

Dewart Lake
Kosciusko County

Fish management report
with emphasis on a lake-wide application
of fluridone to control
Eurasian water milfoil



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2006

EXECUTIVE SUMMARY

A project is underway by the Division of Fish and Wildlife (DFW) to monitor the effects of fluridone use at several lakes where experimental permits have been issued for Eurasian water milfoil (EWM) control. Dewart Lake, located in Kosciusko County, was treated with in 2006. The initial results are presented in this report.

Dewart Lake was treated with 28 gallons of fluridone (6 ppb) on May 25. FasTEST samples on June 14 indicated a concentration of 8.1 ppb was achieved. As a result, no “bump” was needed to ensure an adequate concentration.

To evaluate the treatment, the DFW conducted a plant survey on July 31. In addition, all floating-leaf emergent plant beds and offshore stands of bulrushes and cattails were mapped on August 9. To obtain information on the fish community for comparisons to possible future changes, surveys were conducted in June and July. More information on largemouth bass was obtained from mark-recapture sampling in April and May. A creel survey was conducted from April through October.

The frequency of occurrence of EWM dropped from pre-treatment estimates of littoral coverage ranging from 35-60% in mid-summer 2005 to no detectable level in 2006 after treatment. The application, however, was associated with a 10% reduction in the overall coverage of submersed aquatic plants, and some reductions in species richness, mean native species per site, and native species diversity. Treatment had little effect on emergent plants.

As expected, there were no immediate detectable effects on the fish community or fishing activity at the lake. Prior to the fluridone application, anglers who were interviewed while fishing had mixed opinions on whether there were “too many weeds”, but none thought so afterwards.

Given the initial success of the fluridone treatment, efforts should be undertaken in 2007 to curtail EWM resurgence.

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Eurasian water milfoil *Myriophyllum spicatum* has been present in northern Indiana natural lakes for decades, but only recently have major steps been taken to reduce its area-wide distribution and abundance. Until 2000, Eurasian water milfoil (EWM) was viewed by most lake managers as one of several submersed aquatic plants that can create localized nuisance conditions that primarily interfere with individual riparian use. As a result, lake associations and lake residents bore the full cost of control programs under permit authority granted by the Department of Natural Resources (DNR). In 2002, however, in response to public pressure to provide some financial assistance, the state legislature increased funding of the DNR Lake and River Enhancement Program (LARE) with the stipulation that a portion of the money be used to help communities control invasive aquatic plants (HB1221). The LARE program, based on a tax applied to boat owners, now generates approximately \$2.2 million per year, of which about 25% is used for aquatic plant management, primarily directed at EWM. Because more money is now available, aggressive measures are being taken to control EWM with herbicides at several lakes in hopes of reducing local infestations and the likelihood of its dispersal to other lakes. Control measures typically involve use of triclopyr and 2,4-D for spot treatments or fluridone, marketed as SONAR[®], for lakewide applications.

Although fluridone is touted for its efficacy to selectively control EWM without harming native plants, the DNR has adopted a cautious approach when approving permits to authorize its use. Concerns center on the whether applicators and plant managers have sufficient confidence in their ability and experience to target appropriate lakes for treatment and to apply correct dosages under field conditions that do not create long-term adverse effects on lake ecology, including declines in water quality, declines in native plant abundance, or declines in fishing. To address these concerns, a project is now underway by the DNR Division of Fish and Wildlife (DFW) to monitor the effects of fluridone use at several lakes where experimental permits have been issued for EWM control. While final conclusions regarding the risks and benefits of fluridone treatments in Indiana lakes may be years away, the DFW is issuing a series of reports to provide updated information on the results at each lake as it becomes available. Dewart Lake, located in Kosciusko County, was treated with SONAR[®] in 2006. The initial results, along with a comparison to pre-treatment plant data, are presented in this report.

In addition to EWM control, three other management issues have come to the forefront at Dewart Lake that warrant investigation. Local residents have expressed interest in designating an “ecozone” on the south side to protect offshore beds of emergent plants from boating activity. Following enactment of legislation in 2000 (HB1075), the DNR was given authority to establish zones where watercraft use may be limited for resource protection. The area has undergone major shifts in coverage, ranging from dense beds of cattails and bulrushes to virtually no plants, during the last 25 years. Some reappearance of the beds has occurred in recently. Dewart Lake is also one of 16 Indiana natural lakes larger than 500 acres. Because of their size, large lakes may be experiencing greater fishing pressure for largemouth bass, due to their popularity among tournament anglers. As a consequence, large lakes like Dewart may have lower bass densities, poorer size structure, greater bass mortality, and may require different management strategies to satisfy bass anglers than small lakes. This premise is now under study at other northern Indiana lakes as well. Finally, walleyes have been occasionally stocked in Dewart Lake to increase the diversity of fishing opportunities. Information on their survival could be useful in efforts to refine the DFW walleye management program.

DEWART LAKE

Dewart Lake is a moderately-fertile, 551-acre natural lake located three miles south of Syracuse. It lies within the Elkhart River watershed and drains 5,152 acres. Two small inlets enter on the east side and the outlet, Hammond Ditch, leaves the west side and flows to Waubee Lake. Maximum depth is 82 feet and average depth is 16 feet. Enough oxygen is present for fish down to 15 feet but levels usually drop too low below 20 feet (< 4 ppm.) by mid-summer (Table 1). Water clarity in July varies from 6-14 feet. The bottom is mostly sand and muck, but boulders and gravel are present in some locations. Large areas on the north and south sides of the lake are less than 5 feet deep. Hydraulic retention time is estimated to be 601 days. Farming is the main watershed use, although woodlots and wetlands are present. Nearly all of the shoreline is residentially developed. Areas of natural shoreline and wetlands are present along the south shore and in the northeast corner adjacent to a private camp. A state-owned boat ramp is available in the northwest corner off CR 300E.

METHODS

Dewart Lake was treated with 28 gallons of fluridone at an estimated rate of 6 ppb on May 25, 2006 by Aquatic Weed Control, a licensed commercial applicator. It was dispensed throughout the water column in a zig-zag fashion using two boats mounted with drop-line injection sprayers. The application took approximately 4 hours to complete. FasTEST samples collected at six locations on June 14 and analyzed one day later by SePRO indicated an average concentration of 8.1 ppb had been achieved, with four of the six samples varying from 7.0-7.4 ppb. As a result, no follow-up treatment was necessary to “bump” the dosage back to 6 ppb to ensure an adequate concentration for at least 60 days. Little inflow and a low water level at the time may have contributed to maintenance of the higher concentration of fluridone.

To evaluate the impact of the fluridone treatment on EWM and other plants, the DFW conducted an aquatic plant survey July 31, 2006 following standard protocols outlined by the LARE program. Submersed plant samples were collected with a double-headed rake at 90 randomly-selected sites, stratified within 5-foot contours, down to a depth of 20 feet. Descriptive summary statistics, including species richness and diversity, frequency of occurrence, relative abundance and dominance of various species, were generated to describe the plant community. The results were then compared to samples collected on May 24 and August 1, 2005 by the Division of Fish and Wildlife and were made available for comparisons with samples taken by Aquatic Weed Control under contract for LARE on August 10, 2006. In addition, the DFW mapped all floating-leaf emergent plant beds and offshore stands of bulrushes and cattails on August 9, 2006. Little prior quantification of emergent plants had been documented. Beds were mapped by boating along the lakeward perimeter of each bed and recording GPS coordinates at points along their edges. Width of the bed, oriented perpendicularly toward shore at each point, was measured with a laser rangefinder. Bed size was calculated by summing areas of each polygon created by the linear distance between two consecutive GPS points and their mean width. For offshore bulrush and cattail beds, size was determined by digitizing GPS points recorded along the entire margin of the bed. Species present at each GPS point and along the visual transects through the bed were noted. Small patches of emergent plants (< 625 sq ft) were also mapped and characterized by species.

To obtain current information on the status of the fish community for comparisons to possible future changes, fish population surveys were conducted at Dewart Lake on June 12-14 and July 17-18, 2006. The June date was chosen to coincide with the optimum period for natural lake fish community surveys, while the July sampling was done to compare with four previous surveys conducted at the lake in 1976, 1982, 1995 and 2003. Surface water temperatures at the time of the June and July surveys were 71F and 83F, respectively. Sampling in June consisted of 45 minutes of pulsed DC night-time electrofishing with two dip-netters and an additional 23 minutes spent targeting only largemouth bass. Five gill net lifts and three trap net lifts were also made in June. During the July sampling, another 45 minutes of electrofishing for all species was conducted at night, while three additional gill net lifts and two additional trap net lifts were made. Each captured fish was measured to the nearest tenth-inch. Fish weights were estimated from a standard length-weight regression model for various species in Indiana natural lakes. Scale samples were taken from major sport fish, other than largemouth bass, for age and growth analyses.

More specific information of the largemouth bass population at Dewart Lake was obtained in April and May 2006. Largemouth bass, density, size, growth and total mortality was determined from mark-recapture electrofishing over a four-week period from April 26 to May 17. Water temperatures varied from 58-63F. Two sampling crews covered the entire shoreline in about two hours per night. Stunned bass were retrieved by two dip-netters in each boat, measured and marked with a right-ventral fin-clip before release. A Schnabel estimate of 8-inch and larger bass was then generated from four sampling sessions. Mean nightly estimates of catch per effort for four size categories of bass were calculated. Scale samples from bass were taken at this time for age analysis. A separate estimate of the bass population over the entire length range was made and partitioned into various age groups based on the proportions per half-inch in order to estimate annual survival. No specific sampling was targeted toward catching walleyes.

To estimate fishing effort and catch at Dewart Lake, a creel survey was conducted from April 3 through October 25, 2006. During the survey, boat and shore anglers were counted at regular intervals on four daily occasions throughout an early period (morning to mid-afternoon) and late period (mid-afternoon to dark) on seven randomly-selected

weekdays and three weekend days every two weeks. Fishing effort was calculated for boat and shore anglers each month for weekends and weekdays by multiplying the average daily count times 15 hours per day times the number of weekend and weekdays per month. Angler catch was determined by interviewing as many as anglers as possible during each sampling day. Total catch of each species was then calculated by expanding the observed catch times the fraction of total effort for each month (i.e. total catch = observed catch * expansion factor; expansion factor = estimated total hours / observed interview hours). Harvested fish were also measured to determine size structure and harvested bass was also examined for fin-clips. An estimate of the percentage of legal-size bass (≥ 14 in) removed by anglers was calculated by dividing the harvest estimate from the spring population estimate. During each interview, a spokesperson for the party was asked which species they were fishing for, whether they released any legal or sub-legal bass, how they rated fishing quality, whether they were Dewart Lake residents. We also asked a general question of whether Dewart Lake had “too many weeds” to gauge their perceptions of the amount of milfoil infestation before and after the fluridone treatment.

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RESULTS

The fluridone application significantly reduced the amount of EWM in Dewart Lake. Based on data collected by Aquatic Weed Control and the DFW, the frequency of occurrence of EWM at various sample sites dropped from pre-treatment estimates of littoral coverage ranging from 35-60% in mid-summer 2005 to no detectable level in 2006 after treatment (Table 2). The application, however, was associated with a 10% reduction in the overall coverage of submersed aquatic plants, a reduction in species richness, mean number of native species per site, and native species diversity. Minor species present prior to treatment but not observed after included elodea, floating-leaf pondweed, bladderwort, leafy pondweed, northern water milfoil, and whorled water milfoil. *Nitella* was detected only after treatment. Coontail, a species that can be sensitive to low concentrations of fluridone, lost much of its color (i.e. chlorosis) but was still present at 43% of sample sites after treatment. A lower dominance score in the DFW samples indicated coontail abundance decreased, however.

Although the frequency of occurrence of EWM increased with depth prior to treatment, it was effectively controlled by fluridone within all contours of the littoral zone (Table 3). Coontail occurrence decreased slightly within each contour, while chara and water stargrass were generally unaffected. Except for flat-stem pondweed, which was relatively sparse before treatment, pondweed coverage in general was reduced, as was coverage of common naiad. Notable declines occurred among Illinois pondweed and variable pondweed in the 0- to 5-foot contour, sago pondweed and large-leaf pondweed in the 5- to 10-foot contour, and sago pondweed in the 10- to 15-foot contour. Coontail dominance, a value that incorporates distribution and rake scores, decreased 48% in the 0- to 5-foot contour, 42% in the 5- to 10-foot contour, 34% in the 10- to 15-foot contour and 51% in the 15- to 20-foot contour (Table 4). Variable pondweed dominance decreased 67-90% in the top two contours.

The fluridone treatment had little effect on emergent plants. One 2.4-acre bed of spatterdock and water lilies (#2) in the northeast corner of the lake showed sign of chlorosis in early July but recovered by August (see Appendix). During sampling on August 9, 26 beds of floating-leaf emergent plants covering 36 surface acres were mapped. Their lakeward perimeter covered slightly more than 2 miles, or 40% of the

shoreline. Water lilies occurred in 22 beds and were observed along each transect within 15 beds. Spatterdock occurred in 20 beds and was noted along each transect within eight beds. There were 12 beds dominated by lilies ($\geq 2:1$ ratio) and seven beds dominated by spatterdock. Other species associated with the beds included arrow arum, bulrush, cattail, pickerelweed, swamp loosestrife, and water willow. The average number of species observed along the transects within each bed varied from 1.0 to 3.7. The largest bed (#23) covered 8.1 acres and grew midway along the south shore. Beds larger than 5 acres were noted just north of the public boat ramp (#5) in the northwest corner and (#19) along the south shore in the southwest corner. Two other beds larger than 2 acres (#17 and #18) were located in the southwest bay as well, while another 2-acre bed (#9) was located in the southeast corner at the mouth of an inlet. Twenty-three patches of lilies and spatterdock were also scattered within the four corner bays and along the south shore. No floating-leaf emergents were present along the east, north and or sides of the lake except along the east side of the island near the middle.

Twelve off-shore beds of bulrushes and three off-shore beds of cattails were also mapped (see Appendix). They covered about 5 acres. All but two were present along the south side and within the southwest bay in the area that would likely be included in the proposed ecozone. Two small beds of bulrushes (#40 and #41) were mapped along the north shore but together only covered 0.1 acres. The largest bulrush bed (#36) was 3.2 acres and the largest cattail bed (#37) was 0.8 acres. Both were relatively close to each other. Fewer, but larger beds, would have been consolidated within this area but gaps between plants were too great (> 25 ft) to consider them contiguous.

As expected, given the May application of the fluridone treatment and the unlikelihood of any immediate impact, results of the June and July fish population surveys were similar to results obtain in previous years (Table 5). Bluegills have consistently ranked first by number in survey catches dating back to 1976. Largemouth bass, redear and yellow perch have also been the major sport species over the years. The most notable change in relative abundance of various species, however, has been the appearance and eventual increase of northern pike after 1982. Fifty-nine pike, weighing 144 pounds, were caught during the 2006 sampling. Pike accounted for 26% of the total survey weight. The gill net catch rate increased from 4.3/lift in 1995 to 6.8/lift in 2003

and 7.3/lift in 2006. As pike abundance increased, smallmouth bass and walleyes were also stocked, although only two smallmouth bass and seven walleyes were captured in the 2006 survey. The overall weight of large predators (including largemouth bass, gar and bowfin) increased from an average of 38% in 1976 and 1982 to 60% in 1995 to 2006, even though they accounted for only 9-13% by number.

Whether in response to size limits imposed in the 1990s, largemouth bass abundance was no greater in 2006 than in previous years, based on survey catches. A total of 152 bass were caught in the 2006 survey, although 118 were caught in June (26/15-min) and only 34 (18/15-min) in July. The July catch rate was similar to the catch rate in 1995 (18/15-min) and 2003 (14/15-min). Comparisons of largemouth bass abundance to 1976 and 1982 were compounded by the use of AC electrofishing gear in 1976 and 1982, then DC electrofishing gear afterwards. Mean weight of bass ranged from 0.35-0.37 pounds in 1976 and 1982, increased to 0.62 in 1995, but then dropped back to 0.48 in 2003 and to 0.40 in 2006.

As predator fish increased at Dewart Lake, populations of other fish may have decreased (Table 5). Only eight black crappies were caught in 2006, including only three in July. No golden shiners were observed, although as many as 30 were caught in 1976. Only four lake chubsuckers were caught in July 1995, 2003 or 2006 compared to 142 in 1976. Pumpkinseeds, redbfin pickerel, and white suckers were noted in previous surveys but not captured since 1995. As many as 107 yellow perch were caught in 2006, but only 22 were taken in July, while earlier July surveys included 65 to 136 perch. Despite the declines among these forage species, four banded killifish, 16 brook silversides, eight logperch, and 249 mimic shiners (perhaps identified as bluntnose minnows in 1995) were caught in the latest survey, while bullhead catches and catches of other sunfish species (green, longear, pumpkinseed, rock bass, warmouth) were similar to previous surveys.

A total of 1,159 bluegills were sampled during the 2006 survey, ranging in length from 1.7-8.5 inches. Mean length of bluegills in the July 2006 catch was 3.5 inches, down from 5.3 in 1976 and 5.0 in 1982, but also down from 3.9 and 4.0 in 1995 and 2003, indicating bluegill size may have declined over the past 30 years, although prior to 1995 (Table 6). From 1995 through 2006, DC electrofishing catch rates (123-134/15-min) and

size structure indices of bluegills, however, have been relatively stable. Less than 1% of all 3-inch and larger bluegills have been 8-inch or larger.

The 152 largemouth bass collected during the June and July sampling ranged in size from 2.5-17.5 inches (Table 7). Although 10 were 14.0-14.5 inches, only one was larger at 17.5 inches. Of all bass 8 inches and larger, 15% were 14-inch or larger. The percentage was slightly greater in June (16%) than July (12%). The proportion of 14-inch and larger bass in July 2006 (12%) was within the range of values from 1976 through 2003 (6-18%). Mean length in 2006 (4.7 in) was also similar to mean lengths in previous surveys. Although no 18-inch or larger bass were captured during the 2006 survey, very few were caught in earlier surveys as well. Only two were captured in 1995 and one was caught in 2003.

More and larger bass were captured during the four nights of spring mark-recapture sampling at Dewart Lake. A total of 1,282 bass, ranging from 3.0-20.5 inches, were caught in slightly over 13 total hours of sampling (Table 8). In addition, 131 bass from 4.0-18.0 inches were recaptured. The largest numbers of individual and recaptured bass were 6.5-7.0 inches. As many as 149 bass were legal-size. They comprised a greater proportion of all 8-inch and larger bass (18%) than they did in June or July. In addition, 15 bass captured in spring were 18-inch or larger, compared to none in June or July.

The Schnabel population estimate of 8-inch and larger bass was 3,578, or only 6.5 per acre (Table 9). The standard error was 400, providing a 90% confidence interval of 2,922 to 4,327. The overall estimate of all bass, including those less than 8 inches long, was 5,401 (SE=470). Nightly catches of 8-inch and larger bass, including recaptures, obtained during one electrofishing lap around the shore varied from 170-243, or 5-7% of the population. The mean nightly catch per hour of 8-inch and larger bass was 68, 13 per hour of 14-inch and larger bass, and only 1 per hour of 18-inch and larger bass. The mean nightly proportions of 8- to 11.5-inch bass, 12- to 13.5-inch bass, 14- to 17.5-inch bass, 18 inch and larger bass were 59%, 22%, 17% and 2%, respectively. Based on these figures, the estimated numbers of bass in these size groups were 2119, 787, 610 and 62. Although likely underestimated, another 1,823 were less than 8 inches. By the time sampling was complete, 814 bass that were 8-inch or larger had been placed within the population, including 134 that were 14-17.5 inches and 15 that were 18-inch or larger.

Bass captured in spring ranged from age-1 through age-8 (Table 10). Mean length per age was 3.4, 6.7, 8.0, 11.1, 13.5, 15.3, 17.3, and 19.2 inches, respectively, based on weighted averages for all captured fish within each age-group. No age-4 bass had reached legal-size but about 42% of age-5 bass had. Over 90% of age-6 bass were legal-size. Mean back-calculated lengths, based on year-class averages for age-1 through age-6 fish, were 2.9, 6.4, 9.5, 12.1, 14.1, and 15.6 inches (see Appendix) and were similar to lengths reported in previous surveys (Table 11). Given the proportion of the number of bass within each age-group distributed over the size range of all bass estimated to be present in spring (5401), Dewart Lake contained 80, 1411, 1427, 1378, 766, 188, 131, and 21 bass that were age-1 through age-8, respectively. Using these figures, annual survival of bass, age-2 through age-7, was 73%, 64%, 45%, 31%, 45%, and 14%, respectively.

Whether the fluridone treatment had any immediate effect on fishing at Dewart Lake was not determined. Until 2006, the only previous information on fishing activity at the lake was obtained by monitoring a bass fishing tournament on May 19, 2002. At the time, 15 anglers fished a total of 128 hours but brought only five legal-size bass to the weigh-in. All were less than 18 inches. During the 2006 creel survey, however, anglers fished 23,980 hours (44 hrs/ac) from April 3 through October 25. Of the total effort, anglers who fished on weekend accounted for 55% of the total, while anglers on weekdays accounted for 45% (Table 12). Months of greatest fishing activity were June (5843 hrs) and July (5288 hrs). Fishing effort in the spring months of April and May accounted for 7% and 15% respectively. Effort in the fall months of September and October made up 10% and 5% respectively. Summer effort in June, July and August totaled 63%. Like other area lakes, nearly all of the fishing effort came from angler fishing from boats (97%). Shore anglers accounted for only 3%.

