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**ILLINOIS**  
**NATURAL HISTORY**  
**SURVEY**

**THE LONG-TERM ILLINOIS RIVER FISH  
POPULATION MONITORING PROGRAM**

Project F-101-R-12

Annual Report to the  
Illinois Department of Natural Resources

Michael A. McClelland and Mark A. Pegg

Illinois Natural History Survey  
LTRMP Havana Field Station  
704 North Schrader Avenue  
Havana, Illinois 62644-1055

June 2001





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NATURAL HISTORY  
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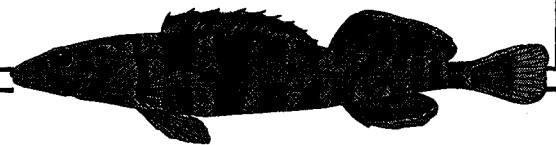
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# The Long-Term Illinois River Fish Population Monitoring Program


F-101-R-12


Annual Report

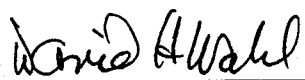
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June 2001

  
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## **DISCLAIMER**

The findings, conclusions, and views expressed herein are those of the researchers and should not be considered as the official position of the United States Fish and Wildlife Service or the Illinois Department of Natural Resources.

## **ACKNOWLEDGMENT OF SUPPORT**

The Long-term Illinois River Fish Population Monitoring Program (F-101-R) is supported by the Federal Aid in Sport Fish Restoration Act ((P.L. 81-6814, Dingell-Johnson/Wallop-Breaux).



## EXECUTIVE SUMMARY

Between 8 September and 5 October of 2000, 27 sites on the Illinois River Waterway and one site on Reach 26 of the Mississippi River were electrofished to monitor fish communities. A total of 3,417 fish representing 42 species (plus 2 hybrids) from 9 families were collected during 27.75 hours of sampling. Collections made in 2000 indicated an abundance of bluegill and gizzard shad throughout the waterway and continued high numbers of emerald shiners, an important forage fish, in the upper waterway. Common carp and goldfish, species which were once dominant, continue to remain relatively low in abundance throughout the Illinois River Waterway, contributing only 6.05% for and 1.43% of the total catch respectively. For the first time during project F-101-R sampling along the waterway, bighead carp were collected from two sites, Pekin (RM 155.1, La Grange Reach) and Turkey Island (RM 148.0, La Grange Reach). Silverband shiners were again collected for the second time since project F-101-R began in the Starved Rock Reach and Marseilles Reach. The sample from Lambie's Boat Harbor (RM 170.3, Peoria Reach) yielded the most fish (405, 11.9% of the total collected from all 27 sites). Species richness at sites ranged from 21 at Chillicothe Island (RM 180.6, Peoria Reach) to 9 at Moore's Towhead (RM 75.3, Alton Reach) and Pekin. Species richness of the lower, middle, and upper waterway was 26, 34, and 22 respectively. In 2000, cyprinid numbers continued to remain relatively high in the upper waterway, with emerald shiners being the most abundant making up 25.5% of the total catch. Emerald shiners were also the most abundant in Starved Rock Reach at 53.4% and third in Marseilles Reach at 13.5%. Red shiners were the most abundant species for Marseilles Reach, making up 18.7% of the total catch. Bluegill ranked second for relative abundance for the upper waterway (18.6%) and first in Dresden Reach (38.8%). Important sportfish species such as bluegill, largemouth bass, and channel catfish were collected in all six waterway reaches in 2000. Black crappie, another important sportfish, was only collected in four reaches; they were not collected in Starved Rock Reach or Dresden Reach in 2000. Bluegill catch per unit effort in number ( $CPUE_N$ ) ranged from 57.00 in Dresden Reach (upper waterway) to 8.00 in La Grange Reach (middle waterway). Largemouth bass  $CPUE_N$  ranged from 12.00 in Dresden Reach to 2.00 in Starved Rock Reach (upper waterway). Channel catfish  $CPUE_N$  ranged from 9.17 in Alton Reach (lower waterway) to 0.73 in Marseilles Reach (upper waterway). Black crappie  $CPUE_N$  ranged from 2.37 in Peoria Reach (middle waterway) to 0.17 in La Grange Reach, for reaches where they were collected. Common carp continued to be found throughout the Illinois Waterway in 2000. In terms of pounds of fish collected per hour ( $CPUE_w$ ), common carp ranked first in every reach except Starved Rock Reach, where they ranked second. Smallmouth buffalo ranked first and comprised 42.7% of the total catch in weight for Starved Rock Reach and the  $CPUE_w$  was 4.40. A total of 22 fishes collected in 2000 had externally visible abnormalities, of which 14 (63.6%) were sediment-contact fishes (e.g., common carp), with the remainder being water-column fishes (e.g., bluegill). The highest incidence occurred in the upper waterway, where 0.8% of benthic fishes had abnormalities, while the middle had 0.7% and lower waterway had 0.4% of benthic fishes with abnormalities. This is an indication (as we have noted in previous years) that the water column of the upper waterway is much improved (following the Clean Water Act) while the sediments of these reaches may continue to contain stressful factors for fishes.

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Job 1 <sup>a</sup>	Prepare electrofishing equipment and train staff.....
Job 2	Sample by electrofishing at 28 sites along the Illinois River Waterway and Reach 26 of the Mississippi River .....
Job 3	Update computer database .....
Job 4	Analyze data.....
Job 5	Presentation of results.....

<sup>a</sup>Job numbers and titles refer to the F-101-R-12 annual work plan dated 15 January 1999

## **ACKNOWLEDGMENTS**

Project F-101-R is supported by the Federal Aid to Sportfish Restoration Act (P.L. 81-681, Dingell-Johnson/Wallop-Breaux), with funds administered by the U.S. Fish and Wildlife Service and the Illinois Department of Natural Resources (IDNR). Mr. Larry Dunham (IDNR); Mr. Bill Bertrand (IDNR); Mr. Michael Sweet (IDNR); Dr. David Thomas, Chief of the Illinois Natural History Survey (INHS); and Dr. David Wahl, Director of the Center for Aquatic Ecology (INHS); provided administrative support. Ms. Cammy Smith of the Illinois River Biological Station at Havana provided secretarial support and data entry and verification. Mr. Thad Cook assisted with the field work. This survey was originally conceived and initiated in 1957 by the late Dr. William C. Starrett.

## **INTRODUCTION**

This report presents a summary of data collected in 2000 during segment 12 of federal aid project F-101-R, The Long-term Illinois River Fish Population Monitoring Program. Previous summaries of the long-term data set, begun in 1957, were given by Sparks and Starrett (1975), Sparks (1977), Sparks and Lerczak (1993), Lerczak and Sparks (1994), Lerczak et al. (1994), and Koel and Sparks (1999). The annual reports for project F-101-R will continue to build on previously collected data with major analyses of the long-term data set scheduled for the five-year project report at the end of segment 15. The format used in this report is patterned after previous annual reports of this project (Lerczak et al. 1993, 1994, 1995, and 1996; Koel et al. 1997 and 1998; Koel and Sparks, 1999) to allow for easy comparisons of data among years.

## **STUDY AREA AND METHODS**

Twenty-seven fish sampling sites were at fixed locations along the Illinois Waterway. Twenty-six of these site locations are defined by Sparks and Starrett (1975:347) and Lerczak et al. (1994:9). In 1999, the twenty-seventh site was added at Moore's Towhead on the Alton Reach, Illinois River mile 75.3, to more closely monitor fish communities near the Nature Conservancy's (TNC) floodplain restoration project (Spunky Bottoms); (Table 1). Twenty-five of the sites were along the Illinois River, with two additional sites on the lower Des Plaines River. That, along with the Illinois River is part of the Illinois Waterway. One additional site was on the Mississippi River (Figure 1). Seventeen of the sites were in side channels; the remaining sites were in



Table 1. Station information and characteristics during sampling in 2000. All stations except where noted are on the Illinois River and are listed in downstream-to-upstream order. Site miles are the average river mile and refer to Figure 1.

