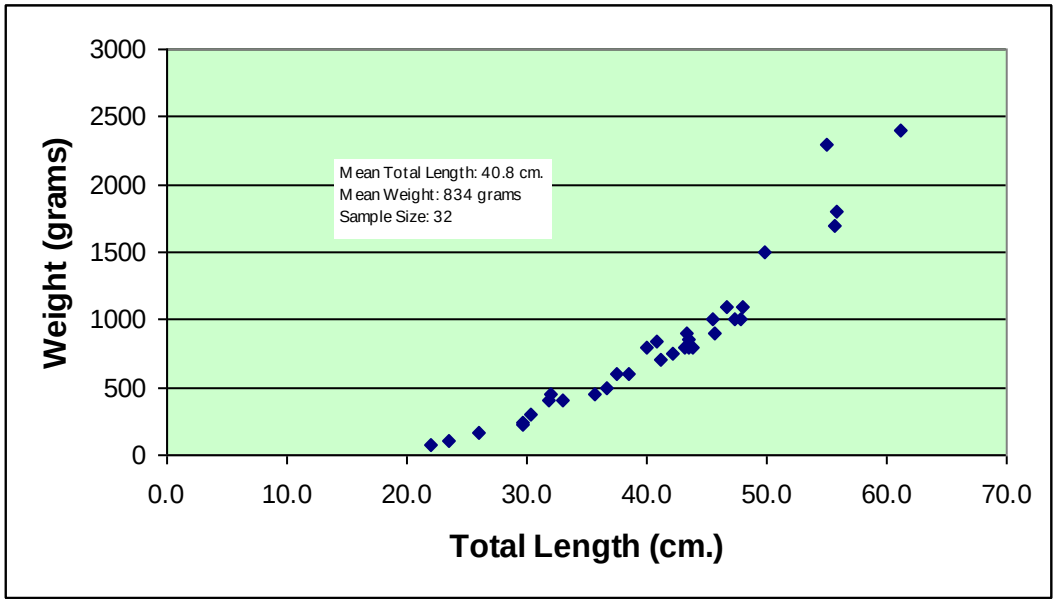


Figure 4. Size distribution of walleye sampled during the Dollars Lake synoptic trapnet survey, late summer 2000.

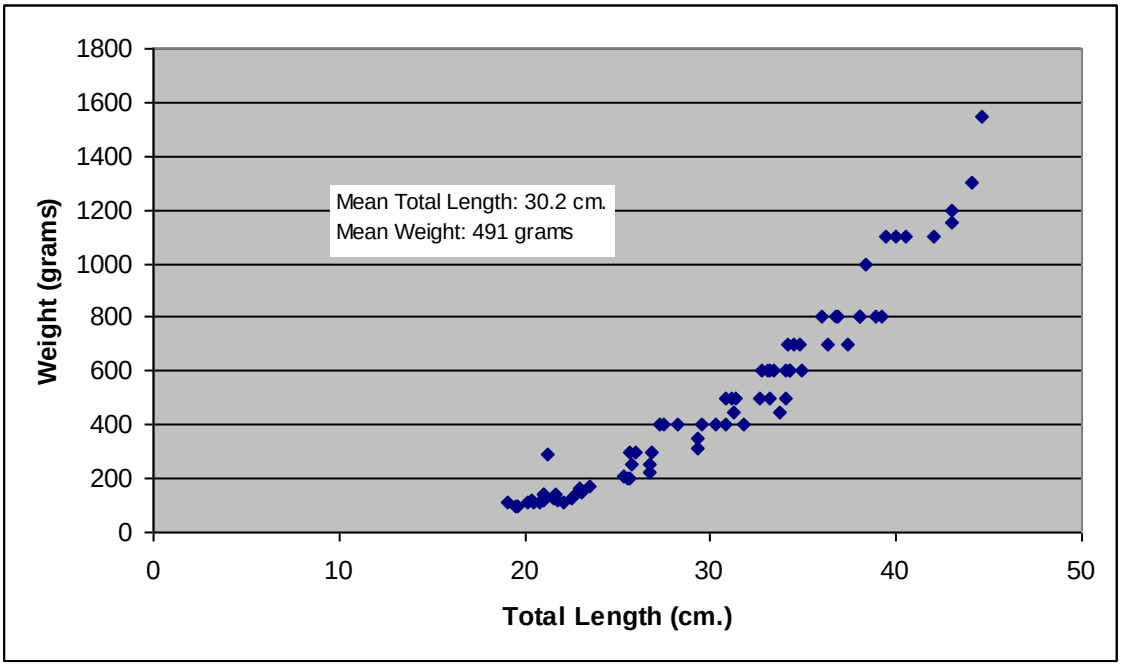


3.2.2 Smallmouth Bass

We captured 75 smallmouth bass in 24 net sets for a C.U.E. of 3.1 bass / net set ± 0.67 (standard error) (Appendix A). Relative to 34 synoptic surveys that captured smallmouth bass in the Parry Sound Area, this ranks 22nd and slightly below the average of 4.85 for these surveys. We conclude that smallmouth bass abundance on Dollars Lake is *about average* relative to other lakes containing smallmouth bass for which synoptic trapnet surveys have been conducted in the Parry Sound Area. Smallmouth bass C.U.E. by weight (1.503 kg. / net set) was well below average (3.671) for the above surveys however. Consequently smallmouth bass size was considerably smaller on Dollars Lake relative to these other surveys.

