Ridinger Lake
KOSCIUSKO COUNTY
FISH MANAGEMENT REPORT
2003

Department of Natural Resources

Division of Fish and Wildlife

BACKGROUND

Ridinger Lake is a 136-acre natural lake located 4 miles northeast of Pierceton. It lies in the Tippecanoe River watershed and drains 22,144 acres. The major inlet, Elder Ditch, drains several headwater lakes and enters the southeast corner of the lake. The outlet, Grassy Creek, flows northwest to Big Barbee Lake. Maximum depth is 42 feet and average depth is 21 feet. Hydraulic retention time is 47 days. Most of the watershed is agricultural, small woodlots and wetlands.

Much of the shoreline is residentially developed. A large commercial campground is located on the west side of the lake. Public access is available for a small fee at an unimproved boat ramp located within the campground. Significant wetlands are located along the south shore and in the northwest and southeast corners.

Ridinger Lake is a productive lake. Trophic indices have ranged from 42 to 58. An index greater than 46 is considered highly fertile. The bottom is sand, muck and clay. Water clarity has declined since 1978 and averages 5-6 feet (Table 1). Enough oxygen is present for fish only in the top 10 feet during summer. Coontail and milfoil are the most common submerged aquatic plants. Spatterdock is the most common emergent plant.

There is little history of fish management at Ridinger Lake. An initial survey was conducted in July 1978. In June 1981, a major fish kill occurred after a heavy rain. Bluegills and crappies were most affected but by 1983 the fishery recovered and no corrective management was needed. Another survey was conducted in July 1995 and indicated adequate numbers of bass and bluegills, as well as an abundant forage fish population, were present.

To use forage fish populations in other lakes in the area, muskies have been stocked in the watershed since the early 1980s. Popular fisheries have developed at nearby Webster Lake, Lake Tippecanoe and the Barbee Lake chain. With increasing interest in muskie fishing in Indiana, additional lakes are now under consideration for stocking, including Ridinger Lake.

Table 1. *Oxygen levels (ppm) and water clarity (secchi depth) at Ridinger Lake from 1978-03.*

Depth (ft)	7/78	8/81	8/82	8/83	7/95	6/03
0	8.0	8.0	9.0	9.0	15.0	12.6
5	5.0	8.0	9.0	9.0	15.0	12.9
10	4.0	7.0	4.0	7.0	7.0	5.8
15	2.5	3.5	1.0	1.0	0.8	1.7
20	1.5	trace	trace	trace	0.6	0.2
25	2.5	0.0	trace	trace	0.6	0.2
30	1.0	0.0	trace	trace	0.6	0.1
35	0.5	0.0	trace	0.0	0.6	0.1
40	0.0	0.0	0.0	0.0	0.4	0.1
Secchi (ft)	9.5	6.8	5.0	4.5	3.5	5.0

To determine whether muskies have already moved into Ridinger Lake from downstream lakes and assess the feasibility of stocking them directly into the lake, another fish population survey was conducted on June 23-25, 2003. Sampling effort included ½ hour of electrofishing, four gill net lifts and three trap net lifts.

SURVEY RESULTS

During the survey, 1,639 fish were collected. Total weight was 395 pounds. Nineteen species were found. Bluegills dominated the catch by number (56%) and gizzard shad dominated the weight (54%). Bluegills comprised only 3% of the weight. Largemouth bass ranked third in number (6%) and second in weight (15%). Other species in the survey accounted for 11% of the number and 28% of the weight. Altogether, sportfish comprised 70% of the number and 30% of the weight.

Bluegills measured 1½-8½ inches long. Thirteen percent were 7-inch or larger, including 13 that were 8-inch or larger. The electrofishing catch rate (105/15 min) was average compared to other lakes (99/15min) in the area. Likewise the growth rate for bluegill was average for fish of all ages compared to other lakes. Bluegills up to 7 years old were present.

Largemouth bass ranged from 4-19½ inches long. Legal-size bass (≥14 in) made up 13% of the sample but only one was larger than 18 inches. The electrofishing catch rate (44/15 min) was high compared to other lakes. Growth rate was above average for the first three years and average for age-4 and older bass. Bass are expected to reach legal size between age-5 and age-6.

Other sportfish in the survey catch included 22 black crappies ranging from 5½-11 inches long. Of these, 68% were between 7-8 inches. Seventeen yellow perch were collected, ranging from 4½-10½ inches but only three were over 8 inches. Only two white bass were collected, measuring 9 and 15½ inches long. Several miscellaneous

Table 2. *Number of fish collected during fish population surveys at Ridinger Lake from 1978-03.*

Species	1978	1981	1982	1983	1995	2003
Bass	36	36	190	98	152	92
Bluegill	738	13	146	461	206	919
Bullhead	63	27	38	26	10	31
Carp	1	9	8	5	4	1
Crappie	307	0	122	373	23	29
Gar	31	1	9	3	17	12
Perch	89	1	18	40	75	17
Shad	9	77	128	105	71	443
Suckers	87	78	57	48	116	26
Sunfish	115	0	2	6	40	12
White bass	0	0	0	3	22	2
Others	158	83	127	74	55	5

Total	1,634	325	845	1,242	781	1,63

Table 3. *Pounds of fish collected during fish population surveys at Ridinger Lake from 1978-03.*

