

EVALUATION OF THE FISH COMMUNITY AT WESTWOOD RUN LAKE

Henry County

2008 Fish Management Report

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## EXECUTIVE SUMMARY

- Westwood Run Lake is a 173-acre impoundment located in Henry County, approximately 4 mi west of New Castle, Indiana.
- The fish community survey was conducted May 27 to 29, 2008.
- There were 1,663 fish collected that weighed 336 lbs. Twelve species and hybrid sunfish comprised the sample.
- The predominant species collected by number were bluegill (78%), largemouth bass (11%), and redear sunfish (7%). Bluegill (34%), largemouth bass (33%), and channel catfish (16%) were the most abundant by weight.
- A total of 1,293 bluegill was collected that weighed 115 lbs. Bluegill abundance by number (78%) and weight (34%) increased substantially from 2004 (53% and 13%, respectively). Bluegill ranged in length from 1.3 to 8.5 in and averaged 4.7 in. Age-2 and age-3 bluegill accounted for 80% of the collection.
- Largemouth bass ranked second in abundance by number (11%) and weight (33%). One hundred seventy-seven largemouth weighing 111 lbs were collected. Largemouth ranged in length from 4.0 to 20.3 in and averaged 10.3 in. Only 6% of the bass collected met or exceeded the 14-in minimum size limit.
- There were 117 redear sunfish collected weighing 38 lbs. Redear abundance by number (7%) was substantially lower than in 2004 (22%). Redear ranged in length from 4.2 to 9.9 in. The percentage of 6.0 in or larger redear collected was 85%, and 66% of those were at least 8.0 in.
- Twenty-seven channel catfish weighing 53 lbs were collected. Channels ranged in length from 12.0 to 27.6 in and they averaged 16.6 in. Channels were fourth in abundance by number (2%) and third in abundance by weight (16%).
- Channel catfish should continue to be stocked on a biennial basis at the rate of 16.7, 8.0 in fish/acre (2,889 total).
- The next fisheries survey at Westwood should be conducted in 2011 or 2012.

## INTRODUCTION

Westwood Run Lake is a 173 acre impoundment located in Henry County, approximately 4 mi west of New Castle, Indiana. The lake, Westwood Park, and surrounding land are owned and operated by the Big Blue River Conservancy District. A two lane boat launch and ample shoreline fishing is available for anglers. There are daily entrance and boat launching fees or annual entrance and boat launching permits available. Westwood is an electric motor only lake. More information about the park and current fees can be found on the park's internet site at [www.visitwestwood.com](http://www.visitwestwood.com).

The fish community at Westwood Run has changed considerably over the past two decades. Overabundant and slow growing bass were present in the early 1990's under the 14-in size limit. A 12 to 15-in slot limit for largemouth was implemented in 1992 in order to increase bass harvest and create a balanced fishery. After surveys indicated bass growth had improved, abundance of bass had declined, and panfish populations had rebounded, the slot limit was removed and the 14-in minimum size limit was reinstated in 2002. Channel catfish have been stocked on a biennial basis to provide additional angling opportunities. Prior to this survey, the last stocking of catfish was in the fall of 2006.

The last fish community survey was conducted in 2004 (Wisener 2007). By number, bluegill and redear were most abundant and had excellent recruitment. The present survey was conducted to evaluate the predator/prey balance.

## METHODS

The fish community survey was conducted May 27 to 29, 2008. Physical and chemical characteristics of the lake were measured and collected according to Division of Fish and Wildlife (DFW) survey guidelines (2001). Aquatic vegetation was sampled on July 17, 2008 according to DFW guidelines (2006).

Fish were collected via night DC electrofishing for 1 h (4, 15-min stations) using two dippers, 8 standard experimental gill net lifts, and 4 trap net lifts. The collected fish were measured to the nearest 0.1 in TL. Scale samples from the dominant sport fish were collected for age and growth analysis. Weight estimates of all species were calculated using central Indiana averages. Proportional stock density (PSD) was calculated for

bluegill and largemouth bass (Anderson and Neumann 1996). The Bluegill Fishing Potential Index (BGFP) was used to describe the bluegill fishery (Ball and Tousignant 1996).

## RESULTS

The surface temperature at Westwood Run Lake on May 27 was 67.5°F. Dissolved oxygen concentrations were suitable for fish survival down to 14 ft. The Secchi disk measurement was 10.4 ft and conductivity was 150  $\mu$ S.

Water stargrass and Eurasian watermilfoil were the only species found at over 40% of the sampling sites during the vegetation survey. Other species present at 20% or more of the sites were chara, leafy pondweed, brittle naiad, southern naiad, American pondweed, and coontail. Ten species of submerged vegetation, as well as cattails, bulrush, duckweed, and filamentous algae were found.

There were 1,663 fish collected that weighed 336 lbs. Twelve species and hybrid sunfish comprised the sample. The predominant species collected by number were bluegill (78%), largemouth bass (11%), and redear sunfish (7%). Bluegill (34%), largemouth bass (33%), and channel catfish (16%) were the most abundant by weight.

A total of 1,293 bluegill was collected that weighed 115 lbs. Bluegill abundance by number (78%) and weight (34%) increased substantially from 2004 (53% and 13%, respectively). Electrofishing CPUE was 53% higher (1086.0/h) than in 2004 (506.0/h). Trap net CPUE was 52.3/lift in 2004 and 47.3/lift in the present survey. Bluegill ranged in length from 1.3 to 8.5 in and averaged 4.7 in. The percentage of 6.0 in and larger bluegill was 21%. Three percent of bluegill were 8.0 in or larger (1% in 2004). Age-2 and age-3 bluegill accounted for 80% of the collection. Bluegill PSD was 20. The BGFP score was 28 which equates to an “excellent” rating for the bluegill fishery.