From seventy-five sampled smallmouth bass, mean total length was 30.2 cm. and mean weight 491 grams (1.1 lb.) (Figure 5 and Appendix C). Size distribution of sampled smallmouth suggests good and consistent recruitment to the population. However, we captured no bass over 1600 grams (3½ lb.) suggesting that total mortality may be high and very few bass are afforded the opportunity to reach trophy size in this lake. Nonetheless, the population looks healthy and sustainable and is dominated by small and medium size fish.

Figure 5. Size distribution of smallmouth bass sampled during the Dollar's Lake synoptic trapnet survey conducted in late summer 2000.



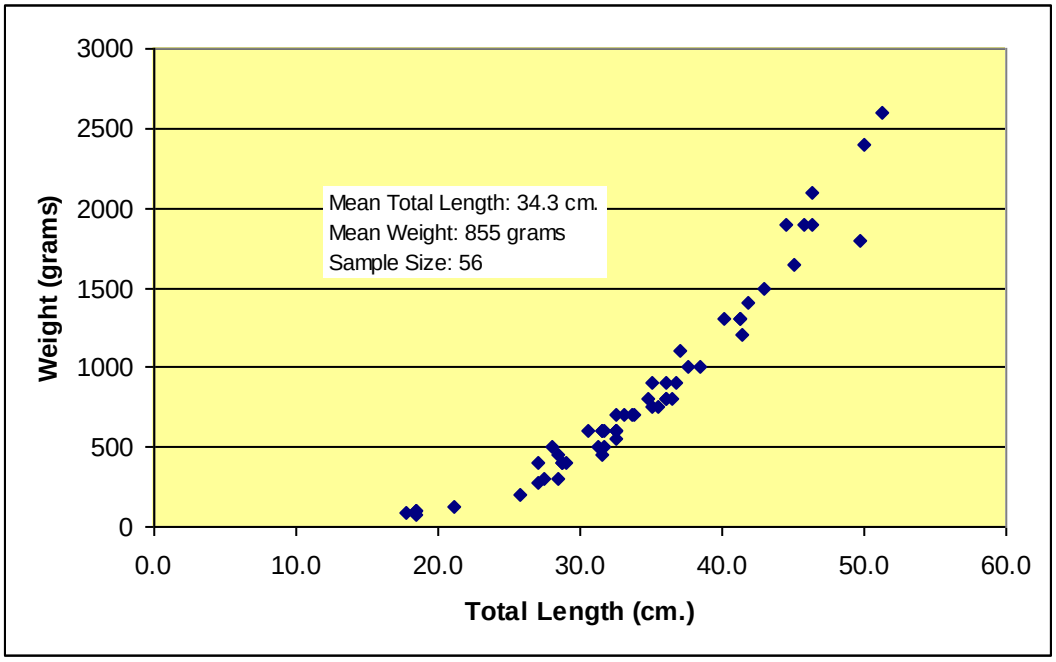
3.2.3 Largemouth Bass:

We mentioned previously that largemouth are not particularly vulnerable to 8-foot trapnets as these nets often fish outside of their preferred habitats. This lower level of "catchability" is reflected in typically low C.U.E. values for this species. We caution the reader to bear in mind that we have a much lower level of confidence in this index to accurately reflect relative abundance.

We captured 56 largemouth bass for a C.U.E of 2.3 fish / net set ± 0.64 (standard error) (Appendix A). Relative to 22 synoptic surveys in the Parry Sound Area that has captured largemouth bass, Dollars Lake ranks 4th and well above the average C.U.E. of 1.1 largemouth per net set. Likewise, the C.U.E by weight for Dollars Lake largemouth was 1.994 kg. per net set (Appendix A) – well above the average of 0.92. As a gross indicator, we conclude that largemouth bass abundance on Dollars Lake is well above average relative to other Parry Sound Area lakes containing largemouth bass and similarly surveyed. Undoubtedly however, this high abundance of largemouth bass is directly related to the fact that Dollars Lake provides an abundance of largemouth bass habitat. The lake contains numerous back bays and inlets that are heavily vegetated and well suited for this species.

From our sample of 56 largemouth, mean total length was 34.3 cm. and mean weight 855 grams (1.9 lb.) (Appendix D). Size distribution of sampled fish was very good with all size classes being well represented.

Figure 6. Size distribution of largemouth bass sampled during the Dollars Lake synoptic trapnet survey conducted in late summer, 2000.



