

# FISHES IN THE ILLINOIS PORTION OF THE UPPER DES PLAINES RIVER

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## ABSTRACT

The composition and relative abundance of fish species in the upper portion of the Des Plaines River are reported. Ninety percent of the fish biomass in this section of the river is carp. Standing crop estimates of carp indicate 371 kg/km of river.

## INTRODUCTION

The Des Plaines River Wetlands Demonstration Project is the reconstruction of a riverine wetland on a 182 ha site bordering a 4.67 km stretch of the Upper Des Plaines River, downstream from Wadsworth Road. The site is in Wadsworth, Illinois, Lake County, 58 km north of Chicago. The river, which drains a 5,400 square km watershed (80% of which is agricultural and 20% urban), is polluted with non-point source contaminants from both urban and agricultural activities. Portions of the stream bed have been channelized, the banks cut steep, and floodplains leveed and, as a result, homes downstream are subject to periodic flooding. The site has been drained with tile fields and mined for gravel, causing the original wetland, prairie species to be disturbed, destroyed, or replaced with plant communities dominated by Eurasian or weedy native species and degraded or depleted animal communities.

The construction phase of the demonstration project, which started in 1986, will regrade and broaden the stream channel, carving terraces and experimental wetland areas out of the adjoining land surface. Streamflow will be pumped to the site perimeter and allowed to gradually return to the channel. The duration and extent of contact between land and water will be varied by sluice gates, in accor-

dance with research programs. Native plant communities will be introduced, spawning and breeding areas created, and native fish and wildlife attracted back to the site.

As part of this project a literature search was conducted to determine the species of fish known to have been present in the Illinois portion of the upper Des Plaines River watershed. In addition, the literature was used to postulate the fish assemblage during the pre-settlement era. A baseline fish survey was made in 1985 and 1986. The common and scientific names of fishes mentioned in this report follow those listed in Robins et al. (1980).

## METHODOLOGY

### Current Fish Survey

The existing fish populations in the experimental area of the Des Plaines River and Mill Creek were sampled in May and June 1985 and September and November 1986. The fish community in the Des Plaines River was sampled by electrofishing, gillnetting, trapnetting, and seining. Sampling effort was intense considering the size of the body of water involved. The 4.67 km stretch of the Des Plaines River was electrofished for 238 minutes in 1985 and 189 minutes in 1986. In 1985 and 1986, 3 experimental gillnets were set overnight for 12 hours. In 1985, 2 trapnets and in 1986, 4 trapnets were set overnight for 12 hours. In 1985, 21 seine hauls and in 1986, 31 seine hauls were made.

Electrofishing equipment consisted of a boat-mounted 3500 watt, three-phase generator with a balanced electrode array (Novonty and Priegel, 1974). Seining was done with an 8-m-long, 2-m-deep seine having a 3.2-mm bar mesh. The trapnets were 1.8 m long by 0.9 m rectangular frame nets with 13-mm bar-mesh netting. The first throat of the nets consisted of a vertical slit, and the second throat was circular. Each net was equipped with a single 15 m lead originating from the center of the net. Each experimental gillnet was 45 m long, with five 9 m panels of 12.7 mm, 25.4 mm, 38.1 mm, 50.8 mm, and 63.5-mm bar-mesh netting.

From 7 September through 11 September 1986, during a period of low flow, two block nets of 1.3 cm square mesh were placed across the Des Plaines River. Each block net was approximately 22.7 m long and 6.1 m deep. The nets were set in a section of the river that had a maximum depth of approximately 0.9 m. The nets were weighted with at least 3 kg of chain/meter. Ten-centimeter-diameter floats 28 cm long were placed approximately 30 cm apart. Metal fence poles were also used to elevate the nets above the water, although an area was left so that canoes could go over the nets by submerging the floats. We are confident that common carp could not move past these barriers. Leaves and other debris were removed from the nets at least four times each day. The two block nets were placed across the river 1,440 m apart. The upstream net was approximately 60 m below the confluence of Mill Creek and the Des Plaines River, and the downstream net was placed approximately 545 m upstream from where the river enters the South Economy Gravel Pit.