Anglers fished mostly for bluegills and bass (Table 13). Those who targeted only bluegills accounted for 36% of the total and those who targeted only bass accounted for 32%. Another 6% fished for bluegills in combination with sunfish, 5% fished exclusively for pike, while 4% fished for bass and bluegills, and 4% fished for “anything”. Less than 1% fished for walleyes. Among the total number of responses, bluegills were mentioned more often at 42%, bass second at 34%, sunfish third at 8%, pike fourth at 7%. The percentages of responses from boat anglers for these species were 41%, 34%, 8%, and

8%. Boat anglers tended to target bluegills more in the months of June (47%), July (49%) and August (49%) than other months, while bass responses were highest in April (38%), September (42%) and October (46%). Crappies were mentioned more often in April (8%). Pike were mentioned more often in April (11%) and September (12%).

Multiplying the percentage of responses from boat anglers each month times the number of boat angling hours per month provided an estimate of the monthly fishing effort directed at each species by boat anglers (Table 14). Boat anglers fished 9,705 hours for bluegills and 7,677 hours for bass. Over half of the effort directed at bluegills occurred in June (27%) and July (24%). Only 4% of the bluegill effort occurred in April, while 11% occurred in May. Among boat anglers who fished for bass, peak effort occurred in July (1,733 hrs) and accounted for 23% of the bass fishing total. Hours spent fishing for bass in April (581) and May (1,162) together accounted for another 23%, so even though the percentages of boat anglers who said they were fishing for bass in April (38%) and May (35%) were higher than percentages for other species in these months, their effort represented only 7% and 15% of the total bass effort from boat anglers. Likewise, the effort directed at pike by boat anglers was greatest in June (318 hrs), July (398 hrs), and August (369 hrs) even though as a percentage more effort was directed at pike in April (11%) or September (12%).

Anglers removed 16,266 fish during the period covered by the creel survey (Table 15). Boat anglers took 98% of them. As many as 9,848 bluegills were taken. Sunfish ranked second with 4,419, followed by crappies (538), pike (489), rock bass (312), perch (285), 31 smallmouth bass, 30 walleyes and 14 bullheads. Fishermen removed 299 largemouth bass, 10 of which were marked, and they released 8,865 bass of which 6,729 (76%) were less than 14 inches and 2,136 (24%) were legal-size. Most of the bluegills, sunfish, pike, and rock bass were taken in June. Crappie and smallmouth bass catches peaked in July, while perch and walleye catches peaked in August. Of the 299 largemouth bass removed by anglers, 5% were taken in April, 26% were taken in May, 22% in June, 23% in July, 19% in August, 3% in September, and 2% in October. The highest number of releases occurred in July (26%). Only 7% of the releases were made in April and 19% were made in May. Shore anglers took home mostly bluegills and sunfish.

Harvested bluegills ranged in length from 4.0-9.5 inches (Table 16). The largest percentage (29%) was 7.5 inches. Another 22% were 8-inch or larger. Harvested crappies were 7.0-14.5 inches, with 10 inches the dominant size. Sunfish, mostly redear, were 5.0-12.0 inches, of which 69% were 8-inch and larger. Perch were mostly 7.0-8.5 inches and rock bass were mostly 8.0-9.0 inches. All pike observed by the creel clerk were legal-size (20-in or larger). They ranged up to 37 inches long. Those less than 30 inches accounted for 89% and those 30 inches or larger accounted for 11%. Harvested walleyes were 14.5-23.5 inches. Of the 299 largemouth bass taken home, all but four were legal-size (14 in). Of all legal bass, 59% were less than 16 inches and only 4% were 18-inch or larger. The remaining 37% were 16.0-17.5 inches. The 295 legal-size largemouth bass removed by anglers represented 44% of the original 672 estimated to be present in spring. This figure, however, may be high since some bass less than 14 inches long probably grew into the legal-size range during the period covered by the survey and were taken by anglers. On the other hand, only 10 legal bass (7%) were taken by anglers out of the 134 marked and released into the population. Small sample size and failure to note marked bass in the creel could have biased this figure, however. In contrast, the catch-and-release of 8,865 bass represented more than twice the estimated number (3,578) of all 8-inch and larger bass in the lake. With annual survival of age-5 and older bass estimated at 31%, total annual mortality would be 69%. Assuming fishing mortality was as high as 44%, another 25% of the adult bass population (age-5 and older) could be lost each year to natural causes and delayed mortality due to angler catch-and-release. If fishing mortality is indeed as low as 7%, unexplained mortality could be as high as 62%.

Anglers were generally satisfied with fishing quality (Table 17). Overall, 74% of the responses of interviewed anglers were 'good', 20% were 'fair', and 6% were 'poor' when asked to describe fishing quality at Dewart Lake. Similar percentages of anglers rated bluegill and bass fishing as good (72-73%), while similar percentages (6-7%) of both groups rated fishing as poor. Anglers who specifically targeted only bluegills harvested them at the rate of 0.78 per hour. Those who considered fishing 'good' (70%) harvested them at the rate of 0.93 per hour and those who considered fishing 'poor' harvested them at 0.50 per hour. Of the 420 interviewed parties (835 anglers) who sought only bluegills, 202 parties (48%) representing 385 individuals (46%) took home none. In

contrast, only four fishermen in three parties (<1%) kept 25 or more bluegills, per angler including only one person who took home more than 25. Forty-three parties (10%) kept 10 or more bluegills per angler. Those who fished specifically for bass caught them at the rate of 0.89 per hour but took home only one bass per 111 hours of fishing. Their catch rate of sub-legal bass was 0.55 per hour. Most anglers who fished only for bass rated fishing as ‘good’ (72%) and only 5% rated fishing as ‘poor’. Northern pike were even more satisfied, with 80% of the responses ‘good’ and only 4% ‘poor’. Crappie anglers were less satisfied with fishing quality (68% good, 10% poor) and perch anglers and anglers who fished for “anything” were least satisfied.

Prior to the fluridone application, anglers had mixed opinions on whether there were “too many weeds” in Dewart Lake, but no one thought so afterwards (Table 18). From April through June, the percentage of anglers who thought there were too many weeds varied from 31-40% per month, while the percentage who did not varied from 47-59%. About 10-13% were unsure. The percentage of anglers who thought there were too many weeds dropped to 16% in July, 3% in August, and to 0% by September. The percentage who did not think there were too many weeds increased to 75% in July, 96% in August, and 100% by September. Before treatment, lake residents were more likely to think there were too many weeds than lake visitors. Visitors were also less certain there were too many weeds. By August, there were no differences in opinions between residents and visitors.

Perceptions of a weed problem varied with angler preferences. Among boat anglers overall, those who fished for ‘anything’ or crappies were more likely (35-36%) to think there were too many weeds in the lake (Table 19). Bluegill and sunfish anglers were less likely (20-27%), while bass and pike anglers were the least likely to think there were too many weeds (11-15%). However, these figures do not take into account their reaction to the decline in vegetation associated with the fluridone application throughout the season. For example, bluegill anglers in April, May and June were initially more likely to say there were too many weeds than did bass or pike anglers, but by August, September and October even bluegill anglers agreed there were no longer too many weeds in the lake (Table 20). Angler perceptions of a weed problem were not related to their perceptions of fishing quality (Table 21).

DISCUSSION

The application of fluridone to Dewart Lake in 2006, although slightly higher in concentration than originally intended, reduced the amount of Eurasian water milfoil to virtually no detectable level without causing any immediate adverse effects on water clarity, fish habitat, the fish community, or fishing activity and quality. This initial success is encouraging. It expanded the opportunity to reduce nuisance plant conditions caused by EWM and restore a balanced plant community in Dewart Lake, as well as other lakes similar to Dewart. Although the distribution and abundance of some native plants were reduced, overall coverage within the littoral zone remained at 90% and native plants are expected to recover in 2007. How fast, and to what extent, EWM returns to the lake cannot be predicted at this time and will require additional monitoring. At nearby Webster Lake, EWM returned immediately following SONAR[®] applications in 1999 and 2002 and required follow-up spot treatments with other herbicides. Webster Lake, however, has a more rapid exchange rate, a more organic substrate, higher nutrient levels, and a much larger littoral zone than Dewart Lake which may have compromised success of the treatments. However, until more monitoring is conducted at Dewart Lake and other lakes treated with fluridone, it is premature to conclude that initial success at reducing EWM can lead to long-term control.

The fluridone application and subsequent levels of plant abundance at Dewart Lake helped define what anglers consider ‘nuisance conditions’. Although submersed plants were still found at 80-90% of the sample sites within each 5-foot contour in late July, these levels were not perceived by anglers as “too many weeds”. In theory, current Division of Fish and Wildlife guidelines call for optimum levels of plant coverage based on various sport fish species. For example, as much as 80-90% of the littoral zone should be vegetated in lakes like Dewart where northern pike are a major component of the fish community. Pike are ambush predators and use plants for concealment. Bluegills, the most popular sport fish at Dewart, require 50% coverage yet often do well where plants are much more abundant. Plants provide attachment structures for invertebrates that are important contributors to bluegill diets. Consequently, from a fishing perspective, these figures could suggest reasonable target objectives at Dewart Lake and serve as standards for evaluating the long-term success of the aquatic plant management program there.

Although the fluridone application may have temporarily discolored some lilies in the northeast corner of the lake, emergent plants were more abundant in Dewart Lake than other nearby lakes in the area. Floating-leaf plants, i.e. water lilies and spatterdock, covered 36 surface acres, while offshore bulrush and cattail stands occupied another 5 acres. Together, these plants covered 7% of the total lake area and 14% of the 0- to 10-foot contour. Floating-leaf plant beds were present along 40% of the shoreline. At 187-acre Waubee Lake, emergent plants covered less than 5 acres (2% surface area) and were present along 20% of the shoreline. At 851-acre Lake Tippecanoe, including the Oswego basin, floating-leaf plants also occupied less than 5 acres (<1%) and grew along only 7% of the shoreline. At 774-acre Webster Lake, they covered 34 acres (4%) and 28% of the shoreline. These plants serve as important habitat for a variety of fish and wildlife species by providing shade from the sun, nest protection, cover from predators, substrate and structure, as well as protect habitat by stabilizing the substrate and reducing wave energy. They also enhance the natural character and appearance of a lake.

The Division of Fish and Wildlife has not adopted specific guidelines on the optimum amount of emergent plant coverage that is desirable in lakes, but ideally as much as 50% or more of the shoreline should support native stands of emergent plants. Many northern Indiana natural lakes probably supported them along their entire shoreline out to a depth of 5-10 feet prior to residential development. Areas devoid of emergent plants may have existed only where narrow littoral zones were shaded by extensive tree canopies or where certain bottom materials, such as gravel or marl, were present. As mentioned, Dewart Lake through much of the 1980s contained a large stand of bulrushes and cattails that grew beyond 200 feet from the south shore into the high-speed boating area of the lake. The plants disappeared entirely within a relatively short period prior to the 1995 survey and were displaced to some extent by lilies. Periodic changes in average water levels may have caused the changes, but high-speed boat operation and personal watercraft have also been implicated as factors that reduced the stands (JFNew 2005). Consequently, their recent resurgence might be augmented by limiting boat activity within the area in the future. It has been identified as a possible “ecozone” where special boating restrictions may be applied. The area is also shallow and contains large boulders that pose a safety hazard to boaters.

The fluridone application at Dewart Lake was not expected to have any immediate effect on fish or fishing activity. The most likely response could be increases in growth of bluegills and bass, due to greater bass predation on bluegills. This could translate to better size-structure for both, although long-term responses within fish communities to whole-lake treatments of EWM at Indiana lakes and elsewhere are not well-documented. In two Minnesota lakes, temporary increases in bass and bluegill growth coupled with losses of several non-sport fish occurred after plants were greatly reduced at a fluridone concentration of 10 ppb (Welling et. al. 1997). When fluridone was applied in Michigan lakes at 5-7 ppb, no detectable positive effect was noted on growth of young bass, presumably because their diverse native plant communities maintained structural complexity (Valley and Bremigan 2002). The authors emphasized, however, that no negative effects were noted but warned harmful effects could occur to invertebrates and fish where native plant diversity is low. Because Dewart Lake also contains a diverse native plant community, the likelihood of any short-term or long-term effects of the fluridone application on the fish community should also be negligible.

RECOMMENDATIONS

Given the initial success of the fluridone treatment, efforts should be undertaken in 2007 to curtail EWM resurgence. How much EWM is likely to appear is uncertain, but should be monitored. Some use of additional herbicides should be anticipated. Since much of the EWM grew offshore, however, there is little reason to suspect more native plants will flourish in near-shore areas and limit lake use. As a result, requests to control native plants should be discouraged until long-term effects of the fluridone treatment are known. Follow-up surveys of the fish community should be done every 2-3 years to monitor changes in species composition, fish size, and growth. The low density of largemouth bass (6.5/ac) coupled with apparent high-mortality of legal-bass, is the most troubling fish management concern at Dewart Lake. Additional work is needed to better understand factors that influence bass mortality at Indiana natural lakes. Although walleyes have survived in Dewart Lake, given the abundance of pike and declines among some species, no additional stockings are warranted. Meanwhile, efforts to establish an “ecozone” to protect emergent plants should be supported.

LITERATURE

JFNew. 2005. Dewart Lake Diagnostic Study. Lake and River Enhancement Program. Indiana Department of Natural Resources. Indianapolis, IN.

Valley, R. H. and M. T. Bremigan. 2002. Effects of selective removal of Eurasian watermilfoil on age-0 largemouth bass piscivory and growth in southern Michigan lakes. *Journal of Aquatic Plant Management*. 40: 79-87.

Welling, C., W. Crowell, and D. Perleberg. 1997. Evaluation of fluridone herbicide for selective control of Eurasian watermilfoil: Final Report. Minnesota Department of Natural Resources. St. Paul, MN.

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February 19, 2007

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Table 1. *Historic oxygen levels (ppm) and water clarity (secchi depth) at Dewart Lake from 1972 through 2006 (source – Division of Fish and Wildlife files).*

| Depth (ft) | 7/72 | 7/76 | 7/82 | 7/95 | 7/03 | 6/06 | 7/06 |
|-------------|------|------|------|------|------|------|------|
| 0 | 7.0 | 8.4 | 7.0 | 10.0 | 10.0 | 8.1 | 6.4 |
| 5 | 7.1 | 8.2 | 7.0 | 10.0 | 10.0 | 8.0 | 6.2 |
| 10 | 7.2 | 7.4 | 7.0 | 10.0 | 10.0 | 8.0 | 5.8 |
| 15 | 5.5 | 7.8 | 7.0 | 9.0 | 9.0 | 8.2 | 3.8 |
| 20 | 3.6 | 3.8 | 2.0 | 3.0 | 4.0 | 8.0 | 0.7 |
| 25 | 0.7 | 0.6 | 0.6 | 0.6 | 0.5 | 6.4 | 0.3 |
| 30 | 0.1 | 0.4 | <0.2 | 3.0 | <0.2 | 5.2 | 0.2 |
| 35 | 0.0 | 0.0 | <0.2 | 3.0 | <0.2 | 4.6 | 0.2 |
| 40 | 0.0 | 0.0 | <0.2 | 3.0 | 0.0 | 3.8 | 0.2 |
| 45 | 0.0 | 0.0 | 0.4 | 1.4 | 0.0 | 1.4 | 0.2 |
| 50 | 0.0 | 0.0 | <0.2 | 1.2 | 0.0 | 0.5 | 0.2 |
| Secchi (ft) | 6.0 | 8.0 | 13.6 | 8.3 | 10.0 | 16.0 | 10.0 |

Table 2. *Mid-summer submersed aquatic plant sampling results by Aquatic Weed Control (AWC) and the Division of Fish and Wildlife (DFW) before (2005) and after (2006) a fluridone treatment of Eurasian water milfoil at Dewart Lake.*

| Parameter (0-20 ft) | AWC | AWC | DFW | DFW |
|-------------------------------|------------|------------|------------|------------|
| Date | 7/27/05 | 8/10/06 | 8/1/05 | 7/31/06 |
| Sample sites (n) | 80 | 90 | 102 | 90 |
| Secchi (ft) | 13.0 | 8.0 | 7.5 | 11.0 |
| Littoral depth (ft) | 19.0 | 20.0 | 21.0 | 20.0 |
| Coverage (%) | 93.8 | 83.3 | 100.0 | 88.9 |
| Native coverage (%) | | | 97.1 | 88.9 |
| Species (N) | 13 | 11 | 17 | 10 |
| Native species (N) | 11 | 10 | 15 | 9 |
| Species/site (max) | 7 | 5 | 6 | 3 |
| Species/site (mean) | 2.14 | 1.18 | 2.49 | 1.14 |
| Native species/site (mean) | 1.78 | 1.10 | 1.87 | 1.12 |
| Species diversity | 0.84 | 0.77 | 0.85 | 0.72 |
| Native species diversity | 0.80 | 0.74 | 0.84 | 0.71 |
| Species occurrence (%) | AWC | AWC | DFW | DFW |
| Eurasian water milfoil | 35.0 | | 60.2 | |
| Chara | 65.0 | 33.3 | 50.5 | 37.8 |
| Coontail | 15.0 | 43.3 | 43.7 | 43.3 |
| Water stargrass | | 11.1 | 18.4 | 16.7 |
| Common naiad | 18.8 | | 18.4 | 2.2 |
| Sago pondweed | 12.5 | 4.4 | 12.6 | |
| Illinois pondweed | 23.8 | 4.4 | 11.7 | |
| Variable pondweed | | | 13.6 | 2.2 |
| Elodea | 1.3 | | 3.9 | |
| Large-leaf pondweed | 5.0 | 3.3 | 5.8 | 2.2 |
| Floating-leaf pondweed | | | 1.0 | |
| Flat-stem pondweed | 22.5 | 2.2 | 2.9 | 5.6 |
| Curly-leaf pondweed | 1.3 | 7.8 | 1.9 | 2.2 |
| Bladderwort | | | 1.0 | |
| Eel grass | 5.0 | 1.1 | 1.0 | 1.1 |
| Leafy pondweed | | | 1.0 | |
| Northern water milfoil | | | 1.0 | |
| American pondweed | 6.3 | 4.4 | | |
| Whorled water milfoil | 2.5 | | | |
| Nitella | | 2.2 | | 1.1 |
| Filamentous algae | | | 9.7 | 12.2 |
| Species dominance | AWC | AWC | DFW | DFW |
| Eurasian water milfoil | 16.8 | | 36.3 | |
| Chara | 41.5 | 29.3 | 35.3 | 23.1 |
| Coontail | 3.5 | 22.9 | 23.7 | 17.6 |
| Water stargrass | | 5.8 | 7.6 | 3.3 |
| Common naiad | 6.5 | | 5.2 | 0.9 |
| Sago pondweed | 2.8 | 1.3 | 4.9 | |
| Illinois pondweed | 6.0 | 0.9 | 3.3 | |
| Variable pondweed | | | 3.3 | 0.4 |
| Elodea | 0.3 | | 1.9 | |
| Large-leaf pondweed | 1.5 | 2.0 | 1.9 | 0.4 |
| Floating-leaf pondweed | | | 1.0 | |
| Flat-stem pondweed | 5.3 | 0.4 | 0.8 | 1.1 |
| Curly-leaf pondweed | 0.5 | 1.6 | 0.4 | 0.4 |
| Bladderwort | | | 0.2 | |
| Eel grass | 1.0 | 0.2 | 0.2 | 0.2 |
| Leafy pondweed | | | 0.2 | |
| Northern water milfoil | | | 0.2 | |
| American pondweed | 3.3 | 0.9 | | |
| Whorled water milfoil | 0.5 | | | |
| Nitella | | 1.8 | | 0.2 |

Table 3. *Mid-summer frequency of occurrence of submersed aquatic plants at 5-foot contours in 2005 prior (Pre-) and in 2006 after (Post-) fluridone treatment to control Eurasian water milfoil in Dewart Lake, based on Division of Fish and Wildlife samples.*

| Contour 0-5 feet | Pre- | Post- | Contour 5-10 feet | Pre- | Post- |
|-------------------------------|-------------|--------------|-------------------------------|-------------|--------------|
| Bladderwort | | | Bladderwort | | |
| Chara | 88.6 | 80.0 | Chara | 36.4 | 30.8 |
| Common naiad | 29.5 | 3.3 | Common naiad | 18.2 | |
| Coontail | 13.6 | 10.0 | Coontail | 45.5 | 38.5 |
| Curly-leaf pondweed | | | Curly-leaf pondweed | | |
| Eel grass | | | Eel grass | 3.0 | 3.8 |
| Elodea | 2.3 | | Elodea | 3.0 | |
| Eurasian water milfoil | 29.5 | | Eurasian water milfoil | 78.8 | |
| Flat-stem pondweed | 4.5 | 3.3 | Flat-stem pondweed | 3.0 | 7.7 |
| Floating-leaf pondweed | 2.3 | | Floating-leaf pondweed | | |
| Illinois pondweed | 20.5 | | Illinois pondweed | 9.1 | |
| Large-leaf pondweed | 4.5 | 3.3 | Large-leaf pondweed | 12.1 | |
| Leafy pondweed | | | Leafy pondweed | 3.0 | |
| Nitella | | | Nitella | | |
| Northern water milfoil | 2.3 | | Northern water milfoil | | |
| Sago pondweed | 4.5 | | Sago pondweed | 27.3 | |
| Variable pondweed | 27.3 | 3.3 | Variable pondweed | 6.1 | 3.8 |
| Water stargrass | 11.4 | 10.0 | Water stargrass | 36.4 | 23.1 |
| Filamentous algae | 2.3 | 13.3 | Filamentous algae | 21.2 | 15.4 |
| | | | | | |
| Contour 10-15 feet | Pre- | Post- | Contour 15-20 feet | Pre- | Post- |
| Bladderwort | 7.7 | | Bladderwort | | |
| Chara | 7.7 | 8.3 | Chara | | |
| Common naiad | | 16.7 | Common naiad | | |
| Coontail | 84.6 | 75.0 | Coontail | 100.0 | 80.0 |
| Curly-leaf pondweed | 15.4 | 8.3 | Curly-leaf pondweed | | |
| Eel grass | | | Eel grass | | |
| Elodea | 7.7 | | Elodea | 8.3 | |
| Eurasian water milfoil | 84.6 | | Eurasian water milfoil | 91.7 | |
| Flat-stem pondweed | | 4.2 | Flat-stem pondweed | | 10.0 |
| Floating-leaf pondweed | | | Floating-leaf pondweed | | |
| Illinois pondweed | | | Illinois pondweed | | |
| Large-leaf pondweed | | 4.2 | Large-leaf pondweed | | |
| Leafy pondweed | | | Leafy pondweed | | |
| Nitella | | | Nitella | | 10.0 |
| Northern water milfoil | | | Northern water milfoil | | |
| Sago pondweed | 15.4 | | Sago pondweed | | |
| Variable pondweed | | | Variable pondweed | | |
| Water stargrass | 15.4 | 20.8 | Water stargrass | | 10.0 |
| Filamentous algae | 7.7 | 8.3 | Filamentous algae | 8.3 | 10.0 |