3.2.4 Northern Pike

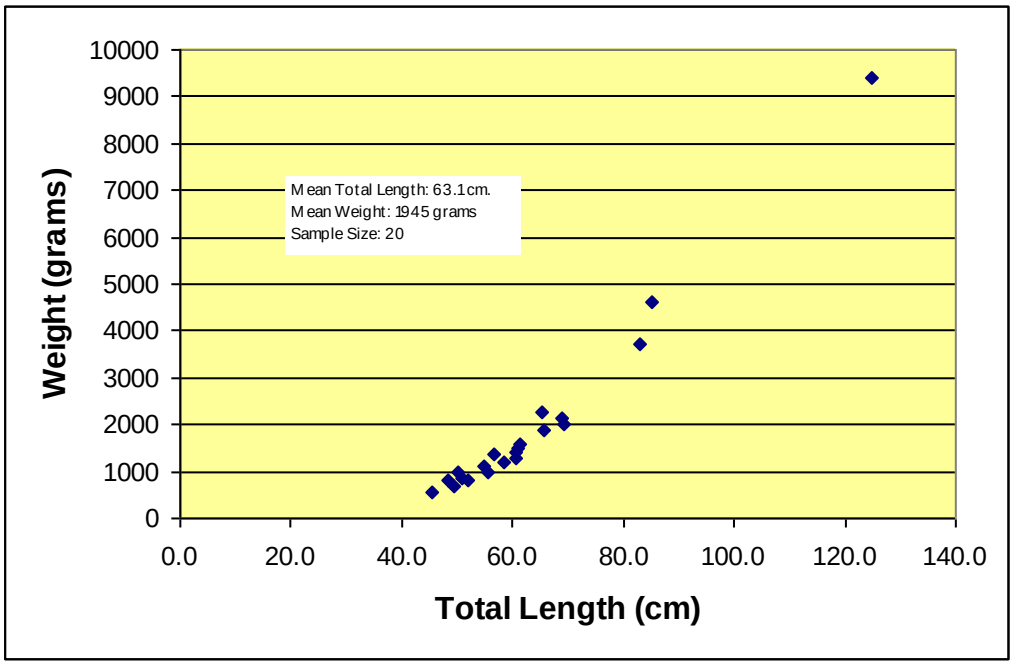
As with largemouth bass, relative abundance indices for northern pike have a low level of confidence. Northern Pike are 'ambush feeders' and are not as readily caught in 8-foot trapnets as species that actively pursue their prey. Consequently, C.U.E. values are typically low for pike and under represent their true abundance in the fish community.

We captured 20 northern pike in 24 sets for a C.U.E. of 0.8 pike / net set ± 0.21 (standard error) (Appendix A). Relative to 30 synoptic trapnet surveys in which pike were caught, Dollars Lake ranks 11th – tied with three other lakes. Our C.U.E. was slightly below the average of 1.0 for the above 30 surveys. The Dollars Lake C.U.E. by weight for pike was 1.621 kg. / net set (Appendix A), well below the average of 2.24 for 15 surveys for which comparable weight data is available. We conclude that northern pike abundance on Dollar's Lake is average relative to other Parry Sound Area likes similarly surveyed that contain pike, but the mean size on Dollars lake is considerably smaller.

From our small sample of 20 pike, mean total length was 63.1 cm. and mean weight 1,945 grams (4.3 lb.) (Appendix E). Due to our small sample size, we are reluctant to draw any inferences regarding recruitment and mortality rates for the pike population in Dollars Lake. We do express some concern however at the scarcity of large size pike in our sample. We captured only one pike over 5 kilograms (11 lb.) and wonder if this may be symptomatic of high mortality related to sport fishing.

Small, juvenile pike are not particularly vulnerable to the gear and consequently we make no comment about recruitment to this population other than to say it is happening as evidenced by the presence of mid-size fish.

Figure 7. Size distribution of northern pike sampled during the Dollars Lake synoptic trapnet survey conducted in late summer, 2000.



3.2.5 Black Crappie:

Black crappie have only been captured in three synoptic trapnet surveys in the Parry Sound Area, thus making comparisons and ranking for this species dubious at best.

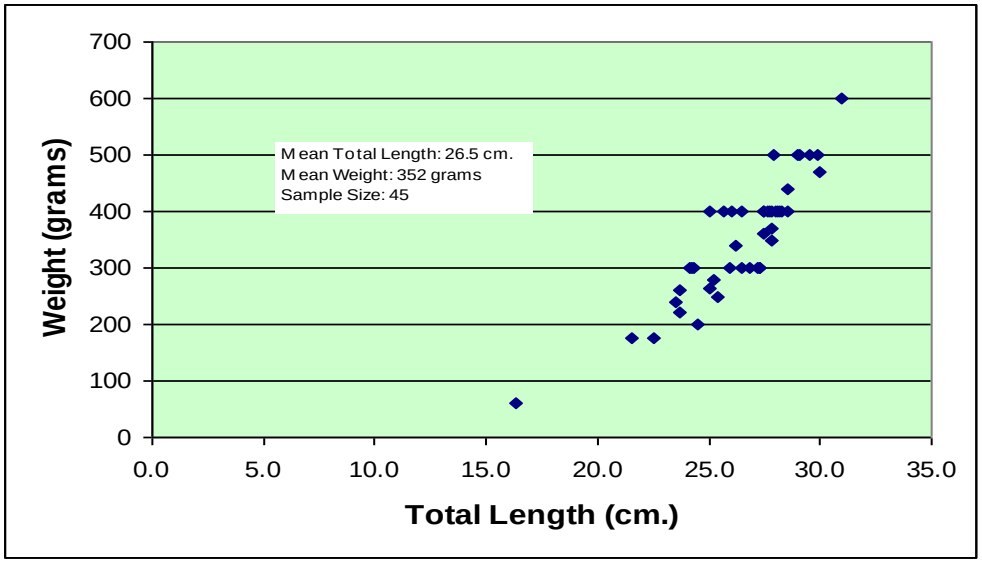
This is the first survey that conclusively documents the presence of black crappie above Dollars Lake dam on the Pickerel River system. By means unknown, but probably through unauthorized introduction, this species has colonized Dollars Lake sometime between 1989 and 2000. Judging by the size and wide distribution within lake, it appears that they have been in Dollars Lake for several years.