The standing stock of carp between the two block nets was estimated by the depletion method (Ricker 1975), which correlates catch-per-unit effort with summation of catch. The correlation produced is extrapolated to zero catch, at which point the summation of catch is the theoretical population estimate. This method

assumes all fish are equally vulnerable to the sampling devices and no immigration or emigration of fish occurs. In addition, in order to obtain a meaningful estimate it is usually necessary to remove at least 50% of the fish population. In this study one unit of effort each day consisted of two electrofishing runs between the two block nets and the catch of 12 hoop nets set for approximately 24 hours. An effort was made to pick up and remove as many carp as possible on each shocking run. The hoop nets were 1.2 m in diameter, double throated, 4.8 m long, 7 hoop, 5.1 cm square mesh with two 7.6 m wings. All hoop nets were set facing downstream at approximately 130 m intervals. One net was placed immediately below the upper block net. Since the Des Plaines River was only about 14 m wide, the wings on these nets were placed from bank to bank. The 1.2-m-deep leads were deeper than the water in the river.

## RESULTS AND DISCUSSION

Twenty-one species of fish were collected in 1976 and in 1983 from the section of the Des Plaines River that flows through the demonstration site; 31 species were collected in 1985; and 28 species were collected in 1986 (Table 1). Since 1976, 36 species have been found on the wetlands demonstration site. Five species (central mudminnow, goldfish, quillback, stonecat, brook stickleback) that were collected in 1985 were not found in 1986. However, two species, the spotted sucker and Iowa darter that were found in 1986 had not been reported from the Des Plaines River in 1976, 1983, or 1985 (Table 1).

The spotted sucker was known to be in Mill Lake Gravel Pit and the North Economy Gravel Pit, but it was not reported from the South Economy Gravel Pit by an Illinois Department of Conservation survey in 1975 or Heidinger (1985). At the time of the 1986 sample, the Des Plaines River had been cut through the South Economy Gravel Pit. The Iowa darter was not found in samples from the Illinois section of the upper Des Plaines River in 1967 (Muench, 1968), 1976 (Brigham et al., 1978) or 1985. It was found in the upper Des Plaines River in Kenosha County, Wisconsin, in 1979-1980 (Southern 1980).

There was little change in the relative abundance by number or weight of the fishes collected in 1985 versus 1986 (Table 2). Numerically, the spotfin shiner and sand shiner were the most abundant. As a percentage of fish collected, the seven most abundant species in 1985 were the spotfin shiner (24.9), sand shiner (18.9), common carp (17.8), green sunfish (8.4), black bullhead (6.4), golden shiner (4.4), and bluegill (3.0), which comprised almost 84% of the sample (Table 2). In 1986 the spotfin shiner (36.2), sand shiner (23.0), common carp (10.5), bluntnose minnow (9.9), bluegill (4.1), green sunfish (3.7), and blackstriped topminnow (3.5), comprised 90.9% of the sample (Table 2). These relative abundance values must be used with care. Combining the catch of all sampling methods tends to skew the actual relative abundance of the fish population. For example, almost all of the minnows were collected by seining, while the majority of the carp were collected by electrofishing. Future comparisons are valid only if the same ratio of effort exists among the various types of sampling equipment.

Number, mean length, mean weight, and coefficient of condition (K) at each age for twelve species are listed in Table 3. K is equal to the weight in grams of a fish times 100 divided by the total length in centimeters cubed.

A total of 384 carp weighing 515.3 kg was removed from the area between the two block nets (Table 4). These fish averaged 1.34 kg. The catch on September 9 was slightly greater than the catch on September 8; this indicates gear saturation. Two depletion estimates can be made using this data set. If the catch from all four days is used in the calculation, the depletion estimate is 550.2 kg with an  $r^2$  equal to 0.52. If only the last three days' data are used, the estimate is 530.3 kg yielding a  $r^2$  equal to 0.97. At the time the sample was taken there was approximately 1.98 ha of water, or 1.48 km between the block nets. Based on the depletion estimate of 550.2 kg, there was 277.9 kg of carp per hectare or 371 kg per kilometer.

It would have been desirable to continue the removal process for several more days, but heavy rains and increased flow rates made it impossible to maintain the hoop nets or the block nets.

### Historical Records

Based on the literature search by Brigham et al. (1978) and the 1985 and 1986 survey, at least 62 species of fish occurred in the Illinois portion of the upper Des Plaines River watershed (Tables 1, 5, and 6). This watershed is a much larger and more diverse habitat than is found on the wetlands demonstration project site. In 1967, 28 species and in 1976, 40 species were found (Table 5). The 20 species that were not found in 1976 are in nine different families of fish (Table 4). Of the 20 species not found, only the redear and brown bullhead are sport species. One species, the blacknose shiner, has been placed on the Illinois threatened fish species list (Smith and Page, 1981).