Sampling Order	Date	Site Mile	Name	Sample river mile		End time Duration (CST)		Temp (°F)		DO (ppm)	Secchi (in)	Conduct. (umhos)	Vel. (ft/s)		Depth (ft)				
				lower	upper	mean	(h)	air	water				min	max					
Mississippi River																			
26	4-Oct	0.0	Brickhouse Slough*	204.9	205.3	205.1	9:14	1.00	62.4	67.1	8.70	94.99%	8.3	414	210	0.0	0.1	2.3	
Alton Reach																			
25	3-Oct	19.0	Mortland Island	18.1	19.5	18.8	15:33	1.00	87.1	71.8	8.40	116.35%	8.7	653	170	0.2	0.1	4.3	419.8
24	3-Oct	24.7	Dark Chute	24.5	25.5	25.0	13:20	1.00	79.9	67.8	9.30	120.86%	8.7	660	165	0.2	0.1	4.6	419.8
23	3-Oct	26.8	Hurricane Island	27.0	27.9	27.5	11:05	1.00	73.2	66.6	8.40	102.49%	8.7	661	170	0.1	0.1	16.4	419.8
22	3-Oct	30.0	Crater-Willow Island	29.2	30.8	30.0	9:07	1.00	61.2	66.2	8.40	101.30%	8.3	667	160	0.2	0.1	8.9	419.8
21	2-Oct	58.3	Big Blue Island	58.0	59.0	58.5	13:22	1.00	80.1	66.4	8.10	105.46%	8.7	687	160	0.4	0.1	3.9	420.3
20	2-Oct	75.3	Moore's Towhead				10:10	1.00	73.6	65.5	8.80	107.78%	7.5	721	180	0.1	0.1	2.6	420.3
La Grange Reach																			
4	15-Sep	86.5	Grape-Bar Islands	85.7	87.0	86.4	13:15	1.00	68.3	75.6	3.90	45.31%	5.9	760	165	0.4	0.1	9.2	430.0
3	14-Sep	95.1	Sugar Creek Island	94.5	95.0	94.8	14:50	1.00	79.2	79.3	3.70	47.78%	7.9	786	155	0.3	0.1	8.2	429.9
2	14-Sep	107.1	Lower Bath Chute	106.9	107.3	107.1	10:40	1.00	66.6	77.4	3.50	39.96%	7.9	781	160	0.1	0.1	4.9	431.5
1	8-Sep	113.0	Upper Bath Chute	112.8	113.2	113.0	10:55	1.00	80.1	78.3	3.40	44.27%	9.8	772	160	0.1	0.1	9.4	429.7
28	5-Oct	148.0	Turkey Island	148.0	148.3	148.2	14:35	1.00	57.0	64.9	7.80	80.17%	7.9	720	170	0.4	0.1	3.6	433.1
27	5-Oct	155.1	Pekin	154.5	155.3	154.9	12:45	1.00	56.1	63.3	10.10	102.73%	7.1	713	170	0.4	0.1	9.2	434.0
Peoria Reach																			
5	18-Sep	163.4	Lower Peoria Lake	163.5	163.6	163.6	12:25	1.00	77.9	71.6	5.80	74.00%	7.9	744	175	0.0	0.1	3.0	440.5
6	18-Sep	170.3	Lambie's Boat Harbor	170.6	170.8	170.4	14:45	1.00	92.5	75.4	8.60	124.63%	9.4	724	165	0.0	0.1	3.3	440.5
7	19-Sep	180.6	Chillicothe	180.6	181.1	180.9	10:40	1.00	76.8	71.1	3.80	47.99%	8.3	654	170	0.1	0.1	7.2	441.0
8	19-Sep	193.8	Henry Island	193.3	194.5	193.9	14:00	1.00	87.1	72.1	4.40	60.94%	15.4	602	170	0.1	0.1	7.0	441.0
11	20-Sep	202.8	Lower Twin Sister	202.4	203.2	202.8	11:15	1.00	57.9	71.8	6.00	62.31%	17.7	632	180	0.2	0.1	8.2	441.0
10	20-Sep	203.3	Upper Twin Sister	203.3	203.5	203.4	9:22	1.00	61.7	71.6	3.90	42.26%	18.5	631	180	0.2	0.1	6.9	441.0
9	19-Sep	207.7	Hennepin	207.6	208.1	207.9	17:10	1.00	79.7	72.9	6.90	89.51%	16.9	613	175	0.1	0.1	4.9	441.0
19	1-Oct	215.3	Clark Island	214.9	215.6	215.3	13:10	1.00	78.6	66.2	10.10	129.70%	22.0	688	170	0.1	0.1	8.5	441.6
Starved Rock Reach																			
13	21-Sep	240.8	Bulls Island	240.3	241.0	240.7	12:00	1.00	68.0	70.3	6.00	69.50%	22.0	663	190	0.2	0.1	4.9	459.8
12	21-Sep	241.5	Bulls Island Bend	241.1	241.6	241.4	10:25	1.00	56.8	69.4	4.70	48.19%	26.0	665	190	0.2	0.1	7.2	459.8
Marselles Reach																			
14	21-Sep	248.0	Ballards Island	247.7	248.2	248.0	15:40	1.00	69.1	72.0	4.80	56.23%	16.5	710	185	0.1	0.1	7.2	484.1
15	21-Sep	249.7	Johnson Island	249.7	249.8	249.8	17:20	0.75	64.0	70.9	4.70	52.21%	31.5	672	180	0.2	0.1	5.9	484.1
16	22-Sep	260.6	Waupecan Island	260.2	261.1	260.7	8:51	1.00	54.7	70.7	2.90	29.01%	23.2	726	190	0.2	0.1	6.6	483.9
Dresden Reach																			
17	22-Sep	277.4	Du Page River*	276.8	277.8	277.3	13:15	1.00	58.3	74.5	3.90	40.68%	27.2	703	170	0.1	0.1	4.6	504.5
18	22-Sep	279.9	Treats Island*	279.6	280.1	279.9	16:33	1.00	69.1	73.6	5.00	58.57%	22.8	708	190	0.2	0.1	6.6	504.5
Summary																			
Minimum								0.75	54.7	63.3	2.9	29.01%	5.9	414	155	0.0	0.1	2.3	419.8
Maximum							1.00	92.5	79.3	10.1	129.70%	31.5	786	210	0.4	0.1	16.4	504.5	
Mean							0.99	70.6	70.9	6.3	73.5%	14.0	683.2	174.1	0.2	0.1	6.4	429.2	
Total time electrofished																			
Refers to approximate average river mile electrofished at each site, 1957-2000.																			
*Estimated during sampling.																			
*Feet above sea level at the U.S. Army Corps of Engineers river gage nearest to the sampling site.																			
*Mississippi River.																			
*Des Plaines River.																			

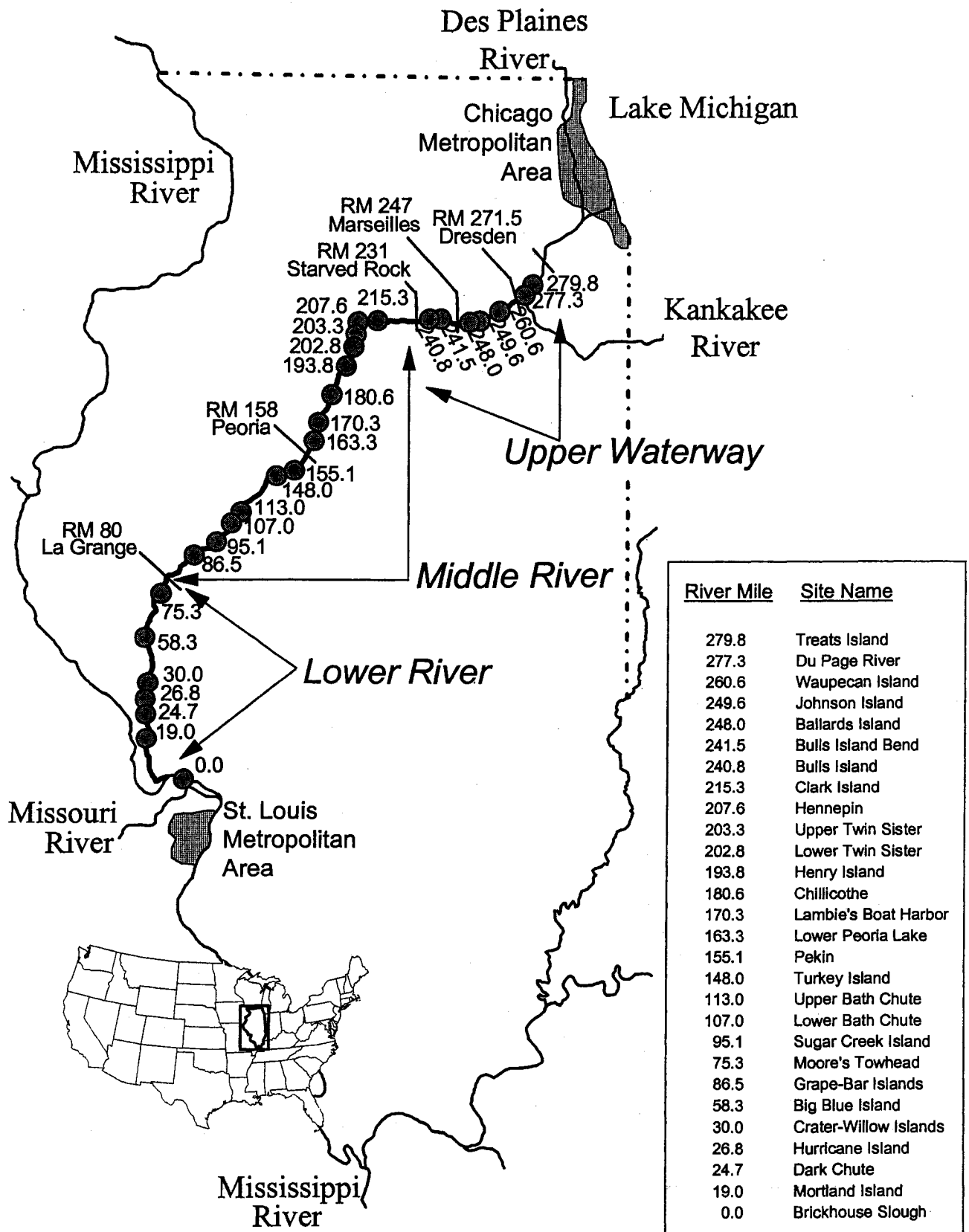


Figure 1. Three segments of the Illinois River Waterway sampled by electrofishing to monitor fish communities in 1999.

other habitats, including the main channel border, or in a combination of habitat types (see Lerczak et al. 1994:9).

Following water quality measurements (e.g., dissolved oxygen) at each site, fish populations were sampled by electrofishing from a 16-ft (5-m) aluminum boat using a 3000-watt, three-phase AC generator. Sampling at each site typically lasted one hour. Stunned fish were gathered with a dip net (1/4-in [0.64-cm] mesh) and stored in an oxygenated livewell until sampling was completed. Fish were then identified to species, measured (total length and weight), inspected for externally visible abnormalities, and returned to the water. More details on the electrofishing method and equipment are given by Lerczak et al. (1994).

#### **DATA ANALYSIS**

At each site, number of individual fish and total weight (pounds) were tallied for each species. Fish catch rates were calculated as the number of individuals collected per hour of electrofishing ( $CPUE_N$ ) and as weight in pounds collected per hour of electrofishing ( $CPUE_W$ ). Catch data, both numbers of individuals and pounds collected per sample and hour, were summarized and reported by collection site. Data from sites also were grouped into reaches defined by navigation dams (Figure 1) as follows: Alton Reach, river mile (RM) 0-80; La Grange Reach, RM 80-158; Peoria Reach, RM 158-231; Starved Rock Reach, RM 231-247; Marseilles Reach, RM 247-271.5; and Dresden Reach, RM 271.5-286 on the Des Plaines River. Data from reaches were combined further into three groups (lower and middle Illinois River segments, and the upper Illinois Waterway segment) defined by their location along the river and by the

amount of off-channel habitat accessible to fish per unit length of river (Lerczak et al. 1994:5 and Figure 1). Lerczak et al. (1994, 1995, and 1996) showed that river fish communities of the three segments differed substantially enough to give segment designations biological meaning.

## **RESULTS AND DISCUSSION (Job 4)**

Before the fish sampling season began, all equipment was tested and repaired as necessary, and staff were given a review in safety procedures and electrofishing methods (**Job 1**).