Largemouth bass ranked second in abundance by number (11%) and weight (33%). In 2004, abundance by number was 13% and abundance by weight was 23%. Electrofishing CPUE was similar (177.0/h) to 2004 (164.0/h). One hundred seventy-seven largemouth weighing 111 lbs were collected. Largemouth ranged in length from 4.0 to 20.3 in and averaged 10.3 in. Age-2 through age-4 bass accounted for 73% of the

collection. Largemouth PSD was 39 compared to 24 in 2004. Only 6% of the bass collected met or exceeded the 14-in minimum size limit.

There were 117 redear sunfish collected weighing 38 lbs. Redear abundance by number (7%) was substantially lower than in 2004 (22%). The 2008 trap net catch rate (13.5/lift) was 75% lower than 2004 (53.5/lift). Redear ranged in length from 4.2 to 9.9 in. The average size redear collected was 7.7 in, an increase in the average size from 2004 (6.8 in). The percentage of 6.0 in or larger redear collected was 85%, and 66% of those were at least 8.0 in. The dominant year class collected was age 3 (57%) and they averaged 7.8 in. Eighty-two percent of redear collected were age 3 or older. There were no age-1 redear collected, but surveys have traditionally under sampled age-1 redear at Westwood and other lakes.

Twenty-seven channel catfish weighing 53 lbs were collected. Channels ranged in length from 12.0 to 27.6 in and they averaged 16.6 in. Channels were fourth in abundance by number (2%) and third in abundance by weight (16%). Thirty percent of the channel catfish collected were 18.0 in or larger.

The remaining eight species and hybrid sunfish accounted for just 3% of the sample by number and 6% by weight. Other notable species collected were green sunfish, pumpkinseed, brown and black bullhead, hybrid sunfish, and black crappie.

## DISCUSSION

Westwood Run Lake continues to have a good predator/prey balance. Bluegill abundance was substantially higher than the past survey due to the large 2005 and 2006 year classes. Redear abundance is down, but decent numbers of larger size fish are available. Largemouth PSD has increased due to the even distribution of bass throughout the year classes.

Anglers looking to target bluegill and redear at Westwood should have excellent opportunities. A good percentage of bluegill collected were of harvestable size. Bluegill electrofishing catch rates were more than double the previous survey due in large part to the age-2 and age-3 year classes. These age classes should sustain the bluegill population as older fish are removed through harvest and natural mortality. Although redear sunfish numbers were down substantially from previous surveys, more than half of the redear

collected were 8.0 in or larger. The abundant 2005 year class of redear increased the average size of the collection, and should keep good harvestable numbers available to anglers for the next few years.

Largemouth abundance by number was similar to the previous survey. Although only 6% of bass measured at least 14.0 in, largemouth PSD is only slightly under the balanced range. The improved PSD is a good sign that recruitment was consistent throughout the year classes. Anglers are encouraged to practice catch and release on largemouth bass to help keep the panfish population in balance by sustaining predatory pressure on them. This should increase the chances of producing more large bass at Westwood in the future.

Aquatic vegetation was found throughout most of the lake in 2008. Although most of this vegetation serves as valuable fish habitat, conditions arise when it becomes more of a hindrance than a benefit. In the past, several popular shore fishing areas have become “choked” full of vegetation and have not allowed shore anglers good access to fishing opportunities. Private applicators were hired to treat these areas and make them more accessible. It is recommended that the Big Blue Conservancy District continue to budget money for aquatic vegetation control of these shore fishing areas. The conservancy district is reminded to secure a permit from the DFW prior to any chemical or other vegetation control method implemented.

Low numbers of channel catfish collected during the survey indicate they are being utilized by anglers. Therefore, channels should continue to be stocked on a biennial basis as they typically are not able to sustain their populations in small lakes due to limited spawning habitat and heavy predation by bass on young catfish. The most recent stocking of channel catfish occurred in the fall of 2008 when 2,889 were stocked. Biennial stockings should continue at the rate of 16.7, 8.0 in fish/acre (2,889 total).

The next fisheries survey at Westwood should be conducted in 2011 or 2012. The primary focus of the survey will be the predator/prey balance.

## RECOMMENDATIONS

- Channel catfish should continue to be stocked on a biennial basis at the rate of 16.7, 8.0 in fish/acre (2,889 total).

- The next fisheries survey at Westwood should be conducted in 2011 or 2012.

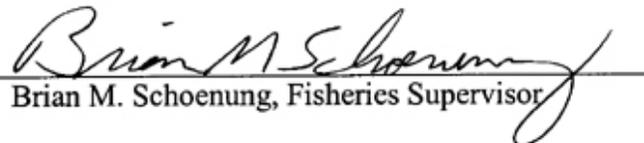
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Submitted by: Jamie L. Smyth, Assistant Fisheries Biologist  
Date: March 10, 2009

Approved by: J. Rhett Wisener, Fisheries Biologist

Approved by:

  
Brian M. Schoenung, Fisheries Supervisor

Date: June 19, 2009

# LAKE SURVEY REPORT

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

|                                    |  |   |
|------------------------------------|--|---|
| Lake Name<br>Westwood Run Lake     | County<br>Henry                                  | Date of survey (Month, day, year)<br>5/27-29/2008 |
| Biologist's name<br>Jamie L. Smyth | Date of approval (Month, day, year)<br>6/19/2009 |   |

| LOCATION                           |                            |                   |
|------------------------------------|----------------------------|-------------------|
| Quadrangle Name<br>New Castle West | Range<br>10E               | Section<br>19, 30 |
| Township Name<br>17N               | Nearest Town<br>New Castle |                   |

| ACCESSIBILITY   |                        |   |                    |                                   |                               |
|---|------------------------|---|--------------------|-----------------------------------|-------------------------------|
| State owned public access site                                    |                        | Privately owned public access site<br>Conservancy owned boat ramp |                    | Other access site<br>Shore access |                               |
| Surface acres<br>173  | Maximum depth<br>40 ft | Average depth<br>15 ft  | Acre feet<br>2,595 | Water level<br>1015.2 msl         | Extreme fluctuations<br>Minor |
| Location of benchmark<br>BM 1070, T17N, R10E, S19, NW 1/4, NW 1/4 |                        |   |                    |                                   |                               |

| INLETS               |                       |                           |
|----------------------|-----------------------|---------------------------|
| Name<br>Westwood Run | Location<br>North end | Origin<br>T17N, R10E, S18 |
|                      |                       |                           |
|                      |                       |                           |

| OUTLETS                                       |                       |       |   |
|---|-----------------------|-------|---|
| Name<br>Westwood Run                          | Location<br>South end |       |   |
| Water level control<br>Concrete overflow tube |                       |       |   |
| POOL  | ELEVATION (Feet MSL)  | ACRES | Bottom type<br><input type="checkbox"/> Boulder<br><input checked="" type="checkbox"/> Gravel<br><input checked="" type="checkbox"/> Sand<br><input type="checkbox"/> Muck<br><input checked="" type="checkbox"/> Clay<br><input type="checkbox"/> Marl |
| TOP OF DAM                                    | 1023.6                |       |   |
| TOP OF FLOOD CONTROL POOL                     | 1018.5                | 193.5 |   |
| TOP OF CONSERVATION POOL                      | 1015.2                | 173   |   |
| TOP OF MINIMUM POOL                           |                       |       |   |
| STREAMBED                                     |                       |       |   |

|   |
|---|
| Watershed use<br>Agricultural, residential, golf course                                       |
| Development of shoreline<br>Boat ramp, campground, entire shoreline is Westwood Park property |
|   |
|   |

|   |
|---|
| Previous surveys and investigations<br>Pre-impoundment eradication & stocking 1974; Fish eradication & restocking 1984; Spot check survey 1980;<br>Fisheries surveys 1987, 1990, 1995, 1997, 1999, 2001, and 2004; Bass population estimates 1992, 1995, 1997, and 1999; Creel surveys 1992 and 1995. |
|   |

| SAMPLING EFFORT |                 |     |                   |                   |                                |
|-----------------|-----------------|-----|-------------------|-------------------|--------------------------------|
| ELECTROFISHING  | Day hours       |     | Night hours       |                   | Total hours                    |
|                 |                 |     | 1.0 h             |                   | 1.0 h                          |
| TRAP NETS       | Number of traps |     | Number of Lifts   |                   | Total effort                   |
|                 | 4               |     | 1                 |                   | 4                              |
| GILL NETS       | Number of nets  |     | Number of Lifts   |                   | Total effort                   |
|                 | 8               |     | 1                 |                   | 8                              |
| ROTENONE        | Gallons         | ppm | Acre Feet Treated | SHORELINE SEINING | Number of 100 Foot Seine Hauls |

| PHYSICAL AND CHEMICAL CHARACTERISTICS |  |  |                  |  |                        |
|---------------------------------------|--|--|------------------|--|------------------------|
| Color                                 |  |  | Turbidity        |  |                        |
| Green                                 |  |  | 10 Feet          |  | 5 Inches (SECCHI DISK) |
| Alkalinity (ppm)*                     |  |  | pH               |  |                        |
| Surface: 136.8 Bottom: 136.8          |  |  | Surface: 9.0     |  | Bottom: 9.0            |
| Conductivity:                         |  |  | Air temperature: |  |                        |
| 150 microsiemens                      |  |  | NA °F            |  |                        |
| Water chemistry GPS coordinates:      |  |  |                  |  |                        |
| N                                     |  |  | W                |  |                        |

| TEMPERATURE AND DISSOLVED OXYGEN (D.O.) |              |            |              |              |            |              |              |            |
|---|--------------|------------|--------------|--------------|------------|--------------|--------------|------------|
| DEPTH (FEET)                            | DEGREES (°F) | D.O. (ppm) | DEPTH (FEET) | DEGREES (°F) | D.O. (ppm) | DEPTH (FEET) | DEGREES (°F) | D.O. (ppm) |
| SURFACE                                 | 67.5         | 9.6        | 36           | 48.4         | 0.2        | 72           |              |            |
| 2                                       | 67.5         | 9.5        | 38           | 48.4         | 0.2        | 74           |              |            |
| 4                                       | 67.3         | 9.5        | 40           | 48.4         | 0.2        | 76           |              |            |
| 6                                       | 67.3         | 9.5        | 42           |              |            | 78           |              |            |
| 8                                       | 64.9         | 8.7        | 44           |              |            | 80           |              |            |
| 10                                      | 63.5         | 8.0        | 46           |              |            | 82           |              |            |
| 12                                      | 60.6         | 5.7        | 48           |              |            | 84           |              |            |
| 14                                      | 59.2         | 4.0        | 50           |              |            | 86           |              |            |
| 16                                      | 55.2         | 0.3        | 52           |              |            | 88           |              |            |
| 18                                      | 52.7         | 0.3        | 54           |              |            | 90           |              |            |
| 20                                      | 51.6         | 0.2        | 56           |              |            | 92           |              |            |
| 22                                      | 50.4         | 0.2        | 58           |              |            | 94           |              |            |
| 24                                      | 49.8         | 0.2        | 60           |              |            | 96           |              |            |
| 26                                      | 49.3         | 0.2        | 62           |              |            | 98           |              |            |
| 28                                      | 48.7         | 0.2        | 64           |              |            | 100          |              |            |
| 30                                      | 48.6         | 0.2        | 66           |              |            |              |              |            |
| 32                                      | 48.4         | 0.2        | 68           |              |            |              |              |            |
| 34                                      | 48.4         | 0.2        | 70           |              |            |              |              |            |

| COMMENTS |  |  |  |  |  |  |  |  |
|----------|--|--|--|--|--|--|--|--|
|          |  |  |  |  |  |  |  |  |
|          |  |  |  |  |  |  |  |  |
|          |  |  |  |  |  |  |  |  |