The historical data only give an indication of species occurrence. There are no data on age, growth rate, biotic indices, or condition factors. In addition, data are lacking on the numbers and species of fish removed by fishermen.

### Pre-Settlement Fish Community

Since pre-settlement, many significant changes have taken place in the physical characteristics of the demonstration project site, as well as in the fish fauna of the Des Plaines River. During the pre-settlement era there was no ecological equivalent of the deep water habitat now found in the flooded rock quarries, and the Des Plaines River was very different from the way it is now. In pre-settlement times the river was shallow, clear, very slow-moving, and meandering, with low-lying areas merging into marshy wetlands. Today, channelization and floodplain filling to support either agricultural or urban development have resulted in loss of the riverine wetlands and the accumulation of spoil along the river banks. The resulting stream channels are narrower, the banks are steeper, and the floodplain is no longer a moist meadow.

To date at least 62 species of fish have been found in the Illinois portion of the upper Des Plaines River watershed (Table 1, 5, and 6). Other species, such as the longear sunfish (*Lepomis megalotis*), orangespotted sunfish (*L. humilis*), weed shiner (*Notropis texanus*), southern redbelly dace (*Phoxinus erythrogaster*) and blacknose dace (*Rhinichthys atratulus*), probably were present during the pre-settlement era. O'Brien (1964) found the remains of bass (*Micropterus* spp.), freshwater drum (*Aplodinotus grunniens*), gar (*Lepisosteus* spp.), and buffalo (*Ictiobus* spp.) in two late woodland archaeological sites near the Des Plaines River in Lake County. Only slightly less likely would have been the occurrence of the

longnose dace (*R. cataractae*), the northern redbelly dace (*P. eos*), and several other species of suckers. A number of other species may have been present also.

There is no direct proof that sport species such as the walleye (*Stizostedion vitreum*), smallmouth bass (*Micropterus dolomieu*), and muskellunge (*Esox masquinongy*) were ever present in this system. Some species that are now found in the upper Des Plaines River were absent during pre-settlement. The common carp and goldfish were introduced into the United States from Europe. The redear probably was absent also, and it is doubtful that the channel catfish reproduced in this area.

In addition to a decrease in the number of species found in the Des Plaines River and, therefore, the diversity of the fish community, there has been a major change in the relative abundance of the various species, especially on a biomass basis. The common carp now makes up the majority of the fish biomass (approximately 90%). Historically, other species, such as the northern pike, were probably much more abundant.

By almost any measure, the fish habitat in the upper Des Plaines River has been seriously degraded since the pre-settlement era due to channelization, urbanization, and agricultural practices. This has led to a reduction in or loss of many pollution-sensitive species. At the same time, on a biomass basis the pollution-tolerant common carp has become very abundant.

## ACKNOWLEDGMENTS

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Table 1. Fish species found in the upper Des Plaines River Wetlands Demonstration Project site.