All 28 sites were sampled between 8 September and 5 October 2000 (**Job 2**); total sampling time was 27.75 h (Table 1). Collected data were entered into Microsoft ACCESS 97 format, and verified against original field data sheets until no errors were detected (**Job 3**). The original data sheets from this year's sampling and all of the other original data sheets of this project (1957-1999) are stored in flame-resistant cabinets at the Illinois River Biological Station at 704 N. Schrader Avenue, Havana (**Job 3**).

### **A. CONDITIONS DURING ELECTROFISHING RUNS**

Sampling was conducted in full daylight between 8:51 AM and 5:20 PM (Table 1). The ranges for physical measurements collected during the 2000 sampling season were as follows: air temperature, 56.1-92.4 °F; water temperature, 63.3-79.3 °F; dissolved oxygen concentration, 2.9-10.1 ppm; Secchi disk transparency, 5.9-31.5 in; conductivity, 414-786 umhos/cm; surface velocity, 0.0-1.4 ft/s; water depth, 0.3-9.4 ft.

All values were within the ranges expected based upon previous sampling (see Lerczak et al. 1994:17-24; Koel and Sparks, 1999:4-8). All sites were sampled with water temperatures and 25 sites with river levels (Table 1) within our established criteria (see Lerczak et al. 1994:10-13). Pekin, Turkey Island, and Lower Bath Chute were sampled with water levels above the set criteria.

## **B. ELECTROFISHING RESULTS**

The following data summaries proceed through several levels of detail. First, data on the numbers of individual fish (by species) collected at each of the 28 sites are presented. Then, catch rates of the number of individuals collected per hour of electrofishing are calculated for each of the seven navigation reaches. Similar summaries are presented for fish weights. Results conclude with fish health as determined by external visual inspection. Common names used throughout this report follow Robins et al. (1991). Common and scientific names are listed in APPENDIX A.

### **Numbers of Fish Collected**

We collected a total of 3,417 fish representing 41 species (plus two hybrids) from 9 families during 27.75 h of sampling at 27 sites on the Illinois Waterway and a single site on the Mississippi River in 2000. Bluegill was the most abundantly collected species, representing 17.4% of the total catch, followed by gizzard shad (15.6%), freshwater drum (12.3%), emerald shiner (10.8%), common carp (7.3%), green sunfish (5.0%). Bluegill were collected at 27 sites, common carp and freshwater drum were collected at 26 sites, emerald shiners were collected at 25 sites and largemouth bass

and channel catfish were collected at 22 sites. The sample from Lambie's Boat Harbor (RM 170.3, Peoria Reach) yielded the most fish (405, 11.9% of the total collected from all 28 sites). The most species collected at one site was 21, obtained from Chillicothe (180.6) on the Peoria Reach. The fewest species collected at a single site was nine from three locations; Johnson Island (249.6) on Marseilles Reach, Pekin (155.1) in La Grange Reach, and Moore's Towhead (75.3) in Alton Reach. Moore's Towhead also collected the fewest total number of fish at 49.

Of the 41 species and two hybrid crosses, eight species (black bullhead, grass carp, mud darter, rockbass, sand shiner, spottail shiner, tadpole madtom, and yellow bass) were collected at only a single site; whereas, three species (bluntnose minnow, logperch, and river shiner) and one hybrid cross (common carp x goldfish) were collected at only two sites. Nine species (black bullhead, black buffalo, grass carp, mosquitofish, mud darter, sand shiner, skipjack herring, spottail shiner, and tadpole madtom) and one hybrid cross (common carp x goldfish) were represented by single individuals at sites, and a maximum of two individuals were collected at sites for each of four species (bighead carp, river shiner, warmouth, and white crappie).

We collected 3,243 fish representing 41 species (plus two hybrids) from 9 families during 26.75 h of sampling from 27 sites on the Illinois Waterway. At Brickhouse Slough on the Mississippi River (RM 204.9), we collected 174 fish representing 14 species from seven families (Table 2). This year's sample from Brickhouse Slough was comparable with the 1997 data (Koel et al. 1998:9), but was considerably lower when compared with other samples collected at this site since 1991 (see Lerczak et al. 1994:49, 1995:9, 1996:8;

Table 2. Numbers of individuals of each fish species collected on the Mississippi River (Brickhouse Slough) and the lower Illinois River (Alton Reach, RM 0-80) in 2000.

Species	River Mile and Hours Fished							Total
	Miss. River	Lower Illinois River						
	0.0 1.00	19.0 1.00	24.7 1.00	26.8 1.00	30.0 1.00	58.3 1.00	75.3 1.00	
<b>Clupeidae</b>								
gizzard shad	45	18	4	10	5	4	16	57
skipjack herring	0	0	1	0	0	0	0	1
threadfin shad	0	1	0	0	1	0	0	2
<b>Cyprinidae</b>								
bullhead minnow	2	2	0	0	0	0	0	2
common carp	6	4	6	6	9	13	1	39
emerald shiner	6	6	13	12	5	7	14	57
red shiner	2	0	0	1	0	0	0	1
river shiner	2	0	0	0	0	1	0	1
sand shiner	0	0	0	1	0	0	0	1
<b>Catostomidae</b>								
bigmouth buffalo	0	7	6	4	9	3	0	29
river carpsucker	3	0	0	1	1	0	2	4
smallmouth buffalo	3	2	0	4	3	0	0	9
<b>Ictaluridae</b>								
channel catfish	5	6	15	10	12	8	4	55
flathead catfish	0	0	0	0	1	0	0	1
tadpole madtom	0	0	0	0	1	0	0	1
<b>Percichthyidae</b>								
white bass	2	3	1	3	2	6	4	19
<b>Centrarchidae</b>								
black crappie	0	2	1	0	2	2	0	7
bluegill	29	12	82	4	3	25	1	127
green sunfish	1	0	1	0	0	0	0	1
largemouth bass	0	5	4	2	1	3	2	17
orangespotted sunfish	31	0	0	0	0	1	0	1
smallmouth bass	0	0	1	0	0	0	0	1
warmouth	0	0	1	0	2	1	0	4
white crappie	0	0	2	0	0	0	0	2
<b>Percidae</b>								
mud darter	0	0	0	0	1	0	0	1
<b>Sciaenidae</b>								
freshwater drum	37	10	13	14	12	17	5	71
<b>Total individuals</b>	<b>174</b>	<b>78</b>	<b>151</b>	<b>72</b>	<b>70</b>	<b>91</b>	<b>49</b>	<b>511</b>
<b>Total species/hybrids</b>	<b>14/0</b>	<b>13/0</b>	<b>15/0</b>	<b>13/0</b>	<b>17/0</b>	<b>13/0</b>	<b>9/0</b>	<b>26/0</b>

Koel et al. 1998:9; Koel and Sparks 1999:23).

On the lower Illinois River, we collected 511 fish representing 26 species (Table 2). In 2000, species richness ranged from 9 at Moore's Towhead (RM 75.3) to 17 at Crater-Willow Island (RM 30.0). Total catch was 70 fish for Crater-Willow Island, which was the lowest since 1990 when only 61 fish were collected. However, the species richness remained comparable to the 18 species collected in 1999 (Appendix B). This is the second year fish were collected at Moore's Towhead. This site is a main channel border with very little structure and could explain the lower species richness is low at this site.

We collected 1865 fish species representing 34 species plus two hybrids (Tables 3 and 4) on the middle Illinois River. From six sites on La Grange Reach (RM 80-158), 655 fish representing 2 species were collected and from eight sites on Peoria Reach (RM 158-231), 1210 fish representing 34 species and two hybrids (common carp x goldfish, bluegill x green sunfish) were collected. Species richness ranged from 9 at Pekin (RM 155.1) to 21 at Chillicothe Island (RM 180.6) in 2000. The low species richness of 9 at Pekin is the lowest observed since 1994 when only 7 species were collected; a high of 20 was recorded in 1962 before F-101-R sampling. Species richness at Sugar Creek Island (RM 95.1) increased to 17 after having a ten year low in 1999 of 10 species. A high of 19 species was recorded for Sugar Creek Island in 1995 (Appendix B).

We collected 867 fish representing 22 species plus two hybrid crosses (common carp x goldfish, bluegill x green sunfish) (Table 5) on the upper waterway in 2000.



Table 3. Numbers of individuals of each fish species collected on La Grange Reach (RM 80-158) of the middle Illinois River (RM 80-231) in 2000.

Species	River Mile and Hours Fished						La Grange	Middle
	86.5	95.1	107	113	148	155.1	Reach	River
	1.00	1.00	1.00	1.00	1.00	1.00	Total	Total
<b>Clupeidae</b>							6.00	14
gizzard shad	35	7	43	39	7	6	137	330
skipjack herring	0	1	0	0	1	1	3	4
threadfin shad	0	0	0	0	1	0	1	6
<b>Cyprinidae</b>								
bighead carp	0	0	0	0	1	2	3	3
bullhead minnow	5	1	0	1	0	0	7	18
common carp	4	20	8	19	6	12	69	180
emerald shiner	17	1	1	0	3	0	22	85
silver chub	4	1	0	0	4	0	9	10
<b>Catostomidae</b>								
bigmouth buffalo	0	1	4	5	0	0	10	63
black buffalo	0	1	0	0	0	0	1	2
river carpsucker	1	0	0	0	1	0	2	26
smallmouth buffalo	6	6	9	2	0	1	24	92
<b>Ictaluridae</b>								
channel catfish	14	13	7	4	9	1	48	64
flathead catfish	3	2	2	1	0	0	8	10
<b>Poeciliidae</b>								
mosquitofish	0	0	1	0	0	0	1	3
<b>Percichthyidae</b>								
white bass	5	6	16	4	5	8	44	77
yellow bass	0	0	0	0	0	4	4	4
<b>Centrarchidae</b>								
black crappie	0	0	1	0	0	0	1	20
bluegill	12	17	9	10	0	0	48	278
green sunfish	1	1	0	0	0	0	2	95
largemouth bass	1	5	5	8	0	0	19	85
warmouth	2	0	1	1	0	0	4	5
white crappie	0	1	0	1	0	0	2	4
<b>Percidae</b>								
sauger	0	0	0	0	2	0	2	15
<b>Sciaenidae</b>								
freshwater drum	57	19	27	18	37	26	184	307
<b>Total Individuals</b>	167	103	134	113	77	61	655	1786
<b>Total species/hybrids</b>	15/0	17/0	14/0	13/0	12/0	9/0	25/0	34/2

Table 4. Numbers of individuals of each fish species collected on Peoria Reach (RM 158-231) of the middle Illinois River (RM 80-231) in 2000.

