



**Region II Streams Office
5931 Fox River Drive
Plano, Illinois 60545**

Fish Community Surveys of the Forked Creek Watershed August, 2004



**August 2006
Robert C. Rung and Stephen M. Pescitelli**

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Summary

During August 2004, fish community surveys were conducted at nine stations within the Forked Creek watershed, including six mainstem stations and three stations on two tributary streams. Eight of the stations were in Will County and one station was in Kankakee County. A total of 5,507 fish representing 42 species were collected using electric seine and backpack electrofishing. Based on fish sampling results, the three lower mainstem stations FK-01, FK-02, and FK-03 qualified for Biological Stream Characterization (BSC) ratings of 'A' (Unique Aquatic Resource), the highest possible rating. Stream quality and Index of Biotic Integrity (IBI) scores appeared to decline moving in an upstream direction, with FK-04 scoring 47 ('B' rating), FK-05 scoring 37 ('C' rating), and the upper-most station, FK-06, receiving an IBI of 32, the lowest score on the mainstem. Both stations on the South Branch had IBI scores of 41, in the lower "B" range. Striped shiner, central stoneroller, bluntnose minnow and green sunfish were the most abundant and widespread species present in the watershed. No threatened or endangered species were found, however, two Chicago Wilderness Species of Special Concern were present, largescale stoneroller, and rainbow darter, both of which have limited distribution in Northeastern Illinois. Overall, Forked Creek had a high number of darter species (n=8), which generally indicates the presence of diverse habitat and good water quality. Darter diversity was greatest at the three downstream stations FK-01, FK-02, and FK-03, where a total of 5 species were collected. Orangethroat and fantail darter were only collected at headwater stations, while johnny darter, one of the more tolerant species was collected at all but one location in the survey. Leonard's Dam, located less than a mile upstream of the creek mouth, limited the distribution of six fish species overall, including channel catfish and black crappie. Smallmouth bass, and rock bass were the most abundant sport species and were relatively widespread, however, populations were dominated by smaller individuals.

Introduction

A comprehensive fish community survey was conducted in Forked Creek Watershed during August, 2004. Fish were sampled at nine stations to establish baseline conditions and determine fish species distribution in the watershed as well as indicating stream quality using the Index of Biotic Integrity (IBI). The survey supports planning and educational efforts by the Prairie Streams Watershed Committee, the Prairie Parkland Ecosystem Partnership, and the Forest Preserve District of Will County.

Watershed Characteristics

Forked Creek and its major tributaries Jordon Creek and South Branch Forked Creek are located in Northeastern Illinois, within Will and Kankakee Counties (Figure 1). The entire Forked Creek watershed encompasses approximately 86,670 acres or 135square miles (ISIS 2004) draining into the Kankakee River at Wilmington, Illinois. The drainage area includes portions of seven townships; Florence, Wesley, Wilton, Peotone, Green Garden, and the eastern edge of Monee Township, in Will County, and Rockville Township in Kankakee County. The mainstem of Forked Creek originates east of Interstate Route 57 in Monee Township north of the Village of Monee (Figure 1). The South Branch tributary arises in Green Garden and Monee Townships, east of the Village of Monee. Jordan Creek originates on Midewin Tall Grass Prairie (United States Forest Service) in Florence Township, and in Wilton Township, entering Forked Creek near Wilmington. The South Branch tributary and Forked Creek mainstem join approximately one mile west of the Kankakee/Will County line in Wesley Township.

The watershed includes three villages, Wilmington, Ritchie, and Wilton Center which currently have no Waste Water Treatment Plant discharges into Forked Creek. Four publicly owned areas are located on Forked Creek mainstem including: Will County Forest Preserve District Properties, Forsythe Woods and Laughton Forest Preserve, and a City of Wilmington inholding (near the mouth). The lower portion of the mainstem, from Ritchie to Wilmington, is in the Will County Forest Preserve District's Forked Creek Greenway. A small portion of Jordan Creek is on Midewin National Tall Grass Prairie. Although the watershed landscape is currently predominately agricultural, the headwaters of the mainstem and South Branch are converting to urban landuse.

The headwater reaches in most areas of the watershed have been channelized and have substrate composed primarily of sand. The middle and lower portion of the mainstem contained many channelized segments, some of which were older channelization and others which were more recently channelized which are beginning to recover, forming riffle pool configurations. Much of the middle reach exhibited unstable substrate and banks, evidence of the recovery process. From the confluence of the mainstem and South Branch to the Kankakee River, Forked Creek exhibited extensive areas of exposed bedrock, containing diverse habitat features such as pools and riffles, with abundant cobble, boulders, woody debris, and emergent plant colonies of water willow (*Justicia americana*). Much of the riparian corridor in the middle and lower reaches was bordered by agricultural fields. The riparian corridor supported reed canary or brome grass and/or had a stream edge of dense trees and shrubs.

Methods

Fish population sampling was conducted at nine stations in the watershed during August 9 through 11, 2004. Six stations were located on the mainstem, two stations were located on the South Branch, and one station was sited on Jordan Creek (Figure 1). Stations were selected following extensive field reconnaissance, and represent the full range of habitat types observed for Forked Creek, the South Branch Forked Creek, and Jordan Creek. Three headwater stations, and the station on Jordan Creek were sampled using a back-pack electrofishing system. The back-pack electrofishing unit is a portable, back-pack mounted, 110 volt generator powered, electro-fishing unit, and is utilized to sample narrow, wadeable stations. Four Forked Creek stations, and one South Branch Forked Creek station were sampled with the electric seine. The electric seine is a 9-meter (30 ft.) electrified cable powered by a single-phase, 1600 watt AC generator (Bayley et al. 1989). The upstream and downstream limits of each electric seine station were blocked by nets to prevent fish escapement and/or entry into the station during sampling. Sampling times and station lengths varied based on complexity of the habitat and channel characteristics. Detailed descriptions of station locations, and physical characteristics are in the Appendix.

Larger fish specimens, sportfish, and rare or unusual species were weighed, measured and returned to the stream, with the exception of voucher specimens kept for each species at each station. Smaller fish were preserved for later identification in the laboratory.

An Index of Biotic Integrity (IBI; Smogor, 2000) value was calculated using fish data for each station in the survey. The IBI is a widely-used stream quality measurement based upon the fish community, taking into account the number of fish species present, their food, habitat, and spawning preferences, and tolerance to degradation. These attributes are evaluated using ten parameters or metrics, based on comparison to established reference conditions for unmodified streams. Total IBI scores range from 0-60, with higher scores indicating better quality. The IBI is also the basis for determining the Stream's Biotic Class, or letter-based Biological Stream Characterization (BSC; Bertrand et al. 1996). The designated IBI ranges for each BSC Biotic Class are shown in Table 1.