Species	1978	1981	1982	1983	1995	2003
Bass	29.9	---	60.8	44.2	78.2	59.7
Bluegill	97.7	---	6.6	27.4	31.2	11.4
Bullheads	40.9	---	28	21.5	8.3	18.4
Carp	13.1	---	19.5	22.7	39.2	9.6
Crappies	60.5	---	6.7	39.4	5.5	8.7
Gar	44.7	---	12.4	5.1	22.4	18.0
Perch	9.7	---	1.1	1.7	8.8	3.3
Shad	4.8	---	80.4	56.4	52.5	213.0
Suckers	108	---	58.1	86.5	175	34.4
Sunfish	11.1	---	0.6	0.9	7.4	6.7
White bass	0	---	0	3	29.2	1.9
Others	38	---	18.7	21.7	18.7	10.3
Total	458	---	293	331	477	395

sunfish, bullheads up to 15 inches and four channel catfish from 15½-20 inches long were also collected. Gizzard shad represented 90% of the nongame fish. They measured 7-17½ inches. As many as 62% were 10-12 inches. The gill net catch rate was 26/lift, much higher than the catch rate at most area lakes. In addition, 17 white suckers ranging from 10-20½ inches long were collected. Other fish included 12 spotted gar from 13-27 inches long, nine spotted suckers up to 16½ inches, six lake chubsuckers, five golden shiners, and a carp that was 27½ inches long.

SURVEY COMPARISONS

Due to similarities in sampling gear, effort and date, survey catches in 2003 can be compared to 1995 catches. Ridinger Lake currently has more bluegills but fewer largemouth bass and white bass. There may also be fewer large bluegills (≥8-inch) but more intermediate-size bluegills (5-7 in) in the lake now compared to 1995. The electrofishing catch of rate largemouth bass was very high in 1995 (68/15min) and decreased (44/15min) in 2003 but remained above average.

Suckers, gar and other nongame fish have consistently made up a large portion of the weight at Ridinger Lake. In 1978, suckers ranked first and made up 24%. By 1995, the percentage increased to 37%. Shad and carp did not account for much of the weight in 1978 but by 1995 these species comprised 19%. Shad increased dramatically in 2003, accounting for 27% of the catch and 54% of the weight. Suckers, gar and other nongame fish made up an additional 16% of total weight.

MANAGEMENT IMPLICATIONS

Ridinger Lake presently contains adequate numbers of bluegills and largemouth bass. Ample numbers of large fish are available. Crappies, perch, bullheads and white bass add to the diversity of fishing opportunities. However too much of Ridinger Lake's productivity is still tied up in biomass of shad, suckers and other nongame fish. Not enough large predator fish are present to use the abundant forage.

Lakes overrun with populations of forage fish can sometimes be improved by chemically eliminating the existing fish population and restocking more desirable sportfish. For this technique to work however, re-entry of unwanted species from upstream and downstream areas must be prevented. Due to the large size of the watershed, difficulty in maintaining fish barriers and the high cost of chemical treatment, this approach is currently not feasible at Ridinger Lake.

An alternative to eradicating the entire fish population can be the selective stocking of additional large predator fish. Large predators can feed on suckers, shad and other nongame fish and convert some of the lake's productivity into sportfish. Observations at nearby lakes have shown that muskies survive and grow well in the Tippecanoe watershed and would be suitable in Ridinger Lake. General surveys at other Indiana lakes have shown that muskie stockings do not significantly affect the native fish community. Due to the prevalence of gizzard shad and suckers as forage fish, the chance that muskies might impact sportfish is reduced.

Stocking muskies into Ridinger Lake would provide additional sportfishing opportunities. However, public access to the lake is limited. Until better access is available, spending state funds on stocking muskies is not warranted. Efforts should continue to acquire a state-owned public access site at Ridinger Lake. A site would guarantee free, unrestricted access to the lake. Once an access site is available, the Division of Fish and Wildlife should expand muskies stockings within the watershed by stocking 680 large muskie fingerlings annually in the lake. Meanwhile, interest among fishing clubs or other groups in stocking muskies into Ridinger Lake should be coordinated and supported.

Table 4. *Size and number of bluegills collected at Ridinger Lake from 1978-03.*

Inches	1978	1981	1982	1983	1995	2003
1-1½½	0	0	0	0	0	3
2-2½½	21	0	1	17	3	28
3-3½½	30	0	96	219	18	284
4-4½½	153	0	38	108	46	124
5-5½½	199	1	1	52	52	155
6-6½½	215	4	4	57	33	202
7-7½½	115	5	6	4	30	110
8-8½½	5	3	0	4	22	13
9-9½½	0	0	0	0	2.0	0
Mean (in)	5.5	6.9	3.8	4.1	5.6	4.9
Age-4 (in)	5.7	---	5.7	7.1	7.1	6.5

Submitted by:
Brad Fink, assistant fisheries biologist
October 17, 2003

Approved by: _____
Stu Shipman, fisheries supervisor
November 3, 2003

Table 5. *Size distribution of largemouth bass collected during electrofishing at Ridinger Lake from 1978-03.*

Inches	1978	1981	1982	1983	1995	2003
< 8	27	20	40	37	105	59
8-11½	13	10	8	27	80	29
12- 13½	5	4	18	3	14	18
14- 17½	8	5	13	7	11	11

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