We captured 45 black crappie for a C.U.E. of 1.9 per net set ± .062 (standard error) (Appendix A). In the three surveys that have caught black crappie in the Parry Sound Area, C.U.E. range from a high of 4.7 on Six-Mile Lake (McIntyre, 2000a) to a low of 0.8 on McDougall Lake (McIntyre, 2000b). Dollars Lake is in between at 1.9 crappie per net set. We think this represents a "medium" level of abundance for this species.

From 45 crappie sampled, mean total length was 26.5 cm and mean weight 352 grams (¾ lb.) (Figure 8 and Appendix F). Almost all of our sample clustered within the 20 – 30 cm. length range. We suspect that juvenile crappie were not particularly vulnerable to the gear and are highly under-represented in the catch.

Kerr and Grant (2000) cited a number of publications that indicated black crappie have a negative effect on walleye through competition for food and predation. Furthermore, crappie may become the dominant predator where other top predators such as walleye are suppressed, which is the case in Dollars Lake. We consider the introduction of walleye into the Upper Pickerel River system to be a negative development with respect to walleye management in these waters.

Figure 8. Size distribution of black crappie sampled during the Dollars Lake synoptic trapnet survey conducted during late summer of 2000.



3.2.6 Other Species:

We suspect that brown bullhead may be much more abundant in Dollars Lake than our C.U.E. of 23.7 per net set ± 18.8 (standard error) would indicate (Appendix A). This already is a high C.U.E – more than double the average of 10.1 from 29 synoptic surveys that have caught this species in the Parry Sound Area. Were we using a type of near-shore gear that effectively targets this species, we suspect that catches would indeed be very high, especially in localized areas where habitat features are ideal for this species.

We captured a remarkable 35 bowfin (a.k.a. dogfish) for a C.U.E. of 1.5 per net set ± 0.51 (standard error) (Appendix A). These were large fish – averaging 2.89 kilograms (6.4 lb.) and accounting for 10.7% of the total catch weight. This is a seldom-caught species in inland waters in the Parry Sound Area. Six-Mile Lake is the only other waterbody in which this species has been caught in a synoptic trapnet survey (McIntyre, 2000a). Although we have almost no comparative data, we suspect that our C.U.E. of 1.5 bowfin caught per net set is indicative of a very high abundance for this species. Again, we attribute this to the fact that there is an abundance of suitable habitat for this species in Dollars Lake.

Rock bass, pumpkinseed and yellow perch were caught in very low abundance that is more a function of the gear used than their abundance in the fish community.

We captured seven redhorse suckers (*Moxostoma sp.)* – a species very seldom seen in inland waters. Fifty-seven common white suckers were captured for a C.U.E. of 2.48 per net set ± 0.62 (standard error) (Appendix A). This index of abundance is "average" relative to 29 previous synoptic surveys that have captured this species.

One lake whitefish was captured. This is very unusual as this species normally inhabits deep-water areas far beyond the depths that trapnets fish.

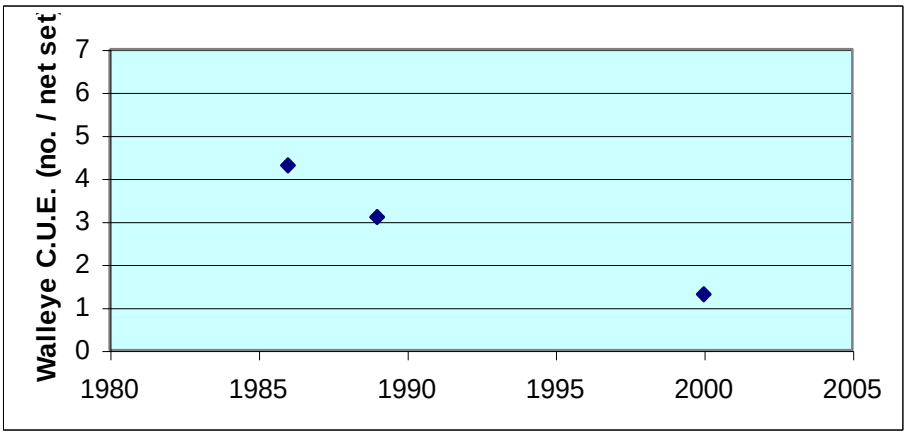
3.3 Comparison with 1986 and 1989 Synoptic Trapnet Surveys:

The synoptic trapnet survey design currently used by the Parry Sound Area to index walleye and smallmouth bass populations has evolved over a period of many years. This process commenced with trapnet and gillnet surveys conducted in the 1980's that concurrently used four different types of gear (4', 6' and 8' trapnets and 'lake survey' gillnets). The use of multiple gear size and type complicated analysis considerably, but it did provide the basis that clearly indicated 8' trapnets were the most effective gear for the capture of smallmouth bass and walleye. Consequently, our present-day survey design uses exclusively 8' trapnets. The biases of this gear were discussed in the previous section (3.2).