Table 1. Biological Classification of Illinois Streams

Resource	Unique	Highly Valued	Moderate	Limited	Restricted
Description--->	Aquatic Resource	Aquatic Resource	Aquatic Resource	Aquatic Resource	Aquatic Resource
Biotic Class -->	A	B	C	D	E
IBI----->	51 - 60	41 - 50	31 - 40	21 - 30	≤ 20

Results and Discussion

Species Distribution and Abundance. Fish community sampling for all stations combined resulted in the collection of 5,507 fishes representing 42 species (Table 2). Although no listed species were collected, rainbow darter (*Etheostoma caeruleum*) and largescale stoneroller (*Campostoma oliglepis*) were present. These two species have a very limited distribution in Northeastern Illinois and are listed as Species of Special Concern in the Chicago Region (Chicago Wilderness 2006).

Fishes of the minnow family were the most abundant in the collection, accounting for 65.2 percent of the total catch, with 15 species present. The four most abundant minnow species (see Table 2) were found at all nine stations, and accounted for over half of the total number of all fish collected. Rosyface shiner (*Notropis rubellus*) and mimic shiner (*Notropis volucellus*) were found only in the mainstem Forked Creek (Table 3), while suckermouth minnow (*Phenacobius mirabilis*) was found only at one headwater station, reflecting habitat preferences for these species (Smith 1979). Sunfishes were also very abundant and wide spread (Table 2), with most species occurring

at four or more locations. Dominance by the minnow and sunfish families is typical for most stream collections in Illinois, however, Forked Creek was somewhat unique due to the high relative abundance of darter species. A total of eight darter species were present, accounting for 6.7 percent of the total abundance (Table 2). Orangethroat darter (*Etheostoma spectabile*) was the most numerous darter species, but was found only at two upstream stations, typical for this pioneering headwater species (Smith 1979). In contrast, five of the eight darter species were collected primarily, or entirely, in the lower three sampling stations (Table 3). Most of the sucker species were also found in the lower stretches of the Forked Creek, where deeper and wider stream conditions were more appropriate for this larger bodied group. Catfishes were in very low abundance in Forked Creek, with only three species and 17 individuals present. Channel catfish (*Ictalurus punctatus*), a common stream species, was not collected in the survey.

Although the distribution of many species in Forked Creek generally reflected habitat preference and/or tolerance for a wide range of conditions, the presence of the Leonard's Dam near the confluence of with Kankakee River, may have also impacted species distribution. A total of eight species were found only downstream of the dam. Among this group were highly migratory species such channel catfish and shorthead redhorse (*Moxostoma macrolepidotum*).

Stream Quality. Species diversity is a general indicator of quality in stream ecosystems, with higher species numbers reflecting the availability a wide range of habitat types and adequate water quality. Overall, Forked Creek had a diverse assemblage of species, including many considered to be intolerant of degraded conditions such as habitat alteration (eg. channelization) and siltation. Intolerant species were generally more abundant at downstream locations (Table 4), where habitat modifications were less prevalent than upstream stations. The headwater station FK-06 had the lowest of proportion of intolerant to tolerant fish with seven tolerant species and one intolerant species. Tolerant species represented nearly 59% of all fish collected at this station with green sunfish, one of the more tolerant sunfishes dominating the collection (41% of total). The shift from intolerant to tolerant fish abundance reflects poor, or declining, habitat quality, often due to channel modifications.

Stream quality based on the Index of Biotic Integrity (IBI) was also higher in the downstream stations (Figure 2). The three stations located farthest downstream, FK-01, FK-02, and FK-03, had

IBI scores ranging from 52-54 (Table 5), which qualifies for Biological Stream Characterization (BSC) ratings of ‘A’, and a designation as a Unique Aquatic Resource (Bertrand et al, 1996). The next upstream station, (FK-04) had a somewhat lower IBI score of 47, which is in the “B” quality range, described as “Highly Valued Aquatic Resource” (Table 5). Stream quality diminished in the upstream portions of Forked Creek Creek, with an IBI score of 37 at FK-05 and 32 at FK-07 in Green Garden Township (Figure 2, Table 5). Both of the stations were in the “C” or Moderate Value range. Both station on the South Branch scored 41, in low the “B” range, while Jordon Creek was in the higher “C” range with and IBI of 37 (Figure 2, Table 5).

Table 4. Total number and proportion of Intolerant and Tolerant fish for each 2004 Forked Creek survey stations.

Station code	Total Fish	Total Species	Intolerant Fish*			Tolerant Fish**		
			# spp	# fish	% of sample	# spp	# fish	% of sample
FK-01	1,038	31	8	206	19.8%	3	200	19.3%
FK-02	279	24	7	86	31.0%	5	63	22.5%
FK-03	495	25	9	226	45.0%	4	23	4.6%
FK-04	635	23	6	78	12.0%	7	146	23.0%
FK-05	305	20	3	32	10.5%	7	123	40.3%
FK-06	264	17	1	4	1.5%	7	155	58.7%
FKJ -01	1,716	16	2	181	10.5%	6	493	28.7%
FKS-01	322	19	4	27	8.4%	4	74	23.0%
FKS-02	453	12	1	40	8.8%	4	44	9.7%

* Intolerant species are not tolerant of habitat degradation and siltation.

** Tolerant species are tolerant of degraded habitat and silt or mud substrate.

Sportfish

Sportfish were relatively abundant in Forked Creek, accounting for 6.5% (n = 362) of the total collection including: smallmouth bass (*Micropterus dolomieu*, n = 153), rock bass (*Ambloplites rupestris*, n=109), bluegill (*Lepomis macrochirus*, n=87), largemouth bass (*Micropterus salmoides*, n = 11), and black crappie (*Pomoxis nigromaculatus*, n=2). However, populations of all species

were dominated by smaller individuals. Smallmouth bass and rock bass were present at most location but over 80% of the fish collected were less than six inches in length (Figure 3). The largest smallmouth bass was less than 12 inches (305 mm) in length, while the largest Rock bass was just over eight inches (203 mm). Despite the absence of larger fish, abundant populations of smaller individuals (Figure 3) indicates successful reproduction. The paucity of deep pools, and presence of the dam near the mouth may be limiting factors for larger individuals. The dam may also be a limiting factor for channel catfish, which were absent in the Forked Creek collection. This highly migratory species moves downstream to overwinter in larger river habitat, and up into smaller streams during summer months. Leonard's dam may block upstream movement of this and other species, including black crappie which were found only downstream of the dam.