Common name	Scientific name	Family	1976 <sup>1</sup>	1983 <sup>3</sup>	1985	1986
Central mudminnow	<i>Umbra limni</i>	Umbridae	-	-	+	-
Northern pike	<i>Esox lucius</i>	Esocidae	+	-	+	+
Grass pickerel	<i>E. americanus</i>	"	-	-	+	+
Goldfish	<i>Carassius auratus</i>	Cyprinidae	-	-	+	-
Common carp	<i>Cyprinus carpio</i>	"	+	+	+	+
Golden shiner	<i>Notemigonus crysoleucas</i>	"	-	+	+	+
Bigmouth shiner	<i>N. dorsalis</i>	"	-	-	+	+
Rosyface shiner	<i>N. rubellus</i>	"	+ <sup>2</sup>	-	-	-
Spotfin shiner	<i>N. spilopterus</i>	"	+	+	+	+
Sand shiner	<i>N. stramineus</i>	"	+	+	+	+
Common shiner	<i>N. cornutus</i>	"	-	+	-	-
Bluntnose minnow	<i>Pimephales notatus</i>	"	+	+	+	+
Fathead minnow	<i>P. promelas</i>	"	-	+	+	+
White sucker	<i>Catostomus commersoni</i>	Catostomidae	+	+	+	+
Spotted sucker	<i>Minytrema melanopus</i>	"	-	-	-	+
Quillback	<i>Carpiodes cyprinus</i>	"	-	-	+	-
Black bullhead	<i>Ictalurus melas</i>	Ictaluridae	+	+	+	+
Yellow bullhead	<i>I. natalis</i>	"	+	-	+	+
Channel catfish	<i>I. punctatus</i>	"	+	-	+	+
Stonecat	<i>Noturus flavus</i>	"	-	+	+	-
Tadpole madtom	<i>N. gyrinus</i>	"	-	+	-	-
Blackstriped topminnow	<i>Fundulus notatus</i>	Cyprinodontidae	+	+	+	+
Yellow bass	<i>Morone mississippiensis</i>	Percichthyidae	+	+	+	+
Green sunfish	<i>Leopomis cyanellus</i>	Centrarchidae	+	+	+	+
Pumpkinseed	<i>L. gibbosus</i>	"	+	+	+	+
Warmouth	<i>L. gulosus</i>	"	+	-	+	+
Bluegill	<i>L. macrochirus</i>	"	+	+	+	+
Largemouth bass	<i>Micropterus salmoides</i>	"	+	+	+	+
White crappie	<i>Pomoxis annularis</i>	"	+	-	+	+
Black crappie	<i>P. nigromaculatus</i>	"	+	+	+	+
Johnny darter	<i>Etheostoma nigrum</i>	Percidae	+	+	+	+
Iowa darter	<i>E. exile</i>	"	-	-	-	+
Blackside darter	<i>Percina maculata</i>	"	+ <sup>2</sup>	+	+	+
Yellow perch	<i>Perca flavescens</i>	"	-	+	+	+
Brook silverside	<i>Labidesthes sicculus</i>	Atherinidae	-	+	+	+
Brook stickleback	<i>Culaea inconstans</i>	Gasterosteidae	-	-	+	-
Total number of species			21	21	31	28

<sup>1</sup>Brigham et al. (1978).<sup>2</sup>Species found in the demonstration project site, but only in Mill Creek.<sup>3</sup>Bertrand (1984).

Table 2. Relative abundance (RA) by number and weight of fish collected from the Des Plaines River by all sampling methods.

Common name	1985				1986			
	Num- ber	RA (%)	Weight (g)	RA (%)	Num- ber	RA (%)	Weight (g)	RA (%)
Largemouth bass	4	0.7	522	0.4	12	1.0	586	0.4
Bluegill	18	3.0	498	0.3	48	4.1	800	0.6
Green sunfish	50	8.4	606	0.4	44	3.7	899	0.6
Yellow bass	6	1.0	310	0.2	5	0.4	176	0.1
Pumpkinseed	15	2.5	247	0.2	6	0.5	125	—
Black crappie	2	0.3	6	—	13	1.1	1,314	0.9
Yellow perch	2	0.3	14	—	2	0.2	49	—
Grass pickerel	1	0.2	88	—	3	0.2	214	0.1
Channel catfish	2	0.3	3,319	2.3	3	0.2	1,559	1.1
Stonecat	4	0.7	157	0.1	—	—	—	—
Quillback	1	0.2	2,155	1.5	—	—	—	—
Yellow bullhead	3	0.5	372	0.2	6	0.5	729	0.5
Black bullhead	38	6.4	2,660	1.8	13	1.1	1,519	1.1
White sucker	4	0.7	1,259	0.9	5	0.4	1,584	1.1
Common carp	106	17.8	132,080	90.0	122	10.5	123,565	87.8
Northern pike	3	0.5	2,311	1.6	6	0.5	6,204	4.4
Central mudminnow	4	0.7	8	—	—	—	—	—
Goldfish	1	0.2	261	0.2	—	—	—	—
Golden shiner	26	4.4	19	—	4	0.3	9	—
Bigmouth shiner	3	0.5	1	—	1	—	2	—
Spotfin shiner	148	24.9	118	—	421	36.2	358	0.2
Sand shiner	112	18.9	77	—	267	23.0	260	0.2
Bluntnose minnow	17	2.9	7	—	115	9.9	94	—
Fathead minnow	10	1.7	5	—	7	0.6	3	—
Blackstriped topminnow	1	0.2	—	—	41	3.5	20	—
Johnny darter	1	0.3	—	—	3	0.2	6	—
Brook silverside	5	0.8	4	—	6	0.3	8	—
Brook stickleback	1	0.2	—	—	—	—	—	—
Warmouth	4	0.7	5	—	3	0.2	43	—
Blackside darter	1	0.2	—	—	1	—	2	—
White crappie	1	0.2	3	—	1	—	117	—
Iowa darter	—	—	—	—	1	—	1	—
Spotted sucker	—	—	—	—	1	—	382	0.3
Total	594		147,112		1,160		140,598	

Table 3. Total length (mm), weight (g), and condition (K) of sport and commercial species collected in 1985 from the Des Plaines River by all sampling methods.