Species	River Mile and Hours Fished								Peoria	Middle
	163.3 1.00	170.3 1.00	180.6 1.00	193.8 1.00	202.8 1.00	203.3 1.00	207.6 1.00	215.3 1.00	Total 8.00	Total 14.00
<b>Clupeidae</b>										
gizzard shad	5	148	7	4	6	3	10	10	193	330
skipjack herring	0	0	1	0	0	0	0	0	1	4
threadfin shad	0	0	1	0	3	1	0	0	5	6
<b>Cyprinidae</b>										
bullhead minnow	0	0	5	2	2	0	2	0	11	18
common carp	19	19	41	3	3	3	5	18	111	180
common carp X goldfish	0	1	0	0	0	0	0	0	1	1
emerald shiner	0	11	9	3	5	4	26	5	63	85
goldfish	0	21	2	0	7	1	18	0	49	49
grass carp	0	0	0	0	0	0	0	1	1	1
silver chub	1	0	0	0	0	0	0	0	1	10
silverband shiner	0	0	0	1	0	0	1	0	2	3
spottail shiner	0	0	1	0	0	0	0	0	1	1
<b>Catostomidae</b>										
bigmouth buffalo	0	1	1	5	1	20	4	21	53	63
black buffalo	0	1	0	0	0	0	0	0	1	2
golden rehorse	1	0	2	1	3	0	0	0	7	7
river carsucker	11	0	4	0	0	1	7	1	24	26
smallmouth buffalo	10	7	9	7	9	10	4	12	68	92
<b>Ictaluridae</b>										
channel catfish	3	1	8	1	0	0	0	3	16	64
black bullhead	1	0	0	0	0	0	0	0	1	1
flathead catfish	0	0	0	0	1	0	0	1	2	10
<b>Poeciliidae</b>										
mosquitofish	0	0	1	0	0	0	1	0	2	3
<b>Percichthyidae</b>										
white bass	1	1	5	13	7	1	4	1	33	77
<b>Centrarchidae</b>										
black crappie	0	1	2	0	2	6	1	7	19	20
bluegill	60	87	22	12	11	11	21	6	230	278
bluegill X green sunfish	0	1	0	0	0	0	0	0	1	1
green sunfish	49	32	0	0	2	2	8	0	93	95
largemouth bass	2	32	4	3	5	6	6	8	66	85
orangespotted sunfish	4	0	2	0	0	1	4	0	11	11
smallmouth bass	0	0	0	1	0	0	0	0	1	1
warmouth	0	1	0	0	0	0	0	0	1	5
white crappie	0	0	1	0	0	1	0	0	2	4
<b>Percidae</b>										
logperch	0	0	0	0	0	1	3	0	4	4
sauger	0	0	0	1	4	1	7	0	13	15
<b>Sciaenidae</b>										
freshwater drum	36	40	13	11	7	7	8	1	123	307
<b>Total individuals</b>	<b>203</b>	<b>405</b>	<b>141</b>	<b>68</b>	<b>78</b>	<b>80</b>	<b>140</b>	<b>95</b>	<b>1210</b>	<b>1859</b>
<b>Total species/hybrids</b>	<b>14/0</b>	<b>15/2</b>	<b>21/0</b>	<b>15/0</b>	<b>17/0</b>	<b>18/0</b>	<b>19/0</b>	<b>14/0</b>	<b>32/2</b>	<b>34/2</b>

Table 5. Numbers of individuals of each fish species collected on Starved Rock, Marseilles, and Dresden Reaches of the upper Illinois Waterway (RM 231-280) in 2000.

Species	River Mile and Hours Fished							Upper
	Starved Rock		Marseilles			Dresden		Waterway
	240.8	241.5	248	249.6	260.6	277.3	279.8	Total
	1.00	1.00	1.00	0.75	1.00	1.00	1.00	6.75
Clupeidae								
gizzard shad	10	25	34	5	7	18	3	102
skipjack herring	1	0	0	0	0	0	0	1
threadfin shad	0	0	0	0	0	1	2	3
Cyprinidae								0
bluntnose minnow	0	0	9	2	0	0	0	11
bullhead minnow	7	9	9	3	3	0	16	47
common carp	2	0	3	0	4	5	11	25
common carp X goldfish	0	0	1	0	0	0	1	2
emerald shiner	98	72	5	13	16	16	1	221
red shiner	4	0	8	8	31	0	0	51
silverband shiner	9	36	0	0	2	0	0	47
Catostomidae								0
golden redhorse	0	0	1	0	0	0	0	1
river carpsucker	1	0	1	0	1	0	0	3
smallmouth buffalo	10	0	11	2	0	2	0	25
Ictaluridae								0
channel catfish	2	0	0	0	2	3	3	10
Percichthyidae								0
white bass	0	1	0	0	0	0	0	1
Centrarchidae								0
black crappie	0	0	1	2	0	0	0	3
bluegill	16	3	17	2	9	84	30	161
bluegill X green sunfish	0	0	5	0	0	18	2	25
green sunfish	4	6	8	0	11	17	29	75
largemouth bass	1	3	10	0	1	14	10	39
orangespotted sunfish	0	1	1	0	0	0	0	2
rock bass	0	0	0	0	0	3	0	3
smallmouth bass	0	0	0	0	0	1	3	4
Sciaenidae								0
freshwater drum	0	1	1	1	1	0	1	5
Total individuals	165	157	125	38	88	182	112	867
Total species/hybrids	13/0	11/0	15/2	9/0	12/0	11/1	11/1	22/2

Species richness ranged from 9 at Johnson Island (RM 240.8) to 17 at Ballard's Island (RM 248.0). The low species richness of 9 observed at Johnson Island is down compared to 13 species collected in 1999. The lowest species richness observed at Johnson Island was 5 in 1978 and the highest was 17 in 1995. The lowest species richness observed at Ballard's Island was 6 in 1964 and the highest was 20 in 1995. Total catch for the upper river was below the catches for the past three years at 867.

#### **Catch Rates in Numbers of Individuals Collected per Hour by Reach.**

In the following data summary, discussion is restricted either to species that each separately accounted for over 10% of the total catch or to species that were of special significance.

**Alton (lower river).** The 95% lists (species were added to the list until 95% of the total catch rate in numbers was obtained) for Alton, La Grange, and Peoria Reaches were similar, although total catch in numbers per hour ( $CPUE_N$ ) varied among reaches. Eleven species accounted for 95.3% of the total catch in Alton Reach (Tables 6 and 7) and overall,  $CPUE_N$  was 85.17 in 2000. This is well below catch rates observed in previous years, however, the lowest  $CPUE_N$  of 75.05 occurred in 1992 and a high  $CPUE_N$  of 166.60 occurred in 1997 (Lerczak et al. 1994, 1995, 1996; Koel et al. 1997, 1998; Koel and Sparks, 1999). The highest  $CPUE_N$  for an individual species was 21.17 for bluegill, which made up 24.9% of the total fish collected in this reach. Freshwater drum ranked second with a  $CPUE_N$  of 11.83 (13.9% of the total).

Table 6. Numbers of individuals of each fish species collected per hour of electrofishing (CPUE<sub>N</sub>) Reach 26 of the Mississippi River (Brickhouse Slough) and on six reaches of the Illinois River Waterway in 2000.

Species	Reach and Hours Fished							Overall CPUE <sub>N</sub> 27.75
	Reach 26 1.00	Alton 6.00	La Grange 6.00	Peoria 8.00	Starved Rock 2.00	Marseilles 2.75	Dresden 2.00	
<b>Clupeidae</b>								
gizzard shad	45.00	9.50	22.83	24.12	17.50	16.73	10.50	19.24
skipjack herring		0.17	0.50	0.12	0.50			0.22
threadfin shad		0.33	0.17	0.62			1.50	0.40
<b>Cyprinidae</b>								
bighead carp			0.50					0.11
bluntnose minnow					1.50	4.00		0.04
bullhead minnow	2.00	0.33	1.17	1.37	8.00	5.45	8.00	2.49
common carp	6.00	6.50	11.50	13.87	1.00	2.54	8.00	9.01
common carp X goldfish				0.12		0.36	0.50	0.07
emerald shiner	6.00	9.50	3.67	7.87	85.00	12.36	8.50	13.29
goldfish				6.12				1.77
grass carp				0.12				0.04
red shiner	2.00	0.17			2.00	17.09		1.96
river shiner	2.00	0.17						0.11
sand shiner		0.17						0.04
silver chub			1.50	0.12				0.36
silverband shiner				0.25	22.50	0.73		4.20
spottail shiner				0.12				0.04
<b>Catostomidae</b>								
bigmouth buffalo		4.83	1.67	6.62				3.32
black buffalo			0.17	0.12				0.07
golden redbone				0.87		0.36		0.29
river carpsucker	3.00	0.67	0.33	3.00	0.50	0.73		1.30
smallmouth buffalo	3.00	1.50	4.00	8.50	5.00	4.73	1.00	4.65
<b>Ictaluridae</b>								
channel catfish	5.00	9.17	8.00	2.00	1.00	0.73	3.00	4.83
black bullhead				0.12				0.04
flathead catfish		0.17	1.33	0.25				0.40
tadpole madtom		0.17						0.04
<b>Poeciliidae</b>								
mosquitofish			0.17	0.25				0.11
<b>Percichthyidae</b>								
white bass	2.00	3.17	7.33	4.12	0.50			3.57
yellow bass			0.67					0.14
<b>Centrarchidae</b>								
black crappie		1.17	0.17	2.37		1.09		1.08
bluegill	29.00	21.17	8.00	28.75	9.50	10.18	57.00	21.44
bluegill X green sunfish				0.12		1.81	10.00	0.94
green sunfish	1.00	0.17	0.33	11.62	5.00	6.91	23.00	6.20
largemouth bass		2.83	3.17	8.25	2.00	4.00	12.00	5.08
orangespotted sunfish	31.00	0.17		1.37	0.50	0.36		1.64
rock bass							1.50	0.11
smallmouth bass		0.17		0.12			2.00	0.25
warmouth		0.67	0.67	0.12				0.32
white crappie		0.33	0.33	0.25				0.22
<b>Percidae</b>								
logperch				0.50				0.14
mud darter		0.17						0.04
sauger			0.33	1.62				0.54
<b>Sciaenidae</b>								
freshwater drum	37.00	11.83	30.67	15.37	0.50	1.09	0.50	15.14
<b>Total Number per hour</b>	<b>174.00</b>	<b>85.17</b>	<b>109.17</b>	<b>151.25</b>	<b>161.00</b>	<b>91.27</b>	<b>147.00</b>	<b>123.14</b>
<b>Number of species/hybrids</b>	<b>14/0</b>	<b>26/0</b>	<b>25/0</b>	<b>32/2</b>	<b>17/0</b>	<b>17/2</b>	<b>12/2</b>	<b>41/2</b>

Table 7. Species ranked by relative abundance in number of fish collected per hour for 2000. Species were added to the list in descending order of abundance until 95% of the total catch for that reach was obtained. Percentages are in parentheses.