For the following discussion, data from the 1986 and 1989 synoptic surveys on the "Upper Pickerel River" have been selectively chosen such that it pertains specifically to that area of the Pickerel River north of Ess Narrows (the same areas that we surveyed). Furthermore, data from these surveys refers only to results from 8' trapnets. Consequently, the methodology is approximately the same between the 1986 and '89 surveys and this one. Although specific trapnet locations were not duplicated in 2000 with those of the previous surveys, they can essentially be considered as being 'randomly selected' and unbiased. Admittedly, the 1986 and '89 surveys were conducted in June and July, whereas our survey was conducted in September.

Walleye C.U.E was 4.3 walleye per net set ± 2.0 (95% confidence interval) in 1986, 3.1 ± 1.9 in 1989 (McIntyre & Thurston, 1990) and 1.3 ± 0.69 in 2000 (Figure 9). Statistically, these means are not significantly different ("t" test at 95% level of confidence). Nevertheless, there is an apparent trend of decreasing walleye abundance between 1986 and 2000.

Figure 9. Comparison of Walleye C.U.E. (no. / net set) for synoptic trapnet surveys conducted on Dollars Lake, 1986 – 2000. Error bars represent "95% confidence interval".



Smallmouth bass C.U.E. was 4.0 ± 1.7 bass per net set (95% confidence interval) in 1986, 8.7 ± 6.0 in 1989 and 3.1 ± 1.4 in 2000. Although smallmouth bass abundance appears to have decreased in 2000 relative to the '86 and '89 surveys, the confidence limits are so wide that any conclusions would be largely conjecture. Smallmouth bass catch results have been so variable that the only conclusion we can make is to say that relative abundance (CUE) indices between surveys are not statistically different.

Due to low C.U.E. values and high variability (wide confidence limits) in the catch for northern pike and largemouth bass in this and previous surveys, there is no significant difference in C.U.E. values for these species between surveys. We caution the reader however that this does not necessarily mean that there has been no significant change in the abundance of these species. But rather, the methodology used in this survey is not sensitive enough to detect anything but the grossest of change in these populations.

For other non-game species, we are unable to make comparisons with the 1986 and '89 surveys as data for these species was pooled for all areas and all gear types.

3.4 Correlation with Fish Stocking and Habitat Enhancement Activities

During the course of our fieldwork, it came to our attention that community members have been engaged in the stocking of walleye summer fingerlings for many years. This was completely unknown to the Parry Sound Office of the Ministry of Natural Resources. Our stocking records indicate that 1990 was the last year that our Ministry authorized *Community Fisheries Involvement (C.F.I.P.)* walleye stocking activities. We conferred with the North Bay Office of MNR who were also unaware of this stocking activity in our Area. We were further dismayed that there was no "paper trail" to ascertain how many walleye were stocked – where and when. To some extent this complicates the interpretation of the data and diminishes our evaluation of natural reproduction from previously enhanced spawning areas – because we don't know what proportion of our walleye catch were stocked fish versus ones naturally produced from local spawning areas.

Community Fisheries Involvement Program (C.F.I.P.) records of the Ministry of Natural Resources indicate that walleye spawning bed enhancement projects were conducted on Dollars Lake in 1990, 1995, 1996 and 1999. At a cumulative cost of over $19,000.00, a total of 17 walleye spawning sites were enhanced through the deposition of suitable walleye spawning substrate.

In spite of extensive enhancement projects and continuing stocking efforts, our data suggests a decreasing trend in walleye abundance between 1986 and 2000. Walleye spawning habitat enhancement projects have not resulted in increased natural production of walleye and it would be foolish to consider any further spawning enhancement projects in light of this. We are unsure of the contribution made by "planted" walleye in our catch. Nevertheless, it is apparent that planting walleye has not resulted in an increase in their abundance. We concur with the recommendation made in the 1989 survey (McIntyre & Thurston, 1990) as well as the *Percid Community Synthesis Walleye Stocking Working Group* of the MNR (Kerr, et al. 1996) that stocking efforts should cease in waters containing a viable resident walleye population – such as Dollars Lake.

We strongly suspect that the Dollars Lake walleye population is languishing in a depressed state due to overexploitation at some time in the past. This has probably suppressed the abundance of walleye and perhaps smallmouth bass, and encouraged the dominance of coarse fish species in the fish community (Rietveld et al. 2000). Under such a scenario, relatively little fishing pressure is able to keep the population depressed and thwart natural rehabilitative processes.