\*ppm-parts per million





**NUMBER, PERCENTAGE, WEIGHT, AND AGE OF BLUEGILL**

| TOTAL LENGTH (inches) | NUMBER COLLECTED | PERCENT OF FISH COLLECTED | AVERAGE WEIGHT (pounds) | AGE OF FISH | TOTAL LENGTH (inches) | NUMBER COLLECTED | PERCENT OF FISH COLLECTED | AVERAGE WEIGHT (pounds) | AGE OF FISH |
|-----------------------|------------------|---------------------------|-------------------------|-------------|-----------------------|------------------|---------------------------|-------------------------|-------------|
| 1.0                   | 3                | 0.2                       | 0.01                    | 1           | 19.0                  |                  |                           |                         |             |
| 1.5                   | 20               | 1.5                       | 0.01                    | 1           | 19.5                  |                  |                           |                         |             |
| 2.0                   | 32               | 2.5                       | 0.01                    | 1           | 20.0                  |                  |                           |                         |             |
| 2.5                   | 85               | 6.6                       | 0.01                    | 1,2         | 20.5                  |                  |                           |                         |             |
| 3.0                   | 186              | 14.4                      | 0.02                    | 2           | 21.0                  |                  |                           |                         |             |
| 3.5                   | 157              | 12.1                      | 0.03                    | 2           | 21.5                  |                  |                           |                         |             |
| 4.0                   | 132              | 10.2                      | 0.04                    | 2           | 22.0                  |                  |                           |                         |             |
| 4.5                   | 196              | 15.2                      | 0.06                    | 2,3         | 22.5                  |                  |                           |                         |             |
| 5.0                   | 144              | 11.1                      | 0.08                    | 3           | 23.0                  |                  |                           |                         |             |
| 5.5                   | 69               | 5.3                       | 0.11                    | 3           | 23.5                  |                  |                           |                         |             |
| 6.0                   | 59               | 4.6                       | 0.15                    | 3,4         | 24.0                  |                  |                           |                         |             |
| 6.5                   | 44               | 3.4                       | 0.20                    | 3,4         | 24.5                  |                  |                           |                         |             |
| 7.0                   | 53               | 4.1                       | 0.25                    | 4,5         | 25.0                  |                  |                           |                         |             |
| 7.5                   | 74               | 5.7                       | 0.31                    | 3,4,5       | 25.5                  |                  |                           |                         |             |
| 8.0                   | 38               | 3.0                       | 0.38                    | 5,6,7       | 26.0                  |                  |                           |                         |             |
| 8.5                   | 1                | 0.1                       | 0.47                    | not aged    | TOTAL                 | 1293             |                           |                         |             |
| 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                  |                  |                           |                         |             |                       |                  |                           |                         |             |

|                      |            |                |            |                |             |
|----------------------|------------|----------------|------------|----------------|-------------|
| ELECTROFISHING CATCH | 1086.0 / h | GILL NET CATCH | 2.3 / lift | TRAP NET CATCH | 47.3 / lift |
|----------------------|------------|----------------|------------|----------------|-------------|