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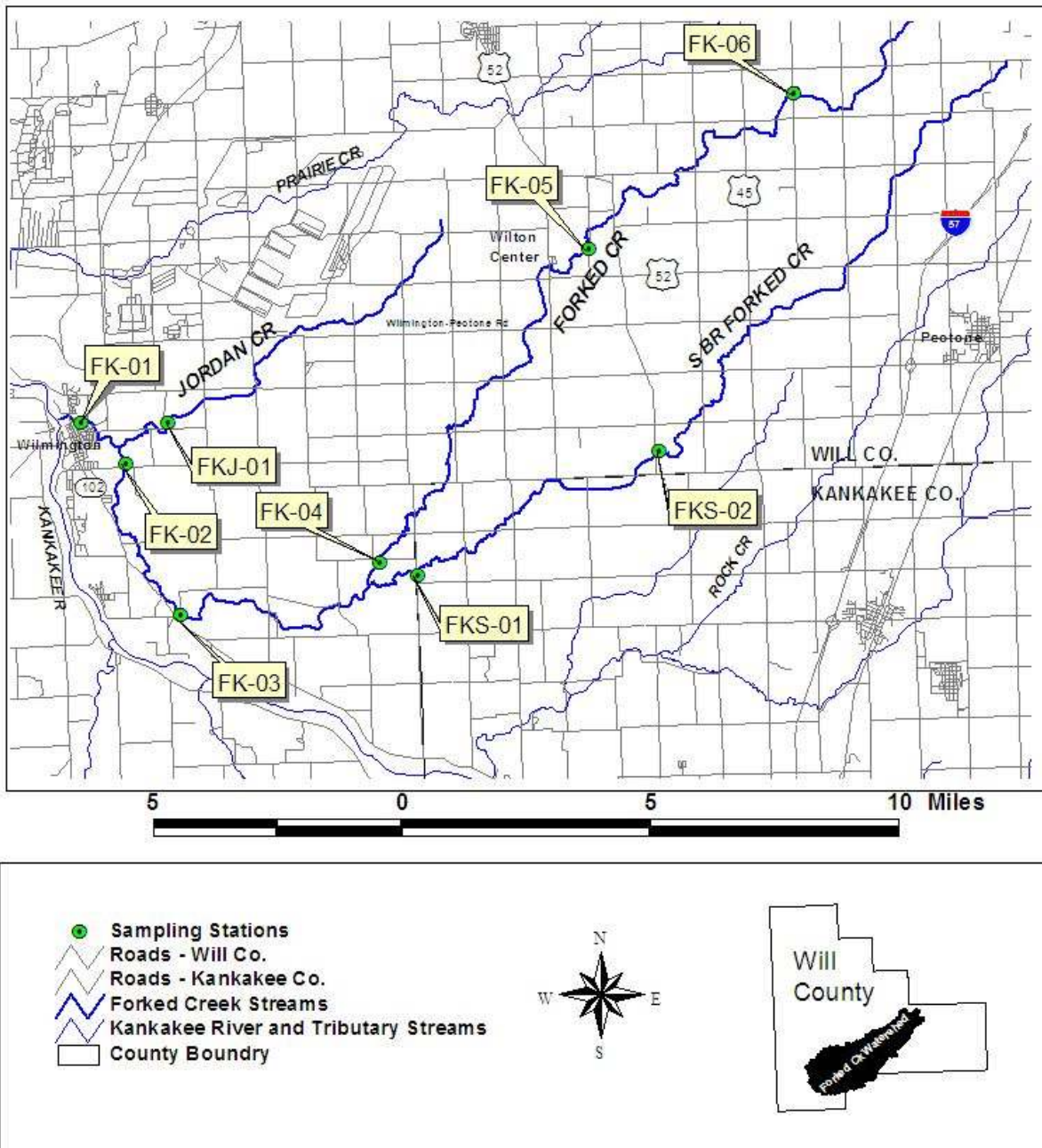


Figure 1. Map of the Forked Creek system with location of the 2004 sampling stations.