Rietveld et al. (2000) recommended rapid assessment criteria to help diagnose overexploitation of Ontario walleye stocks. For fishing effort, a threshold of 5-rod hours per hectare per year was recommended for northern lakes and 20 for southern lakes. Because Dollars Lake has attributes more akin to "northern lakes", we suspect that a fishing effort of approximately 10 rod hours per hectare is an appropriate threshold beyond which over-exploitation of walleye is likely to occur. Although we do not have any current data, the 1990 creel survey estimated fishing effort of over 24-rod hours per hectare for the open-water period alone. Furthermore, if we apply the mean weight of walleye caught in our survey to the harvest of walleye estimated in the 1990 creel, the walleye yield in the creel would have been 1.02 kg. per hectare. Rietveld et al. (2000) recommended a threshold yield of less than 1 kg. per hectare. From the foregoing we strongly

suspect that the Dollars Lake fishery (and indeed that of the Upper Pickerel River system) has been heavily overexploited in the past.

In spite of the poor 'synopsis' report we have given for walleye in Dollars Lake, the population is far from the brink of extinction. The walleye population is probably at or seeking a low equilibrium point that is a balance between low natural recruitment and moderate to high levels of mortality. The population is likely to become stable but at very low numbers. Perhaps one glimmer of optimism was the capture of 5 yearling walleye gilled in the lead of our nets. This may be an indication of a strong 1999-year class entering the population. We fear however that many of these fish may not survive the "gauntlet of angling harvest" and become recruited to the adult spawning population.

4.0 Recommendations:

The past walleye management strategy of maintaining harvest while attempting to increase productivity through spawning habitat enhancement as well as (recently unknown and unauthorized) plantings of summer fingerling walleye has not resulted in an increase in walleye abundance. Indeed, the reverse trend appears to be apparent.

We recommend a future strategy of:

1. **A considerable reduction in walleye harvest to assist in the natural rehabilitation process for walleye in Dollars Lake. Realistically, we caution readers that this process may take decades.**

2. Cease plantings of walleye summer fingerlings that have not had discernable beneficial effects over the past decade.

3. Cease future walleye spawning enhancement projects which also have not had a discernable beneficial effect over the past decade and which are probably not a limiting factor with respect to walleye reproduction and recruitment.

5.0 Acknowledgements:

Field operations were very capably supervised by Jim Palmer with assistance from Rocky Brooks, Ken Molyneaux, Rollie Fry, Lin Cameron and Eric McIntyre.

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Appendix A

Catch Summary for Dollar's Lake Synoptic Trapnet Survey, Summer 2000

Net Set Number	Wall-eye	S.M. Bass	L.M. Bass	N. Pike	Black Crappie	Bow-fin	C.Wt. Sucker	Pkn-seed	Rock Bass	Brown Bllhd.	R.H. Sucker	Lake Wt.fish	
1	3	4	0	0	0	0	4	1	8	0	0	0	
2	1	4	1	0	0	0	1	0	0	0	0	0	
3	1	2	3	1	1	0	0	0	0	0	1	0	
4	1	1	5	3	5	1	1	0	0	29	0	0	
5	0	3	0	1	0	0	3	0	0	0	0	0	
6	0	2	2	1	8	6	0	0	2	6	0	0	
7	2	7	2	0	0	0	1	0	6	14	0	0	
8	0	1	0	2	0	1	0	0	2	3	0	0	
9	1	3	0	0	0	0	8	1	0	8	0	0	
10	1	11	1	0	1	0	0	2	3	5	0	0	
11	1	2	4	0	0	0	2	3	1	0	0	0	
12	0	3	13	0	2	1	1	0	0	0	0	0	
13	1	1	0	0	2	0	9	0	0	0	0	0	
14	1	0	9	1	3	4	1	2	0	3	5	0	
15	0	1	3	1	0	0	0	0	0	2	0	0	
16	0	1	1	0	0	0	1	0	0	0	1	0	
17	7	5	0	1	1	2	7	1	1	11	0	1	
18	0	2	0	0	0	0	1	0	3	0	0	0	
19	2	0	3	1	8	9	3	0	0	455	0	0	
20	2	0	2	1	0	0	10	0	0	0	0	0	
21	4	0	0	1	1	2	3	0	0	0	0	0	
22	3	5	4	4	11	1	1	6	0	31	0	0	
23	1	13	0	1	0	1	0	5	2	0	0	0	
24	0	4	3	1	2	7	0	6	1	3	0	0	
Total Catch	32	75	56	20	45	35	57	27	29	570	7	1	954
Mean Catch (C.U.E.)	1.33	3.13	2.33	0.83	1.88	1.46	2.38	1.13	1.21	23.75	0.29	0.04	
Standard Error	0.333	0.674	0.642	0.206	0.624	0.511	0.622	0.396	0.421	18.832	0.213	0.042	
Standard Deviation	1.633	3.301	3.144	1.007	3.055	2.502	3.048	1.941	2.064	92.257	1.042	0.204	
95% Conf. Limit	0.690	1.394	1.328	0.425	1.290	1.056	1.287	0.819	0.871	38.957	0.440	0.086	
Sample Size	24	24	24	24	24	24	24	24	24	24	24	24	
Total Weight (kg.)	26.710	36.080	47.860	38.900	15.855	55.000	68.860	2.570	3.265	203.490	17.700	2.400	518.690
%of total catch wt.	5.10%	6.95%	9.22%	7.50%	3.05%	10.60%	13.27%	0.50%	0.63%	39.23%	3.41%	0.46%	99.91%
CUE(wt.) (kg./netset)	1.113	1.503	1.994	1.621	0.661	2.291	2.869	0.107	0.136	8.479	0.737	0.1	21.611
Mean Wt. (grams)	834	491	855	1945	352	2890	1172	92	172	357	2967	2400	
Sample Size	32	75	56	20	45	35	57	27	29	158	7	1	