Species	Rankings by Reach					
	Alton	La Grange	Peoria	Starved Rock	Marseilles	Dresden
Clupeidae						
gizzard shad	3 (11.2)	2 (20.9)	2 (16.0)	3 (10.8)	2 (18.3)	4 (7.2)
Cyprinidae						
bluntnose minnow					8 (4.4)	
bullhead minnow				5 (5.0)	6 (6.0)	7 (5.5)
common carp	6 (7.6)	3 (10.5)	4 (9.2)		10 (2.8)	7 (5.5)
emerald shiner	3 (11.2)	8 (3.4)	8 (5.2)	1 (52.2)	3 (13.5)	6 (5.8)
goldfish			10 (4.0)			
silver chub		11 (1.4)				
silverband shiner				2 (13.9)	1 (18.7)	
Catostomidae						
bigmouth buffalo	7 (5.7)	10 (1.5)	9 (4.4)			
river carpsucker			12 (2.6)			
smallmouth buffalo	10 (1.8)	7 (3.7)	6 (5.7)	6 (3.1)	7 (5.2)	
Ictaluridae						
channel catfish	5 (10.8)	4 (7.3)	14 (1.3)			9 (2.0)
flathead catfish		12 (1.2)				
Percichthyidae						
white bass	8 (3.7)	6 (6.7)	11 (2.7)			
Centrarchidae						
black crappie	11 (1.4)		13 (1.6)			
bluegill	1 (24.9)	4 (7.3)	1 (19.0)	4 (5.9)	4 (11.2)	1 (39.0)
bluegill x green sunfish					11 (2.0)	5 (6.8)
green sunfish			5 (7.7)	6 (3.1)	5 (7.6)	2 (15.7)
largemouth bass	9 (3.3)	9 (2.9)	7 (5.5)		8 (4.4)	3 (8.2)
Percidae						
sauger			15 (1.1)			
Sciaenidae						
freshwater drum	2 (13.9)	1 (28.1)	3 (10.2)			
Number of fishes accounting for 95 %	11	12	15	7	11	9

**La Grange (middle river).** Twelve species accounted for 94.96% of the total catch in La Grange Reach (Tables 6 and 7). Overall, CPUE<sub>N</sub> was 109.17 and was similar to the CPUE<sub>N</sub> of 110.61 observed in 1999, but much lower than catch rates for 1995-1997 (165.27-314.91). A low CPUE<sub>N</sub> of 73.20 occurred in 1992 while 1996 had the highest CPUE<sub>N</sub> (314.91). In 2000, the highest CPUE<sub>N</sub> for any species was 30.67 for freshwater drum, which made up 28.1% of the total fish collected in this reach. This is the second highest catch rate for freshwater drum observed during F-101-R sampling. The lowest CPUE<sub>N</sub> for freshwater drum in La Grange Reach occurred during the first eleven segments of project F-101-R at 3.45 in 1990; high CPUE<sub>N</sub> of freshwater drum was 33.09 in 1996. Gizzard shad ranked second with a CPUE<sub>N</sub> of 22.83 (20.9% of the total). This is the first time gizzard shad have not ranked first since 1994 when they ranked fourth with a CPUE<sub>N</sub> of 10.71. Common carp ranked third in 2000 with a CPUE<sub>N</sub> of 11.50. Carp catch rates have ranked in the top three in La Grange Reach during every segment of project F-101-R except 1991.

**Peoria (middle river).** Fifteen species accounted for 96.2% of the total catch in Peoria Reach (Tables 6 and 7). Overall, CPUE<sub>N</sub> was 151.25. This is the lowest catch rate since 1994 when CPUE<sub>N</sub> was 130.94. The highest CPUE<sub>N</sub> for any species was 28.75 for bluegill, which made up 19.0% of the total fish collected in this reach. Bluegill have been one of the top two species since 1990. Gizzard shad ranked second in 2000 with a CPUE<sub>N</sub> of 24.12 (16.0% of the total), and freshwater drum ranked third with a CPUE<sub>N</sub> of 15.37 (10.2% of total).

**Starved Rock (upper river).** Seven species accounted for 94.7% of the total catch in Starved Rock Reach (Tables 6 and 7). Overall, CPUE<sub>N</sub> was 161.00 in 2000. Emerald shiner, silverband shiner, and gizzard shad were the top three ranked species composing 76.9% of the catch. The highest CPUE<sub>N</sub> for any species was 85.00 for emerald shiners comprising 52.2% of the total catch. Silverband shiner ranked second with a CPUE<sub>N</sub> of 22.50 (13.9% of total). This is the second consecutive year that silverband shiner have been documented on the Starved Rock Reach during the eleven segments of project F-101-R. Gizzard shad ranked third with a CPUE<sub>N</sub> of 16.73 (10.8% of total) and bluegill ranked fourth with a CPUE<sub>N</sub> of 9.50 (5.9% of total).

**Marseilles (upper river).** Eleven species accounted for 96.1% of the total catch in Marseilles Reach (Tables 6 and 7) and overall CPUE<sub>N</sub> was 91.27 in 2000. The highest CPUE<sub>N</sub> for any species was 17.09 for red shiner, consisting of 18.7% of the total fish collected at this reach. This is the first time red shiners have been the top fish collected for the Marseilles Reach, although catch rates for red shiner were higher in 1985, 1995, and 1997 (17.57, 42.40, and 52.00). Gizzard shad ranked second with a CPUE<sub>N</sub> of 16.73 (18.3% of total). This is the lowest catch rate for gizzard shad since 1994. Emerald shiner ranked third with a CPUE<sub>N</sub> of 12.36 (13.5% of total) and bluegill ranked fourth with a CPUE<sub>N</sub> of 10.18 (11.2% of total). As with the Starved Rock Reach, this was the second documented occurrence of silverband shiner on Marseilles Reach during the eleven segments of project F-101-R.



**Dresden (Des Plaines River).** Nine species accounted for 95.7% of the total catch in Dresden Reach (Tables 6 and 7). Overall, CPUE<sub>N</sub> was 147.00 in 2000. This catch rate is up from the CPUE<sub>N</sub> of 121.00 observed in 1999, and 117.14 observed in 1998, but remains lower than the CPUE<sub>N</sub> of 600.00 observed in 1995 (Lerczak et al. 1994, 1995, 1996; Koel et al. 1998). In 2000, the highest CPUE<sub>N</sub> for any species was 57.00 for bluegill, which made up 39.0% of the fish collected. This is also the second highest catch rate for bluegill since the beginning of project F-101-R. The highest catch rate occurred in 1995 with a CPUE<sub>N</sub> of 83.00. Green sunfish ranked second with a CPUE<sub>N</sub> of 23.00 (15.7% of total). Bluegill and green sunfish remain among the most abundant species in this reach. Largemouth bass ranked third with a CPUE<sub>N</sub> of 12.00, making up 8.2% of the catch. This is also the highest catch rate for largemouth bass on the Dresden Reach since the beginning of project F-101-R. Since 1997, bluntnose minnow has been one of the most abundant species in the Dresden Reach. However, bluntnose minnows were not collected in 2000.

**Catch Rates in Weights (pounds) Collected per Hour by Reach.**

The following data summary, discussion is restricted to species that individually accounted for over 10% of the total catch and to species that were of special significance. A 95% list was produced for each reach, in which species were ranked by relative abundance (pounds per hour) and added to the list until 95% of the total catch rate in weight for that reach was obtained. Overall, these data indicate that in terms of biomass the fish communities of the Illinois River continue to be dominated by common

Table 8. Pounds of each fish species collected per hour of electrofishing (CPU) on Reach 26 of the Mississippi River (Brickhouse Slough) and on six reaches of the Illinois River Waterway in 2000. Pounds per hour less than 0.01 but greater than zero are indicated by 0.00.

Species	Reach and Hours Fished							Overall CPUE
	Reach 26 1.00	Alton 6.00	La Grange 6.00	Peoria 8.00	Starved Rock 2.00	Marselles 2.75	Dresden 2.00	
<b>Clupeidae</b>								
gizzard shad	2.72	0.65	0.53	1.31	1.09	3.07	1.83	1.25
skipjack herring		0.02	0.02	0.02	0.07			0.02
threadfin shad		0.00	0.00	0.01			0.01	0.01
<b>Cyprinidae</b>								
bighead carp			0.08					0.02
bluntnose minnow						0.01		0.00
bullhead minnow	0.01	0.00	0.00	0.00	0.01	0.01	0.03	0.01
common carp	21.53	16.24	24.05	26.72	1.97	6.06	18.09	19.24
common carp X goldfish				0.01		0.16		0.02
emerald shiner	0.02	0.07	0.01	0.02	0.38	0.07	0.04	0.05
goldfish				0.25				0.07
grass carp								
red shiner	0.01	0.00			0.00	0.05		0.01
river shiner	0.00	0.00						0.00
sand shiner		0.00						0.00
silver chub			0.01	0.00				0.00
silverband shiner				0.00	0.03	0.00		0.00
spottail shiner				0.00				0.00
<b>Catostomidae</b>								
bigmouth buffalo		15.74	4.13	19.46				9.91
black buffalo			0.48	0.01				0.11
golden redhorse				0.85		0.28		0.27
river carpsucker	0.05	0.78	0.20	3.51	0.06	1.13		1.34
smallmouth buffalo	1.65	1.62	4.01	10.14	4.40	4.99	2.99	5.23
<b>Ictaluridae</b>								
channel catfish	30.82	9.47	8.30	5.53	1.25	0.65	6.40	6.12
black bullhead				0.06				0.02
flathead catfish		0.29	2.39	0.10				0.61
tadpole madtom		0.00						0.00
<b>Poeciliidae</b>								
mosquitofish				0.00				0.00
<b>Percichthyidae</b>								
white bass	0.15	1.43	1.28	1.59	0.09			1.06
yellow bass			0.06					0.01
<b>Centrarchidae</b>								
black crappie		0.44	0.08	0.61		0.53		0.34
bluegill	1.02	0.43	0.36	2.13	0.48	0.27	4.01	1.17
bluegill X green sunfish				0.04		0.03	0.43	0.04
green sunfish	0.02	0.00	0.00	0.74	0.09	0.17	1.13	0.32
largemouth bass		3.31	3.41	5.43	0.19	2.00	3.20	3.46
orangespotted sunfish	0.25	0.00		0.02	0.01	0.00		0.02
rock bass							0.25	0.02
smallmouth bass		0.09		0.00	0.09		0.38	0.05
warmouth		0.00	0.01	0.02			0.14	0.01
white crappie		0.19	0.15	0.04				0.08
<b>Percidae</b>								
logperch				0.47				0.00
mud darter		0.00						0.00
sauger			0.04	0.11				0.04
<b>Sciaenidae</b>								
freshwater drum	0.48	0.71	2.30	4.29	0.06	0.28	1.61	2.05
<b>Total pounds per hour</b>	<b>29.85</b>	<b>51.45</b>	<b>51.91</b>	<b>83.04</b>	<b>10.31</b>	<b>19.76</b>	<b>40.44</b>	<b>52.98</b>