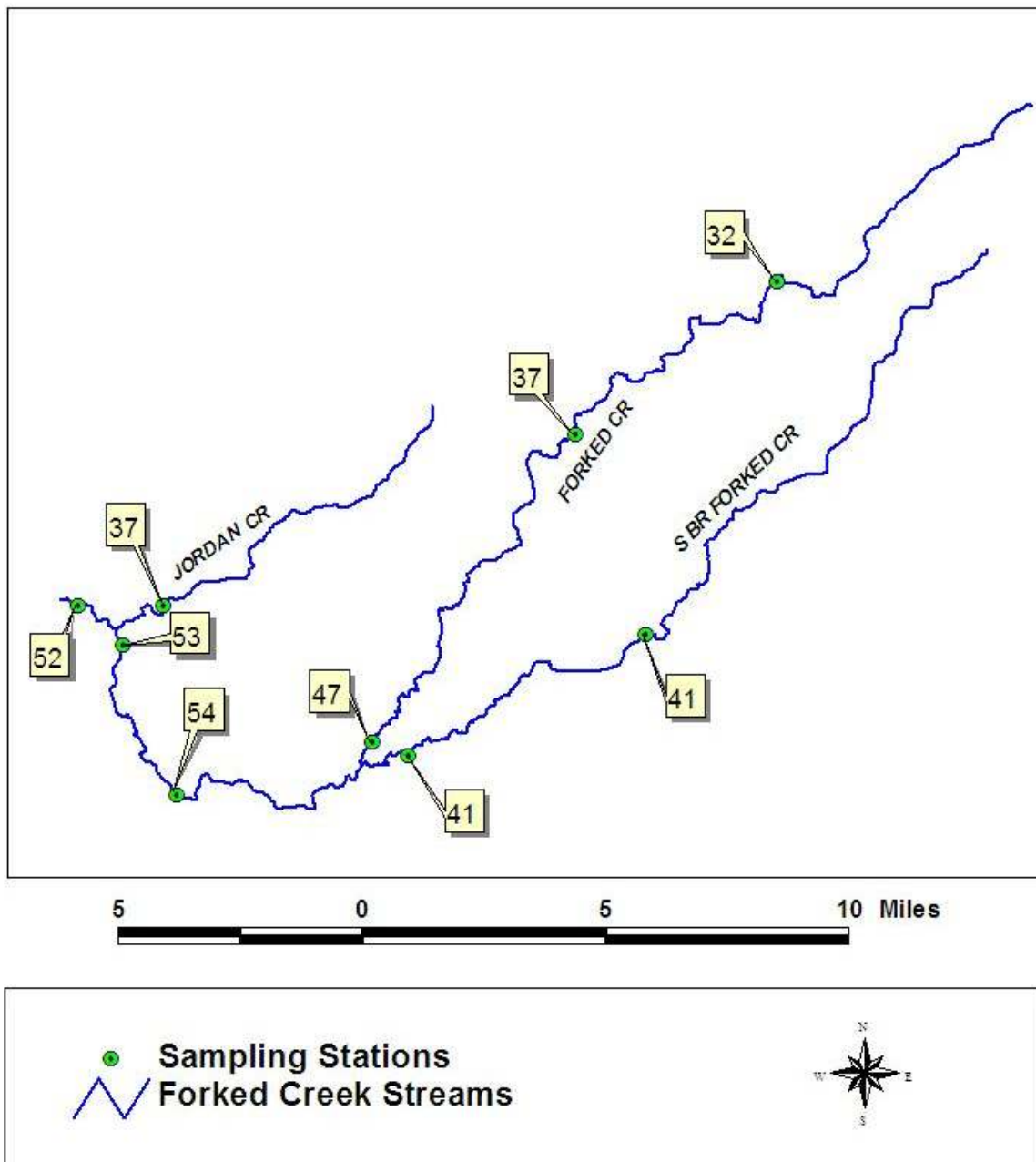


Figure 2. Index of Biotic Integrity (IBI) scores at each station for the 2004 Forked Creel survey.

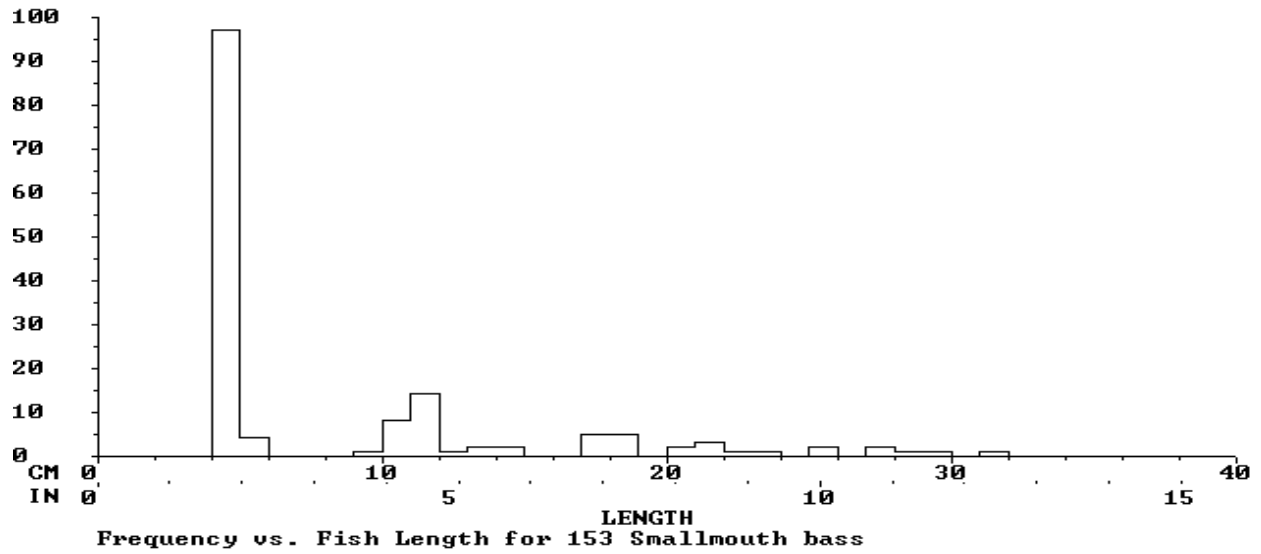


Figure 3. Smallmouth bass length-frequency distribution for the 2004 Forked Creek survey.

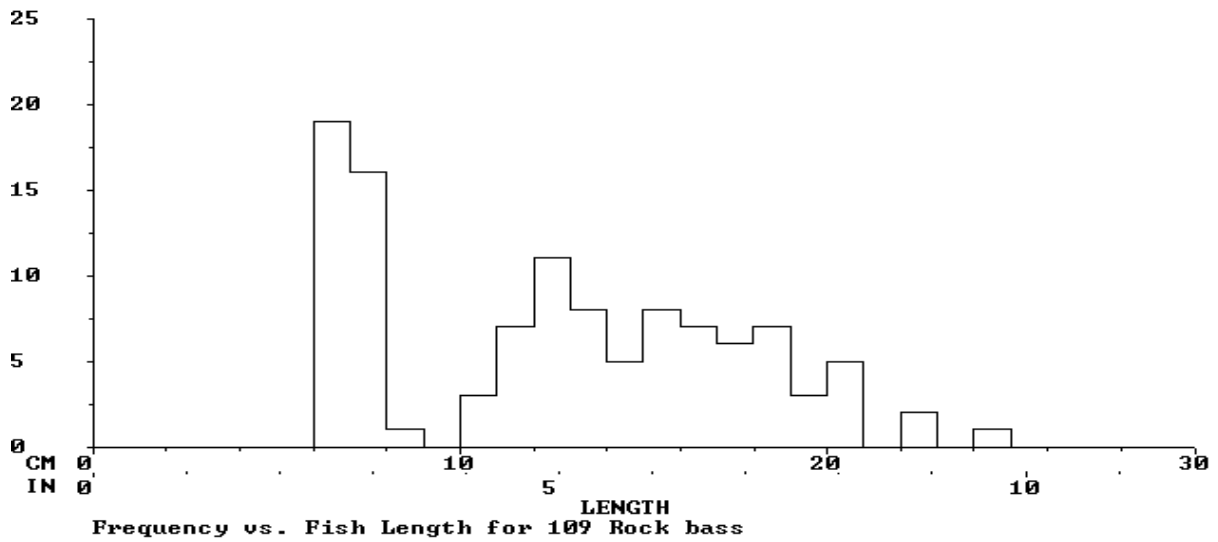


Figure 4. Rock bass length-frequency distribution for the 2004 Forked Creek survey.

Table 2. Summary of fish collection for 2004 survey for all nine stations combined, including total number of each species collected, subtotal for each family present, percent of the total number collected for each species, the number of locations a species was collected, and percent occurrence (number of locations collected/total number of stations).