Common name	Age at capture											
	I				II				III			
	No.	Mean length (mm)	Mean weight (g)	K	No.	Mean length (mm)	Mean weight (g)	K	No.	Mean length (mm)	Mean weight (g)	K
Largemouth bass	2	79	5	1.01	1	197	105	1.37	1	296	407	1.60
Bluegill	—	—	—	—	8	110	21	1.45	9	116	24	1.50
Green sunfish	8	67	6	1.50	8	99	20	1.86	—	—	—	—
Common carp	—	—	—	—	3	183	104	1.62	10	350	566	1.34
Yellow bass	1	87	5	0.76	4	154	44	1.18	—	—	—	—
Pumpkinseed	3	57	5	1.03	4	106	20	1.61	1	125	42	2.15
Black crappie	2	120	3	0.66	—	—	—	—	—	—	—	—
Yellow perch	2	89	7	0.99	—	—	—	—	—	—	—	—
Channel catfish	—	—	—	—	1	194	59	0.81	—	—	—	—
Yellow bullhead	—	—	—	—	1	181	78	1.32	2	223	147	—
Black bullhead	2	80	5	0.82	4	145	40	1.38	4	170	67	1.35
Northern pike	—	—	—	—	1	337	211	0.55	2	560	1,078	0.60





Table 3 (Continued). Total length (mm), weight (g), and condition (K) of sport and commercial species collected in 1985 from the Des Plaines River by all sampling methods.

Common name	Age at capture											
	VII				VIII				IX			
	No.	Mean length (mm)	Mean weight (g)	K	No.	Mean length (mm)	Mean weight (g)	K	No.	Mean length (mm)	Mean weight (g)	K
Largemouth bass	—	—	—	—	—	—	—	—	—	—	—	—
Bluegill	—	—	—	—	—	—	—	—	—	—	—	—
Green sunfish	—	—	—	—	—	—	—	—	—	—	—	—
Common carp	4	538	1,948	1.22	1	605	3,147	1.42	1	612	3,345	1.46
Yellow bass	—	—	—	—	—	—	—	—	—	—	—	—
Pumpkinseed	—	—	—	—	—	—	—	—	—	—	—	—
Black crappie	—	—	—	—	—	—	—	—	—	—	—	—
Yellow perch	—	—	—	—	—	—	—	—	—	—	—	—
Channel catfish	—	—	—	—	1	625	3,260	1.34	—	—	—	—
Yellow bullhead	—	—	—	—	—	—	—	—	—	—	—	—
Black bullhead	—	—	—	—	—	—	—	—	—	—	—	—
Northern pike	—	—	—	—	—	—	—	—	—	—	—	—

Table 4. Catch of common carp per unit effort in 1986.

Date	Carp		
	Number	Total Weight (kg)	Mean Weight (kg)
9/8	136	191.69	1.41
9/9	153	215.89	1.41
9/10	65	70.47	1.08
9/11	30	37.08	1.03
Total	384	515.13	
Mean weight			1.34

Table 5. Fish species found in the upper Des Plaines River watershed (from Wisconsin-Illinois border to confluence of Salt Creek — approximately 28 km).