Table 9. Species ranked by relative abundance in pounds of fish collected per hour for 2000. Species were added to the list in descending order of abundance until 95% of the total catch for that reach was obtained. Percentages are in parentheses.

Species	Rankings by Reach					
	Alton	La Grange	Peoria	Starved Rock	Marseilles	Dresden
Ciueidae						
gizzard shad				4 (10.6)	3 (15.5)	
Cyprinidae						
common carp	1 (31.6)	1 (46.3)	1 (32.2)	2 (19.1)	1 (30.7)	1 (44.7)
emerald shiner				6 (3.7)		
Catostomidae						
bigmouth buffalo	2 (30.6)	3 (8.0)	2 (23.4)			
black buffalo						4 (8.2)
golden redbreast					7 (2.4)	
river carpsucker	7 (1.5)		7 (4.2)		5 (5.7)	
smallmouth buffalo	5 (3.1)	4 (7.7)	3 (12.2)	1 (42.7)	2 (25.3)	5 (7.4)
Ictaluridae						
channel catfish	3 (18.4)	2 (16.0)	4 (6.7)	3 (12.1)	6 (3.3)	2 (15.8)
flathead catfish		6 (4.6)				
Percichthyidae						
white bass	6 (2.8)	8 (2.5)	9 (1.9)			
Centrarchidae						
black crappie					7 (2.7)	
bluegill			8 (2.6)	5 (4.7)		3 (9.9)
largemouth bass	4 (6.4)	5 (6.6)	5 (6.5)	7 (1.8)	4 (10.1)	4 (7.9)
Sciaenidae						
freshwater drum		7 (4.4)	6 (5.2)			
Number of fishes accounting for 95%	7	8	9	7	7	5

carp, bigmouth buffalo, and channel catfish in the lower and middle river, and common carp, smallmouth buffalo, gizzard shad, and channel catfish in the upper waterway.

**Alton (lower river).** Seven species accounted for 94.4% of the total catch by weight in pounds per hour ( $CPUE_W$ ) in Alton Reach (Tables 8 and 9) in 2000. Overall  $CPUE_W$  was 51.45. This weight is higher than the catch weights for 1998 (48.31) and 1999 (47.99). Common carp  $CPUE_W$  was again the highest at 16.24 (31.6% of total); compared to a  $CPUE_W$  of 19.52 in 1999. Bigmouth buffalo ranked second for the third straight year with a  $CPUE_W$  of 15.74 (30.6% of total) and channel catfish ranked third for the fourth straight year with a  $CPUE_W$  of 9.47 (18.4% of total). In 1998 the  $CPUE_W$  for bigmouth buffalo was 10.24 and channel catfish was 8.87 (Koel and Sparks, 1999) and in 1999 the  $CPUE_W$  for bigmouth buffalo was 7.41 and 5.98 for channel catfish (Arnold, et al. 2000). Largemouth bass  $CPUE_W$  ranked fourth at 3.31 (6.4% of total), which is slightly higher than the catch weight from 1999 (2.91).

**La Grange (middle river).** Eight species accounted for 96.1% of the total catch by weight in La Grange Reach (Tables 8 and 9). Overall,  $CPUE_W$  was 51.91 and is the lowest catch in weight obtained since 1992 when it was 50.73 (Lerczak et al. 1993). Common carp was once again the only species that ranked over 10% of the total catch in weight on La Grange Reach with a  $CPUE_W$  of 24.05 (46.3% of total), however this is the lowest  $CPUE_W$  for common carp since 1992 when a catch weight of 22.80 was recorded (Lerczak et al. 1993). Channel catfish ranked second with a  $CPUE_W$  of 8.30 (16.0% of total) and bigmouth buffalo ranked third at 4.13

(8.0% of total). Common carp, bigmouth buffalo, and channel catfish also ranked in the top three in 1995, 1996, 1997, and 1998 (Koel et al. 1997, and 1998; Koel and Sparks, 1999). CPUE<sub>W</sub> for largemouth bass on the La Grange Reach prior to 1996 varied but typically had been about 5 pounds per hour. CPUE<sub>W</sub> for largemouth bass has been below 2.00 for the last four years (1996, 1997, 1998, 1999) of project F-101-R (Koel et al. 1997, 1998; Koel and Sparks, 1999; Arnold et al. 2000). However, in 2000 largemouth bass catch in weight was higher than in recent years with a CPUE<sub>W</sub> of 3.41 (6.6% of total), ranking fifth among fishes for catch weight

**Peoria (middle river).** Nine species accounted for 94.9% of the total catch by weight in Peoria Reach (Tables 8 and 9). Overall, CPUE<sub>W</sub> was 83.04. This is the highest catch weight recorded for all reaches of the Illinois River in 2000 and the third highest observed from Peoria Reach during project F-101-R sampling. The highest CPUE<sub>W</sub> was 114.17 in 1997 (Lerczak et al. 1994, 1995, and 1996; Koel et al. 1997 and 1998; Koel and Sparks, 1999). The highest species specific CPUE<sub>W</sub> was 26.72 for common carp, which made up 32.2% of the total catch in weight for this reach in 2000. Bigmouth buffalo ranked second with a CPUE<sub>W</sub> of 19.46 (23.4% of total) and smallmouth buffalo ranked third with a CPUE<sub>W</sub> of 10.14 (12.2% of total). Common carp, bigmouth buffalo, and smallmouth buffalo have been the top three species since 1994. Channel catfish ranked fourth with a CPUE<sub>W</sub> of 5.53 (6.7% of total).

**Starved Rock (upper river).** Seven species accounted for 94.7% of the total catch by weight in Starved Rock Reach (Tables 8 and 9). Overall, CPUE<sub>W</sub> was 10.31 in 2000. The highest CPUE<sub>W</sub> for any species was 4.4 for smallmouth buffalo, which made

up 42.7% of the total. This is the lowest catch in weight for smallmouth buffalo since 1992 when a CPUE<sub>W</sub> of 2.13 was observed (Lerczak et al. 1993). Common carp ranked second with a CPUE<sub>W</sub> of 1.97 (19.1% of total) and channel catfish ranked third with a CPUE<sub>W</sub> of 1.25 (12.1% of total).

**Marseilles (upper river).** Seven species accounted for 95.7% of the total catch by weight in Marseilles Reach (Tables 8 and 9). Overall, CPUE<sub>W</sub> was 19.76 and is similar to catch weights obtained from this reach during previous years (Lerczak et al. 1994, 1995, and 1996; Koel et al. 1997 and 1998; Koel and Sparks, 1999; Arnold et al. 2000). Common carp CPUE<sub>W</sub> was highest at 6.06 (30.07% of total). Smallmouth buffalo ranked second with a CPUE<sub>W</sub> of 4.99 (25.3% of total) and gizzard shad ranked third with a CPUE<sub>W</sub> of 3.07 (15.5% of total). This is the highest gizzard shad CPUE<sub>W</sub> has been since 1995 when it was 3.37 (Lerczak et al. 1996). Largemouth bass ranked fourth with a CPUE<sub>W</sub> of 2.00 (10.1% of total) and remains comparable to the CPUE<sub>W</sub> observed since 1995 (Lerczak et al. 1996, Koel et al. 1998; Koel and Sparks, 1999).

**Dresden (Des Plaines River).** Five species accounted for 94.2% of the total catch by weight in Dresden Reach (Tables 8 and 9). Overall, CPUE<sub>W</sub> was 40.44 and was the highest catch weight obtained from this reach for all years of project F-101-R sampling (Lerczak et al. 1994, 1995, and 1996; Koel et al. 1997 and 1998; Koel and Sparks, 1999; Arnold et al. 2000). The previous high overall CPUE<sub>W</sub> observed from Dresden Reach was 37.24 in 1994; low CPUE<sub>W</sub> was 20.78 in 1992. The highest CPUE<sub>W</sub> for any species in 2000 was 18.09 for common carp, which made up 44.7% of the total. This is the third highest CPUE<sub>W</sub> recorded for common carp on the Dresden

Reach since F-101-R was initiated; while 1994 was the highest CPUE<sub>W</sub> for common carp at 20.97 (Lerczak et al. 1994, 1995, and 1996; Koel et al. 1997 and 1998; Koel and Sparks, 1999; Arnold et al. 2000). Channel catfish ranked second with a CPUE<sub>W</sub> of 6.40 (15.8% of total) and largemouth bass ranked third with a CPUE<sub>W</sub> of 3.20 (9.9% of total).