Table 4. *Mid-summer dominance indices of submersed aquatic plants at 5-foot contours in 2005 prior (Pre-) and in 2006 after (Post-) fluridone treatment to control Eurasian water milfoil in Dewart Lake, based on Division of Fish and Wildlife samples.*

| Contour 0-5 feet | Pre- | Post- | Contour 5-10 feet | Pre- | Post- |
|-------------------------------|-------------|--------------|-------------------------------|-------------|--------------|
| Bladderwort | | | Bladderwort | | |
| Chara | 65.0 | 48.0 | Chara | 23.0 | 18.5 |
| Common naiad | 9.5 | 0.7 | Common naiad | 4.8 | |
| Coontail | 6.4 | 3.3 | Coontail | 21.2 | 12.3 |
| Curly-leaf pondweed | | | Curly-leaf pondweed | | |
| Eel grass | | | Eel grass | 0.6 | 0.8 |
| Elodea | 1.4 | | Elodea | 3.0 | |
| Eurasian water milfoil | 13.2 | | Eurasian water milfoil | 57.0 | |
| Flat-stem pondweed | 1.8 | 0.7 | Flat-stem pondweed | 0.6 | 1.5 |
| Floating-leaf pondweed | 1.4 | | Floating-leaf pondweed | | |
| Illinois pondweed | 6.8 | | Illinois pondweed | 4.2 | |
| Large-leaf pondweed | 2.7 | 0.7 | Large-leaf pondweed | 4.8 | |
| Leafy pondweed | | | Leafy pondweed | 0.6 | |
| Nitella | | | Nitella | | |
| Northern water milfoil | 0.5 | | Northern water milfoil | | |
| Sago pondweed | 1.8 | | Sago pondweed | 12.7 | |
| Variable pondweed | 7.3 | 0.7 | Variable pondweed | 2.4 | 0.8 |
| Water stargrass | 5.0 | 2.0 | Water stargrass | 18.2 | 4.6 |

| Contour 10-15 feet | Pre- | Post- | Contour 15-20 feet | Pre- | Post- |
|-------------------------------|-------------|--------------|-------------------------------|-------------|--------------|
| Bladderwort | 1.5 | | Bladderwort | | |
| Chara | 7.7 | 6.7 | Chara | | |
| Common naiad | | 2.5 | Common naiad | | |
| Coontail | 50.8 | 33.3 | Coontail | 73.3 | 36.0 |
| Curly-leaf pondweed | 3.1 | 1.7 | Curly-leaf pondweed | | |
| Eel grass | | | Eel grass | | |
| Elodea | 4.6 | | Elodea | 1.7 | |
| Eurasian water milfoil | 56.9 | | Eurasian water milfoil | 48.3 | |
| Flat-stem pondweed | | 0.8 | Flat-stem pondweed | | 2.0 |
| Floating-leaf pondweed | | | Floating-leaf pondweed | | |
| Illinois pondweed | | | Illinois pondweed | | |
| Large-leaf pondweed | | 0.8 | Large-leaf pondweed | | |
| Leafy pondweed | | | Leafy pondweed | | |
| Nitella | | | Nitella | | 2.0 |
| Northern water milfoil | | | Northern water milfoil | | |
| Sago pondweed | 6.2 | | Sago pondweed | | |
| Variable pondweed | | | Variable pondweed | | |
| Water stargrass | 6.2 | 4.2 | Water stargrass | | 2.0 |

Table 5. Number and weight of fish collected during fish population surveys at Dewart Lake from 1976 through 2006.

| Species | Number of fish | | | | | | | Pounds of fish | | | | | | | |
|------------------------|----------------|------------|-------------|-------------|-------------|------------|-------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|--|
| | July 1976 | July 1982 | July 1995 | July 2003 | June 2006 | July 2006 | Total 2006 | July 1976 | July 1982 | July 1995 | July 2003 | June 2006 | July 2006 | Total 2006 | |
| Banded killifish | | | 2 | | 3 | 1 | 4 | | | 0.01 | | 0.01 | 0.01 | 0.02 | |
| Black crappie | 28 | 66 | 8 | 10 | 5 | 3 | 8 | 8.25 | 18.53 | 3.20 | 5.03 | 4.37 | 0.79 | 5.16 | |
| Bluegill | 447 | 435 | 502 | 1207 | 790 | 369 | 1159 | 67.47 | 50.72 | 36.36 | 101.82 | 56.09 | 22.10 | 78.19 | |
| Bluntnose minnow | | | 134 | | | | | | | 0.58 | | | | | |
| Bowfin | 14 | 6 | 2 | 3 | 8 | 3 | 11 | 60.05 | 21.48 | 6.75 | 10.56 | 37.21 | 8.40 | 45.61 | |
| Brook silverside | na | na | 50 | 10 | 16 | | 16 | | | 0.40 | 0.01 | 0.04 | | 0.04 | |
| Brown bullhead | 9 | 4 | 6 | 7 | 8 | 2 | 10 | 8.09 | 3.53 | 8.21 | 6.14 | 6.55 | 2.69 | 9.24 | |
| Carp | 20 | 2 | | | 1 | | 1 | 196.07 | 24.60 | | | 12.35 | | 12.35 | |
| Channel catfish | 1 | | | | | | | 12.19 | | | | | | | |
| Common shiner | | | | | | 1 | 1 | | | | | | 0.03 | 0.03 | |
| Golden shiner | 30 | 9 | 1 | 1 | | | | 3.14 | 0.70 | 0.08 | 0.10 | | | | |
| Green sunfish | 4 | | | | | | | 0.39 | | | | | | | |
| Hybrid sunfish | | | | 1 | | | | | | | 0.54 | | | 0.00 | |
| Lake chubsucker | 142 | 68 | 4 | | 4 | 4 | 8 | 27.35 | 11.74 | 0.65 | | 0.42 | 0.62 | 1.04 | |
| Largemouth bass | 64 | 52 | 70 | 87 | 118 | 34 | 152 | 22.64 | 19.09 | 43.06 | 41.69 | 47.87 | 12.26 | 60.13 | |
| Log perch | | | 13 | 7 | 7 | 1 | 8 | | | 0.26 | 0.11 | 0.03 | 0.02 | 0.05 | |
| Longear | 4 | 5 | | 2 | 7 | 5 | 12 | 0.19 | 0.53 | | 0.19 | 0.31 | 0.20 | 0.51 | |
| Longnose gar | 31 | | 9 | 3 | | 3 | 3 | 71.57 | | 13.68 | 7.01 | | 15.29 | 15.29 | |
| Mimic shiner | | | | 38 | 224 | 25 | 249 | | | | 0.02 | 0.12 | 0.03 | 0.15 | |
| Northern pike | | 3 | 27 | 27 | 37 | 22 | 59 | | 14.14 | 65.22 | 79.30 | 88.20 | 55.78 | 143.98 | |
| Pumpkinseed | 65 | 23 | 6 | | | | | 4.33 | 1.98 | 0.47 | | | | | |
| Redear | 64 | 48 | 55 | 20 | 121 | 41 | 162 | 16.44 | 13.58 | 14.31 | 4.17 | 38.57 | 11.14 | 49.71 | |
| Redfin pickerel | 6 | 4 | 1 | | | | | 0.74 | 1.47 | 0.01 | | | | | |
| Rock bass | 15 | 25 | 10 | | 23 | 11 | 34 | 2.03 | 3.18 | 1.70 | | 7.28 | 2.94 | 10.22 | |
| Smallmouth bass | | | 1 | 8 | 2 | | 2 | | | 0.42 | 3.75 | 1.99 | | 1.99 | |
| Spotted gar | 32 | 29 | 12 | 1 | 14 | 20 | 34 | 59.97 | 62.35 | 20.38 | 2.13 | 30.24 | 28.90 | 59.14 | |
| Stonecat | | | | 1 | | | | | | | 0.01 | | | | |
| Walleye | | | 6 | 3 | 5 | 2 | 7 | | | 17.87 | 6.63 | 15.50 | 5.73 | 21.23 | |
| Warmouth | 32 | 27 | 29 | 12 | 27 | 29 | 56 | 3.33 | 5.01 | 7.09 | 2.80 | 5.03 | 4.09 | 9.12 | |
| White sucker | 2 | 2 | | | | | | 4.12 | 4.14 | | | | | | |
| Yellow bullhead | 7 | 9 | 20 | 14 | 17 | 15 | 32 | 3.21 | 5.54 | 15.92 | 11.00 | 9.71 | 10.76 | 20.47 | |
| Yellow perch | 136 | 119 | 82 | 65 | 85 | 22 | 107 | 15.45 | 30.76 | 5.94 | 7.11 | 8.64 | 1.95 | 10.59 | |
| TOTAL | 1153 | 936 | 1050 | 1527 | 1522 | 613 | 2135 | 587.02 | 293.07 | 262.57 | 290.12 | 370.53 | 183.73 | 554.26 | |
| Sampling Effort | | | | | | | | | | | | | | | |
| Electrofishing | | | | | | | | | | | | | | | |
| AC minutes | 210 | 90 | | | | | | | | | | | | | |
| DC minutes | | | 45 | 45* | 45* | 45 | 90* | | | | | | | | |
| Gill net lifts | 12 | 8 | 6 | 4 | 5 | 3 | 8 | | | | | | | | |
| Trap net lifts | 0 | 8 | 7 | 4 | 3 | 2 | 5 | | | | | | | | |

*Does not include approximately 15 additional minutes sampling for largemouth bass.

Table 6. *Number and size (inches) of bluegills captured during fish population surveys at Dewart Lake from 1976 through 2006.*

| Bluegills captured by all sampling gear | | | | | | | |
|--|------------------|------------------|------------------|------------------|------------------|------------------|-------------------|
| Inches | July 1976 | July 1982 | July 1995 | July 2003 | June 2006 | July 2006 | Total 2006 |
| 1-1.5 | 1 | 0 | 1 | 0 | 4 | 0 | 4 |
| 2-2.5 | 34 | 12 | 76 | 349 | 93 | 107 | 200 |
| 3-3.5 | 42 | 23 | 174 | 216 | 215 | 104 | 319 |
| 4-4.5 | 65 | 121 | 94 | 231 | 281 | 90 | 371 |
| 5-5.5 | 53 | 155 | 77 | 117 | 84 | 27 | 111 |
| 6-6.5 | 131 | 82 | 58 | 149 | 70 | 21 | 91 |
| 7-7.5 | 96 | 23 | 15 | 131 | 38 | 13 | 51 |
| 8-8.5 | 25 | 16 | 6 | 13 | 5 | 7 | 12 |
| 9-9.5 | 0 | 3 | 1 | 1 | 0 | 0 | 0 |
| Total | 447 | 435 | 502 | 1207 | 790 | 369 | 1159 |
| Mean length | 5.3 | 5.0 | 3.9 | 4.0 | 3.9 | 3.5 | 3.8 |

| Bluegills captured by DC electrofishing gear | | | | | | | |
|---|------------------|------------------|------------------|------------------|------------------|------------------|-------------------|
| Inches | July 1976 | July 1982 | July 1995 | July 2003 | June 2006 | July 2006 | Total 2006 |
| 1-1.5 | na | na | 1 | 0 | 4 | 0 | 4 |
| 2-2.5 | na | na | 32 | 18 | 68 | 11 | 79 |
| 3-3.5 | na | na | 160 | 74 | 169 | 37 | 206 |
| 4-4.5 | na | na | 83 | 140 | 248 | 65 | 313 |
| 5-5.5 | na | na | 72 | 68 | 74 | 16 | 90 |
| 6-6.5 | na | na | 43 | 46 | 54 | 13 | 67 |
| 7-7.5 | na | na | 8 | 20 | 23 | 1 | 24 |
| 8-8.5 | na | na | 2 | 3 | 3 | 1 | 4 |
| 9-9.5 | na | na | | 0 | 0 | 0 | 0 |
| Total | na | na | 401 | 369 | 643 | 144 | 787 |
| EF minutes | na | na | 45 | 45 | 45 | 45 | 90 |
| N/15-min | na | na | 134 | 123 | 214 | 48 | 131 |
| PSD | na | na | 14.4 | 19.7 | 14.0 | 11.3 | 13.5 |
| RSD7 | na | na | 2.7 | 6.6 | 4.6 | 1.5 | 4.0 |
| RSD8 | na | na | 0.5 | 0.9 | 0.5 | 0.8 | 0.6 |

Table 7. Number and size (inches) of largemouth bass captured during fish population surveys at Dewart Lake from 1976 through 2006.

| Inches | July 1976 | July 1982 | July 1995 | July 2003 | June 2006 | July 2006 | Total 2006 |
|--------------|-----------|-----------|-----------|-----------|-----------|-----------|------------|
| 1-1.5 | 1 | | | | | | 0 |
| 2-2.5 | 9 | | 1 | | | 1 | 1 |
| 3-3.5 | | | 1 | 1 | 7 | | 7 |
| 4-4.5 | | 17 | 1 | 5 | 5 | 3 | 8 |
| 5-5.5 | 2 | 1 | 6 | 12 | 2 | 8 | 10 |
| 6-6.5 | 8 | 1 | 1 | 8 | 15 | 2 | 17 |
| 7-7.5 | 3 | | 16 | 7 | 34 | 3 | 37 |
| 8-8.5 | 7 | 8 | 11 | 12 | 9 | 4 | 13 |
| 9-9.5 | 15 | 10 | 5 | 16 | 11 | 5 | 16 |
| 10-10.5 | 9 | 6 | 4 | 5 | 8 | 3 | 11 |
| 11-11.5 | 4 | 2 | 3 | 9 | 12 | | 12 |
| 12-12.5 | 2 | 3 | 11 | 2 | 4 | | 4 |
| 13-13.5 | | 2 | 2 | 2 | 2 | 3 | 5 |
| 14-14.5 | 2 | 1 | 3 | 5 | 8 | 2 | 10 |
| 15-15.5 | 2 | 1 | 1 | 1 | | | 0 |
| 16-16.5 | | | 2 | 1 | | | 0 |
| 17-17.5 | | | | | 1 | | 1 |
| 18-18.5 | | | | | | | 0 |
| 19-19.5 | | | 1 | | | | 0 |
| 20-20.5 | | | 1 | | | | 0 |
| 21-21.5 | | | | 1 | | | 0 |
| Total | 64 | 52 | 70 | 87 | 118 | 34 | 152 |
| RSD14 | 9.8 | 6.1 | 18.2 | 14.8 | 16.4 | 11.8 | 15.3 |
| RSD18 | 0.0 | 0.0 | 4.5 | 1.9 | 0.0 | 0.0 | 0.0 |
| Mean | 4.5 | 4.5 | 4.1 | 4.8 | 4.7 | 4.8 | 4.7 |

Table 8. Length distribution of largemouth bass captured (Catch) and recaptured (Recap) at Dewart Lake in spring 2006 (Catch does not include recaptured fish).

| Inches | 04/26/06 | 04/26/06 | 05/03/06 | 05/03/06 | 05/10/06 | 05/10/06 | 05/17/06 | 05/17/06 | Total | | Total | |
|------------|----------|----------|----------|----------|----------|----------|----------|----------|-------|---------|--------|---------|
| | Catch | Recap | Catch | Recap | Catch | Recap | Catch | Recap | Catch | Percent | Recaps | Percent |
| <=3 | 1 | 0 | 6 | 0 | 3 | 0 | 1 | 0 | 11 | 0.9 | 0 | 0.0 |
| 3.5 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0.1 | 0 | 0.0 |
| 4.0 | 0 | 0 | 1 | 0 | 2 | 0 | 2 | 1 | 5 | 0.4 | 1 | 0.8 |
| 4.5 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0.2 | 0 | 0.0 |
| 5.0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0.2 | 0 | 0.0 |
| 5.5 | 6 | 0 | 3 | 0 | 4 | 0 | 3 | 0 | 16 | 1.2 | 0 | 0.0 |
| 6.0 | 11 | 0 | 25 | 1 | 22 | 3 | 14 | 1 | 72 | 5.6 | 5 | 3.8 |
| 6.5 | 35 | 0 | 34 | 6 | 38 | 5 | 30 | 9 | 137 | 10.7 | 20 | 15.3 |
| 7.0 | 31 | 0 | 42 | 5 | 29 | 5 | 26 | 10 | 128 | 10.0 | 20 | 15.3 |
| 7.5 | 14 | 0 | 34 | 1 | 28 | 5 | 18 | 0 | 94 | 7.3 | 6 | 4.6 |
| 8.0 | 18 | 0 | 27 | 2 | 21 | 6 | 16 | 3 | 82 | 6.4 | 11 | 8.4 |
| 8.5 | 16 | 0 | 21 | 0 | 11 | 2 | 11 | 2 | 59 | 4.6 | 4 | 3.1 |
| 9.0 | 16 | 0 | 19 | 1 | 12 | 2 | 11 | 4 | 58 | 4.5 | 7 | 5.3 |
| 9.5 | 9 | 0 | 10 | 1 | 13 | 1 | 8 | 0 | 40 | 3.1 | 2 | 1.5 |
| 10.0 | 14 | 0 | 10 | 1 | 12 | 2 | 4 | 2 | 40 | 3.1 | 5 | 3.8 |
| 10.5 | 26 | 0 | 19 | 0 | 15 | 0 | 9 | 0 | 69 | 5.4 | 0 | 0.0 |
| 11.0 | 26 | 0 | 25 | 5 | 11 | 3 | 11 | 1 | 73 | 5.7 | 9 | 6.9 |
| 11.5 | 23 | 0 | 17 | 0 | 14 | 2 | 12 | 4 | 66 | 5.1 | 6 | 4.6 |
| 12.0 | 16 | 0 | 18 | 2 | 10 | 1 | 5 | 4 | 49 | 3.8 | 7 | 5.3 |
| 12.5 | 16 | 0 | 13 | 1 | 13 | 1 | 12 | 2 | 54 | 4.2 | 4 | 3.1 |
| 13.0 | 8 | 0 | 14 | 1 | 13 | 2 | 3 | 4 | 38 | 3.0 | 7 | 5.3 |
| 13.5 | 14 | 0 | 10 | 0 | 10 | 1 | 3 | 1 | 37 | 2.9 | 2 | 1.5 |
| 14.0 | 6 | 0 | 9 | 0 | 7 | 0 | 5 | 2 | 27 | 2.1 | 2 | 1.5 |
| 14.5 | 8 | 0 | 7 | 0 | 6 | 0 | 8 | 1 | 29 | 2.3 | 1 | 0.8 |
| 15.0 | 4 | 0 | 4 | 0 | 6 | 2 | 6 | 3 | 20 | 1.6 | 5 | 3.8 |
| 15.5 | 3 | 0 | 7 | 0 | 8 | 0 | 3 | 2 | 21 | 1.6 | 2 | 1.5 |
| 16.0 | 4 | 0 | 4 | 0 | 3 | 0 | 2 | 1 | 13 | 1.0 | 1 | 0.8 |
| 16.5 | 4 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 7 | 0.5 | 1 | 0.8 |
| 17.0 | 4 | 0 | 2 | 1 | 2 | 0 | 0 | 1 | 8 | 0.6 | 2 | 1.5 |
| 17.5 | 3 | 0 | 5 | 0 | 1 | 0 | 0 | 0 | 9 | 0.7 | 0 | 0.0 |
| 18.0 | 2 | 0 | 3 | 0 | 1 | 1 | 2 | 0 | 8 | 0.6 | 1 | 0.8 |
| 18.5 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 0.2 | 0 | 0.0 |
| 19.0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0.1 | 0 | 0.0 |
| 19.5 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0.1 | 0 | 0.0 |
| 20.0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0.1 | 0 | 0.0 |
| 20.5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0.1 | 0 | 0.0 |
| 21.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0 | 0.0 |
| 21.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0 | 0.0 |
| >=22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0 | 0.0 |
| Number | 342 | 0 | 394 | 28 | 318 | 45 | 228 | 58 | 1282 | | 131 | |
| Seconds | 12630 | | 11596 | | 11393 | | 11433 | | 47052 | | | |
| <8 in | 99 | 0 | 147 | 13 | 127 | 18 | 95 | 21 | 468 | | 52 | |
| 8-11.5 in | 148 | 0 | 148 | 10 | 109 | 18 | 82 | 16 | 487 | | 44 | |
| 12-13.5 in | 54 | 0 | 55 | 4 | 46 | 5 | 23 | 11 | 178 | | 20 | |
| 14-17.5 in | 36 | 0 | 38 | 1 | 34 | 3 | 26 | 10 | 134 | | 14 | |
| >=18 in | 5 | 0 | 6 | 0 | 2 | 1 | 2 | 0 | 15 | | 1 | |