Appendix B

Walleye Biosample Summary - Dollars Lake Synoptic Trapnet Survey Summer 2000

	Total Lg. (cm.)	Fork Lg. (cm.)	Weight (gr.)	Assessed Age
	29.6	28.0	220	2
	29.6	28.2	240	2
	43.9	41.4	800	5
	23.5	22.5	110	1
	55.7	52.5	1700	7
	48.0	45.2	1100	5
	46.7	43.8	1100	6
	47.8	45.6	1000	5
	33.0	31.2	400	3
	26.0	25.0	170	2
	22.0	20.5	70	1
	37.5	35.9	600	4
	32.0	30.2	450	3
	61.2	57.7	2400	9
	42.2	40.6	750	4
	45.7	43.3	900	5
	43.5	40.6	850	5
	43.4	40.2	900	5
	35.7	33.4	450	3
	49.8	47.4	1500	8
	47.3	44.6	1000	6
	41.1	38.4	700	4
	40.0	37.3	800	4
	45.5	43.6	1000	6
	31.8	29.7	400	3
	30.4	28.1	300	2
	43.1	40.4	800	5
	43.5	41.2	800	4
	55.0	55.4	2300	8
	36.7	34.5	500	3
	55.8	52.2	1800	7
	38.5	36.6	600	4
Mean	40.8	38.6	834.6875	4.4
Confidence Level(95.0%)	3.498	3.363	209.303	0.732
Standard Error	1.715	1.649	102.624	0.359
Standard Deviation	9.702	9.329	580.528	2.030
Sum			26710	
Count	32	32	32	32
The adjacent walleye	*22.5*	*21.5*	*120*	*1*
samples were ones caught	*21.0*	*20.0*	*100*	*1*
in wings or lead and were	*23.3*	*22.3*	*100*	*1*
not considered part of the	*24.0*	*22.4*	*110*	*1*
catch	*22.5*	*20.9*	*110*	*1*

Appendix C

Smallmouth Bass Biosample Summary - Dollars Lake Synoptic Trapnet Survey Summer 2000

Total Lg. (cm.)	Fork Lg. (cm.)	Weight (grams)		Total Lg. (cm.)	Fork Lg. (cm.)	Weight (grams)
33.1	31.0	600		38.9	36.8	800
26.0	24.5	300		33.7	31.7	450
29.3	28.0	310		31.8	29.0	400
21.2	20.0	290		34.8	32.7	700
39.2	36.9	800		37.4	35.2	700
25.6	24.1	300		40.5	38.3	1100
20.4	19.2	120		39.4	37.3	1100
26.8	25.3	300		34.9	32.5	600
44.1	41.8	1300		36.7	34.6	800
34.0	31.7	600		32.8	31.2	600
38.0	35.4	800		29.3	27.7	350
40.0	38.5	1100		33.2	31.3	500
33.4	31.3	600		33.2	31.5	600
32.6	30.6	500		23.5	22.1	170
27.3	25.9	400		21.7	20.4	140
25.3	23.8	210		21.8	20.5	120
34.2	32.2	700		22.1	20.4	110
34.0	31.3	500		21.0	19.8	120
31.2	29.2	450		23.1	21.8	150
43.0	40.1	1150		20.1	19.0	110
19.1	18.2	110		25.7	24.5	200
44.6	42.0	1550		38.4	36.3	1000
22.8	21.2	150		29.5	28.0	400
31.4	29.6	500		21.5	20.5	125
43.0	41.0	1200		22.9	21.7	160
36.3	34.1	700		30.8	29.0	500
19.5	18.2	100		34.3	32.1	600
42.0	39.3	1100		20.8	19.5	110
28.2	26.6	400		30.8	28.6	400
26.7	25.1	225		30.3	28.2	400
26.7	25.2	250		34.5	33.0	700
25.5	24.0	200		34.3	32.6	600
19.6	18.3	100		36.0	34.3	800
22.5	21.0	130		38.0	35.8	800
25.8	24.3	250		27.5	26.0	400
21.0	19.9	140		20.5	19.0	110
21.0	19.8	140		31.1	28.9	500
				36.9	34.2	800
30.2	**28.5**	**491**	**Mean**			
0.818	**0.773**	**39.502**	**Std. Error**			
1.630	**1.540**	**78.710**	**Conf. Lev. (95.0%)**			
7.083	**6.694**	**342.100**	**Std. Deviation**			
		36800	**Sum**			
75	**75**	**75**	**Count**			