### **Fish Health Determined by External Visual Inspection.**

Sediment-contact (benthic) fishes (e.g., common carp) had higher incidences of externally visible abnormalities (e.g., sores, eroded fins) than water-column (pelagic) fishes (e.g., bluegill) (Figure 2). A total of 22 fishes had abnormalities, of which 14 (63.6%) were sediment-contact fishes. There was a longitudinal (upstream-downstream) gradient in the percentage of fishes with abnormalities, with the highest incidences in the upper waterway. Four of the 71 benthic fishes (5.6%) collected in the upper waterway had external abnormalities. Occurrence of benthic fishes with abnormalities in the middle waterway was 1.1% and 0.5% in the lower waterway. Overall, percent benthic fishes with abnormalities were lower than abnormalities recorded during previous years of project F-101-R (Lerczak et al. 1994, 1995, and 1996; Koel et al. 1997 and 1998; Arnold et al. 2000). The incidence of water-column fishes with abnormalities was similar among the upper, middle, and lower waterways. Pelagic fishes with abnormalities in the upper and middle waterway comprised 0.4%, while the lower waterway comprised 0.3%.

## CONCLUSIONS

Samples collected by electrofishing on the Illinois River Waterway during September and October 2000 provided evidence of continued increase in species richness, catch rates, and a decrease in abnormalities. Ninety-five species and six hybrids have been collected since William Starrett began this survey in 1957. Seventy-two species and five hybrids have been documented by project F-101-R sampling (1989-present); 42 species and two hybrids from nine families were collected during 27.75 h of sampling in 2000. One species, the bighead carp, was collected for the first time during project F-101-R sampling along the waterway; it was taken at two sites on the La Grange Reach (middle river), Pekin and Turkey Island. Peoria Reach continues to produce the highest number of species (32) along the waterway. This could be due, in part, to a greater number of sites in this reach, varied site types (backwater and side channel), and its position along the waterway, which includes the Great Bend (above Hennepin) of the Illinois River. This reach represents a transition from a river which is constricted, lacks contiguous backwaters, and is high in gradient (upper river) to a large river floodplain system with low gradient (lower river) (Sparks 1977).

The total weight of fishes collected was also highest in Peoria Reach, where  $CPUE_w$  was 83.04 (Table 8). Species accounting for this high catch in weight were common carp, bigmouth buffalo, smallmouth buffalo, channel catfish, and largemouth bass. However, catch weight was also relatively high in La Grange and Alton Reaches. Of the 1,417 pounds of fish collected during our 2000 survey, 1,284 pounds (90.6%) were collected from the lower and middle river, and only 133 pounds (9.4%) were collected from the upper river. These catches reflect the high productivity



of the lower and middle Illinois River floodplain ecosystem.

Sportfishes were collected throughout the waterway in 2000, although catch rate in number and weight varied among reaches. For channel catfish, we collected more individuals and pounds per hour in the Alton Reach (lower river) than in the middle or upper river reaches (Table 6 and 8). White bass, however, were most abundant and provided the highest CPUE<sub>W</sub> in the middle river; CPUE<sub>N</sub> was highest in La Grange Reach while CPUE<sub>W</sub> was highest in Peoria Reach. Centrarchids such as black crappie were most abundant in the middle river reaches and provided the highest CPUE<sub>W</sub> in Peoria Reach. Bluegill CPUE<sub>N</sub> and CPUE<sub>W</sub> were greatest in Dresden Reach in the upper waterway. Largemouth bass CPUE<sub>N</sub> was highest in Dresden Reach as well, however, CPUE<sub>W</sub> was highest in Peoria Reach of the middle river. As in previous years of project F-101-R sampling, we collected only low numbers of smallmouth bass and sauger from the Illinois River Waterway, probably due to the locations of our sites.

A total of 22 fishes had externally visible abnormalities, and of these, 14 (63.6%) were sediment-contact fishes. The highest incidence was in the upper waterway where 0.8% of benthic fishes had abnormalities. In the middle waterway, only 0.7% of fishes showed abnormalities and 0.4% of benthic fishes showed abnormalities in the lower river. This suggests sediments of the upper waterway may still contain stressful factors for fishes.

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APPENDIX A. Fish species collected during Long-term Resource Monitoring of the Illinois Waterway, 1957-1999. Common names marked by an asterisk indicate species that were collected from 1989 through 1997 during federal aid project F-101-R. Common and scientific names are from Robins et al. (1991). Habitat associations are based on behavioral descriptions from Pflieger (1975) and communications with INHS fisheries biologists.

Family Name	Common Name	Scientific Name	Habitat Association (B = benthic, blank = pelagic)
Lepisosteidae	longnose gar*	<u>Lepisosteus osseus</u>	
	shortnose gar*	<u>Lepisosteus platostomus</u>	
	spotted gar*	<u>Lepisosteus oculatus</u>	
Amiidae	bowfin*	<u>Amia calva</u>	
Hiodontidae	goldeye*	<u>Hiodon alosoides</u>	
	mooneye*	<u>Hiodon tergisus</u>	
Anguillidae	American eel	<u>Anguilla rostrata</u>	
Clupeidae	gizzard shad*	<u>Dorosoma cepedianum</u>	
	skipjack herring*	<u>Alosa chrysochloris</u>	
	threadfin shad*	<u>Dorosoma petenense</u>	
Cyprinidae	bigmouth shiner*	<u>Notropis dorsalis</u>	B
	bluntnose minnow*	<u>Pimephales notatus</u>	
	bullhead minnow*	<u>Pimephales vigilax</u>	
	common carp*	<u>Cyprinus carpio</u>	B
	common carp x goldfish*	<u>Cyprinus carpio x</u> <u>Carassius auratus</u>	B
	central stoneroller*	<u>Campostoma anomalum</u>	B
	common shiner	<u>Luxilus cornutus</u>	
	creek chub	<u>Semotilus atromaculatus</u>	
	emerald shiner*	<u>Notropis atherinoides</u>	
	fathead minnow*	<u>Pimephales promelas</u>	
	ghost shiner	<u>Notropis buchmanii</u>	
	golden shiner*	<u>Notemigonus crysoleucas</u>	
	goldfish*	<u>Carassius auratus</u>	B
	grass carp*	<u>Ctenopharyngodon idella</u>	
	hornyhead chub	<u>Nocomis biguttatus</u>	
	Mississippi silvery minnow	<u>Hybognathus nuchalis</u>	B
	pugnose minnow	<u>Opsopoeodus emiliae</u>	
	red shiner*	<u>Cyprinella lutrensis</u>	
	redfin shiner	<u>Lythrurus umbratilis</u>	
	ribbon shiner	<u>Lythrurus fumeus</u>	
	river shiner*	<u>Notropis blennioides</u>	
	sand shiner*	<u>Notropis stramineus</u>	
	spotfin shiner	<u>Cyprinella spiloptera</u>	
	silver chub*	<u>Macrhybopsis storeriana</u>	B
	silverband shiner*	<u>Notropis shumardi</u>	
	silverjaw minnow	<u>Notropis buccatus</u>	B
spottail shiner*	<u>Notropis hudsonius</u>		
steelcolor shiner	<u>Cyprinella whipplei</u>		
striped shiner	<u>Luxilus chrysocephalus</u>		
suckermouth minnow*	<u>Phenacobius mirabilis</u>	B	
Catostomidae	bigmouth buffalo*	<u>Ictiobus cyprinellus</u>	B
	black buffalo*	<u>Ictiobus niger</u>	B
	black redbhorse	<u>Moxostoma duquesnei</u>	B
	golden redbhorse*	<u>Moxostoma erythrum</u>	B
	highfin carpsucker*	<u>Carpodes velifer</u>	B
	northern hog sucker*	<u>Hypentelium nigricans</u>	B
	quillback*	<u>Carpodes cyprinus</u>	B
	river carpsucker*	<u>Carpodes carpio</u>	B
	river redbhorse*	<u>Moxostoma carinatum</u>	B
	shorthead redbhorse*	<u>Moxostoma macrolepidotum</u>	B
	silver redbhorse	<u>Moxostoma anisurum</u>	B
	smallmouth buffalo*	<u>Ictiobus bubalus</u>	B
	white sucker*	<u>Catostomus commersoni</u>	B

Appendix A. Continued.

Family Name	Common Name	Scientific Name	Habitat Association (B = benthic, blank = pelagic)	
Ictaluridae	black bullhead*	<u>Ameiurus melas</u>	B	
	blue catfish	<u>Ictalurus furcatus</u>	B	
	brown bullhead*	<u>Ameiurus nebulosus</u>	B	
	channel catfish*	<u>Ictalurus punctatus</u>	B	
	flathead catfish*	<u>Pylodictis olivaris</u>	B	
	freckled madtom*	<u>Noturus nocturnus</u>	B	
	tadpole madtom*	<u>Noturus gyrinus</u>	B	
	white catfish	<u>Ameiurus catus</u>	B	
	yellow bullhead*	<u>Ameiurus natalis</u>	B	
Esocidae	grass pickerel*	<u>Esox americanus vermiculatus</u>		
	northern pike	<u>Esox lucius</u>		
Salmonidae	rainbow trout	<u>Oncorhynchus mykiss</u>		
Percopsidae	trout-perch	<u>Percopsis omiscomaycus</u>	B	
Cyprinodontidae	blackstripe topminnow*	<u>Fundulus notatus</u>		
Poeciliidae	western mosquitofish*	<u>Gambusia affinis</u>		
Atherinidae	brook silverside*	<u>Labidesthes sicculus</u>		
Percichthyidae	striped bass	<u>Morone saxatilis</u>		
	striped bass x white bass*	<u>Morone saxatilis</u> x <u>M. chrysops</u>		
	white bass*	<u>Morone chrysops</u>		
	white perch*	<u>Morone americana</u>		
	yellow bass*	<u>Morone mississippiensis</u>		
Centrarchidae	black crappie*	<u>Pomoxis nigromaculatus</u>		
	bluegill*	<u>Lepomis macrochirus</u>		
	green sunfish*	<u>Lepomis cyanellus</u>		
	green sunfish x bluegill*	<u>Lepomis cyanellus</u> x <u>L. macrochirus</u>		
	green sunfish x orangespotted sunfish*	<u>Lepomis cyanellus</u> x <u>L. humilis</u>		
	green sunfish x pumpkinseed	<u>Lepomis cyanellus</u> x <u>L. gibbosus</u>		
	largemouth bass*	<u>Micropterus salmoides</u>		
	longear sunfish*	<u>Lepomis megalotis</u>		
	orangespotted sunfish*	<u>Lepomis humilis</u>		
	orangespotted sunfish x bluegill*	<u>Lepomis humilis</u> x <u>L. macrochirus</u>		
	pumpkinseed*	<u>Lepomis gibbosus</u>		
	redeer sunfish*	<u>Lepomis microlophus</u>		
	rock bass*	<u>Ambloplites rupestris</u>		
	smallmouth bass*	<u>Micropterus dolomieu</u>		
	spotted sunfish*	<u>Lepomis punctatus</u>		
	warmouth*	<u>Lepomis gulosus</u>		
	white crappie*	<u>Pomoxis annularis</u>		
	Percidae	bluntnose darter	<u>Etheostoma chlorosomum</u>	B
		johnny darter	<u>Etheostoma nigrum</u>	B
logperch*		<u>Percina caprodes</u>	B	
mud darter*		<u>Etheostoma asprigene</u>	B	
sauger*		<u>Stizostedion canadense</u>		
slenderhead darter*		<u>Percina phoxocephala</u>	B	
walleye*		<u>Stizostedion vitreum</u>		
yellow perch*		<u>Perca flavescens</u>		
Sciaenidae	freshwater drum*	<u>Aplodinotus grunniens</u>	B	

**Appendix C (Job 5).** Publications, reports, and presentations which resulted from research conducted during segments 6, 7, 8, 9, 10, 11 and 12 of project F-101-R, the Long-term Illinois River Fish Population Monitoring Program (funded under Federal Aid in Sportfish Restoration Act, P.L. 81-681, Dingell-Johnson, Wallup-Breaux).