Table 9. *Nightly electrofishing effort in second (S), catches (C), marked bass at large (M), recaptures (R), Schnabel population estimate (N), and standard error (SE) of 8-inch and larger largemouth bass in Dewart Lake during April-May, 2006.*

| <u>Date</u> | <u>S</u> | <u>C</u> | <u>M</u> | <u>R</u> | <u>N</u> | <u>SE</u> |
|-------------|----------|----------|----------|----------|----------|-----------|
| 4/26/06 | 12,630 | 243 | 0 | 0 | 0 | 0 |
| 5/03/06 | 11,596 | 262 | 243 | 15 | 3,979 | 995 |
| 5/10/06 | 11,393 | 218 | 490 | 27 | 3,965 | 605 |
| 5/17/06 | 11,433 | 170 | 681 | 37 | 3,578 | 400 |

Table 10. Size and age composition of the largemouth bass population at Dewart Lake in spring 2006.

| Length (in) | Catch | % | Estimated Weight (lb) | Age analysis (scales/half-inch) | | | | | | | | Age Composition (number/age) | | | | | | | | | | | | | | | | |
|----------------|-------|------|--------------------------|---------------------------------|----|----|----|----|----|----|---|------------------------------|------------------------------|-----|-----|-----|----|----|---|--|------|------|------|------|------|------|------|------|
| | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | | | | | | |
| 3.0 | 11 | 0.9 | 0.01 | 6 | | | | | | | | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | |
| 3.5 | 1 | 0.1 | 0.02 | 1 | | | | | | | | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | |
| 4.0 | 5 | 0.4 | 0.03 | 1 | | | | | | | | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | |
| 4.5 | 2 | 0.2 | 0.04 | 1 | | | | | | | | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | |
| 5.0 | 2 | 0.2 | 0.06 | | 1 | | | | | | | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | |
| 5.5 | 16 | 1.2 | 0.08 | | 4 | | | | | | | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | |
| 6.0 | 72 | 5.6 | 0.10 | | 5 | | | | | | | 0 | 72 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | |
| 6.5 | 137 | 10.7 | 0.13 | | 7 | 3 | | | | | | 0 | 96 | 41 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | |
| 7.0 | 128 | 10.0 | 0.16 | | 5 | 3 | | | | | | 0 | 80 | 48 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | |
| 7.5 | 94 | 7.3 | 0.20 | | 4 | 5 | | | | | | 0 | 42 | 52 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | |
| 8.0 | 82 | 6.4 | 0.25 | | 3 | 6 | | | | | | 0 | 27 | 55 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | |
| 8.5 | 59 | 4.6 | 0.30 | | | 8 | | | | | | 0 | 0 | 59 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | |
| 9.0 | 58 | 4.5 | 0.35 | | | 8 | | | | | | 0 | 0 | 58 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | |
| 9.5 | 40 | 3.1 | 0.42 | | | 3 | 3 | | | | | 0 | 0 | 20 | 20 | 0 | 0 | 0 | 0 | | | | | | | | | |
| 10.0 | 40 | 3.1 | 0.49 | | | 1 | 6 | | | | | 0 | 0 | 6 | 34 | 0 | 0 | 0 | 0 | | | | | | | | | |
| 10.5 | 69 | 5.4 | 0.57 | | | | 8 | | | | | 0 | 0 | 0 | 69 | 0 | 0 | 0 | 0 | | | | | | | | | |
| 11.0 | 73 | 5.7 | 0.65 | | | | 10 | | | | | 0 | 0 | 0 | 73 | 0 | 0 | 0 | 0 | | | | | | | | | |
| 11.5 | 66 | 5.1 | 0.75 | | | | 7 | 1 | | | | 0 | 0 | 0 | 58 | 8 | 0 | 0 | 0 | | | | | | | | | |
| 12.0 | 49 | 3.8 | 0.85 | | | | 7 | 2 | | | | 0 | 0 | 0 | 38 | 11 | 0 | 0 | 0 | | | | | | | | | |
| 12.5 | 54 | 4.2 | 0.97 | | | | 5 | 5 | | | | 0 | 0 | 0 | 27 | 27 | 0 | 0 | 0 | | | | | | | | | |
| 13.0 | 38 | 3.0 | 1.09 | | | | 1 | 7 | 1 | | | 0 | 0 | 0 | 4 | 30 | 4 | 0 | 0 | | | | | | | | | |
| 13.5 | 37 | 2.9 | 1.23 | | | | 1 | 9 | | | | 0 | 0 | 0 | 4 | 33 | 0 | 0 | 0 | | | | | | | | | |
| 14.0 | 27 | 2.1 | 1.37 | | | | | 8 | 1 | | | 0 | 0 | 0 | 0 | 24 | 3 | 0 | 0 | | | | | | | | | |
| 14.5 | 29 | 2.3 | 1.53 | | | | | 9 | 1 | | | 0 | 0 | 0 | 0 | 26 | 3 | 0 | 0 | | | | | | | | | |
| 15.0 | 20 | 1.6 | 1.70 | | | | | 3 | 2 | | | 0 | 0 | 0 | 0 | 12 | 8 | 0 | 0 | | | | | | | | | |
| 15.5 | 21 | 1.6 | 1.88 | | | | | 3 | 4 | | | 0 | 0 | 0 | 0 | 9 | 12 | 0 | 0 | | | | | | | | | |
| 16.0 | 13 | 1.0 | 2.07 | | | | | 1 | 5 | 2 | | 0 | 0 | 0 | 0 | 2 | 8 | 3 | 0 | | | | | | | | | |
| 16.5 | 7 | 0.5 | 2.28 | | | | | | | 4 | | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | | | | | | | | | |
| 17.0 | 8 | 0.6 | 2.49 | | | | | | | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 5 | 0 | | | | | | | | | |
| 17.5 | 9 | 0.7 | 2.73 | | | | | | | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 4 | 5 | 0 | | | | | | | | | |
| 18.0 | 8 | 0.6 | 2.97 | | | | | | | | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 6 | 2 | | | | | | | | | |
| 18.5 | 3 | 0.2 | 3.24 | | | | | | | | 3 | | 0 | 0 | 0 | 0 | 0 | 3 | 0 | | | | | | | | | |
| 19.0 | 1 | 0.1 | 3.51 | | | | | | | | 1 | | 0 | 0 | 0 | 0 | 0 | 1 | 0 | | | | | | | | | |
| 19.5 | 1 | 0.1 | 3.80 | | | | | | | | | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | | | | | | | | | |
| 20.0 | 1 | 0.1 | 4.11 | | | | | | | | | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | | | | | | | | | |
| 20.5 | 1 | 0.1 | 4.44 | | | | | | | | | | 1 | 0 | 0 | 0 | 0 | 0 | 1 | | | | | | | | | |
| Totals: | 1282 | | | 9 | 29 | 37 | 48 | 48 | 17 | 18 | 4 | 19 | 335 | 339 | 327 | 182 | 45 | 31 | 5 | | | | | | | | | |
| | | | | | | | | | | | | | Estimated population by age: | | | | | | | | 80 | 1411 | 1427 | 1378 | 766 | 188 | 131 | 21 |
| | | | | | | | | | | | | | Mean length (in): | | | | | | | | 3.4 | 6.7 | 8.0 | 11.1 | 13.5 | 15.3 | 17.3 | 19.2 |
| | | | | | | | | | | | | | Variance: | | | | | | | | 0.33 | 0.44 | 0.87 | 0.76 | 1.09 | 1.37 | 0.69 | 1.33 |

Table 11. Mean back-calculated lengths (inches) of largemouth bass of various year-classes from 1976 through 2005.

| Year-class | Number | 1 | 2 | 3 | 4 | 5 | 6 |
|----------------------|--------|-----|-----|------|------|------|------|
| 2006 samples | | | | | | | |
| 2005 | 7 | 3.0 | | | | | |
| 2004 | 30 | 2.9 | 6.4 | | | | |
| 2003 | 37 | 2.5 | 5.4 | 8.3 | | | |
| 2002 | 48 | 2.9 | 6.0 | 8.9 | 11.1 | | |
| 2001 | 48 | 2.8 | 7.1 | 10.3 | 12.4 | 13.8 | |
| 2000 | 17 | 3.1 | 7.0 | 10.6 | 12.7 | 14.5 | 15.6 |
| 2003 samples | | | | | | | |
| 2002 | 15 | 4.3 | | | | | |
| 2001 | 27 | 3.3 | 7.0 | | | | |
| 2000 | 12 | 2.8 | 7.1 | 9.3 | | | |
| 1999 | 5 | 4.3 | 8.0 | 10.7 | 12.0 | | |
| 1998 | 3 | 5.5 | 9.0 | 11.0 | 12.7 | 13.9 | |
| 1995 samples | | | | | | | |
| 1994 | 7 | 2.7 | | | | | |
| 1993 | 23 | 2.7 | 6.4 | | | | |
| 1992 | 7 | 2.4 | 6.2 | 9.2 | | | |
| 1991 | 9 | 2.7 | 6.0 | 9.1 | 11.1 | | |
| 1990 | 5 | 3.2 | 6.4 | 9.5 | 11.9 | 12.8 | |
| 1989 | 2 | 2.9 | 6.2 | 9.1 | 12.2 | 13.5 | 15.0 |
| 1982 samples | | | | | | | |
| 1981 | 13 | 2.6 | | | | | |
| 1980 | 1 | 2.4 | 4.3 | | | | |
| 1979 | 20 | 3.0 | 5.4 | 7.9 | | | |
| 1978 | 5 | 2.4 | 5.4 | 9.0 | 11.0 | | |
| 1977 | 4 | 2.5 | 5.9 | 9.3 | 11.2 | 13.0 | |
| 1976 samples* | | | | | | | |
| 1975 | 8 | 4.1 | | | | | |
| 1974 | 8 | 2.7 | 6.4 | | | | |
| 1973 | 13 | 3.0 | 5.8 | 8.4 | | | |
| 1972 | 8 | 2.4 | 5.5 | 7.8 | 9.7 | | |
| 1971 | 2 | 2.0 | 6.1 | 8.7 | 9.8 | 11.4 | |
| 1970 | 3 | 3.9 | 8.1 | 10.7 | 12.2 | 13.9 | 14.6 |
| Overall mean | | 3.0 | 6.4 | 9.3 | 11.5 | 13.4 | 15.1 |

*denotes no body length: scale length intercept was used in back-calculations.

Table 12. Number of survey days (Days), mean daily count (meanB) and standard deviation (StdevB) of boat anglers, mean daily count (means) and standard deviation (StdevS) of shore anglers, length of a fishing day (Hrs/d), fishing days per month, (Day/m), estimated hours fished by boat anglers (BoatHrs) and shore anglers (ShoreHrs), and total angling effort (TotalHrs) on weekends (we) and weekdays (wd) per month at Dewart Lake, April through October 2006.

| Month | Wky | Days | MeanB | StdevB | MeanS | StdevS | Hrs/d | Day/m | BoatHrs | ShoreHrs | TotalHrs |
|-----------------|-----|------|-------|--------|-------|--------|-------|-------|---------|----------|----------|
| Apr | we | 6 | 6.71 | 4.52 | 0.38 | 0.31 | 15 | 8 | 805 | 45 | 850 |
| Apr | wd | 15 | 2.37 | 2.20 | 0.71 | 0.97 | 15 | 20 | 710 | 212 | 922 |
| May | we | 6 | 13.75 | 11.78 | 0.46 | 0.90 | 15 | 9 | 1856 | 62 | 1918 |
| May | wd | 14 | 4.54 | 3.60 | 0.16 | 0.21 | 15 | 22 | 1497 | 53 | 1550 |
| Jun | we | 6 | 25.33 | 14.15 | 0.42 | 0.41 | 15 | 8 | 3040 | 50 | 3090 |
| Jun | wd | 16 | 7.94 | 4.62 | 0.41 | 0.57 | 15 | 22 | 2619 | 134 | 2753 |
| Jul | we | 7 | 23.21 | 9.63 | 0.86 | 0.80 | 15 | 9 | 3134 | 116 | 3250 |
| Jul | wd | 16 | 5.97 | 5.74 | 0.20 | 0.37 | 15 | 22 | 1971 | 67 | 2038 |
| Aug | we | 7 | 16.96 | 5.17 | 0.32 | 0.85 | 15 | 8 | 2036 | 39 | 2074 |
| Aug | wd | 16 | 5.39 | 3.96 | 0.14 | 0.26 | 15 | 23 | 1858 | 49 | 1906 |
| Sep | we | 4 | 9.44 | 7.41 | 0.00 | 0.00 | 15 | 10 | 1416 | 0 | 1416 |
| Sep | wd | 15 | 3.52 | 2.56 | 0.00 | 0.00 | 15 | 20 | 1055 | 0 | 1055 |
| Oct | we | 6 | 5.71 | 5.09 | 0.00 | 0.00 | 15 | 8 | 685 | 0 | 685 |
| Oct | wd | 15 | 1.73 | 2.09 | 0.02 | 0.06 | 15 | 18 | 468 | 5 | 473 |
| Sum | | | | | | | | | 23150 | 830 | 23980 |
| Apr | | | | | | | | | 1515 | 257 | 1772 |
| May | | | | | | | | | 3353 | 115 | 3468 |
| Jun | | | | | | | | | 5659 | 184 | 5843 |
| Jul | | | | | | | | | 5105 | 183 | 5288 |
| Aug | | | | | | | | | 3894 | 87 | 3981 |
| Sep | | | | | | | | | 2471 | 0 | 2471 |
| Oct | | | | | | | | | 1153 | 5 | 1158 |
| Sum | | | | | | | | | 23150 | 830 | 23980 |
| Weekends | | | | | | | | | 12972 | 311 | 13283 |
| Weekdays | | | | | | | | | 10179 | 519 | 10697 |
| Total | | | | | | | | | | | 23980 |

Table 13. Number of interviewed angler parties who fished for various species of combinations of species at Dewart Lake per month from April through October 2006.

| Species | Boat angler preferences | | | | | | | | Boat Total | Shore angler preferences | | | | | | | | Shore Total | Overall Total | Percent |
|--------------------------|-------------------------|-----|-----|-----|-----|-----|-----|------|------------|--------------------------|-----|-----|-----|-----|-----|----|------|-------------|---------------|---------|
| | Apr | May | Jun | Jul | Aug | Sep | Oct | Apr | | May | Jun | Jul | Aug | Sep | Oct | | | | | |
| Anything | 4 | 8 | 12 | 12 | 6 | 1 | 1 | 44 | | | | | | | | | | 3 | 47 | 4.0 |
| Bass | 31 | 53 | 44 | 64 | 53 | 49 | 52 | 346 | 7 | 4 | 5 | 3 | 3 | | | 1 | 23 | 369 | 31.5 | |
| Bass-bluegill-crappie | 1 | | | | | | | 1 | | | | | | | | | 0 | 1 | 0.1 | |
| Bass-bluegill-sunfish | 1 | | | | | | | 1 | | | | | | | | | 0 | 1 | 0.1 | |
| Bass-crappie | 2 | 2 | | 1 | | | 1 | 6 | | | | | | | | | 0 | 6 | 0.5 | |
| Bass-perch | | | | | 1 | | | 1 | | | | | | | | | 0 | 1 | 0.1 | |
| Bass-pike | 4 | 1 | 6 | 5 | 8 | 4 | 2 | 30 | | | | | | | | | 0 | 30 | 2.6 | |
| Bass-smallmouth | 3 | | | | | | | 3 | | | | | | | | | 0 | 3 | 0.3 | |
| Bass-sunfish | 2 | 2 | 2 | | | | | 6 | 1 | | | | | | | | 1 | 7 | 0.6 | |
| Bluegill | 19 | 32 | 74 | 92 | 87 | 45 | 28 | 377 | 7 | 8 | 8 | 7 | 7 | 4 | 2 | 43 | 420 | 35.9 | | |
| Bluegill-bass | 7 | 3 | 8 | 4 | 13 | 5 | 3 | 43 | | | 2 | 2 | 1 | | | | 5 | 48 | 4.1 | |
| Bluegill-crappie | 3 | 1 | 2 | | 2 | | 2 | 10 | | | | | | | | | 0 | 10 | 0.9 | |
| Bluegill-perch | | 1 | 4 | | 2 | 1 | 1 | 9 | | | | | | | | | 0 | 9 | 0.8 | |
| Bluegill-perch-crappie | | | | | | | | 0 | 1 | | | | | | | | 1 | 1 | 0.1 | |
| Bluegill-pike | | | | | 1 | 3 | 1 | 2 | 7 | | | | | | | | 0 | 7 | 0.6 | |
| Bluegill-smallmouth | | | | 1 | | | | 1 | | | | | | | | | 0 | 1 | 0.1 | |
| Bluegill-sunfish | 4 | 18 | 28 | 3 | 7 | 1 | 6 | 67 | 3 | 2 | | | | | | | 5 | 72 | 6.1 | |
| Bluegill-sunfish-crappie | 1 | | | | | | | 1 | | | | | | | | | 0 | 1 | 0.1 | |
| Bluegill-walleye | | | 1 | | | | | 1 | | | | | | | | | 0 | 1 | 0.1 | |
| Crappie | 3 | 5 | 2 | 5 | 2 | 3 | | 20 | | | | | | | | | 0 | 20 | 1.7 | |
| Crappie-perch | 1 | | | | | | | 1 | | | | | | | | | 0 | 1 | 0.1 | |
| Perch | 1 | | 1 | | 1 | 1 | 2 | 6 | | | | | | | | | 2 | 8 | 0.7 | |
| Pike | 11 | 4 | 8 | 11 | 11 | 10 | 6 | 61 | 2 | | | | | | | | 2 | 63 | 5.4 | |
| Smallmouth | 1 | | | | | | 1 | 2 | | | | | | | | | 0 | 2 | 0.2 | |
| Sunfish | 2 | 17 | 5 | 2 | | 1 | 1 | 28 | 4 | | 1 | | | | | | 5 | 33 | 2.8 | |
| Sunfish-pike | | | | | | 1 | | 1 | | | | | | | | | 0 | 1 | 0.1 | |
| Walleye | | 1 | 1 | 3 | | 1 | 1 | 7 | | | | | | | | | 0 | 7 | 0.6 | |
| TOTAL | 101 | 148 | 198 | 204 | 196 | 125 | 108 | 1080 | 28 | 15 | 18 | 12 | 11 | 4 | 3 | 91 | 1171 | | | |

| Species | Boat angler responses | | | | | | | | Boat Total | Shore angler responses | | | | | | | | Shore Total | Overall Total | Percent |
|------------|-----------------------|-----|-----|-----|-----|-----|-----|------|------------|------------------------|-----|-----|-----|-----|-----|-----|------|-------------|---------------|---------|
| | Apr | May | Jun | Jul | Aug | Sep | Oct | Apr | | May | Jun | Jul | Aug | Sep | Oct | | | | | |
| Anything | 4 | 8 | 12 | 12 | 6 | 1 | 1 | 44 | | | | | | | | | | 3 | 47 | 3.4 |
| Bass | 51 | 61 | 60 | 74 | 75 | 59 | 57 | 437 | 8 | 4 | 7 | 5 | 4 | 0 | 1 | 29 | 466 | 33.9 | | |
| Bluegill | 36 | 55 | 117 | 100 | 114 | 53 | 42 | 517 | 11 | 10 | 10 | 9 | 8 | 4 | 2 | 54 | 571 | 41.6 | | |
| Crappie | 11 | 8 | 4 | 6 | 4 | 4 | 2 | 39 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 40 | 2.9 | | |
| Perch | 2 | 1 | 5 | 0 | 4 | 2 | 3 | 17 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 20 | 1.5 | | |
| Pike | 15 | 5 | 14 | 17 | 22 | 16 | 10 | 99 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 101 | 7.4 | | |
| Smallmouth | 4 | 0 | 0 | 1 | 0 | 0 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0.4 | | |
| Sunfish | 10 | 37 | 35 | 5 | 7 | 3 | 7 | 104 | 8 | 2 | 1 | 0 | 0 | 0 | 0 | 11 | 115 | 8.4 | | |
| Walleye | 0 | 1 | 2 | 3 | 0 | 1 | 1 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0.6 | | |
| TOTAL | 133 | 176 | 249 | 218 | 232 | 139 | 124 | 1271 | 33 | 17 | 20 | 14 | 12 | 4 | 3 | 103 | 1374 | | | |

Table 14. *Estimated number of monthly fishing hours by boat anglers directed at various species in Dewart Lake from April through October, 2006.*

| Species | Apr | May | Jun | Jul | Aug | Sep | Oct | Total |
|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|
| Anything | 46 | 152 | 273 | 281 | 101 | 18 | 9 | 880 |
| Bass | 581 | 1162 | 1364 | 1733 | 1259 | 1049 | 530 | 7677 |
| Bluegill | 410 | 1048 | 2659 | 2342 | 1913 | 942 | 391 | 9705 |
| Crappie | 125 | 152 | 91 | 141 | 67 | 71 | 19 | 666 |
| Perch | 23 | 19 | 114 | 0 | 67 | 36 | 28 | 286 |
| Pike | 171 | 95 | 318 | 398 | 369 | 284 | 93 | 1729 |
| Smallmouth | 46 | 0 | 0 | 23 | 0 | 0 | 9 | 78 |
| Sunfish | 114 | 705 | 795 | 117 | 117 | 53 | 65 | 1967 |
| Walleye | 0 | 19 | 45 | 70 | 0 | 18 | 9 | 162 |
| Total | 1515 | 3353 | 5659 | 5105 | 3894 | 2471 | 1153 | 23150 |