**NUMBER, PERCENTAGE, WEIGHT, AND AGE OF LARGEMOUTH BASS**

| TOTAL LENGTH (inches) | NUMBER COLLECTED | PERCENT OF FISH COLLECTED | AVERAGE WEIGHT (pounds) | AGE OF FISH | TOTAL LENGTH (inches) | NUMBER COLLECTED | PERCENT OF FISH COLLECTED | AVERAGE WEIGHT (pounds) | AGE OF FISH |
|-----------------------|------------------|---------------------------|-------------------------|-------------|-----------------------|------------------|---------------------------|-------------------------|-------------|
| 1.0                   |                  |                           |                         |             | 19.0                  |                  |                           |                         |             |
| 1.5                   |                  |                           |                         |             | 19.5                  | 1                | 0.6                       | 4.19                    | not aged    |
| 2.0                   |                  |                           |                         |             | 20.0                  | 1                | 0.6                       | 4.57                    | not aged    |
| 2.5                   |                  |                           |                         |             | 20.5                  |                  |                           |                         |             |
| 3.0                   |                  |                           |                         |             | 21.0                  |                  |                           |                         |             |
| 3.5                   |                  |                           |                         |             | 21.5                  |                  |                           |                         |             |
| 4.0                   | 3                | 1.7                       | 0.03                    | 1           | 22.0                  |                  |                           |                         |             |
| 4.5                   | 3                | 1.7                       | 0.04                    | 1           | 22.5                  |                  |                           |                         |             |
| 5.0                   | 6                | 3.4                       | 0.05                    | 1           | 23.0                  |                  |                           |                         |             |
| 5.5                   | 7                | 4.0                       | 0.07                    | 1           | 23.5                  |                  |                           |                         |             |
| 6.0                   | 4                | 2.3                       | 0.09                    | 1           | 24.0                  |                  |                           |                         |             |
| 6.5                   | 6                | 3.4                       | 0.12                    | 1           | 24.5                  |                  |                           |                         |             |
| 7.0                   | 1                | 0.6                       | 0.15                    | 2           | 25.0                  |                  |                           |                         |             |
| 7.5                   | 3                | 1.7                       | 0.19                    | 2           | 25.5                  |                  |                           |                         |             |
| 8.0                   | 8                | 4.5                       | 0.23                    | 2           | 26.0                  |                  |                           |                         |             |
| 8.5                   | 13               | 7.3                       | 0.28                    | 2           | TOTAL                 | 177              |                           |                         |             |
| 9.0                   | 9                | 5.1                       | 0.33                    | 2,3         |                       |                  |                           |                         |             |
| 9.5                   | 8                | 4.5                       | 0.40                    | 2,3         |                       |                  |                           |                         |             |
| 10.0                  | 8                | 4.5                       | 0.46                    | 2,3         |                       |                  |                           |                         |             |
| 10.5                  | 11               | 6.2                       | 0.54                    | 3           |                       |                  |                           |                         |             |
| 11.0                  | 22               | 12.4                      | 0.63                    | 3           |                       |                  |                           |                         |             |
| 11.5                  | 9                | 5.1                       | 0.72                    | 3,4         |                       |                  |                           |                         |             |
| 12.0                  | 15               | 8.5                       | 0.82                    | 3,4         |                       |                  |                           |                         |             |
| 12.5                  | 16               | 9.0                       | 0.95                    | 4           |                       |                  |                           |                         |             |
| 13.0                  | 6                | 3.4                       | 1.08                    | 4,5         |                       |                  |                           |                         |             |
| 13.5                  | 8                | 4.5                       | 1.20                    | 4,5         |                       |                  |                           |                         |             |
| 14.0                  | 4                | 2.3                       | 1.38                    | 4,5         |                       |                  |                           |                         |             |
| 14.5                  | 2                | 1.1                       | 1.56                    | 5           |                       |                  |                           |                         |             |
| 15.0                  | 2                | 1.1                       | 1.74                    | 5           |                       |                  |                           |                         |             |
| 15.5                  | 1                | 0.6                       | 1.92                    | not aged    |                       |                  |                           |                         |             |
| 16.0                  |                  |                           |                         |             |                       |                  |                           |                         |             |
| 16.5                  |                  |                           |                         |             |                       |                  |                           |                         |             |
| 17.0                  |                  |                           |                         |             |                       |                  |                           |                         |             |
| 17.5                  |                  |                           |                         |             |                       |                  |                           |                         |             |
| 18.0                  |                  |                           |                         |             |                       |                  |                           |                         |             |
| 18.5                  |                  |                           |                         |             |                       |                  |                           |                         |             |

|                      |           |                |            |                |            |
|----------------------|-----------|----------------|------------|----------------|------------|
| ELECTROFISHING CATCH | 177.0 / h | GILL NET CATCH | 0.0 / lift | TRAP NET CATCH | 0.0 / lift |
|----------------------|-----------|----------------|------------|----------------|------------|

**NUMBER, PERCENTAGE, WEIGHT, AND AGE OF REDEAR SUNFISH**

| TOTAL LENGTH (inches) | NUMBER COLLECTED | PERCENT OF FISH COLLECTED | AVERAGE WEIGHT (pounds) | AGE OF FISH | TOTAL LENGTH (inches) | NUMBER COLLECTED | PERCENT OF FISH COLLECTED | AVERAGE WEIGHT (pounds) | AGE OF FISH |
|-----------------------|------------------|---------------------------|-------------------------|-------------|-----------------------|------------------|---------------------------|-------------------------|-------------|
| 1.0                   |                  |                           |                         |             | 19.0                  |                  |                           |                         |             |
| 1.5                   |                  |                           |                         |             | 19.5                  |                  |                           |                         |             |
| 2.0                   |                  |                           |                         |             | 20.0                  |                  |                           |                         |             |
| 2.5                   |                  |                           |                         |             | 20.5                  |                  |                           |                         |             |
| 3.0                   |                  |                           |                         |             | 21.0                  |                  |                           |                         |             |
| 3.5                   |                  |                           |                         |             | 21.5                  |                  |                           |                         |             |
| 4.0                   | 2                | 1.7                       | 0.04                    | 2           | 22.0                  |                  |                           |                         |             |
| 4.5                   | 2                | 1.7                       | 0.06                    | 2           | 22.5                  |                  |                           |                         |             |
| 5.0                   | 5                | 4.3                       | 0.08                    | 2           | 23.0                  |                  |                           |                         |             |
| 5.5                   | 9                | 7.7                       | 0.11                    | 2,3         | 23.5                  |                  |                           |                         |             |
| 6.0                   | 7                | 6.0                       | 0.15                    | 2,3         | 24.0                  |                  |                           |                         |             |
| 6.5                   | 4                | 3.4                       | 0.20                    | 3           | 24.5                  |                  |                           |                         |             |
| 7.0                   | 6                | 5.1                       | 0.25                    | 3           | 25.0                  |                  |                           |                         |             |
| 7.5                   | 17               | 14.5                      | 0.31                    | 3           | 25.5                  |                  |                           |                         |             |
| 8.0                   | 29               | 24.8                      | 0.38                    | 3           | 26.0                  |                  |                           |                         |             |
| 8.5                   | 16               | 13.7                      | 0.46                    | 3,4,5       | TOTAL                 | 117              |                           |                         |             |
| 9.0                   | 18               | 15.4                      | 0.56                    | 5           |                       |                  |                           |                         |             |
| 9.5                   | 2                | 1.7                       | 0.67                    | 6           |                       |                  |                           |                         |             |
| 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                  |                  |                           |                         |             |                       |                  |                           |                         |             |

|                      |          |                |            |                |             |
|----------------------|----------|----------------|------------|----------------|-------------|
| ELECTROFISHING CATCH | 60.0 / h | GILL NET CATCH | 0.4 / lift | TRAP NET CATCH | 13.5 / lift |
|----------------------|----------|----------------|------------|----------------|-------------|