Appendix D

Largemouth Bass Biosample Summary - Dollars Lake Synoptic Trapnet Survey Summer 2000

Total Lg. (cm.)	Fork Lg. (cm.)	Weight (grams)	Total Lg. (cm.)	Fork Lg. (cm.)	Weight (grams)
27.0	25.9	280	21.1	20.3	120
28.5	26.9	300	51.3	49.6	2600
25.8	24.7	200	41.3	39.1	1300
31.7	30.3	500	35.0	33.5	900
50.0	47.9	2400	46.3	44.8	1900
35.5	34.0	750	29.0	27.5	400
32.6	31.5	550	27.5	26.4	300
49.7	47.5	1800	41.2	39.8	1300
34.8	33.3	800	41.9	40.5	1400
32.5	31.3	600	36.0	34.5	800
36.8	35.5	900	36.0	35.1	900
41.4	39.6	1200	31.3	30.2	500
35.0	33.5	750	31.5	30.5	450
30.5	29.2	600	18.5	17.8	100
17.8	17.1	90	36.5	35.3	800
32.5	31.3	700	33.7	32.2	700
32.5	32.1	600	46.3	44.4	2100
18.5	17.8	70	37.1	36.2	1100
44.5	43.1	1900	33.1	32.2	700
45.8	43.7	1900	37.6	36.7	1000
33.8	32.2	700	40.1	39.2	1300
38.5	36.6	1000	43.0	41.8	1500
31.7	30.3	600	36.0	34.8	800
28.8	27.4	400	28.4	27.7	450
28.7	27.6	400	31.5	34.0	600
27.0	26.2	400	32.6	31.5	600
28.0	27.4	500	31.5	30.6	600
18.4	17.8	100	45.0	39.8	1650

Mean	34.3	33.0	855
Conf. Lev. (95.0%)	2.131	2.032	160.631
Std. Error	1.064	1.014	80.153
Std. Deviation	7.959	7.586	599.812
Sample Variance	63.341	57.554	359774.4
Sum			47860
Count	56	56	56

Appendix E

N. Pike Biosample Summary - Dollars Lake Synoptic Trapnet Survey Summer 2000

	Total Lg. (cm.)	Fork Lg. (cm.)	Weight (grams)
	48.5	45.8	800
	61.5	58.3	1600
	56.6	53.8	1350
	61.1	58.1	1500
	52.0	48.7	800
	45.6	42.6	550
	68.9	65.0	2150
	50.0	47.0	1000
	125.0	120.0	9400
	60.7	56.9	1400
	50.8	47.9	850
	85.0	83.0	4600
	55.0	51.0	1100
	58.3	54.6	1200
	49.3	46.5	700
	65.7	62.4	1900
	83.0	80.0	3700
	60.5	57.7	1300
	55.5	52.4	1000
	69.1	65.6	2000
Mean	63.1	59.9	1945
Std. Error	4.022	3.956	451.633
Conf. Lev. (95.0%)	8.418	8.281	945.279
Std. Deviation	17.987	17.694	2019.764
Sum			38900
Count	20	20	20

Appendix F

Black Crappie Biosample Summary - Dollars Lake Synoptic Trapnet Survey Summer 2000

Total Lg. (cm.)	Fork Lg. (cm.)	Weight (grams)	Total Lg. (cm.)	Fork Lg. (cm.)	Weight (grams)
29.9	28.7	500	29.1	28.0	500
25.2	24.1	280	28.0	27.6	400
26.8	25.8	300	27.6	26.4	400
26.2	25.4	340	24.5	23.3	200
27.8	27.0	370	16.3	15.4	60
23.7	23.0	220	28.5	27.6	400
29.0	27.9	500	27.7	26.8	400
25.0	24.0	400	24.3	23.5	300
28.5	27.2	440	29.5	28.6	500
25.0	24.1	265	28.1	26.9	400
30.0	29.0	470	27.8	26.6	400
23.5	22.5	240	27.3	26.4	300
27.5	26.5	360	26.5	25.8	300
21.5	20.8	175	27.2	26.0	300
23.7	22.6	260	27.8	26.7	350
27.5	26.5	400	27.3	26.5	300
31.0	30.0	600	25.9	25.1	300
26.5	25.6	400	22.5	21.5	175
24.2	23.3	300	24.1	23.0	300
25.7	24.9	400	26.0	24.8	400
27.9	27.0	500	28.3	27.4	400
25.4	24.4	250	27.5	26.3	400
			28.2	27.2	400
		Mean	**26.5**	**25.5**	**352**
		Standard Error	**0.388**	**0.383**	**15.609**
		Standard Deviation	**2.602**	**2.572**	**104.711**
		Confidence Level(95.0%)	**0.782**	**0.773**	**31.459**
		Sum (Total)			**15855**
		Count	**45**	**45**	**45**