Family	Common name	Scientific name	Total	Percent of Total No.	No. of Locations
Clupeidae - Herrings	Gizzard shad	Dorosoma cepedianum	87	1.6	1
Cyprinidae - Minnows	Striped shiner	Luxilus chrysocephalus	1049	19.05	9
	Central stoneroller	Campostoma anomalum	891	16.18	9
	Bluntnose minnow	Pimephales notatus	498	9.04	9
	Hornyhead chub	Nocomis biguttatus	362	6.57	9
	Creek chub	Semotilus atromaculatus	204	3.70	7
	Spotfin shiner	Cyprinella spiloptera	150	2.72	4
	Mimic shiner	Notropis volucellus	136	2.47	2
	Rosyface shiner	Notropis rubellus	128	2.32	5
	Largescale stoneroller	Campostoma oligolepis	62	1.13	6
	Sand shiner	Notropis ludibundus	41	0.74	3
	Redfin shiner	Lythrurus umbratilus	34	0.62	5
	Suckermouth minnow	Phenacobius mirabilis	24	0.44	1
	Carp	Cyprinus carpio	7	0.13	4
	Golden shiner	Notemigonus crysoleucas	2	0.04	2
	subtotal	3588	65.2		
Catostomidae - Suckers	Black redhorse	Moxostoma duquesnei	123	2.23	4
	Golden redhorse	Moxostoma erythrurum	108	1.96	6
	White sucker	Catostomus commersoni	106	1.92	8
	Northern hog sucker	Hypentelium nigricans	19	0.35	5
	Shorthead redhorse	Moxostoma macrolepidotum	1	0.02	1
	Smallmouth buffalo	Ictiobus bubalus	1	0.02	1
	subtotal	358	6.5		
Ictaluridae - Catfishes	Yellow bullhead	Ameiurus natalis	9	0.16	5
	Slender madtom	Noturus exilis	6	0.11	1
	Stoneyhead	Noturus flavus	2	0.04	2
	subtotal	17	0.3		
Cyprinodontidae - Killifish	Blackstripe topminnow	Fundulus notatus	10	0.2	
Centrarchidae - Sunfishes	Green sunfish	Lepomis cyanellus	489	8.88	9
	Longear sunfish	Lepomis megalotis	212	3.85	7
	Smallmouth bass	Micropterus dolomieu	153	2.78	7
	Rock bass	Ambloplites rupestris	109	1.98	8
	Bluegill	Lepomis macrochirus	87	1.58	4
	Largemouth bass	Micropterus salmoides	11	0.20	4
	Bluegill x Green sunfish hybrid	L. macrochirus x L. cyanellus	10	0.18	3
	Black crappie	Pomoxis nigromaculatus	2	0.04	1
	Orangespotted sunfish	Lepomis humilis	2	0.04	2
	subtotal	1075	19.5		
Percidae - Perches	Orangethroat darter	Etheostoma spectabile	138	2.51	2
	Johnny darter	Etheostoma nigrum	82	1.49	7
	Banded darter	Etheostoma zonale	58	1.05	3
	Fantail darter	Etheostoma flabellare	51	0.93	4
	Rainbow darter	Etheostoma caeruleum	22	0.40	3
	Slenderhead darter	Percina phoxocephala	9	0.16	3
	Blackside darter	Percina maculata	8	0.15	3
	Logperch	Percina caprodes	2	0.04	1
	subtotal	370	6.7		
Scaenidae - Drums	Freshwater drum	Aplodinotus grunniens	2	0.04	1
	Total fish	5507	100.0		
	Total species	42			

Table 3. Total number of fish and number of species at each station for the 2004 Forked Creek survey.

Common name	Scientific name	Total	FK-01	FK-02	FK-03	FK-04	FK-05	FK-06	FKJ-01	FKS-01	FKS-02
			Forked Creek	Forked Creek	Forked Creek	Forked Creek	Forked Creek	Forked Creek	Forked Creek	Jordan Creek	South Br Forked Creek
Gizzard shad	<i>Dorosoma cepedianum</i>	87	87	0	0	0	0	0	0	0	0
Carp	<i>Cyprinus carpio</i>	7	0	2	3	1	0	1	0	0	0
Golden shiner	<i>Notemigonus crysoleucas</i>	2	0	0	0	0	1	0	1	0	0
Creek chub	<i>Semotilus atromaculatus</i>	204	0	0	1	10	29	11	103	30	20
Hornyhead chub	<i>Nocomis biguttatus</i>	362	35	2	32	51	30	4	160	8	40
Central stoneroller	<i>Campostoma anomalum</i>	891	10	1	2	28	37	16	602	18	177
Largescale stoneroller	<i>Campostoma oligolepis</i>	62	23	0	38	0	0	0	1	0	0
Suckermouth minnow	<i>Phenacobius mirabilis</i>	24	0	0	0	0	0	0	0	0	24
Striped shiner	<i>Luxilus chrysocephalus</i>	1049	105	19	88	255	35	13	350	142	42
Redfin shiner	<i>Lythrurus umbratilus</i>	34	0	5	0	19	2	0	1	7	0
Spotfin shiner	<i>Cyprinella spiloptera</i>	150	110	14	3	0	19	0	0	4	0
Bluntnose minnow	<i>Pimephales notatus</i>	498	182	18	8	104	38	8	103	16	21
Rosyface shiner	<i>Notropis rubellus</i>	128	57	17	39	14	1	0	0	0	0
Sand shiner	<i>Notropis ludibundus</i>	41	0	4	2	11	2	6	0	16	0
Mimic shiner	<i>Notropis volucellus</i>	136	135	1	0	0	0	0	0	0	0
Smallmouth buffalo	<i>Ictiobus bubalus</i>	1	1	0	0	0	0	0	0	0	0
White sucker	<i>Catostomus commersoni</i>	106	1	2	0	22	5	17	30	27	2
Northern hog sucker	<i>Hypentelium nigricans</i>	19	3	7	7	1	0	0	0	1	0
Shorthead redhorse	<i>Moxostoma macrolepidotum</i>	1	1	0	0	0	0	0	0	0	0
Black redhorse	<i>Moxostoma duquesnei</i>	123	28	37	54	4	0	0	0	0	0
Golden redhorse	<i>Moxostoma erythrurum</i>	108	27	50	1	27	0	1	0	2	0
Yellow bullhead	<i>Ameiurus natalis</i>	9	0	1	0	2	1	3	2	0	0
Stonecat	<i>Noturus flavus</i>	2	1	0	1	0	0	0	0	0	0
Slender madtom	<i>Noturus exilis</i>	6	0	0	6	0	0	0	0	0	0
Blackstripe topminnow	<i>Fundulus notatus</i>	10	0	0	0	3	3	0	1	2	1
Black crappie	<i>Pomoxis nigromaculatus</i>	2	2	0	0	0	0	0	0	0	0
Rock bass	<i>Ambloplites rupestris</i>	109	24	6	38	18	8	2	0	11	2
Largemouth bass	<i>Micropterus salmoides</i>	11	8	0	0	1	1	1	0	0	0
Smallmouth bass	<i>Micropterus dolomieu</i>	153	53	15	41	7	1	0	21	15	0
Green sunfish	<i>Lepomis cyanellus</i>	489	17	40	11	5	52	108	254	1	1
Bluegill x Green sunfish hybrid	<i>Lepomis macrochirus</i> x <i>L. cyanellus</i>	10	0	0	0	2	1	7	0	0	0
Bluegill	<i>Lepomis macrochirus</i>	87	15	2	0	0	12	55	0	3	0
Longear sunfish	<i>Lepomis megalotis</i>	212	68	17	54	45	19	6	0	3	0
Orangespotted sunfish	<i>Lepomis humilis</i>	2	0	1	0	1	0	0	0	0	0
Blackside darter	<i>Percina maculata</i>	8	5	0	1	0	0	2	0	0	0
Slenderhead darter	<i>Percina phoxocephala</i>	9	1	5	3	0	0	0	0	0	0
Logperch	<i>Percina caprodes</i>	2	2	0	0	0	0	0	0	0	0
Johnny darter	<i>Etheostoma nigrum</i>	82	3	10	6	3	8	0	12	13	27
Banded darter	<i>Etheostoma zonale</i>	58	11	3	43	1	0	0	0	0	0
Rainbow darter	<i>Etheostoma caeruleum</i>	22	18	0	1	0	0	0	0	3	0
Orangethroat darter	<i>Etheostoma spectabile</i>	138	0	0	0	0	0	0	42	0	96
Fantail darter	<i>Etheostoma flabellare</i>	51	3	0	12	0	0	3	33	0	0
Freshwater drum	<i>Aplodinotus grunniens</i>	2	2	0	0	0	0	0	0	0	0
Total fish		5507	1038	279	495	635	305	264	1716	322	453
Total species		42	31	24	25	23	20	17	16	19	12