**NUMBER, PERCENTAGE, WEIGHT, AND AGE OF CHANNEL CATFISH**

| TOTAL LENGTH (inches) | NUMBER COLLECTED | PERCENT OF FISH COLLECTED | AVERAGE WEIGHT (pounds) | AGE OF FISH | TOTAL LENGTH (inches) | NUMBER COLLECTED | PERCENT OF FISH COLLECTED | AVERAGE WEIGHT (pounds) | AGE OF FISH |
|-----------------------|------------------|---------------------------|-------------------------|-------------|-----------------------|------------------|---------------------------|-------------------------|-------------|
| 1.0                   |                  |                           |                         |             | 19.0                  | 1                | 3.7                       | 2.46                    |             |
| 1.5                   |                  |                           |                         |             | 19.5                  |                  |                           |                         |             |
| 2.0                   |                  |                           |                         |             | 20.0                  | 1                | 3.7                       | 2.95                    |             |
| 2.5                   |                  |                           |                         |             | 20.5                  |                  |                           |                         |             |
| 3.0                   |                  |                           |                         |             | 21.0                  |                  |                           |                         |             |
| 3.5                   |                  |                           |                         |             | 21.5                  | 1                | 3.7                       | 3.73                    |             |
| 4.0                   |                  |                           |                         |             | 22.0                  |                  |                           |                         |             |
| 4.5                   |                  |                           |                         |             | 22.5                  |                  |                           |                         |             |
| 5.0                   |                  |                           |                         |             | 23.0                  |                  |                           |                         |             |
| 5.5                   |                  |                           |                         |             | 23.5                  |                  |                           |                         |             |
| 6.0                   |                  |                           |                         |             | 24.0                  |                  |                           |                         |             |
| 6.5                   |                  |                           |                         |             | 24.5                  | 1                | 3.7                       | 5.88                    |             |
| 7.0                   |                  |                           |                         |             | 25.0                  |                  |                           |                         |             |
| 7.5                   |                  |                           |                         |             | 25.5                  | 1                | 3.7                       | 6.99                    |             |
| 8.0                   |                  |                           |                         |             | 26.0                  |                  |                           |                         |             |
| 8.5                   |                  |                           |                         |             | 26.5                  |                  |                           |                         |             |
| 9.0                   |                  |                           |                         |             | 27.0                  |                  |                           |                         |             |
| 9.5                   |                  |                           |                         |             | 27.5                  | 1                | 3.7                       | 8.33                    |             |
| 10.0                  |                  |                           |                         |             | 28.0                  |                  |                           |                         |             |
| 10.5                  |                  |                           |                         |             | TOTAL                 | 27               |                           |                         |             |
| 11.0                  |                  |                           |                         |             |                       |                  |                           |                         |             |
| 11.5                  |                  |                           |                         |             |                       |                  |                           |                         |             |
| 12.0                  | 2                | 7.4                       | 0.49                    | not aged    |                       |                  |                           |                         |             |
| 12.5                  | 2                | 7.4                       | 0.56                    |             |                       |                  |                           |                         |             |
| 13.0                  | 6                | 22.2                      | 0.67                    |             |                       |                  |                           |                         |             |
| 13.5                  | 1                | 3.7                       | 0.73                    |             |                       |                  |                           |                         |             |
| 14.0                  | 1                | 3.7                       | 0.83                    |             |                       |                  |                           |                         |             |
| 14.5                  | 1                | 3.7                       | 0.94                    |             |                       |                  |                           |                         |             |
| 15.0                  | 1                | 3.7                       | 1.03                    |             |                       |                  |                           |                         |             |
| 15.5                  |                  |                           |                         |             |                       |                  |                           |                         |             |
| 16.0                  |                  |                           |                         |             |                       |                  |                           |                         |             |
| 16.5                  | 2                | 7.4                       | 1.51                    |             |                       |                  |                           |                         |             |
| 17.0                  |                  |                           |                         |             |                       |                  |                           |                         |             |
| 17.5                  | 3                | 11.1                      | 1.81                    |             |                       |                  |                           |                         |             |
| 18.0                  | 1                | 3.7                       | 2.02                    |             |                       |                  |                           |                         |             |
| 18.5                  | 1                | 3.7                       | 2.20                    |             |                       |                  |                           |                         |             |

|                      |         |                |            |                |            |
|----------------------|---------|----------------|------------|----------------|------------|
| ELECTROFISHING CATCH | 2.0 / h | GILL NET CATCH | 3.1 / lift | TRAP NET CATCH | 0.0 / lift |
|----------------------|---------|----------------|------------|----------------|------------|

Mean Length at Capture

**Bluegill**

| Age | Number | Mean TL | Var  | SE   | Lo 95%CI | Up 95%CI |
|-----|--------|---------|------|------|----------|----------|
| 1   | 73     | 2.3     | 0.14 | 0.04 | 2.2      | 2.3      |
| 2   | 588    | 3.7     | 0.32 | 0.02 | 3.6      | 3.7      |
| 3   | 440    | 5.4     | 0.51 | 0.03 | 5.3      | 5.5      |
| 4   | 110    | 7.2     | 0.23 | 0.05 | 7.1      | 7.2      |
| 5   | 63     | 7.8     | 0.13 | 0.04 | 7.8      | 7.9      |
| 6   | 8      | 8.3     | 0.00 | 0.00 | 8.2      | 8.3      |
| 7   | 8      | 8.3     | 0.00 | 0.00 | 8.2      | 8.3      |