Table 15. *Estimated harvest of bluegills (BG), crappies (CR), sunfish (SF), northern pike (NP), yellow perch (YP), rock bass (RB), walleyes (WA), smallmouth bass (SB), bullheads (BH), unmarked largemouth bass (ULB), marked largemouth bass (MLB), number of sub-legal bass (R<14) released, number of legal-size bass (R>14), accumulated interview hours (Int Hrs), estimated fishing hours (Fish Hrs), and creel expansion factors (ExpF) used to estimate total harvest and releases by boat and shore anglers (B/S), fishing on weekends (we) or weekdays (wd) at Dewart Lake from April through October 2006.*

| Month | Wkdy | B/S | BG | CR | SF | NP | YP | RB | WA | SB | BH | UNMK | MRKD | R<14 | R>14 | Int Hrs | Fish Hrs | ExpF |
|-------|------|------------|-------------|------------|-------------|------------|------------|------------|-----------|-----------|-----------|------------|-----------|-------------|-------------|---------|----------|------|
| Apr | we | b | 69 | 23 | 56 | 10 | 3 | 8 | 0 | 3 | 0 | 10 | 0 | 247 | 109 | 316.48 | 805.00 | 2.54 |
| Apr | we | s | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7.02 | 45.00 | 6.41 |
| Apr | wd | B | 263 | 5 | 123 | 5 | 44 | 2 | 2 | 0 | 0 | 5 | 0 | 227 | 49 | 288.37 | 710.00 | 2.46 |
| Apr | wd | s | 23 | 0 | 132 | 55 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 5 | 46.53 | 211.67 | 4.55 |
| May | we | b | 238 | 12 | 195 | 15 | 0 | 15 | 3 | 0 | 0 | 22 | 6 | 944 | 198 | 599.72 | 1856.25 | 3.10 |
| May | we | s | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 0 | 8.25 | 61.88 | 7.50 |
| May | wd | b | 958 | 68 | 768 | 33 | 15 | 56 | 3 | 6 | 0 | 50 | 0 | 340 | 180 | 506.43 | 1496.79 | 2.96 |
| May | wd | s | 53 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 10.02 | 53.04 | 5.30 |
| Jun | we | b | 1157 | 29 | 648 | 127 | 33 | 41 | 0 | 0 | 0 | 21 | 0 | 775 | 217 | 741.12 | 3040.00 | 4.10 |
| Jun | we | s | 22 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 13.67 | 50.00 | 3.66 |
| Jun | wd | b | 2505 | 22 | 1113 | 92 | 26 | 81 | 7 | 0 | 0 | 40 | 4 | 546 | 150 | 715.18 | 2619.38 | 3.66 |
| Jun | wd | s | 36 | 0 | 7 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 37.13 | 134.06 | 3.61 |
| Jul | we | b | 556 | 182 | 214 | 14 | 32 | 14 | 0 | 5 | 0 | 32 | 0 | 1258 | 397 | 687.57 | 3133.93 | 4.56 |
| Jul | we | s | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23.43 | 115.71 | 4.94 |
| Jul | wd | b | 843 | 56 | 357 | 63 | 7 | 56 | 0 | 11 | 7 | 37 | 0 | 505 | 152 | 530.62 | 1971.41 | 3.72 |
| Jul | wd | s | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9.70 | 67.03 | 6.91 |
| Aug | we | b | 729 | 4 | 124 | 36 | 31 | 18 | 0 | 0 | 0 | 53 | 0 | 609 | 240 | 458.08 | 2035.71 | 4.44 |
| Aug | we | s | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6.75 | 38.57 | 5.71 |
| Aug | wd | b | 1276 | 7 | 394 | 14 | 60 | 18 | 14 | 0 | 7 | 4 | 0 | 334 | 112 | 528.60 | 1857.97 | 3.51 |
| Aug | wd | s | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 0 | 10.27 | 48.52 | 4.73 |
| Sep | we | b | 342 | 5 | 114 | 0 | 5 | 0 | 0 | 0 | 0 | 5 | 0 | 380 | 128 | 298.07 | 1415.63 | 4.75 |
| Sep | we | s | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.33 | 0.00 | 0.00 |
| Sep | wd | b | 368 | 79 | 96 | 23 | 25 | 0 | 0 | 6 | 0 | 6 | 0 | 218 | 110 | 373.08 | 1055.00 | 2.83 |
| Sep | wd | s | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3.25 | 0.00 | 0.00 |
| Oct | we | b | 58 | 0 | 8 | 1 | 4 | 0 | 0 | 1 | 0 | 3 | 0 | 188 | 58 | 487.93 | 685.00 | 1.40 |
| Oct | we | s | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.50 | 0.00 | 0.00 |
| Oct | wd | b | 325 | 46 | 56 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 41 | 29 | 193.17 | 468.00 | 2.42 |
| Oct | wd | s | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.98 | 4.50 | 4.58 |
| | | Sum | 9848 | 538 | 4419 | 489 | 285 | 312 | 30 | 31 | 14 | 289 | 10 | 6729 | 2136 | | | |

| | Bass | | | | | | | | | | | | | | | | | |
|----------------------|-------------------------|-----|------|-----|-----|-----|----|----|----|-----|----|------|------|-------|------|--|--|--|
| | Harvest Releases | | | | | | | | | | | | | | | | | |
| Shore anglers | 162 | 0 | 152 | 55 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 118 | 5 | 372 | 123 | | | |
| Boat anglers | 9686 | 538 | 4267 | 435 | 285 | 308 | 30 | 31 | 14 | 289 | 10 | 6611 | 2131 | 15894 | 8742 | | | |
| Apr | 355 | 28 | 311 | 70 | 47 | 10 | 2 | 3 | 0 | 15 | 0 | 496 | 163 | 840 | 659 | | | |
| May | 1249 | 80 | 969 | 48 | 15 | 72 | 6 | 6 | 0 | 72 | 6 | 1333 | 378 | 2522 | 1711 | | | |
| Jun | 3720 | 51 | 1776 | 219 | 58 | 125 | 7 | 0 | 0 | 61 | 4 | 1343 | 368 | 6021 | 1710 | | | |
| Jul | 1399 | 238 | 571 | 77 | 39 | 69 | 0 | 16 | 7 | 69 | 0 | 1763 | 549 | 2486 | 2312 | | | |
| Aug | 2033 | 11 | 518 | 50 | 91 | 35 | 14 | 0 | 7 | 57 | 0 | 967 | 352 | 2816 | 1320 | | | |

Table 16. Size distribution of fish taken by anglers at Dewart Lake, April through October 2006 (BG=bluegill, C=crappie, SF=sunfish, NP=pike, YP=perch, RB=rock bass, WA=walleye, LB=largemouth bass, SB=smallmouth bass, BH=bullhead).

| Inches | BG | CR | SF | NP | YP | RB | WA | LB | SB | BH |
|--------|------|-----|------|-----|-----|-----|----|-----|----|----|
| 4.0 | 7 | | | | | | | | | |
| 4.5 | 10 | | | | | | | | | |
| 5.0 | 76 | | 4 | | 2 | | | | | |
| 5.5 | 249 | | 0 | | 7 | | | | | |
| 6.0 | 752 | | 49 | | 12 | 11 | | | | |
| 6.5 | 1320 | | 137 | | 7 | 7 | | | | |
| 7.0 | 2485 | 3 | 509 | | 52 | 25 | | | | |
| 7.5 | 2803 | 3 | 666 | | 52 | 36 | | | | |
| 8.0 | 1774 | 48 | 940 | | 40 | 54 | | | | |
| 8.5 | 291 | 31 | 687 | | 40 | 36 | | | | |
| 9.0 | 55 | 34 | 740 | | 24 | 68 | | | | |
| 9.5 | 24 | 14 | 389 | | 16 | 22 | | | | |
| 10.0 | | 148 | 242 | | 14 | 32 | | | | 3 |
| 10.5 | | 66 | 21 | | 5 | 11 | | | | 4 |
| 11.0 | | 79 | 21 | | 7 | 7 | | | | |
| 11.5 | | 38 | 11 | | 2 | 4 | | | | 4 |
| 12.0 | | 41 | 4 | | 2 | | | | | |
| 12.5 | | 7 | | | 2 | | | | 3 | |
| 13.0 | | 10 | | | | | | | | |
| 13.5 | | 3 | | | | | | 4 | | |
| 14.0 | | 7 | | | | | | 58 | 3 | 3 |
| 14.5 | | 3 | | | | | 3 | 33 | 3 | |
| 15.0 | | | | | | | | 51 | 6 | |
| 15.5 | | | | | | | | 33 | 3 | |
| 16.0 | | | | | | | | 40 | 6 | |
| 16.5 | | | | | | | 3 | 22 | 3 | |
| 17.0 | | | | | | | 3 | 33 | 3 | |
| 17.5 | | | | | | | | 15 | | |
| 18.0 | | | | | | | | 4 | 3 | |
| 18.5 | | | | | | | | | | |
| 19.0 | | | | | | | 3 | | | |
| 19.5 | | | | | | | | 7 | | |
| 20.0 | | | | 14 | | | 3 | | | |
| 20.5 | | | | 27 | | | | | | |
| 21.0 | | | | 68 | | | 3 | | | |
| 21.5 | | | | 14 | | | | | | |
| 22.0 | | | | 61 | | | 3 | | | |
| 22.5 | | | | | | | | | | |
| 23.0 | | | | 20 | | | 3 | | | |
| 23.5 | | | | 14 | | | 3 | | | |
| 24.0 | | | | 75 | | | | | | |
| 25.0 | | | | 27 | | | | | | |
| 25.5 | | | | | | | | | | |
| 26.0 | | | | 41 | | | | | | |
| 27.0 | | | | 27 | | | | | | |
| 28.0 | | | | 34 | | | | | | |
| 29.0 | | | | 14 | | | | | | |
| 30.0 | | | | 7 | | | | | | |
| 31.0 | | | | 14 | | | | | | |
| 32.0 | | | | 14 | | | | | | |
| 34.0 | | | | 7 | | | | | | |
| 35.0 | | | | 7 | | | | | | |
| 37.0 | | | | 7 | | | | | | |
| Total | 9848 | 538 | 4419 | 489 | 285 | 312 | 30 | 299 | 31 | 14 |

Table 17. Number of angler parties who rated fish as good, fair, or poor based on their species preference at Dewart Lake, April through October 2006.

| Species | Good | Fair | Poor | Total |
|--------------------------|-------------|-------------|-------------|--------------|
| Anything | 29 | 15 | 3 | 47 |
| Bluegill | 295 | 94 | 31 | 420 |
| Bluegill-crappie | 6 | 3 | 1 | 10 |
| Bluegill-bass | 34 | 8 | 6 | 48 |
| Bluegill-pike | 5 | 1 | 1 | 7 |
| Bluegill-sunfish | 64 | 7 | 1 | 72 |
| Bluegill-sunfish-crappie | 1 | | | 1 |
| Bluegill-walleye | 1 | | | 1 |
| Bluegill-smallmouth | 1 | | | 1 |
| Bluegill perch | 4 | 4 | 1 | 9 |
| Bluegill-perch-crappie | 1 | | | 1 |
| Crappie | 13 | 5 | 2 | 20 |
| Crappie-perch | | 1 | | 1 |
| Bass | 265 | 84 | 20 | 369 |
| Bass-bluegill-crappie | 1 | | | 1 |
| Bass-bluegill-sunfish | 1 | | | 1 |
| Bass-crappie | 5 | | 1 | 6 |
| Bass-pike | 23 | 8 | | 31 |
| Bass-sunfish | 7 | | | 7 |
| Bass-smallmouth | 3 | | | 3 |
| Pike | 54 | 7 | 2 | 63 |
| Sunfish | 28 | 4 | 1 | 33 |
| Sunfish-pike | | | 1 | 1 |
| Walleye | 4 | 2 | 1 | 7 |
| Smallmouth | 2 | | | 2 |
| Perch | 5 | 3 | | 8 |
| Perch-bass | | 1 | | 1 |
| Total | 852 | 247 | 72 | 1171 |

| Species | Good | Fair | Poor | Total |
|----------------|-------------|-------------|-------------|--------------|
| Anything | 29 | 15 | 3 | 47 |
| Bass | 339 | 101 | 27 | 467 |
| Bluegill | 414 | 117 | 41 | 572 |
| Crappie | 27 | 9 | 4 | 40 |
| Perch | 10 | 9 | 1 | 20 |
| Pike | 82 | 16 | 4 | 102 |
| Smallmouth | 5 | 0 | 0 | 5 |
| Sunfish | 101 | 11 | 3 | 115 |
| Walleye | 5 | 2 | 1 | 8 |
| Total | 1012 | 280 | 84 | 1376 |

Table 18. Number and percent of interviewed anglers who were lake visitors (Vis) or lake residents (Res) who thought there were “too many weeds” in Dewart Lake from April through October 2006.

| | | "No" | | | "Unsure" | | | "Yes" | | | Total | Total | Total |
|--------------|----------------|-------|-------|-------|----------|-----|------|-------|------|------|-------|-------|-------|
| | | Vis | Res | All | Vis | Res | All | Vis | Res | All | Vis | Res | All |
| Apr | Count | 39 | 21 | 60 | 13 | 4 | 17 | 32 | 20 | 52 | 84 | 45 | 129 |
| | Percent | 46.4 | 46.7 | 46.5 | 15.5 | 8.9 | 13.2 | 38.1 | 44.4 | 40.3 | | | |
| May | Count | 61 | 35 | 96 | 14 | 2 | 16 | 35 | 16 | 51 | 110 | 53 | 163 |
| | Percent | 55.5 | 66.0 | 58.9 | 12.7 | 3.8 | 9.8 | 31.8 | 30.2 | 31.3 | | | |
| Jun | Count | 77 | 26 | 103 | 23 | 5 | 28 | 61 | 24 | 85 | 161 | 55 | 216 |
| | Percent | 47.8 | 47.3 | 47.7 | 14.3 | 9.1 | 13.0 | 37.9 | 43.6 | 39.4 | | | |
| Jul | Count | 112 | 49 | 161 | 18 | 2 | 20 | 23 | 12 | 35 | 153 | 63 | 216 |
| | Percent | 73.2 | 77.8 | 74.5 | 11.8 | 3.2 | 9.3 | 15.0 | 19.0 | 16.2 | | | |
| Aug | Count | 102 | 96 | 198 | 1 | 1 | 2 | 5 | 2 | 7 | 108 | 99 | 207 |
| | Percent | 94.4 | 97.0 | 95.7 | 0.9 | 1.0 | 1.0 | 4.6 | 2.0 | 3.4 | | | |
| Sep | Count | 75 | 54 | 129 | 0 | 0 | 0 | 0 | 0 | 0 | 75 | 54 | 129 |
| | Percent | 100.0 | 100.0 | 100.0 | | | | | | | | | |
| Oct | Count | 82 | 29 | 111 | 0 | 0 | 0 | 0 | 0 | 0 | 82 | 29 | 111 |
| | Percent | 100.0 | 100.0 | 100.0 | | | | | | | | | |
| Total | Count | 548 | 310 | 858 | 69 | 14 | 83 | 156 | 74 | 230 | 773 | 398 | 1171 |
| | Percent | 70.9 | 77.9 | 73.3 | 8.9 | 3.5 | 7.1 | 20.2 | 18.6 | 19.6 | | | |

Table 19. *Number and percent of interviewed boat anglers who thought there were “too many weeds” in Dewart Lake from April through October 2006.*

| Species | "No" | % | "Unsure" | % | "Yes" | % | Total |
|------------------|-------------|----------|-----------------|----------|--------------|----------|--------------|
| Anything | 25 | 56.8 | 3 | 6.8 | 16 | 36.4 | 44 |
| Bluegill only | 286 | 75.9 | 17 | 4.5 | 74 | 19.6 | 377 |
| Bluegill-sunfish | 45 | 67.2 | 4 | 6.0 | 18 | 26.9 | 67 |
| Crappie only | 13 | 65.0 | 0 | 0.0 | 7 | 35.0 | 20 |
| Bass only | 277 | 80.1 | 17 | 4.9 | 52 | 15.0 | 346 |
| Bass-pike | 23 | 85.2 | 1 | 3.7 | 3 | 11.1 | 27 |
| Pike only | 50 | 83.3 | 1 | 1.7 | 9 | 15.0 | 60 |
| Sunfish only | 20 | 71.4 | 2 | 7.1 | 6 | 21.4 | 28 |

Table 20. Number and percent of interviewed boat anglers who fished solely for bluegills, bass or pike who thought there were “too many weeds” in Dewart Lake from April through October 2006.

| Bluegill anglers | | | | | | | |
|-------------------------|------|-------|----------|-----|-------|------|-------|
| Month | "No" | % | "Unsure" | % | "Yes" | % | Total |
| April | 9 | 47.4 | 1 | 5.3 | 9 | 47.4 | 19 |
| May | 13 | 40.6 | 3 | 9.4 | 16 | 50.0 | 32 |
| June | 36 | 48.6 | 5 | 6.8 | 33 | 44.6 | 74 |
| July | 71 | 77.2 | 8 | 8.7 | 13 | 14.1 | 92 |
| August | 84 | 96.6 | 0 | 0.0 | 3 | 3.4 | 87 |
| September | 45 | 100.0 | 0 | 0.0 | 0 | 0.0 | 45 |
| October | 28 | 100.0 | 0 | 0.0 | 0 | 0.0 | 28 |

| Bass anglers | | | | | | | |
|---------------------|------|-------|----------|------|-------|------|-------|
| Month | "No" | % | "Unsure" | % | "Yes" | % | Total |
| April | 16 | 51.6 | 4 | 12.9 | 11 | 35.5 | 31 |
| May | 37 | 69.8 | 3 | 5.7 | 13 | 24.5 | 53 |
| June | 19 | 43.2 | 8 | 18.2 | 17 | 38.6 | 44 |
| July | 52 | 81.3 | 2 | 3.1 | 10 | 15.6 | 64 |
| August | 52 | 98.1 | 0 | 0.0 | 1 | 1.9 | 53 |
| September | 49 | 100.0 | 0 | 0.0 | 0 | 0.0 | 49 |
| October | 52 | 100.0 | 0 | 0.0 | 0 | 0.0 | 52 |

| Pike anglers | | | | | | | |
|---------------------|------|-------|----------|------|-------|------|-------|
| Month | "No" | % | "Unsure" | % | "Yes" | % | Total |
| April | 4 | 40.0 | 1 | 10.0 | 5 | 50.0 | 10 |
| May | 4 | 100.0 | 0 | 0.0 | 0 | 0.0 | 4 |
| June | 5 | 62.5 | 0 | 0.0 | 3 | 37.5 | 8 |
| July | 10 | 90.9 | 0 | 0.0 | 1 | 9.1 | 11 |
| August | 11 | 100.0 | 0 | 0.0 | 0 | 0.0 | 11 |
| September | 10 | 100.0 | 0 | 0.0 | 0 | 0.0 | 10 |
| October | 6 | 100.0 | 0 | 0.0 | 0 | 0.0 | 6 |

Table 21. *Number and percent of interviewed boat anglers who thought there were “too many weeds” in Dewart Lake from April through October 2006 based on perceptions of fishing quality.*

| Quality | "Too many weeds?" | | | | | | Total |
|---------|-------------------|------|----------|-----|-------|------|-------|
| | "No" | % | "Unsure" | % | "Yes" | % | |
| Good | 52 | 75.4 | 2 | 2.9 | 15 | 21.7 | 69 |
| Fair | 148 | 66.7 | 22 | 9.9 | 52 | 23.4 | 222 |
| Poor | 614 | 77.8 | 30 | 3.8 | 145 | 18.4 | 789 |

FISH SURVEY REPORT

Indiana Division of Fish and Wildlife

| |
|--|
| Type of survey |
| Initial: Re-survey: <input checked="" type="checkbox"/> |

| | | |
|------------------|-----------|-----------------------------------|
| Lake name | County | Date of survey (Month, day, year) |
| Dewart Lake | Kosciusko | 6/12-14 and 7/17-18/06 |
| Biologist's name | | |
| Jed Pearson | | |

| LOCATION | | |
|------------------|--------------|--------------------|
| Quadrangle name | Range | Section |
| Lessburg/Milford | 6E, 7E | 25, 36, and 30, 31 |
| Township | Nearest town | |
| 34N | Leesburg | |

ACCESSIBILITY

| | | | | | |
|--------------------------------|-----------------------------------|--------------------|-----------|-------------------|---------------------------|
| State owned public access site | Priately owned public access site | Other access site | | | |
| Northwest corner of lake | | | | | |
| Surface acres | Maximum depth (ft) | Average depth (ft) | Acre feet | Water level (msl) | Extreme fluctuations (ft) |
| 551 | 82 | 16.3 | 8,629 | 867.57 | 3.7 |

| INLETS | | |
|-----------|------------------|--------|
| Name | Location | Origin |
| Cable Run | southeast corner | runoff |
| Unnamed | northeast corner | runoff |
| | | |