Common name	Scientific name	Family	1967 <sup>2</sup>	1976 <sup>3</sup>
Central mudminnow	<i>Umbra limi</i>	Umbridae	+	+
Northern pike	<i>Esox lucius</i>	Esocidae	+	+
Grass pickerel	<i>E. americanus</i>	"	+	+
Goldfish	<i>Carassius auratus</i>	Cyprinidae	+	+
Common carp	<i>Cyprinus carpio</i>	"	+	+
Hornyhead chub	<i>Nocomis biguttatus</i>	"	-	+
Golden shiner	<i>Notemigonus crysoleucas</i>	"	+	+
Emerald shiner	<i>Notropis atherinoides</i>	"	-	+
Common shiner	<i>N. cornutus</i>	-	-	+
Blackchin shiner	<i>N. heterolepis</i>	"	+	-
Bigmouth shiner	<i>N. dorsalis</i>	"	+	+
Rosyface shiner	<i>N. rubellus</i>	"	-	+
Spotfin shiner	<i>N. spilopterus</i>	"	+	+
Sand shiner	<i>N. stramineus</i>	"	+	+
Redfin shiner	<i>N. umbratilis</i>	"	+	+
Bluntnose minnow	<i>Pimephales notatus</i>	"	+	+
Fathead minnow	<i>P. promelas</i>	"	-	+
Creek chub	<i>Semotilus atromaculatus</i>	"	-	+
Common carp X goldfish <sup>1</sup>	—	"	+	+
White sucker	<i>Catostomus commersoni</i>	Catostomidae	+	+
Golden redbhorse	<i>Moxostoma erythrurum</i>	"	-	+
Black bullhead	<i>Ictalurus melas</i>	Ictaluridae	+	+
Yellow bullhead	<i>I. natalis</i>	"	+	+
Channel catfish	<i>I. punctatus</i>	"	-	+
Stonecat	<i>Noturus flavus</i>	"	+	+
Tadpole madtom	<i>N. gyrinus</i>	"	+	+
Blackstriped topminnow	<i>Fundulus notatus</i>	Cyprinodontidae	+	+
Brook stickleback	<i>Culaea inconstans</i>	Gasterosteidae	+	+
Yellow bass	<i>Morone mississippiensis</i>	Percichthyidae	-	+
Rock bass	<i>Ambloplites rupestris</i>	Centrarchidae	-	+

Green sunfish	<i>Lepomis cyanellus</i>	"	+	+
Pumpkinseed	<i>L. gibbosus</i>	"	+	+
Warmouth	<i>L. gulosus</i>	"	-	+
Bluegill	<i>L. macrochirus</i>	"	+	+
Smallmouth bass	<i>Micropterus dolomieu</i>	"	-	+
Largemouth bass	<i>M. salmoides</i>	"	+	+
White crappie	<i>Pomoxis annularis</i>	"	+	+
Black crappie	<i>P. nigromaculatus</i>	"	+	+
Johnny darter	<i>Etheostoma nigrum</i>	Percidae	+	+
Banded darter	<i>E. zonale</i>	"	-	+
Blackside darter	<i>Percina maculata</i>	"	-	+
Yellow perch	<i>Perca flavescens</i>	"	+	+
Pirate perch	<i>Aphredoderus sayanus</i>	Aphredoderidae	+	+

<sup>1</sup>This is a hybrid, not a species.

<sup>2</sup>Muench (1968).

<sup>3</sup>Brigham et al. (1978).

Table 6. Fish species not found in the upper Des Plaines watershed in 1976 by Brigham et al. (1978), but known historically to have been present based on records of the Illinois Natural History Survey.

Common name	Scientific name	Family
Bowfin <sup>1</sup>	<i>Amia calva</i>	Amiidae
Grass pickerel <sup>2</sup>	<i>Esox americanus</i>	Esocidae
Central Stoneroller	<i>Campostoma anomalum</i>	Cyprinidae
Ironcolor shiner	<i>Notropis chalybaeus</i>	"
Striped shiner	<i>N. chrysocephalus</i>	"
Blackchin shiner <sup>1</sup>	<i>N. heterodon</i>	"
Blacknose shiner	<i>N. heterolepis</i>	"
Mimic shiner <sup>1</sup>	<i>N. volucellus</i>	"
Blacknose dace	<i>Rhinichthys atratulus</i>	"
River carpsucker	<i>Carpionodes carpio</i>	Catostomidae
Creek chubsucker	<i>Erimyzon oblongus</i>	"
Lake chubsucker <sup>1</sup>	<i>E. sucetta</i>	"
Northern hogsucker	<i>Hypentelium nigricans</i>	"
Brown bullhead	<i>Ictalurus nebulosus</i>	Ictaluridae
Pirate perch	<i>Aphredoderus sayanus</i>	Aphredoderidae
Banded killifish	<i>Fundulus diaphanus</i>	Cyprinodontidae
Starhead topminnow	<i>F. notti</i>	"
Redear	<i>Lepomis microlophus</i>	Centrarchidae
Iowa darter <sup>1,3</sup>	<i>Etheostoma exile</i>	Percidae
Least darter	<i>E. microperca</i>	"

<sup>1</sup>These five species were found in 1979-1980 in the upper Des Plaines River in Kenosha County, Wisconsin, by Southern (1980).

<sup>2</sup>Species collected in 1985.

<sup>3</sup>Species collected in 1986.