**Largemouth bass**

| Age | Number | Mean TL | Var  | SE   | Lo 95%CI | Up 95%CI |
|-----|--------|---------|------|------|----------|----------|
| 1   | 29     | 5.7     | 0.64 | 0.15 | 5.4      | 6.0      |
| 2   | 37     | 8.8     | 0.46 | 0.11 | 8.6      | 9.0      |
| 3   | 54     | 10.9    | 0.49 | 0.10 | 10.8     | 11.1     |
| 4   | 38     | 12.6    | 0.31 | 0.09 | 12.5     | 12.8     |
| 5   | 13     | 13.9    | 0.24 | 0.14 | 13.7     | 14.2     |

**Redear sunfish**

| Age | Number | Mean TL | Var  | SE   | Lo 95% CI | Up 95%CI |
|-----|--------|---------|------|------|-----------|----------|
| 1   | 0      |         |      |      |           |          |
| 2   | 20     | 5.5     | 0.38 | 0.14 | 5.2       | 5.8      |
| 3   | 67     | 7.8     | 0.49 | 0.09 | 7.7       | 8.0      |
| 4   | 6      | 8.8     | 0.00 | 0.00 | 8.8       | 8.8      |
| 5   | 21     | 9.2     | 0.03 | 0.04 | 9.1       | 9.3      |
| 6   | 2      | 9.8     | 0.00 | 0.00 | 9.8       | 9.8      |

| Bluegill Age-length Key |         |            |     |     |     |     |    |   |   |   |   |    |    |    |    |
|-------------------------|---------|------------|-----|-----|-----|-----|----|---|---|---|---|----|----|----|----|
| Length group (in)       | Total # | Sub-sample | Age |     |     |     |    |   |   |   |   |    |    |    |    |
|                         |         |            | 1   | 2   | 3   | 4   | 5  | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 1.0                     | 3       | 1          | 3   |     |     |     |    |   |   |   |   |    |    |    |    |
| 1.5                     | 20      | 5          | 20  |     |     |     |    |   |   |   |   |    |    |    |    |
| 2.0                     | 32      | 5          | 32  |     |     |     |    |   |   |   |   |    |    |    |    |
| 2.5                     | 85      | 4          | 21  | 64  |     |     |    |   |   |   |   |    |    |    |    |
| 3.0                     | 186     | 5          |     | 186 |     |     |    |   |   |   |   |    |    |    |    |
| 3.5                     | 157     | 5          |     | 157 |     |     |    |   |   |   |   |    |    |    |    |
| 4.0                     | 132     | 5          |     | 132 |     |     |    |   |   |   |   |    |    |    |    |
| 4.5                     | 196     | 4          |     | 49  | 147 |     |    |   |   |   |   |    |    |    |    |
| 5.0                     | 144     | 5          |     |     | 144 |     |    |   |   |   |   |    |    |    |    |
| 5.5                     | 69      | 4          |     |     | 69  |     |    |   |   |   |   |    |    |    |    |
| 6.0                     | 59      | 5          |     |     | 47  | 12  |    |   |   |   |   |    |    |    |    |
| 6.5                     | 44      | 5          |     |     | 18  | 26  |    |   |   |   |   |    |    |    |    |
| 7.0                     | 53      | 5          |     |     |     | 42  | 11 |   |   |   |   |    |    |    |    |
| 7.5                     | 74      | 5          |     |     | 15  | 30  | 30 |   |   |   |   |    |    |    |    |
| 8.0                     | 38      | 5          |     |     |     |     | 23 | 8 | 8 |   |   |    |    |    |    |
| 8.5                     | 1       | 0          |     |     |     |     |    |   |   |   |   |    |    |    |    |
| 9.0                     |         |            |     |     |     |     |    |   |   |   |   |    |    |    |    |
| Total                   | 1293    | 68         | 76  | 588 | 440 | 110 | 63 | 8 | 8 | 0 | 0 | 0  | 0  | 0  | 0  |