OUTLET

| Name | Location | | |
|---------------------------|---------------------------------|-------|---|
| Hammond Ditch | Northwest corner to Waubee Lake | | |
| Water level control | | | |
| Steel, sheet-piling dam | | | |
| POOL | ELEVATION (Feet MSL) | ACRES | Bottom type |
| TOP OF DAM | | | Boulder <input checked="" type="checkbox"/> |
| TOP OF FLOOD CONTROL POOL | | | Gravel <input checked="" type="checkbox"/> |
| TOP OF CONSERVATION POOL | | | Sand <input checked="" type="checkbox"/> |
| TOP OF MINIMUM POOL | | | Muck <input checked="" type="checkbox"/> |
| | | | Clay <input checked="" type="checkbox"/> |
| | | | Marl <input checked="" type="checkbox"/> |
| STREAMBED | | | |

| |
|--|
| Watershed use |
| General farming and woodlots |
| Development of shoreline |
| Nearly all of the shoreline except the middle section of the south shoreline is residentially developed. |

| |
|--|
| Previous surveys and investigations |
| Hydrographic map, USGS, 1962; Fish surveys, IDNR, 1976, 1982, 1995, 2003; Walleye evaluations, IDNR, 1982-84; Water chemistry, IDNR, 1972; Plant plan, LARE, 2005; Diagnostic study, LARE, 2005. |

| SAMPLING EFFORT | | | |
|-----------------|-----------------|-------------|--------------------------------|
| ELECTROFISHING | Day hours | Night hours | Total hours |
| | June sampling | 0.96 | 0.96 (includes 0.21 bass only) |
| TRAPS | Number of traps | Days | Total lifts |
| | June sampling | | 3 |
| GILL NETS | Number of nets | Days | Total lifts |
| | June sampling | | 5 |

| PHYSICAL AND CHEMICAL CHARACTERISTICS | | |
|---------------------------------------|-----------|------------------------|
| Color | Turbidity | |
| Blue-green (June sampling) | 16 Feet | 0 Inches (Secchi disk) |

| TEMPERATURE, DISSOLVED OXYGEN (ppm), TOTAL ALKALINITY (ppm), pH | | | | | | | |
|---|-----------|---------|--|----------------|-----------|---------|--|
| Depth (ft) | Degrees F | Oxygen* | | Depth (ft) | Degrees F | Oxygen* | |
| Surface | 70.5 | 8.1 | | 50 | 50.2 | 0.5 | |
| 2 | 70.5 | 8.1 | | 52 | 50.0 | 0.4 | |
| 4 | 70.5 | 8.1 | | 54 | 49.8 | 0.4 | |
| 5 | 70.5 | 8.0 | | 55 | 49.6 | 0.3 | |
| 6 | 70.3 | 8.0 | | 56 | 49.5 | 0.3 | |
| 8 | 70.3 | 8.0 | | 58 | 49.3 | 0.3 | |
| 10 | 70.3 | 8.0 | | 60 | 49.3 | 0.3 | |
| 12 | 70.3 | 8.1 | | 62 | 49.1 | 0.3 | |
| 14 | 70.3 | 8.0 | | 64 | 49.1 | 0.3 | |
| 15 | 68.9 | 8.2 | | 65 | 49.1 | 0.3 | |
| 16 | 66.4 | 8.5 | | 66 | 49.1 | 0.3 | |
| 18 | 64.2 | 8.0 | | 68 | 49.1 | 0.3 | |
| 20 | 63.0 | 8.0 | | 70 | 49.1 | 0.3 | |
| 22 | 61.3 | 7.5 | | 72 | 48.9 | 0.3 | |
| 24 | 60.4 | 7.0 | | 74 | 48.9 | 0.2 | |
| 25 | 60.1 | 6.4 | | 75 | 48.9 | 0.2 | |
| 26 | 59.7 | 6.2 | | 76 | 48.9 | 0.2 | |
| 28 | 59.2 | 5.6 | | 78 | 48.9 | 0.2 | |
| 30 | 58.8 | 5.2 | | 80 | 48.9 | 0.2 | |
| 32 | 58.5 | 4.9 | | 82 | | | |
| 34 | 57.9 | 4.8 | | 84 | | | |
| 35 | 57.7 | 4.6 | | Sampling date: | | | |
| 36 | 57.6 | 4.5 | | | Surface | Bottom | |
| 38 | 56.7 | 4.1 | | pH | 9.0 | 8.0 | |
| 40 | 55.8 | 3.8 | | Alkalinity* | 120 | 137 | |
| 42 | 54.3 | 2.8 | | | | | |
| 44 | 52.9 | 1.9 | | | | | |
| 45 | 52.3 | 1.4 | | | | | |
| 46 | 51.8 | 1.2 | | | | | |
| 48 | 50.5 | 0.5 | | | | | |

*ppm = parts per million

| SAMPLING EFFORT | | | |
|-----------------|-----------------|-------------|-------------|
| ELECTROFISHING | Day hours | Night hours | Total hours |
| | July sampling | 0.75 | 0.75 |
| TRAPS | Number of traps | Days | Total lifts |
| | July sampling | | 2 |
| GILL NETS | Number of nets | Days | Total lifts |
| | July sampling | | 3 |

| PHYSICAL AND CHEMICAL CHARACTERISTICS | | |
|---------------------------------------|-----------|------------------------|
| Color | Turbidity | |
| Blue-green (July sampling) | 10 Feet | 0 Inches (Secchi disk) |

| TEMPERATURE, DISSOLVED OXYGEN (ppm), TOTAL ALKALINITY (ppm), pH | | | | | | | |
|---|-----------|---------|--|---------------------|-----------|---------|--|
| Depth (ft) | Degrees F | Oxygen* | | Depth (ft) | Degrees F | Oxygen* | |
| Surface | 82.6 | 6.4 | | 50 | 51.6 | 0.2 | |
| 2 | 82.6 | 6.3 | | 52 | | | |
| 4 | 82.6 | 6.3 | | 54 | | | |
| 5 | 82.6 | 6.2 | | 55 | 50.5 | 0.2 | |
| 6 | 82.6 | 6.2 | | 56 | | | |
| 8 | 82.6 | 6.1 | | 58 | | | |
| 10 | 81.0 | 5.8 | | 60 | 50.4 | 0.2 | |
| 12 | 78.4 | 5.3 | | 62 | | | |
| 14 | 76.6 | 4.5 | | 64 | | | |
| 15 | 75.4 | 3.8 | | 65 | 50.4 | 0.2 | |
| 16 | 74.3 | 3.2 | | 66 | | | |
| 18 | 71.2 | 2.0 | | 68 | | | |
| 20 | 67.3 | 0.7 | | 70 | 50.2 | 0.2 | |
| 22 | 64.9 | 0.4 | | 72 | | | |
| 24 | 63.0 | 0.4 | | 74 | | | |
| 25 | 61.9 | 0.3 | | 75 | 50.0 | 0.2 | |
| 26 | 60.6 | 0.3 | | 76 | | | |
| 28 | 59.7 | 0.2 | | 78 | | | |
| 30 | 59.0 | 0.2 | | 80 | | | |
| 32 | | | | 82 | | | |
| 34 | | | | 84 | | | |
| 35 | 57.6 | 0.2 | | Sampling date: | | | |
| 36 | | | | Surface Bottom | | | |
| 38 | | | | pH 9.0 8.0 | | | |
| 40 | 55.8 | 0.2 | | Alkalinity* 120 137 | | | |
| 42 | | | | Conductivity | | | |
| 44 | | | | TDS | | | |
| 45 | 54.9 | 0.2 | | | | | |
| 46 | | | | | | | |
| 48 | | | | | | | |

*ppm = parts per million

Occurrence and abundance of submersed aquatic plants in Dewart Lake

| | | | | |
|--------------------------------|---------------------------|------|---------------------------|------|
| County: Kosciusko | Sites with plants: | 102 | Mean species/site: | 2.35 |
| Date: 5/24/05 | Sites with native plants: | 100 | Standard error (ms/s): | 0.12 |
| Secchi (ft): 21.0 | Vegetated sites (%): | 96.2 | Mean native species/site: | 1.46 |
| Maximum plant depth (ft): 26.5 | Number of species: | 12 | Standard error (mns/s): | 0.09 |
| Trophic status: meso | Number of native species: | 10 | Species diversity: | 0.85 |
| Total sites: 106 | Maximum species/site: | 6 | Native species diversity: | 0.82 |

| Depth (0 to 20 ft) Common Name | Occurrence | | Rake score observations (N,%) per species | | | | | | | | Plant Dominance |
|-------------------------------------|---------------|------|---|------|-----|------|----|------|----|------|--------------------|
| | Frequency (%) | | 0 % | 1 % | 3 % | 5 % | | | | | |
| Eurasian water milfoil | 60 | 56.6 | 46 | 43.4 | 27 | 25.5 | 17 | 16.0 | 16 | 15.1 | 29.8 |
| Chara | 43 | 40.6 | 63 | 59.4 | 20 | 18.9 | 18 | 17.0 | 5 | 4.7 | 18.7 |
| Curly-leaf pondweed | 34 | 32.1 | 72 | 67.9 | 22 | 20.8 | 8 | 7.5 | 4 | 3.8 | 12.5 |
| Coontail | 36 | 34.0 | 70 | 66.0 | 26 | 24.5 | 9 | 8.5 | 1 | 0.9 | 10.9 |
| Flat-stem pondweed | 23 | 21.7 | 83 | 78.3 | 16 | 15.1 | 7 | 6.6 | 0 | 0.0 | 7.0 |
| Long-leaf pondweed | 16 | 15.1 | 90 | 84.9 | 15 | 14.2 | 1 | 0.9 | 0 | 0.0 | 3.4 |
| Northern water milfoil | 14 | 13.2 | 92 | 86.8 | 14 | 13.2 | 0 | 0.0 | 0 | 0.0 | 2.6 |
| Common naiad | 10 | 9.4 | 96 | 90.6 | 10 | 9.4 | 0 | 0.0 | 0 | 0.0 | 1.9 |
| Elodea | 2 | 1.9 | 104 | 98.1 | 1 | 0.9 | 0 | 0.0 | 1 | 0.9 | 1.1 |
| Variable pondweed | 6 | 5.7 | 100 | 94.3 | 6 | 5.7 | 0 | 0.0 | 0 | 0.0 | 1.1 |
| Eel grass | 4 | 3.8 | 102 | 96.2 | 3 | 2.8 | 1 | 0.9 | 0 | 0.0 | 1.1 |
| Bladderwort | 1 | 0.9 | 105 | 99.1 | 1 | 0.9 | 0 | 0.0 | 0 | 0.0 | 0.2 |
| Filamentous algae | 18 | 17.0 | | | | | | | | | |

Occurrence and abundance of submersed aquatic plants in Dewart Lake

| | | |
|--------------------------------|------------------------------|--------------------------------|
| County: Kosciusko | Sites with plants: 102 | Mean species/site: 2.49 |
| Date: 8/1/05 | Sites with native plants: 99 | Standard error (ms/s): 0.12 |
| Secchi (ft): 7.5 | Vegetated sites (%) 100.0 | Mean native species/site: 1.87 |
| Maximum plant depth (ft): 21.0 | Number of species: 17 | Standard error (mns/s): 0.11 |
| Trophic status: meso | Number of native species: 15 | Species diversity: 0.85 |
| Total sites: 102 | Maximum species/site: 6 | Native species diversity: 0.84 |

| Depth (0 to 20 ft) Common Name | Occurrence | | Rake score observations (N,%) per species | | | | | | | | Plant Dominance |
|-------------------------------------|---------------|------|---|------|----|------|----|------|----|------|--------------------|
| | Frequency (%) | | 0 | % | 1 | % | 3 | % | 5 | % | |
| Eurasian water milfoil | 61 | 59.8 | 41 | 40.2 | 22 | 21.6 | 14 | 13.7 | 25 | 24.5 | 37.1 |
| Chara | 52 | 51.0 | 50 | 49.0 | 8 | 7.8 | 21 | 20.6 | 23 | 22.5 | 36.5 |
| Coontail | 44 | 43.1 | 58 | 56.9 | 15 | 14.7 | 17 | 16.7 | 12 | 11.8 | 24.7 |
| Water stargrass | 19 | 18.6 | 83 | 81.4 | 8 | 7.8 | 9 | 8.8 | 2 | 2.0 | 8.8 |
| Common naiad | 19 | 18.6 | 83 | 81.4 | 14 | 13.7 | 5 | 4.9 | 0 | 0.0 | 5.7 |
| Sago pondweed | 13 | 12.7 | 89 | 87.3 | 5 | 4.9 | 8 | 7.8 | 0 | 0.0 | 5.7 |
| Illinois pondweed | 12 | 11.8 | 90 | 88.2 | 7 | 6.9 | 5 | 4.9 | 0 | 0.0 | 4.3 |
| Variable pondweed | 14 | 13.7 | 88 | 86.3 | 11 | 10.8 | 3 | 2.9 | 0 | 0.0 | 3.9 |
| Large-leaf pondweed | 6 | 5.9 | 96 | 94.1 | 2 | 2.0 | 4 | 3.9 | 0 | 0.0 | 2.7 |
| Elodea | 4 | 3.9 | 98 | 96.1 | 1 | 1.0 | 2 | 2.0 | 1 | 1.0 | 2.4 |
| Flat-stem pondweed | 3 | 2.9 | 99 | 97.1 | 2 | 2.0 | 1 | 1.0 | 0 | 0.0 | 1.0 |
| Floating leaf pondweed | 1 | 1.0 | 101 | 99.0 | 0 | 0.0 | 0 | 0.0 | 1 | 1.0 | 1.0 |
| Curly-leaf pondweed | 2 | 2.0 | 100 | 98.0 | 2 | 2.0 | 0 | 0.0 | 0 | 0.0 | 0.4 |
| Bladderwort | 1 | 1.0 | 101 | 99.0 | 1 | 1.0 | 0 | 0.0 | 0 | 0.0 | 0.2 |
| Eel grass | 1 | 1.0 | 101 | 99.0 | 1 | 1.0 | 0 | 0.0 | 0 | 0.0 | 0.2 |
| Leafy pondweed | 1 | 1.0 | 101 | 99.0 | 1 | 1.0 | 0 | 0.0 | 0 | 0.0 | 0.2 |
| Northern water milfoil | 1 | 1.0 | 101 | 99.0 | 1 | 1.0 | 0 | 0.0 | 0 | 0.0 | 0.2 |
| Filamentous algae | 10 | 9.8 | | | | | | | | | |

Occurrence and abundance of submersed aquatic plants in Dewart Lake

| | | | | |
|--------------------------------|---------------------------|-------|---------------------------|------|
| County: Kosciusko | Sites with plants: | 44 | Mean species/site: | 2.41 |
| Date: 8/1/05 | Sites with native plants: | 44 | Standard error (ms/s): | 0.20 |
| Secchi (ft): 7.5 | Vegetated sites (%): | 100.0 | Mean native species/site: | 2.11 |
| Maximum plant depth (ft): 21.0 | Number of species: | 13 | Standard error (mns/s): | 0.17 |
| Trophic status: meso | Number of native species: | 12 | Species diversity: | 0.81 |
| Total sites: 44 | Maximum species/site: | 5 | Native species diversity: | 0.77 |

| Depth (0 to 5 ft) Common Name | Occurrence | | Rake score observations (N,%) per species | | | | | | | | Plant Dominance |
|------------------------------------|---------------|------|---|------|----|------|----|------|----|------|--------------------|
| | Frequency (%) | | 0 | 1 | 3 | 5 | | | | | |
| Chara | 39 | 88.6 | 5 | 11.4 | 4 | 9.1 | 18 | 40.9 | 17 | 38.6 | 65.0 |
| Eurasian water milfoil | 13 | 29.5 | 31 | 70.5 | 6 | 13.6 | 6 | 13.6 | 1 | 2.3 | 13.2 |
| Common naiad | 13 | 29.5 | 31 | 70.5 | 9 | 20.5 | 4 | 9.1 | 0 | 0.0 | 9.5 |
| Variable pondweed | 12 | 27.3 | 32 | 72.7 | 10 | 22.7 | 2 | 4.5 | 0 | 0.0 | 7.3 |
| Illinois pondweed | 9 | 20.5 | 35 | 79.5 | 6 | 13.6 | 3 | 6.8 | 0 | 0.0 | 6.8 |
| Coontail | 6 | 13.6 | 38 | 86.4 | 4 | 9.1 | 0 | 0.0 | 2 | 4.5 | 6.4 |
| Water stargrass | 5 | 11.4 | 39 | 88.6 | 2 | 4.5 | 3 | 6.8 | 0 | 0.0 | 5.0 |
| Large-leaf pondweed | 2 | 4.5 | 42 | 95.5 | 0 | 0.0 | 2 | 4.5 | 0 | 0.0 | 2.7 |
| Flat-stem pondweed | 2 | 4.5 | 42 | 95.5 | 1 | 2.3 | 1 | 2.3 | 0 | 0.0 | 1.8 |
| Sago pondweed | 2 | 4.5 | 42 | 95.5 | 1 | 2.3 | 1 | 2.3 | 0 | 0.0 | 1.8 |
| Elodea | 1 | 2.3 | 43 | 97.7 | 0 | 0.0 | 1 | 2.3 | 0 | 0.0 | 1.4 |
| Floating-leaf pondweed | 1 | 2.3 | 43 | 97.7 | 0 | 0.0 | 1 | 2.3 | 0 | 0.0 | 1.4 |
| Northern water milfoil | 1 | 2.3 | 43 | 97.7 | 1 | 2.3 | 0 | 0.0 | 0 | 0.0 | 0.5 |
| Filamentous algae | 1 | 2.3 | | | | | | | | | |

Occurrence and abundance of submersed aquatic plants in Dewart Lake

| | | | | |
|--------------------------------|---------------------------|-------|---------------------------|------|
| County: Kosciusko | Sites with plants: | 33 | Mean species/site: | 2.82 |
| Date: 8/1/05 | Sites with native plants: | 30 | Standard error (ms/s): | 0.24 |
| Secchi (ft): 7.5 | Vegetated sites (%) | 100.0 | Mean native species/site: | 2.03 |
| Maximum plant depth (ft): 21.0 | Number of species: | 13 | Standard error (mns/s): | 0.24 |
| Trophic status: meso | Number of native species: | 12 | Species diversity: | 0.85 |
| Total sites: 33 | Maximum species/site: | 6 | Native species diversity: | 0.85 |

| Depth (5 to 10 ft) Common Name | Occurrence | | Rake score observations (N,%) per species | | | | | | | | Plant Dominance |
|-------------------------------------|---------------|------|---|------|---|------|---|------|----|------|--------------------|
| | Frequency (%) | | 0 | 1 | 3 | 5 | | | | | |
| Eurasian water milfoil | 26 | 78.8 | 7 | 21.2 | 7 | 21.2 | 4 | 12.1 | 15 | 45.5 | 57.0 |
| Chara | 12 | 36.4 | 21 | 63.6 | 4 | 12.1 | 3 | 9.1 | 5 | 15.2 | 23.0 |
| Coontail | 15 | 45.5 | 18 | 54.5 | 6 | 18.2 | 8 | 24.2 | 1 | 3.0 | 21.2 |
| Water stargrass | 12 | 36.4 | 21 | 63.6 | 5 | 15.2 | 5 | 15.2 | 2 | 6.1 | 18.2 |
| Sago pondweed | 9 | 27.3 | 24 | 72.7 | 3 | 9.1 | 6 | 18.2 | 0 | 0.0 | 12.7 |
| large-leaf pondweed | 4 | 12.1 | 29 | 87.9 | 2 | 6.1 | 2 | 6.1 | 0 | 0.0 | 4.8 |
| Common naiad | 6 | 18.2 | 27 | 81.8 | 5 | 15.2 | 1 | 3.0 | 0 | 0.0 | 4.8 |
| Illinois pondweed | 3 | 9.1 | 30 | 90.9 | 1 | 3.0 | 2 | 6.1 | 0 | 0.0 | 4.2 |
| Elodea | 1 | 3.0 | 32 | 97.0 | 0 | 0.0 | 0 | 0.0 | 1 | 3.0 | 3.0 |
| Variable pondweed | 2 | 6.1 | 31 | 93.9 | 1 | 3.0 | 1 | 3.0 | 0 | 0.0 | 2.4 |
| Flat-stem pondweed | 1 | 3.0 | 32 | 97.0 | 1 | 3.0 | 0 | 0.0 | 0 | 0.0 | 0.6 |
| Eel grass | 1 | 3.0 | 32 | 97.0 | 1 | 3.0 | 0 | 0.0 | 0 | 0.0 | 0.6 |
| Leafy pondweed | 1 | 3.0 | 32 | 97.0 | 1 | 3.0 | 0 | 0.0 | 0 | 0.0 | 0.6 |
| Filamentous algae | 7 | 21.2 | | | | | | | | | |

Occurrence and abundance of submersed aquatic plants in Dewart Lake

| | | | | |
|--------------------------------|---------------------------|-------|---------------------------|------|
| County: Kosciusko | Sites with plants: | 13 | Mean species/site: | 2.38 |
| Date: 8/1/05 | Sites with native plants: | 13 | Standard error (ms/s): | 0.22 |
| Secchi (ft): 7.5 | Vegetated sites (%): | 100.0 | Mean native species/site: | 1.38 |
| Maximum plant depth (ft): 21.0 | Number of species: | 8 | Standard error (mns/s): | 0.19 |
| Trophic status: meso | Number of native species: | 6 | Species diversity: | 0.73 |
| Total sites: 13 | Maximum species/site: | 4 | Native species diversity: | 0.59 |

| Depth (10 to 15 ft) Common Name | Occurrence | | Rake score observations (N,%) per species | | | | | | | | Plant |
|--------------------------------------|---------------|------|--|--------|--------|--------|-----|-----|-----|-----------|-------|
| | Frequency (%) | | 0 % | 1 % | 3 % | 5 % | 6 % | 7 % | 8 % | Dominance | |
| Eurasian water milfoil | 11 | 84.6 | 2 15.4 | 4 30.8 | 1 7.7 | 6 46.2 | | | | 56.9 | |
| Coontail | 11 | 84.6 | 2 15.4 | 3 23.1 | 5 38.5 | 3 23.1 | | | | 50.8 | |
| Chara | 1 | 7.7 | 12 92.3 | 0 0.0 | 0 0.0 | 1 7.7 | | | | 7.7 | |
| Sago pondweed | 2 | 15.4 | 11 84.6 | 1 7.7 | 1 7.7 | 0 0.0 | | | | 6.2 | |
| Water stargrass | 2 | 15.4 | 11 84.6 | 1 7.7 | 1 7.7 | 0 0.0 | | | | 6.2 | |
| Elodea | 1 | 7.7 | 12 92.3 | 0 0.0 | 1 7.7 | 0 0.0 | | | | 4.6 | |
| Curly-leaf pondweed | 2 | 15.4 | 11 84.6 | 2 15.4 | 0 0.0 | 0 0.0 | | | | 3.1 | |
| Bladderwort | 1 | 7.7 | 12 92.3 | 1 7.7 | 0 0.0 | 0 0.0 | | | | 1.5 | |
| Filamentous algae | 1 | 7.7 | | | | | | | | | |