### I. Publications

Koel, T.M. and Richard E. Sparks. Ecohydrology of the Illinois River and development of ecological criteria for operation of dams. Regulated Rivers: Research and Management. (in review, 2000)

Koel, T.M. 2000. Ecohydrology and development of ecological criteria for operation of dams. Project Status Report 2000-02. U.S. Geological Survey, Upper Midwest Environmental Sciences Center, Onalaska, Wisconsin.

Koel, T.M. 2000. Abundance of age-0 fishes correlated with hydrologic indicators. Project Status Report 2000-03. U.S. Geological Survey, Upper Midwest Environmental Sciences Center, Onalaska, Wisconsin.

Koel, T.M. 1998. Channel catfish (*Ictalurus punctatus*) in the Upper Mississippi River System. Project Status Report 98-11. U.S. Geological Survey, Environmental Management Technical Center, Onalaska, Wisconsin.

Koel, T.M., R. Sparks, and R.E. Sparks. 1998. Channel catfish in the Upper Mississippi River System. Survey Report No. 353. Illinois Natural History Survey, Champaign.

Lerczak, T.V., R.E. Sparks, and K.D. Blodgett. 1994. Some upstream-to-downstream differences in Illinois River fish communities. Transactions of the Illinois State Academy of Science 87(Supplement):53. (Abstract)

Lerczak, T.V. 1995. Fish community changes in the Illinois River, 1962-1994. American Currents (Summer Issue).

Lerczak, T.V. 1995. The gizzard shad in nature's economy. Illinois Audubon. (Summer Issue). Reprinted in Big River 2(12):1-3.

Lerczak, T.V., and R.E. Sparks. 1995. Fish populations in the Illinois River. Pages 7-9 in G.S. Farris, editor. Our living resources 1994. National Biological Survey, Washington, D.C.

Lerczak, T.V., R.E. Sparks, and K.D. Blodgett. 1995. Long-term trends (1959-1994) in fish populations of the Illinois River. Transactions of the Illinois State Academy of Science 88(Supplement):74. (Abstract)

Lerczak, T.V., R.E. Sparks, and K.D. Blodgett. 1995. Long-term trends (1959-1994) in fish populations of the Illinois River with emphasis on upstream-to-downstream trends. *Proceedings of the Mississippi River Research Consortium* 27:62-63.

Lerczak, T.V. 1996. Illinois River fish communities: 1960's versus 1990's. Illinois Natural History Survey Report No. 339.

Raibley, P.T., K.D. Blodgett, and R.E. Sparks. 1995. Evidence of grass carp (*Ctenopharyngodon idella*) reproduction in the Illinois and upper Mississippi Rivers. *Journal of Freshwater Ecology* 10:65-74.

Sparks, R.E. 1995. Value and need for ecosystem management of large rivers and their floodplains. *Bioscience* 45:168-182.

Sparks, R.E. 1995. Environmental effects. Pages 132-162 in S.A. Changnon, editor. *The great flood of 1993*. University Corporation for Atmospheric Research (UCAR) and Westview Press.

## II. Technical Papers (presenters in bold)

**Koel, T.M.** and Richard E. Sparks. 2000. Ecohydrology of the Illinois River: development of criteria for operation of the La Grange and Peoria locks and dams. 32nd Annual Meeting of the Mississippi River Research Consortium, April 13-14, La Crosse, Wisconsin

**Koel, T.M.**, T.R. Cook, and K.S. Irons. 1999. Criteria for biota-friendly operations of the Peoria and La Grange locks and dams, Illinois River Waterway. 61st Midwest Fish and Wildlife Conference, December 5-8, Chicago, Illinois.

**Koel, T.M.** and R.E. Sparks. 1999. Interannual variation in catches of young-of-year fish correlated with hydrology of the Upper Mississippi River System. 47th Annual Meeting of the North American Benthological Society, May 23-24, Duluth, Minnesota.

**Koel, T.M.** 1999. Changes in fish community structure: effects of hydrological variability in the Upper Mississippi River System. Presented to the Illinois Natural History Survey, Center for Aquatic Ecology, Havana Field Station Director Search Committee and Senior Staff, March 24, 1999.

**Koel, T.M.** 1998. Spatial and temporal variability of channel catfish populations in the Upper Mississippi River System. Illinois Department of Natural Resources LTRMP field station biannual retreat, December 15, Dickson Mounds, Illinois.

**Koel, T.M.** 1998. Long Term Resource Monitoring Program Showcase: analysis of catfish catch. Environmental Management Program Coordinating Committee, Fall Quarterly Meeting, November 19-20, Rock Island, Illinois.



**Koel, T.M.** and K.D. Blodgett. 1998. Fish-environment associations: effects of inter-annual hydrological variability on fish populations of the Illinois River waterway, 1957-1997. Upper Mississippi River Conservation Committee, Fish Technical Section Annual Fall Meeting, September 15-17, Dubuque, Iowa.

**Koel, T.M.**, K.S. Irons, T.M. O'Hara, K.D. Blodgett, and R.E. Sparks. 1998. Changes in fish community structure: effects of hydrological variability in the Upper Mississippi River System. 128th Annual Meeting of the American Fisheries Society. August 23-27, Hartford, Connecticut.

**Koel, T.M.**, T.M. Mihuc, R.E. Sparks, and K.D. Blodgett. Upper Mississippi River System status and trends report. Fish species-environment relationships: LTRMP data analysis and preliminary results. 54th Annual Meeting of the Upper Mississippi River Conservation Committee, Moline, Illinois, 17-19 March 1998.

**Blodgett, K.D.** and T.M. Mihuc. Decision support using Long Term Resource Monitoring Program component data and supplementary data on the Illinois River. 54th Annual Meeting of the Upper Mississippi River Conservation Committee, Moline, Illinois, 17-19 March 1998.

**Koel, T.M.** and T.M. Mihuc. Fish abundance in the La Grange Reach of the Illinois River correlated with environmental factors: problems of cross-component analysis. Presented at the Long Term Resource Monitoring Program Annual Winter Meeting, Davenport, Iowa, 13 January 1998.

**Lerczak, T.V.**, R.E. Sparks, and K.D. Blodgett. Some upstream-to-downstream differences in Illinois River fish communities. Contributed paper presented at the Illinois State Academy of Science Annual Meeting, Galesburg, Illinois, 7 October 1994.

**Sparks, R.E.** Large river-floodplain ecosystems of the Midwest: status, trends, and management needs. Presented at the U.S. Environmental Protection Agency's "Ecological Seminar Series" held in Chicago, Illinois, 14 March.

### III. Poster Presentations (presenter in bold)

**Koel, T.M.** and R.E. Sparks. 1998. The Long-term Illinois River Fish Population Monitoring Program. National Meeting of the Ecological Society of America, August 10-14, Spokane, Washington.

**Lerczak, T.V.**, R.E. Sparks, and K.D. Blodgett. Long-term trends (1959-1994) in fish populations of the Illinois River. Poster presented at the 56th Midwest Fish and Wildlife Conference, Indianapolis, Indiana, 4-7 December 1994.

**Lerczak, T.V.**, R.E. Sparks, and K.D. Blodgett. Long-term trends (1959-1994) in fish populations of the Illinois River. Poster presented at the Illinois State Academy of Science Annual Meeting, Charleston, Illinois, 6 October 1995.

**Lerczak, T.V., R.E. Sparks, and K.D. Blodgett.** Long-term trends (1959-1994) in fish populations of the Illinois River with emphasis on upstream-to-downstream differences. Poster presented at the annual meeting of the Mississippi River Research Consortium, La Crosse, Wisconsin, 26-28 April 1995.

#### IV. Popular Presentations

Lerczak, T.V. Wintering bald eagles along the Illinois River and factors affecting their environment. Invited presentation to the Peoria Audubon Society, Peoria, Illinois, 8 March 1995.

Lerczak, T.V. Seminar on Illinois River environmental issues. Conducted for Biology 140 (Human Ecology) at Spoon River College, 27 June 1994.

Lerczak, T.V. A photo trip up the Illinois River. After dinner talk presented to Havana Rotary Club, Havana, Illinois, 17 April 1995.

Blodgett, K.D. Ecosystem management for the Illinois River: can biological integrity be restored? Invited lecture for Earth Day celebration at Spoon River College, Canton, Illinois, 19 April 1995.

#### V. Data Requests

1. Sam Cull, City of Peru, Electrical Department, Peru, Illinois
2. Stanley and Associates, Muscatine, Iowa
3. U.S. Army Corps of Engineers, Rock Island, Illinois
4. Shelly Miller, Aquatic Ecologist, The Nature Conservancy, Peoria, Illinois
5. K. Douglas Blodgett, Project Manager, The Nature Conservancy, Havana, Illinois
6. Kevin Irons, Fishery Biologist, LTRMP, Havana, Illinois