Table 5. Individual Station Metric Scores for determination of IBI⁽¹⁾ and BSC⁽²⁾. Forked Creek Fish Population Survey, August, 2004.

Station Code>>>	FK-01	FK-02	FK-03	FK-04	FK-05	FK-06	FKJ-01	FKS-01	FKS-02
Sample Date>>>	8/09/04	8/09/04	8/10/04	8/10/04	8/10/04	8/10/04	8/11/04	8/11/04	8/10/04
Metric (Criteria)	# or % Score	# or % Score	# or % Score	# or % Score	# or % Score	# or % Score	# or % Score	# or % Score	# or % Score
Number of native fish species	31 6	23 5	24 5	22 5	20 5	16 4	16 4	19 4	12 3
Number of native minnow species	8 5	9 6	9 6	8 5	10 5	6 4	8 4	8 5	6 4
Number of native sucker species	6 6	4 4	3 3	4 4	1 2	2 3	1 2	3 3	1 2
Number of native sunfish species	7 6	6 5	4 4	6 6	6 6	5 6	2 3	5 6	2 4
Number native benthic invertivore sp	13 6	6 4	11 6	5 4	1 1	3 3	3 3	4 3	3 3
Number of native intolerant species	8 6	7 6	9 6	6 6	3 4	1 2	2 3	4 4	1 2
% specialist benthic invertivores	10 3	40 6	27 6	6 2	3 2	2 2	5 3	6 2	27 6
% generalist feeders	63 4	39 6	23 6	68 4	64 4	84 2	49 5	76 3	19 6
% coarse substrate spawners	38 4	59 6	70 6	67 6	37 3	14 2	69 6	64 6	84 6
% tolerant species	10 6	22 5	17 6	27 5	30 5	38 4	38 4	21 5	33 5
IBI ⁽¹⁾	52	53	54	47	37	32	37	41	41
BSC ⁽²⁾	A	A	A	B	C	C	C	B	B

Biological Classification of Illinois Streams⁽²⁾

Resource	Unique	Highly Valued	Moderate	Limited	Restricted
Description ->	Aquatic Resource	Aquatic Resource	Aquatic Resource	Aquatic Resource	Aquatic Resource
Biotic Class ->	A	B	C	D	E
IBI range ->	51 - 60	41 - 50	31 - 40	21 - 30	≤ 20

1. Index of Biotic Integrity (IBI) (Smogor, 2000)

2. Biological Stream Characterization Rating (Bertrand, et al, 1996)

APPENDIX A - Station Location Information

Sta #	Legal Location	Lat/Long	Map	Common Locality
FK-01	T33N R9E Sec 25C	41° 18' 42.57"N 88° 8' 31.44"W	58c	Washington St. and Mill St. in Wilmington
FK-02	T33N R10E Sec 31NW	41° 18' 0.86"N 88° 7' 32.11"W	58c	Forsythe Woods FP, Kahler Rd, S. edge of Wilmington
FK-03 (FB-01)	T32N R10E Sec 17NW	FB-01		In Ritchie at Leasure Rd
FK-04	T32N R10E Sec 12SW	41° 16' 11.9"N 88° 1' 40.57" W	58d	Hazelton Rd, 3/4 mile W of Warner Bridge Rd.(7000W)
FK-05	T33N R11E Sec 10NW	41° 21' 31.41"N 87° 56' 39.72" W	57c	Laughton/Gerdes Grove FP; E of wilton Center on Joliet Rd (Rt 52);
FK-06	T34N R12E Sec 29NE	41° 24' 12.82"N 87° 51' 52.22" W	57a	104 th Ave, 1/2 mile N of Pauling Rd

South Branch Forked Creek

Sta #	T-R-S	Lat/Long	Map		Station Length	
FKS- 01	T33N R11E Sec 36SW	41° 18' 0"N 87° 55' 8.77" W	57c	Elevator Rd (aka 128 th Ave); 8-12',		
FKS- 02	T32N R11E Sec 7SW	FBC-02		7000W Rd Kankakee Co.		

Jordan Creek

Sta #	T-R-S	Lat/Long	Map		Station Length
FKJ- 01	T33N R10E Sec 29SW	41° 18' 37.64"N 88° 6' 32.94" W	58d	Smith Rd.	,

Appendix B

STATION ACCOUNTS

The following is a description and sampling results by station. Stations are grouped by location on the mainstem or tributary. Three stations on two tributaries and six stations on the mainstem of Forked Creek are discussed.