| Largemouth bass Age-length Key |         |            |     |    |    |    |    |   |   |   |   |    |    |    |    |
|--------------------------------|---------|------------|-----|----|----|----|----|---|---|---|---|----|----|----|----|
| Length group (in)              | Total # | Sub-sample | Age |    |    |    |    |   |   |   |   |    |    |    |    |
|                                |         |            | 1   | 2  | 3  | 4  | 5  | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 1.0                            |         |            |     |    |    |    |    |   |   |   |   |    |    |    |    |
| 1.5                            |         |            |     |    |    |    |    |   |   |   |   |    |    |    |    |
| 2.0                            |         |            |     |    |    |    |    |   |   |   |   |    |    |    |    |
| 2.5                            |         |            |     |    |    |    |    |   |   |   |   |    |    |    |    |
| 3.0                            |         |            |     |    |    |    |    |   |   |   |   |    |    |    |    |
| 3.5                            |         |            |     |    |    |    |    |   |   |   |   |    |    |    |    |
| 4.0                            | 3       | 3          | 3   |    |    |    |    |   |   |   |   |    |    |    |    |
| 4.5                            | 3       | 3          | 3   |    |    |    |    |   |   |   |   |    |    |    |    |
| 5.0                            | 6       | 5          | 6   |    |    |    |    |   |   |   |   |    |    |    |    |
| 5.5                            | 7       | 4          | 7   |    |    |    |    |   |   |   |   |    |    |    |    |
| 6.0                            | 4       | 4          | 4   |    |    |    |    |   |   |   |   |    |    |    |    |
| 6.5                            | 6       | 4          | 6   |    |    |    |    |   |   |   |   |    |    |    |    |
| 7.0                            | 1       | 1          |     | 1  |    |    |    |   |   |   |   |    |    |    |    |
| 7.5                            | 3       | 3          |     | 3  |    |    |    |   |   |   |   |    |    |    |    |
| 8.0                            | 8       | 6          |     | 8  |    |    |    |   |   |   |   |    |    |    |    |
| 8.5                            | 13      | 5          |     | 13 |    |    |    |   |   |   |   |    |    |    |    |
| 9.0                            | 9       | 5          |     | 7  | 2  |    |    |   |   |   |   |    |    |    |    |
| 9.5                            | 8       | 5          |     | 3  | 5  |    |    |   |   |   |   |    |    |    |    |
| 10.0                           | 8       | 4          |     | 2  | 6  |    |    |   |   |   |   |    |    |    |    |
| 10.5                           | 11      | 6          |     |    | 11 |    |    |   |   |   |   |    |    |    |    |
| 11.0                           | 22      | 5          |     |    | 22 |    |    |   |   |   |   |    |    |    |    |
| 11.5                           | 9       | 5          |     |    | 5  | 4  |    |   |   |   |   |    |    |    |    |
| 12.0                           | 15      | 5          |     |    | 3  | 12 |    |   |   |   |   |    |    |    |    |
| 12.5                           | 16      | 5          |     |    |    | 16 |    |   |   |   |   |    |    |    |    |
| 13.0                           | 6       | 5          |     |    |    | 4  | 2  |   |   |   |   |    |    |    |    |
| 13.5                           | 8       | 7          |     |    |    | 2  | 6  |   |   |   |   |    |    |    |    |
| 14.0                           | 4       | 4          |     |    |    | 1  | 3  |   |   |   |   |    |    |    |    |
| 14.5                           | 2       | 1          |     |    |    |    | 2  |   |   |   |   |    |    |    |    |
| 15.0                           | 2       | 1          |     |    |    |    | 2  |   |   |   |   |    |    |    |    |
| 15.5                           | 1       | 0          |     |    |    |    |    |   |   |   |   |    |    |    |    |
| 16.0                           |         |            |     |    |    |    |    |   |   |   |   |    |    |    |    |
| 16.5                           |         |            |     |    |    |    |    |   |   |   |   |    |    |    |    |
| 17.0                           |         |            |     |    |    |    |    |   |   |   |   |    |    |    |    |
| 17.5                           |         |            |     |    |    |    |    |   |   |   |   |    |    |    |    |
| 18.0                           |         |            |     |    |    |    |    |   |   |   |   |    |    |    |    |
| 18.5                           |         |            |     |    |    |    |    |   |   |   |   |    |    |    |    |
| 19.0                           |         |            |     |    |    |    |    |   |   |   |   |    |    |    |    |
| 19.5                           | 1       | 0          |     |    |    |    |    |   |   |   |   |    |    |    |    |
| 20.0                           | 1       | 0          |     |    |    |    |    |   |   |   |   |    |    |    |    |
| 20.5                           |         |            |     |    |    |    |    |   |   |   |   |    |    |    |    |
| Total                          | 177     | 96         | 29  | 37 | 54 | 38 | 15 | 0 | 0 | 0 | 0 | 0  | 0  | 0  |    |

Redear sunfish Age-length Key

| Length group (in) | Total # | Sub-sample | Age |    |    |   |    |   |   |   |   |    |    |    |    |   |
|-------------------|---------|------------|-----|----|----|---|----|---|---|---|---|----|----|----|----|---|
|                   |         |            | 1   | 2  | 3  | 4 | 5  | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |   |
| 1.0               |         |            |     |    |    |   |    |   |   |   |   |    |    |    |    |   |
| 1.5               |         |            |     |    |    |   |    |   |   |   |   |    |    |    |    |   |
| 2.0               |         |            |     |    |    |   |    |   |   |   |   |    |    |    |    |   |
| 2.5               |         |            |     |    |    |   |    |   |   |   |   |    |    |    |    |   |
| 3.0               |         |            |     |    |    |   |    |   |   |   |   |    |    |    |    |   |
| 3.5               |         |            |     |    |    |   |    |   |   |   |   |    |    |    |    |   |
| 4.0               | 2       | 1          |     | 2  |    |   |    |   |   |   |   |    |    |    |    |   |
| 4.5               | 2       | 2          |     | 2  |    |   |    |   |   |   |   |    |    |    |    |   |
| 5.0               | 5       | 5          |     | 5  |    |   |    |   |   |   |   |    |    |    |    |   |
| 5.5               | 9       | 5          |     | 7  | 2  |   |    |   |   |   |   |    |    |    |    |   |
| 6.0               | 7       | 5          |     | 4  | 3  |   |    |   |   |   |   |    |    |    |    |   |
| 6.5               | 4       | 4          |     |    | 4  |   |    |   |   |   |   |    |    |    |    |   |
| 7.0               | 6       | 3          |     |    | 6  |   |    |   |   |   |   |    |    |    |    |   |
| 7.5               | 17      | 6          |     |    | 17 |   |    |   |   |   |   |    |    |    |    |   |
| 8.0               | 29      | 5          |     |    | 29 |   |    |   |   |   |   |    |    |    |    |   |
| 8.5               | 16      | 5          |     |    | 6  | 6 | 3  |   |   |   |   |    |    |    |    |   |
| 9.0               | 18      | 6          |     |    |    |   | 18 |   |   |   |   |    |    |    |    |   |
| 9.5               | 2       | 2          |     |    |    |   |    | 2 |   |   |   |    |    |    |    |   |
| 10.0              |         |            |     |    |    |   |    |   |   |   |   |    |    |    |    |   |
| Total             | 117     | 49         | 0   | 20 | 67 | 6 | 21 | 2 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0 |