Occurrence and abundance of submersed aquatic plants in Dewart Lake

| | | | | |
|--------------------------------|---------------------------|-------|---------------------------|------|
| County: Kosciusko | Sites with plants: | 12 | Mean species/site: | 2.00 |
| Date: 8/1/05 | Sites with native plants: | 12 | Standard error (ms/s): | 0.13 |
| Secchi (ft): 7.5 | Vegetated sites (%) | 100.0 | Mean native species/site: | 1.08 |
| Maximum plant depth (ft): 21.0 | Number of species: | 3 | Standard error (mns/s): | 0.09 |
| Trophic status: meso | Number of native species: | 2 | Species diversity: | 0.54 |
| Total sites: 12 | Maximum species/site: | 3 | Native species diversity: | 0.14 |

| Depth (15 to 20 ft) Common Name | Occurrence | | Rake score observations (N,%) per species | | | | | | | | Plant Dominance |
|--------------------------------------|---------------|-------|---|------|-----|------|---|------|---|------|--------------------|
| | Frequency (%) | | 0 % | 1 % | 3 % | 5 % | | | | | |
| Coontail | 12 | 100.0 | 0 | 0.0 | 2 | 16.7 | 4 | 33.3 | 6 | 50.0 | 73.3 |
| Eurasian water milfoil | 11 | 91.7 | 1 | 8.3 | 5 | 41.7 | 3 | 25.0 | 3 | 25.0 | 48.3 |
| Elodea | 1 | 8.3 | 11 | 91.7 | 1 | 8.3 | 0 | 0.0 | 0 | 0.0 | 1.7 |
| Filamentous algae | 1 | 8.3 | | | | | | | | | |

Occurrence and abundance of submersed aquatic plants in Dewart Lake

| | | | | |
|--------------------------------|---------------------------|------|---------------------------|------|
| County: Kosciusko | Sites with plants: | 80 | Mean species/site: | 1.14 |
| Date: 7/31/06 | Sites with native plants: | 80 | Standard error (ms/s): | 0.07 |
| Secchi (ft): 11.0 | Vegetated sites (%) | 88.9 | Mean native species/site: | 1.12 |
| Maximum plant depth (ft): 20.0 | Number of species: | 10 | Standard error (mns/s): | 0.07 |
| Trophic status: meso | Number of native species: | 9 | Species diversity: | 0.72 |
| Total sites: 90 | Maximum species/site: | 3 | Native species diversity: | 0.71 |

| Depth (0 to 20 ft) Common Name | Occurrence | | Rake score observations (N,%) per species | | | | | | | | Plant Dominance |
|-------------------------------------|---------------|------|---|------|-----|------|-----|------|-----|------|--------------------|
| | Frequency (%) | | 0 % | | 1 % | | 3 % | | 5 % | | |
| Chara | 34 | 37.8 | 56 | 62.2 | 9 | 10.0 | 15 | 16.7 | 10 | 11.1 | 23.1 |
| Coontail | 39 | 43.3 | 51 | 56.7 | 21 | 23.3 | 16 | 17.8 | 2 | 2.2 | 17.6 |
| Water stargrass | 15 | 16.7 | 75 | 83.3 | 15 | 16.7 | 0 | 0.0 | 0 | 0.0 | 3.3 |
| Flat-stem pondweed | 5 | 5.6 | 85 | 94.4 | 5 | 5.6 | 0 | 0.0 | 0 | 0.0 | 1.1 |
| Common naiad | 2 | 2.2 | 88 | 97.8 | 1 | 1.1 | 1 | 1.1 | 0 | 0.0 | 0.9 |
| Curly-leaf pondweed | 2 | 2.2 | 88 | 97.8 | 2 | 2.2 | 0 | 0.0 | 0 | 0.0 | 0.4 |
| Large-leaf pondweed | 2 | 2.2 | 88 | 97.8 | 2 | 2.2 | 0 | 0.0 | 0 | 0.0 | 0.4 |
| Variable pondweed | 2 | 2.2 | 88 | 97.8 | 2 | 2.2 | 0 | 0.0 | 0 | 0.0 | 0.4 |
| Eel grass | 1 | 1.1 | 89 | 98.9 | 1 | 1.1 | 0 | 0.0 | 0 | 0.0 | 0.2 |
| Nitella | 1 | 1.1 | 89 | 98.9 | 1 | 1.1 | 0 | 0.0 | 0 | 0.0 | 0.2 |
| Filamentous algae | 11 | 12.2 | | | | | | | | | |

Occurrence and abundance of submersed aquatic plants in Dewart Lake

| | | | | |
|--------------------------------|---------------------------|------|---------------------------|------|
| County: Kosciusko | Sites with plants: | 28 | Mean species/site: | 1.13 |
| Date: 7/31/06 | Sites with native plants: | 28 | Standard error (ms/s): | 0.11 |
| Secchi (ft): 11.0 | Vegetated sites (%): | 93.3 | Mean native species/site: | 1.13 |
| Maximum plant depth (ft): 20.0 | Number of species: | 7 | Standard error (mns/s): | 0.11 |
| Trophic status: meso | Number of native species: | 7 | Species diversity: | 0.48 |
| Total sites: 30 | Maximum species/site: | 3 | Native species diversity: | 0.48 |

| Depth (0 to 5 ft) Common Name | Occurrence | | Rake score observations (N,%) per species | | | | | | | | Plant Dominance |
|------------------------------------|---------------|------|---|------|-----|------|----|------|---|------|--------------------|
| | Frequency (%) | | 0 % | 1 % | 3 % | 5 % | | | | | |
| Chara | 24 | 80.0 | 6 | 20.0 | 7 | 23.3 | 10 | 33.3 | 7 | 23.3 | 48.0 |
| Coontail | 3 | 10.0 | 27 | 90.0 | 2 | 6.7 | 1 | 3.3 | 0 | 0.0 | 3.3 |
| Water stargrass | 3 | 10.0 | 27 | 90.0 | 3 | 10.0 | 0 | 0.0 | 0 | 0.0 | 2.0 |
| Common naiad | 1 | 3.3 | 29 | 96.7 | 1 | 3.3 | 0 | 0.0 | 0 | 0.0 | 0.7 |
| Flat-stem pondweed | 1 | 3.3 | 29 | 96.7 | 1 | 3.3 | 0 | 0.0 | 0 | 0.0 | 0.7 |
| Large-leaf pondweed | 1 | 3.3 | 29 | 96.7 | 1 | 3.3 | 0 | 0.0 | 0 | 0.0 | 0.7 |
| Variable pondweed | 1 | 3.3 | 29 | 96.7 | 1 | 3.3 | 0 | 0.0 | 0 | 0.0 | 0.7 |
| Filamentous algae | 4 | 13.3 | | | | | | | | | |

Occurrence and abundance of submersed aquatic plants in Dewart Lake

| | | | | |
|--------------------------------|---------------------------|------|---------------------------|------|
| County: Kosciusko | Sites with plants: | 22 | Mean species/site: | 1.08 |
| Date: 7/31/06 | Sites with native plants: | 22 | Standard error (ms/s): | 0.14 |
| Secchi (ft): 11.0 | Vegetated sites (%) | 84.6 | Mean native species/site: | 1.08 |
| Maximum plant depth (ft): 20.0 | Number of species: | 6 | Standard error (mns/s): | 0.14 |
| Trophic status: meso | Number of native species: | 6 | Species diversity: | 0.74 |
| Total sites: 26 | Maximum species/site: | 3 | Native species diversity: | 0.74 |

| Depth (5 to 10 ft) Common Name | Occurrence | | Rake score observations (N,%) per species | | | | | | | | Plant Dominance |
|-------------------------------------|---------------|------|---|------|-----|------|---|------|---|-----|--------------------|
| | Frequency (%) | | 0 % | 1 % | 3 % | 5 % | | | | | |
| Chara | 8 | 30.8 | 18 | 69.2 | 2 | 7.7 | 4 | 15.4 | 2 | 7.7 | 18.5 |
| Coontail | 10 | 38.5 | 16 | 61.5 | 7 | 26.9 | 3 | 11.5 | 0 | 0.0 | 12.3 |
| Water stargrass | 6 | 23.1 | 20 | 76.9 | 6 | 23.1 | 0 | 0.0 | 0 | 0.0 | 4.6 |
| Flat-stem pondweed | 2 | 7.7 | 24 | 92.3 | 2 | 7.7 | 0 | 0.0 | 0 | 0.0 | 1.5 |
| Eel grass | 1 | 3.8 | 25 | 96.2 | 1 | 3.8 | 0 | 0.0 | 0 | 0.0 | 0.8 |
| Variable pondweed | 1 | 3.8 | 25 | 96.2 | 1 | 3.8 | 0 | 0.0 | 0 | 0.0 | 0.8 |
| Filamentous algae | 4 | 15.4 | | | | | | | | | |

Occurrence and abundance of submersed aquatic plants in Dewart Lake

| | | | | |
|--------------------------------|---------------------------|------|---------------------------|------|
| County: Kosciusko | Sites with plants: | 21 | Mean species/site: | 1.25 |
| Date: 7/31/06 | Sites with native plants: | 21 | Standard error (ms/s): | 0.17 |
| Secchi (ft): 11.0 | Vegetated sites (%): | 87.5 | Mean native species/site: | 1.17 |
| Maximum plant depth (ft): 20.0 | Number of species: | 7 | Standard error (mns/s): | 0.16 |
| Trophic status: meso | Number of native species: | 6 | Species diversity: | 0.60 |
| Total sites: 24 | Maximum species/site: | 3 | Native species diversity: | 0.55 |

| Depth (10 to 15 ft) Common Name | Occurrence | | Rake score observations (N,%) per species | | | | | | | | Plant Dominance |
|--------------------------------------|---------------|------|---|------|-----|------|---|------|---|-----|--------------------|
| | Frequency (%) | | 0 % | 1 % | 3 % | 5 % | | | | | |
| Coontail | 18 | 75.0 | 6 | 25.0 | 9 | 37.5 | 7 | 29.2 | 2 | 8.3 | 33.3 |
| Chara | 2 | 8.3 | 22 | 91.7 | 0 | 0.0 | 1 | 4.2 | 1 | 4.2 | 6.7 |
| Water stargrass | 5 | 20.8 | 19 | 79.2 | 5 | 20.8 | 0 | 0.0 | 0 | 0.0 | 4.2 |
| Common naiad | 4 | 16.7 | 23 | 95.8 | 0 | 0.0 | 1 | 4.2 | 0 | 0.0 | 2.5 |
| Curly-leaf pondweed | 2 | 8.3 | 22 | 91.7 | 2 | 8.3 | 0 | 0.0 | 0 | 0.0 | 1.7 |
| Flat-stem pondweed | 1 | 4.2 | 23 | 95.8 | 1 | 4.2 | 0 | 0.0 | 0 | 0.0 | 0.8 |
| Large-leaf pondweed | 1 | 4.2 | 23 | 95.8 | 1 | 4.2 | 0 | 0.0 | 0 | 0.0 | 0.8 |
| Filamentous algae | 2 | 8.3 | | | | | | | | | |

Occurrence and abundance of submersed aquatic plants in Dewart Lake

| | | | | |
|--------------------------------|---------------------------|------|---------------------------|------|
| County: Kosciusko | Sites with plants: | 9 | Mean species/site: | 1.10 |
| Date: 7/31/06 | Sites with native plants: | 9 | Standard error (ms/s): | 0.19 |
| Secchi (ft): 11.0 | Vegetated sites (%): | 90.0 | Mean native species/site: | 1.10 |
| Maximum plant depth (ft): 20.0 | Number of species: | 4 | Standard error (mns/s): | 0.19 |
| Trophic status: meso | Number of native species: | 4 | Species diversity: | 0.45 |
| Total sites: 10 | Maximum species/site: | 2 | Native species diversity: | 0.45 |

| Depth (15 to 20 ft) Common Name | Occurrence | | Rake score observations (N,%) per species | | | | | | | | Plant Dominance |
|--------------------------------------|---------------|------|---|------|-----|------|---|------|---|-----|--------------------|
| | Frequency (%) | | 0 % | 1 % | 3 % | 5 % | | | | | |
| Coontail | 8 | 80.0 | 2 | 20.0 | 3 | 30.0 | 5 | 50.0 | 0 | 0.0 | 36.0 |
| Flat-stem pondweed | 1 | 10.0 | 9 | 90.0 | 1 | 10.0 | 0 | 0.0 | 0 | 0.0 | 2.0 |
| Nitella | 1 | 10.0 | 9 | 90.0 | 1 | 10.0 | 0 | 0.0 | 0 | 0.0 | 2.0 |
| Water stargrass | 1 | 10.0 | 9 | 90.0 | 1 | 10.0 | 0 | 0.0 | 0 | 0.0 | 2.0 |
| Filamentous algae | 1 | 10.0 | | | | | | | | | |

Dewart Lake Emergent Plant Beds

Date: 8/9/06

| Bed | Sites | Mean | | Mean Wid (ft) | Species Frequency of Occurrence | | | | | | | | Species Calculated values | | | | | | |
|-----|-------|----------|-----------|---------------|---------------------------------|-------|-------|-----|-------|------|------|------|---------------------------|------|--------|-------|--------|------|-----|
| | | Latitude | Longitude | | SPA | WAL | ARA | SWL | CAT | PIK | PRL | BUL | WAW | N | N/site | Acres | Length | | |
| 1 | 3 | 41.37429 | -85.76254 | 15 | | 100.0 | 66.7 | | | | | | | | 100.0 | 2 | 2.67 | 0.06 | 161 |
| 2 | 16 | 41.37414 | -85.76508 | 77 | 25.0 | 93.8 | 68.8 | | 31.3 | 75.0 | 6.3 | | | 31.3 | 6 | 3.31 | 2.44 | 1270 | |
| 3 | 2 | 41.37709 | -85.78410 | 68 | 100.0 | 50.0 | | | | | | | | 50.0 | 2 | 2.00 | 0.03 | 18 | |
| 4 | 3 | 41.37620 | -85.78508 | 52 | | 100.0 | | | | | | | 33.3 | 66.7 | 2 | 2.00 | 0.15 | 125 | |
| 5 | 8 | 41.37533 | -85.78449 | 206 | 75.0 | 100.0 | | | 12.5 | 12.5 | 12.5 | | | | 5 | 2.13 | 5.13 | 1000 | |
| 6 | 2 | 41.37418 | -85.78498 | 27 | 100.0 | 100.0 | | | 50.0 | | | | | | 3 | 2.50 | 0.03 | 54 | |
| 7 | 5 | 41.36373 | -85.76271 | 68 | 40.0 | 80.0 | | | | | | | | | 2 | 1.20 | 0.49 | 291 | |
| 8 | 3 | 41.36298 | -85.76114 | 21 | | 100.0 | | | | | | | | | 1 | 1.00 | 0.05 | 73 | |
| 9 | 12 | 41.36327 | -85.75959 | 131 | 66.7 | 91.7 | 8.3 | 8.3 | 91.7 | 33.3 | 25.0 | | | 8.3 | 7 | 3.33 | 2.42 | 812 | |
| 10 | 2 | 41.36570 | -85.76038 | 24 | | 100.0 | | | | | | | | | 1 | 1.00 | 0.02 | 28 | |
| 11 | 7 | 41.37326 | -85.76236 | 138 | 71.4 | 100.0 | | | 14.3 | 71.4 | 42.9 | 14.3 | | 28.6 | 6 | 3.43 | 1.13 | 364 | |
| 12 | 6 | 41.37348 | -85.78399 | 29 | 50.0 | 100.0 | 33.3 | | | | | | | | 3 | 1.83 | 0.23 | 360 | |
| 13 | 6 | 41.37334 | -85.78365 | 74 | 50.0 | 100.0 | 33.3 | | | | | | | | 3 | 1.83 | 0.98 | 451 | |
| 14 | 3 | 41.37422 | -85.78437 | 130 | 100.0 | 33.3 | | | | | | | | | 2 | 1.33 | 0.82 | 255 | |
| 15 | 2 | 41.37461 | -85.78406 | 53 | | 100.0 | | | | | | | | | 1 | 1.00 | 0.14 | 116 | |
| 16 | 2 | 41.36674 | -85.78223 | 125 | | 100.0 | | | | | | | | | 1 | 1.00 | 0.15 | 52 | |
| 17 | 10 | 41.36666 | -85.78334 | 152 | 40.0 | 100.0 | 10.0 | | 10.0 | 10.0 | 10.0 | | | | 6 | 1.80 | 2.67 | 721 | |
| 18 | 7 | 41.36379 | -85.78144 | 144 | 42.9 | 100.0 | 28.6 | | 28.6 | 14.3 | | | | | 5 | 2.14 | 2.27 | 523 | |
| 19 | 9 | 41.36385 | -85.77924 | 237 | 33.3 | 100.0 | | | 44.4 | 11.1 | | | | | 4 | 1.89 | 5.39 | 888 | |
| 20 | 2 | 41.36987 | -85.77093 | 47 | | 100.0 | 50.0 | | 100.0 | | 50.0 | | | | 4 | 3.00 | 0.03 | 25 | |
| 21 | 11 | 41.36891 | -85.77025 | 66 | 100.0 | 27.3 | 18.2 | 9.1 | 54.5 | 63.6 | | | | | 6 | 2.73 | 1.15 | 611 | |
| 22 | 3 | 41.36863 | -85.77117 | 45 | | 100.0 | 100.0 | | 100.0 | 66.7 | | | | | 4 | 3.67 | 0.06 | 56 | |
| 23 | 17 | 41.36631 | -85.77022 | 186 | 76.5 | 100.0 | | | 64.7 | 52.9 | 5.9 | | | | 5 | 3.00 | 8.19 | 1860 | |
| 24 | 6 | 41.36662 | -85.77058 | 81 | | 100.0 | | | | | | | | | 1 | 1.00 | 0.90 | 421 | |
| 25 | 2 | 41.36591 | -85.76405 | 32 | | 100.0 | | | | | | | | 50.0 | 1 | 1.50 | 0.04 | 51 | |
| 26 | 8 | 41.36535 | -85.76447 | 102 | 87.5 | 62.5 | | | | | | | | | 2 | 1.50 | 1.00 | 439 | |

Fifteen offshore beds of bulrushes and cattails are not included in this summary.

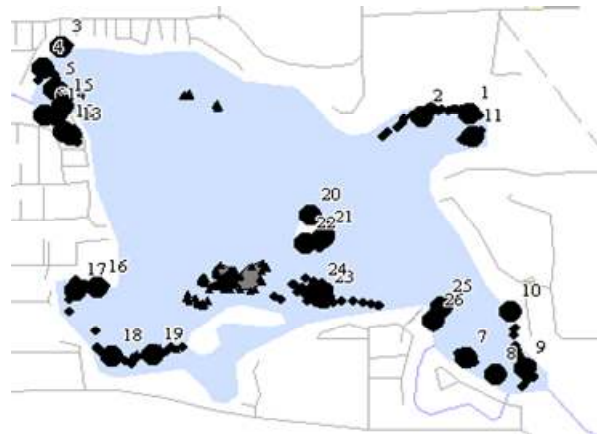
| | Mean | Count | SPA | WAL | ARA | SWL | CAT | PIK | PRL | BUL | WAW | N | N/site | Acres | Length |
|-------------------------|------|-------|------|------|------|------|------|------|------|------|------|-----|--------|------------|--------------------|
| | 89 | 20 | 72.9 | 88.1 | 41.7 | 10.6 | 54.9 | 38.2 | 17.7 | 33.3 | 47.8 | 3.3 | 2.07 | | |
| Isolated patches | | | | | | | | | | | | | | Sum | 35.93 11023 |
| 23 | 4.3 | | 73.9 | 4.3 | | | | | | 26.1 | 4.3 | 4 | 1.13 | | |

Species present

- ARA Arrow arum
- BUL Bulrush
- CAT Cattail
- PIK Pickerelweed
- PLS Purple loosestrife
- SPA Spatterdock
- SWL Swamp loosestrife
- WAL Water lily
- WAW Water willow

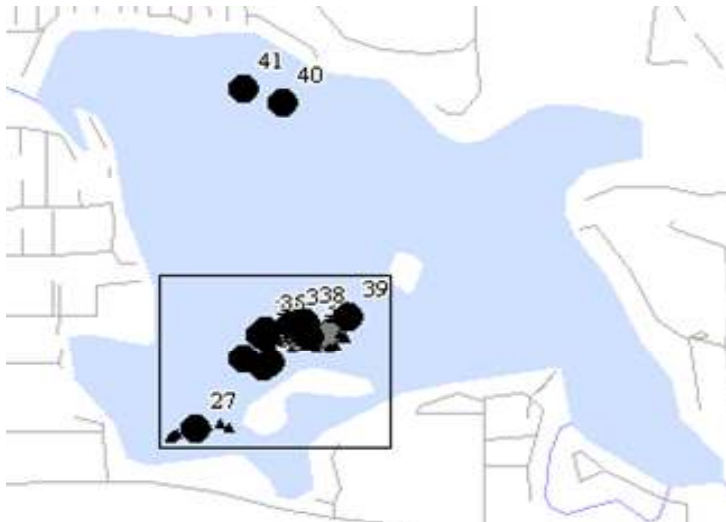
- Lake surface acreage: 551.0
- Percent surface coverage: 6.52
- Contour acreage within 10-ft depth: 300
- Percent 10-ft contour area coverage: 12.0
- Lake shoreline perimeter in miles: 5.3
- Estimated emergent bed miles: 2.1
- Bed edge:shoreline ratio (%): 40.0

The map at the right depicts the lakeward locations of emergent plant beds (small black dots), and patches (stars) of emergent plants in Dewart Lake.
 Data summary prepared by - Jed Pearson 01/17/07
 Indiana Division of Fish and Wildlife