FORKED CREEK MAIN-STEM

Forked Creek Mainstem Stations Characteristics

Parameter	FK-01	FK-02	FK-03	FK-04	FK-05	FK-06
Date Sampled	8/09/04	8/09/04	8/10/04	8/10/04	8/10/04	8/10/04
Water Temperature C ⁰ /F ⁰	22/72	25/77	21.5/71	21.5/71	21.8/71	20.8/69
Conductivity (umhos/cm)	671	696	665	746	767	944
Flow Velocity - ft/sec	-	-	-	-	-	-
Average Depth (feet)	0.8	1.6	1.1	1.65	1.0	1.25
Station Length (feet)	501	519	560	615	430	430
Sampling Effort (minutes)	41.5	27	42	44	30	34
Stream Width (feet)	48	55	41	31.5	17.3	12
Sampling Efficiency (poor=0/best=27)	27	1	3	27	9	27
Gear Type, BE=boat ES= electric seine. PE=back-pack	ES	ES	ES	ES	ES	ES
Data ID Number	11510	11511	11512	11513	11514	11515
IEPA Station Code Number	none	none	FB-01	none	none	none

Forked Creek Mainstem Station FK-01

Station Location: Station is located in the City of Wilmington. At the lower end of the station a block net lined up with the intersection of Mill and Washington Streets. A block net at the upper end of the station was situated on a gravel bar approximately 75 feet downstream of a dam.

Riparian Corridor Characteristics: Residences sit atop a steep bluff (approximately 12 feet in height) on the south side of the stream at this location. The north side has a more gradual incline with exposed bedrock outcrops and abundant woody vegetation.

Channel Characteristics: The channel is high gradient without meanders, and with minimal pool and riffle development. Much of the stream bed was exposed bedrock (60% coverage), which limited riffle and pool development. Loose rock was available as cobble (20%), boulders (10%), and gravel (10%). Channel width varied from 25 feet (7.6 m) to 60 feet (18.3 m).

Stream Habitat Features: Boulders, cobbles, and several large colonies of the aquatic emergent plant water willow (*Justicia americana*) provided habitat at this station. Riffle habitat was represented by one well developed riffle downstream of a dam and two poorly developed riffles further downstream. Habitat on two of the riffles was enhanced by the presence of water willow colonies. Pool habitat was represented by several shallow pools that covered approximately 80% of the reach, and attained a maximum depth of two feet. Most pools were without brush and logs for habitat. Woody debris was only minimally available in this reach.

Fish Sampling Results: Sampling was conducted utilizing an electric seine electrofishing system (refer to page XX) which resulted in the collection of 1,038 fishes representing 31 species, the greatest abundance and diversity of the survey. Six species collected during the Forked Creek survey were collected only at this station (shorthead redhorse, black crappie, log perch, gizzard shad, smallmouth buffalo, and freshwater drum). Another four species were collected predominately at this station, rainbow darter (18 of 22), blackside darter (5 of 8), stonecat (1 of 2), and mimic shiner (135 of 136). In addition, smallmouth bass were more abundant at this station than other stations. Smallmouth bass were collected at seven of the nine stations in the survey, but nearly 35% of all

smallmouth were collected at this station. Smallmouth bass ranged from 1.3 inches (33 mm) in length to 8.7 inches (222 mm) in length. The absence of deeper pools restricted smallmouth bass size. Eight species of fish that are intolerant of habitat degradation and siltation, and three species considered tolerant of degradation were collected. However, the two groups shared nearly equal abundance; intolerant fishes represented 19.8% (n = 206) and tolerant fishes represented 19.3% (n = 200) of all fish collected. An IBI of 52 was calculated for this station, qualifying for a BSC rating of 'A'.

Additional Notes: This station yielded nearly 82% (n=18) of all rainbow darter (*Etheostoma caeruleum*) collected in the Forked Creek survey (Total = 22). The rainbow darter is an uncommon species that is listed as a species of special concern by the Chicago Wilderness Partnership. The abundance and diversity of fishes at this station reflects its accessibility and proximity to the Kankakee River. The low head dam at this location precludes fish migration into the upper reaches of Forked Creek. It is possible that during high water events some species or individuals could ascend the dam, especially common carp (*Cyprinus carpio*).

Common name	Scientific name	Tolerance	Qty
Gizzard shad	Dorosoma cepedianum	-	87
Hornyhead chub	Nocomis biguttatus	Intolerant	35
Central stoneroller	Camptostoma anomalum	-	10
Largescale stoneroller	Camptostoma oligolepis	-	23
Striped shiner	Luxilus chrysocephalus	-	105
Spotfin shiner	Cyprinella spiloptera	-	110
Bluntnose minnow	Pimephales notatus	Tolerant	182
Rosyface shiner	Notropis rubellus	Intolerant	57
Mimic shiner	Notropis volucellus	-	135
Smallmouth buffalo	Ictiobus bubalus	-	1
White sucker	Catostomus commersoni	Tolerant	1
Northern hog sucker	Hypentelium nigricans	Intolerant	3
Shorthead redhorse	Moxostoma macrolepidotum	-	1
Black redhorse	Moxostoma duquesnei	Intolerant	28
Golden redhorse	Moxostoma erythrurum	-	27
Stonecat	Noturus flavus	-	1
Black crappie	Pomoxis nigromaculatus	-	2
Rock bass	Ambloplites rupestris	-	24
Largemouth bass	Micropterus salmoides	-	8
Smallmouth bass	Micropterus dolomieu	Intolerant	53
Green sunfish	Lepomis cyanellus	Tolerant	17
Bluegill	Lepomis macrochirus	-	15
Longear sunfish	Lepomis megalotis	-	68
Blackside darter	Percina maculata	-	5
Slenderhead darter	Percina phoxocephala	Intolerant	1
Logperch	Percina caprodes	-	2
Johnny darter	Etheostoma nigrum	-	3
Banded darter	Etheostoma zonale	Intolerant	11
Rainbow darter	Etheostoma caeruleum	Intolerant	18
Fantail darter	Etheostoma flabellare	-	3
Freshwater drum	Aplodinotus grunniens	-	2
Total fish			1038
Total species			31

*Tolerance reflects whether a species is Tolerant , Intolerant or undesignated(-) in term of response to habitat degradation and siltation..

Forked Creek Mainstem Station FK-02

Station Location: Station is in the Forest Preserve District of Will Counties' Forsythe Woods Forest Preserve in the southeast portion of the City of Wilmington's municipal limits . Forsythe Woods is located approximately one mile east of State Route 102 on the north side of Kahler Road.

Riparian Corridor Characteristics: On the east side of Forked Creek the property is split between a large area of turf lawn (south section), and a forested section (north section). The entire west side of the stream is a forested corridor. The stream edge through the turf grass area is forested by large trees.