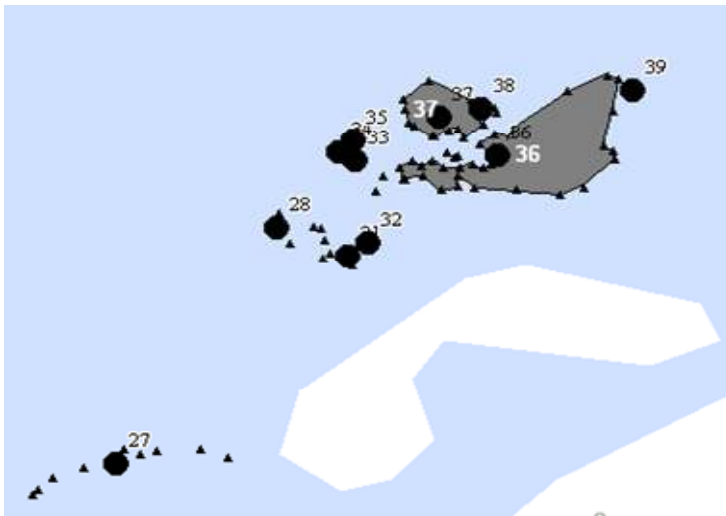


Dewart Lake offshore bulrush and cattail beds, August 9, 2006

| Bed | Sites | Mean | Mean | Species Occurrence | | | |
|-----|-------|----------|-----------|--------------------|-------|--------|-------|
| | | Latitude | Longitude | CAT | BUL | N/site | Acres |
| 27 | 10 | 41.36404 | -85.77941 | | 100.0 | 1 | 0.96 |
| 28 | 3 | 41.36633 | -85.77752 | | 100.0 | 1 | 0.04 |
| 29 | 4 | 42.19139 | -85.77743 | | 100.0 | 1 | <0.01 |
| 30 | 7 | 42.30905 | -85.77701 | | 100.0 | 1 | 0.06 |
| 31 | 4 | 41.36605 | -85.77667 | | 100.0 | 1 | 0.03 |
| 32 | 3 | 41.36618 | -85.77642 | | 100.0 | 1 | <0.01 |
| 33 | 3 | 41.36699 | -85.77658 | | 100.0 | 1 | <0.01 |
| 34 | 3 | 41.36707 | -85.77677 | 100.0 | | 1 | <0.01 |
| 35 | 4 | 41.36718 | -85.77661 | 100.0 | | 1 | <0.01 |
| 36 | 31 | 41.36703 | -85.77488 | | 100.0 | 1 | 3.16 |
| 37 | 12 | 41.36740 | -85.77558 | 100.0 | | 1 | 0.77 |
| 38 | 5 | 41.36748 | -85.77509 | | 100.0 | 1 | 0.03 |
| 39 | 3 | 41.36766 | -85.77329 | | 100.0 | 1 | <0.01 |
| 40 | 5 | 41.37460 | -85.77590 | | 100.0 | 1 | 0.03 |
| 41 | 8 | 41.37508 | -85.77750 | | 100.0 | 1 | 0.07 |



**Insert box shown below.*



| Relative Abundance, Size and Estimated Weight of Fish Collected at Dewart Lake (June 06) | | | | | | |
|--|--------|---------|-------------|-------------|---------------|---------|
| | | | Minimum | Maximum | | |
| Common Name* | Number | Percent | Length (in) | Length (in) | Weight (lb)** | Percent |
| Bluegill | 790 | 51.9 | 1.7 | 8.5 | 56.09 | 15.1 |
| Mimic shiner | 224 | 14.7 | 2.0 | 2.5 | 0.12 | 0.0 |
| Redear | 121 | 8.0 | 4.1 | 11.3 | 38.57 | 10.4 |
| Largemouth bass | 118 | 7.8 | 3.3 | 17.5 | 47.87 | 12.9 |
| Yellow perch | 85 | 5.6 | 2.8 | 10.1 | 8.64 | 2.3 |
| Northern pike | 37 | 2.4 | 15.0 | 32.1 | 88.20 | 23.8 |
| Warmouth | 27 | 1.8 | 3.0 | 8.5 | 5.03 | 1.4 |
| Rock bass | 23 | 1.5 | 2.2 | 10.8 | 7.28 | 2.0 |
| Yellow bullhead | 17 | 1.1 | 7.0 | 13.1 | 9.71 | 2.6 |
| Brook silverside | 16 | 1.1 | 3.3 | 4.0 | 0.04 | 0.0 |
| Spotted gar | 14 | 0.9 | 11.0 | 39.8 | 30.24 | 8.2 |
| Bowfin | 8 | 0.5 | 21.1 | 24.8 | 37.21 | 10.0 |
| Brown bullhead | 8 | 0.5 | 7.1 | 14.0 | 6.55 | 1.8 |
| Logperch | 7 | 0.5 | 3.1 | 4.6 | 0.03 | 0.0 |
| Longear | 7 | 0.5 | 2.6 | 4.8 | 0.31 | 0.1 |
| Black crappie | 5 | 0.3 | 11.2 | 12.3 | 4.37 | 1.2 |
| Walleye | 5 | 0.3 | 17.7 | 24.0 | 15.50 | 4.2 |
| Lake chubsucker | 4 | 0.3 | 4.0 | 6.5 | 0.42 | 0.1 |
| Banded killifish | 3 | 0.2 | 1.7 | 2.2 | 0.01 | 0.0 |
| Smallmouth bass | 2 | 0.1 | 4.2 | 15.7 | 1.99 | 0.5 |
| Carp | 1 | 0.1 | 30.3 | | 12.35 | 3.3 |
| TOTAL | 1522 | | | | 370.53 | |

| Number, catch by gear, percentage, estimated weight and age of bluegills (June 06) | | | | | | | | | | | | | | | | | | | |
|--|---------------|----|-----|-----------------|------|--------------------------|---------------------------------|----|----|----|----|----|------------------------------|------|------|------|------|------|------|
| Length (in) | Catch by gear | | | Total Number | % | Estimated Weight (lb) | Age analysis (scales/half-inch) | | | | | | Age Composition (number/age) | | | | | | |
| | EF | GN | TN | | | | 1 | 2 | 3 | 4 | 5 | 6+ | 1 | 2 | 3 | 4 | 5 | 6+ | |
| 1.5 | 4 | | | 4 | 0.5 | 0.00 | 1 | | | | | | | 4 | | | | | |
| 2.0 | 23 | | 9 | 32 | 4.1 | 0.01 | 4 | | | | | | | 32 | | | | | |
| 2.5 | 45 | | 16 | 61 | 7.7 | 0.01 | 1 | 4 | | | | | 12 | 49 | | | | | |
| 3.0 | 98 | | 31 | 129 | 16.3 | 0.02 | | 6 | | | | | | 129 | | | | | |
| 3.5 | 71 | 2 | 13 | 86 | 10.9 | 0.03 | | 2 | 3 | | | | | 34 | 52 | | | | |
| 4.0 | 151 | 3 | 14 | 168 | 21.3 | 0.05 | | | 4 | 1 | | | | | 134 | 34 | | | |
| 4.5 | 97 | 5 | 11 | 113 | 14.3 | 0.07 | | | 5 | | | | | | 113 | | | | |
| 5.0 | 22 | | 2 | 24 | 3.0 | 0.09 | | | 1 | 4 | | | | | 5 | 19 | | | |
| 5.5 | 52 | 1 | 7 | 60 | 7.6 | 0.12 | | | 1 | 4 | | | | | 12 | 48 | | | |
| 6.0 | 39 | 7 | 3 | 49 | 6.2 | 0.16 | | | | 5 | | | | | | 49 | | | |
| 6.5 | 15 | 2 | 4 | 21 | 2.7 | 0.20 | | | | 3 | 2 | | | | | 13 | 8 | | |
| 7.0 | 7 | 3 | 4 | 14 | 1.8 | 0.26 | | | | 1 | 4 | | | | | 3 | 11 | | |
| 7.5 | 16 | 5 | 3 | 24 | 3.0 | 0.32 | | | | | 5 | 1 | | | | | 2 | 4 | |
| 8.0 | 2 | | 1 | 3 | 0.4 | 0.39 | | | | | | 2 | | | | | | 3 | |
| 8.5 | 1 | | 1 | 2 | 0.3 | 0.47 | | | | | | 2 | | | | | | 2 | |
| 9.0 | | | | | | | | | | | | | | | | | | | |
| 9.5 | | | | | | | | | | | | | | | | | | | |
| 10.0 | | | | | | | | | | | | | | | | | | | |
| 10.5 | | | | | | | | | | | | | | | | | | | |
| 11.0 | | | | | | | | | | | | | | | | | | | |
| 11.5 | | | | | | | | | | | | | | | | | | | |
| 12.0 | | | | | | | | | | | | | | | | | | | |
| 12.5 | | | | | | | | | | | | | | | | | | | |
| 13.0 | | | | | | | | | | | | | | | | | | | |
| 13.5 | | | | | | | | | | | | | | | | | | | |
| 14.0 | | | | | | | | | | | | | | | | | | | |
| 14.5 | | | | | | | | | | | | | | | | | | | |
| 15.0 | | | | | | | | | | | | | | | | | | | |
| 15.5 | | | | | | | | | | | | | | | | | | | |
| 16.0 | | | | | | | | | | | | | | | | | | | |
| 16.5 | | | | | | | | | | | | | | | | | | | |
| 17.0 | | | | | | | | | | | | | | | | | | | |
| 17.5 | | | | | | | | | | | | | | | | | | | |
| 18.0 | | | | | | | | | | | | | | | | | | | |
| 18.5 | | | | | | | | | | | | | | | | | | | |
| 19.0 | | | | | | | | | | | | | | | | | | | |
| 19.5 | | | | | | | | | | | | | | | | | | | |
| Totals: | 643 | 28 | 119 | 790 | | 56.09 | 6 | 12 | 14 | 18 | 11 | 5 | 48 | 212 | 316 | 165 | 22 | 9 | |
| | | | | | | | | | | | | | Mean length (in): | 2.1 | 3.0 | 4.2 | 5.4 | 6.9 | 7.9 |
| | | | | | | | | | | | | | Variance: | 0.08 | 0.10 | 0.20 | 0.67 | 0.10 | 0.17 |

| Number, catch by gear, percentage, estimated weight and age of yellow perch (June 06) | | | | | | | | | | | | | | | | | | | |
|---|---------------|----|----|-----------------|------|--------------------------|---------------------------------|----|----|---|---|----|------------------------------|------|------|------|------|------|--|
| Length (in) | Catch by gear | | | Total Number | % | Estimated Weight (lb) | Age analysis (scales/half-inch) | | | | | | Age Composition (number/age) | | | | | | |
| | EF | GN | TN | | | | 1 | 2 | 3 | 4 | 5 | 6+ | 1 | 2 | 3 | 4 | 5 | 6+ | |
| 3.0 | 5 | | | 5 | 5.9 | 0.01 | 3 | | | | | | | 5 | | | | | |
| 3.5 | 8 | | | 8 | 9.4 | 0.02 | 3 | 1 | | | | | | 6 | 2 | | | | |
| 4.0 | 8 | | | 8 | 9.4 | 0.03 | 3 | 1 | | | | | | 6 | 2 | | | | |
| 4.5 | 6 | | | 6 | 7.1 | 0.04 | | 3 | | | | | | 6 | | | | | |
| 5.0 | 15 | | | 15 | 17.6 | 0.06 | | 4 | 1 | | | | | 12 | 3 | | | | |
| 5.5 | 10 | 1 | | 11 | 12.9 | 0.08 | | 2 | 2 | | | | | 6 | 6 | | | | |
| 6.0 | 7 | | 1 | 8 | 9.4 | 0.10 | | 2 | 2 | | | | | 4 | 4 | | | | |
| 6.5 | 3 | 2 | | 5 | 5.9 | 0.13 | | | 1 | 1 | | | | | 3 | 3 | | | |
| 7.0 | 5 | | | 5 | 5.9 | 0.17 | | | | 3 | | | | | | | 5 | | |
| 7.5 | 5 | | | 5 | 5.9 | 0.21 | | | 3 | 1 | | | | | 4 | 1 | | | |
| 8.0 | 5 | | | 5 | 5.9 | 0.25 | | | 1 | 1 | | | | | 3 | 3 | | | |
| 8.5 | 1 | | | 1 | 1.2 | 0.31 | | | 1 | | | | | | 1 | | | | |
| 9.0 | 1 | | | 1 | 1.2 | 0.37 | | | | 1 | | | | | | | 1 | | |
| 9.5 | | | | | | | | | | | | | | | | | | | |
| 10.0 | 2 | | | 2 | 2.4 | 0.52 | | | | 1 | 1 | | | | | | 1 | 1 | |
| 10.5 | | | | | | | | | | | | | | | | | | | |
| 11.0 | | | | | | | | | | | | | | | | | | | |
| 11.5 | | | | | | | | | | | | | | | | | | | |
| 12.0 | | | | | | | | | | | | | | | | | | | |
| 12.5 | | | | | | | | | | | | | | | | | | | |
| 13.0 | | | | | | | | | | | | | | | | | | | |
| 13.5 | | | | | | | | | | | | | | | | | | | |
| 14.0 | | | | | | | | | | | | | | | | | | | |
| 14.5 | | | | | | | | | | | | | | | | | | | |
| 15.0 | | | | | | | | | | | | | | | | | | | |
| 15.5 | | | | | | | | | | | | | | | | | | | |
| 16.0 | | | | | | | | | | | | | | | | | | | |
| 16.5 | | | | | | | | | | | | | | | | | | | |
| 17.0 | | | | | | | | | | | | | | | | | | | |
| 17.5 | | | | | | | | | | | | | | | | | | | |
| 18.0 | | | | | | | | | | | | | | | | | | | |
| 18.5 | | | | | | | | | | | | | | | | | | | |
| 19.0 | | | | | | | | | | | | | | | | | | | |
| 19.5 | | | | | | | | | | | | | | | | | | | |
| 20.0 | | | | | | | | | | | | | | | | | | | |
| 20.5 | | | | | | | | | | | | | | | | | | | |
| 21.0 | | | | | | | | | | | | | | | | | | | |
| Totals: | 81 | 3 | 1 | 85 | | 8.64 | 9 | 13 | 11 | 8 | 1 | 0 | 17 | 32 | 22 | 13 | 1 | 0 | |
| | | | | | | | | | | | | | Mean length (in): | 3.5 | 5.0 | 6.4 | 7.5 | 10.0 | |
| | | | | | | | | | | | | | Variance: | 0.17 | 0.44 | 1.24 | 1.05 | | |

| Relative Abundance, Size and Estimated Weight of Fish Collected at Dewart Lake (July 06) | | | | | | |
|---|------------|---------|-------------|-------------|---------------|---------|
| | | | Minimum | Maximum | | |
| Common Name* | Number | Percent | Length (in) | Length (in) | Weight (lb)** | Percent |
| Bluegill | 369 | 60.2 | 1.9 | 8.3 | 22.10 | 12.0 |
| Redear | 41 | 6.7 | 4.9 | 10.0 | 11.14 | 6.1 |
| Largemouth bass | 34 | 5.5 | 2.7 | 14.7 | 12.26 | 6.7 |
| Warmouth | 29 | 4.7 | 3.3 | 9.3 | 4.09 | 2.2 |
| Mimic shiner | 25 | 4.1 | 2.2 | 2.9 | 0.03 | 0.0 |
| Northern pike | 22 | 3.6 | 16.0 | 32.9 | 55.78 | 30.4 |
| Yellow perch | 22 | 3.6 | 1.8 | 11.3 | 1.95 | 1.1 |
| Spotted gar | 20 | 3.3 | 11.2 | 27.1 | 28.90 | 15.7 |
| Yellow bullhead | 15 | 2.4 | 9.3 | 12.5 | 10.76 | 5.9 |
| Rock bass | 11 | 1.8 | 2.6 | 10.0 | 2.94 | 1.6 |
| Longear | 5 | 0.8 | 2.8 | 4.7 | 0.20 | 0.1 |
| Lake chubsucker | 4 | 0.7 | 4.6 | 8.0 | 0.62 | 0.3 |
| Longnose gar | 3 | 0.5 | 28.3 | 46.0 | 15.29 | 8.3 |
| Bowfin | 3 | 0.5 | 18.0 | 20.7 | 8.40 | 4.6 |
| Black crappie | 3 | 0.5 | 5.8 | 8.9 | 0.79 | 0.4 |
| Walleye | 2 | 0.3 | 19.0 | 22.1 | 5.73 | 3.1 |
| Brown bullhead | 2 | 0.3 | 13.5 | 14.2 | 2.69 | 1.5 |
| Common shiner | 1 | 0.2 | 5.1 | | 0.03 | 0.0 |
| Log perch | 1 | 0.2 | 4.7 | | 0.02 | 0.0 |
| Banded killifish | 1 | 0.2 | 2.3 | | 0.01 | 0.0 |
| TOTAL | 613 | | | | 183.73 | |

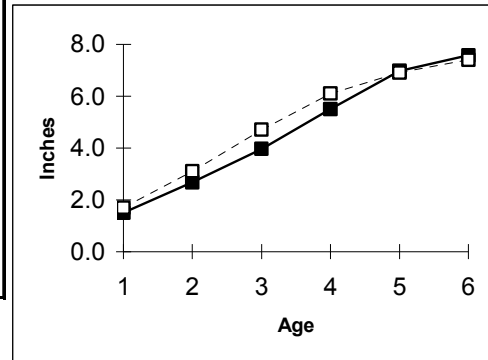
Bluegill

Intercept: 0.8 inch

BACK-CALCULATED LENGTHS (inches) AT EACH AGE

| Year | Class | Count | I | II | III | IV | V | VI |
|-------|-------|-------|------|------|------|------|------|------|
| 2005 | | 5 | 1.5 | | | | | |
| | stdev | | 0.16 | | | | | |
| 2004 | | 12 | 1.4 | 2.3 | | | | |
| | stdev | | 0.13 | 0.25 | | | | |
| 2003 | | 14 | 1.5 | 2.6 | 3.6 | | | |
| | stdev | | 0.14 | 0.36 | 0.59 | | | |
| 2002 | | 18 | 1.6 | 2.7 | 3.8 | 5.1 | | |
| | stdev | | 0.22 | 0.27 | 0.41 | 0.69 | | |
| 2001 | | 11 | 1.6 | 3.1 | 4.4 | 5.8 | 6.8 | |
| | stdev | | 0.14 | 0.20 | 0.28 | 0.33 | 0.40 | |
| 2000 | | 3 | 1.5 | 2.7 | 4.1 | 5.7 | 7.1 | 7.6 |
| | stdev | | 0.29 | 0.26 | 0.25 | 0.15 | 0.46 | 0.24 |
| Mean | | | 1.5 | 2.7 | 4.0 | 5.5 | 7.0 | 7.6 |
| SD | | | 0.09 | 0.28 | 0.36 | 0.38 | 0.20 | |
| Count | | | 63 | 58 | 46 | 32 | 14 | 3 |

Bluegill growth (solid line) compared to other Indiana natural lakes (dotted line).



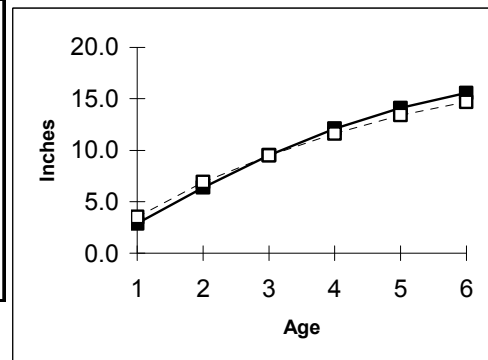
Largemouth bass

Intercept: 0.8 inch

BACK-CALCULATED LENGTHS (inches) AT EACH AGE

| Year | Class | Count | I | II | III | IV | V | VI |
|-------|-------|-------|------|------|------|------|------|------|
| 2005 | | 7 | 3.0 | | | | | |
| | stdev | | 0.39 | | | | | |
| 2004 | | 30 | 2.9 | 6.4 | | | | |
| | stdev | | 0.48 | 0.87 | | | | |
| 2003 | | 37 | 2.5 | 5.4 | 8.3 | | | |
| | stdev | | 0.38 | 0.67 | 0.88 | | | |
| 2002 | | 48 | 2.9 | 6.0 | 8.9 | 11.1 | | |
| | stdev | | 0.70 | 0.86 | 1.15 | 0.91 | | |
| 2001 | | 48 | 2.8 | 7.1 | 10.3 | 12.4 | 13.8 | |
| | stdev | | 0.83 | 1.22 | 1.29 | 1.01 | 0.98 | |
| 2000 | | 17 | 3.1 | 7.0 | 10.6 | 12.7 | 14.5 | 15.6 |
| | stdev | | 0.85 | 1.17 | 1.38 | 1.00 | 1.15 | 1.10 |
| Mean | | | 2.9 | 6.4 | 9.5 | 12.1 | 14.1 | 15.6 |
| SD | | | 0.22 | 0.73 | 1.13 | 0.84 | 0.51 | |
| Count | | | 187 | 180 | 150 | 113 | 65 | 17 |

Largemouth bass growth (solid line) compared to other Indiana natural lakes (dotted line).



Yellow perch

Intercept: 1.2 inch

BACK-CALCULATED LENGTHS (inches) AT EACH AGE

| Year | Class | Count | I | II | III | IV | V | VI |
|-------|-------|-------|------|------|------|------|---|----|
| 2005 | | 9 | 2.7 | | | | | |
| | stdev | | 0.35 | | | | | |
| 2004 | | 13 | 2.7 | 4.2 | | | | |
| | stdev | | 0.37 | 0.60 | | | | |
| 2003 | | 11 | 2.4 | 4.0 | 5.9 | | | |
| | stdev | | 0.24 | 0.43 | 1.13 | | | |
| 2002 | | 8 | 2.7 | 4.2 | 5.8 | 7.3 | | |
| | stdev | | 0.55 | 0.41 | 0.98 | 1.14 | | |
| 2001 | | 0 | | | | | | |
| 2000 | | 0 | | | | | | |
| Mean | | | 2.6 | 4.1 | 5.9 | 7.3 | | |
| SD | | | 0.17 | 0.13 | 0.01 | | | |
| Count | | | 41 | 32 | 19 | 8 | | |

Yellow perch growth (solid line) compared to other lakes (dotted line).