Channel Characteristics: Channel is wide (average width = 55 feet (16.7 m) and shallow (1.6 feet, 49 cm, average depth). It is low gradient with gravel, sand, and mud substrate with some cobble (10% coverage). The reach was divided by two shallow areas that would have been riffles if the gradient was steeper. One pool with a maximum depth of 33 inches (84 cm) was located near the center point of the reach. The upstream boundary was at a channel constriction approximately 100 feet downstream (north) of the Kahler Road bridge.

Stream Habitat Features: Habitat was minimal with only approximately 5% of the reach having available cover. A large colony of water willow was located at the downstream station border, but water willow was excluded from most of the station due to shading. Shade covered 40% to 50% of the stream reach at the time of sampling. Instream woody debris was only minimally available, and boulders were absent. Cobble were embedded in the soft substrate and did not provide cover for organisms. A single pool with a moderate depth and no woody cover, provided the only pool habitat. The pool was bordered both upstream and downstream by relatively shallow (6 inches to 20 inches of depth) areas ('run'). Run habitat represented approximately 90% of the channel at this location.

Fish Sampling Results: Sampling with an electric seine electrofishing system produced 279 fishes representing 24 species. It is likely that the low fish abundance and diversity reflected an apparent paucity of habitat. Although, what habitat that was available must have favored intolerant and invertivore (invertebrate eating) species. The percent of fish that are intolerant of habitat degradation was high (31% (n = 86). The number and percent of invertivore fish (40% of collection, n = 112) includes four intolerant species. A combination of the species in these two classifications represents over 53% (n = 146) of all fish collected at this station. As a result, an IBI of 53 was calculated for this station, qualifying for a BSC rating of 'A'. It is not clear what it is about this reach of stream that is attractive to these sensitive species, but it may be that this reach of stream is between reaches with higher quality habitat and the fish collected

were in transit or foraging.

Common name	Scientific name	Tolerance	Qty
Carp	Cyprinus carpio	Tolerant	2
Hornyhead chub	Nocomis biguttatus	Intolerant	2
Central stoneroller	Camptostoma anomalum	-	1
Striped shiner	Luxilus chrysocephalus	-	19
Redfin shiner	Lythrurus umbratilis	-	5
Spotfin shiner	Cyprinella spiloptera	-	14
Bluntnose minnow	Pimephales notatus	Tolerant	18
Rosyface shiner	Notropis rubellus	Intolerant	17
Sand shiner	Notropis ludibundus	-	4
Mimic shiner	Notropis volucellus	-	1
White sucker	Catostomus commersoni	Tolerant	2
Northern hog sucker	Hypentelium nigricans	Intolerant	7
Black redhorse	Moxostoma duquesnei	Intolerant	37
Golden redhorse	Moxostoma erythrurum	-	50
Yellow bullhead	Ameiurus natalis	Tolerant	1
Rock bass	Ambloplites rupestris	-	6
Smallmouth bass	Micropterus dolomieu	Intolerant	15
Green sunfish	Lepomis cyanellus	Tolerant	40
Bluegill	Lepomis macrochirus	-	2
Longear sunfish	Lepomis megalotis	-	17
Orangespotted sunfish	Lepomis humilis	-	1
Slenderhead darter	Percina phoxocephala	Intolerant	5
Johnny darter	Etheostoma nigrum	-	10
Banded darter	Etheostoma zonale	Intolerant	3
Total fish			279
Total species			24

*Tolerance reflects whether a species is Tolerant of degraded habitat and silt or mud substrate, Intolerant of habitat degradation and siltation, or not designated (-) as tolerant or intolerant.

Parameter	FK-02
Date Sampled	8/09/04
Water Temperature C°/F°	25/77
Conductivity (umhos/cm)	696
Flow Velocity - ft/sec	-
Average Depth (feet)	1.6
Station Length (feet)	519
Sampling Effort (minutes)	27
Stream Width (feet)	55
Sampling Efficiency (poor=0/best=27)	1
Gear Type, BE=boat ES= electric seine. PE=back-pack	ES
Data ID Number	11511
IEPA Station Code Number	none

Forked Creek Mainstem Station FK-03

Station Location: The station is at the Leisure Road bridge in the Village of Ritchie. FK-03 also has an Illinois Environmental Protection Agency (IEPA) code of FB-01. FB-01 was sampled in 1995 and 2000, and will again be sampled in 2005. The area sampled has been upstream of the bridge, while this sampling, in 2004, was conducted downstream of the bridge.

Riparian Corridor Characteristics: On the east side of the stream a narrow forested corridor provides a buffer from agricultural fields. A residence and lawn with a narrow fringe of trees on a steep bank form the west corridor.

Channel Characteristics: The channel is high gradient downstream of the Leisure Road bridge and appears incised with steep banks and minimal meanders. The substrate is primarily cobble (approximately 80% coverage) with 20% sand and gravel. The stream is shallow throughout this reach, with an average depth of approximately 1.1 feet (33 cm) and a maximum depth in one pool of 2.0 feet (61 cm). Channel characteristics at this location strongly resembled the characteristics at FC-01, with the exception that exposed bedrock does not occur at this station. Average channel width was 41 feet (12.5 m).

Stream Habitat Features: Shade from a nearly closed canopy (approximately 55% coverage) excluded aquatic vegetation from most of this reach of stream., except for a colony of water willow at the stations upstream limit. Brush and log debris habitat was absent. The principal source of habitat was very abundant cobbles. Nearly all the sizes of cobble were not embedded, thereby providing interstitial areas for cover and habitat for small fish and invertebrates.

Fish Sampling Results: Sampling with an electric seine electrofishing system produced 495 fishes representing 25 species. This station received the highest IBI value of the survey (IBI = 54, BSC = 'A'). The IBI value reflects, in large part, the abundance of fish that rely on rocky substrate and are intolerant of siltation. Although species diversity was lower at this station than at FK-01, intolerant fishes captured more than twice as much proportion of the sample at this station (45%) than at FK-01 (19.8%). Additionally, intolerant fishes were nearly ten times as abundant as tolerant fishes at this station, but were nearly equal in abundance at FK-01. Intolerant species at this station were represented by 226 individuals of nine species, while tolerant species were represented by only 23 individuals of four species. Tolerant species comprised just 4.6% of the sample at this station. Nine species of invertivorous fish (which includes six of the intolerant species) were collected. Intolerant fish and invertivore fish totaled 245 individuals and represented more than 49% of all fish collected at this station.

Additional Notes: This station and FK-01 were the only two stations where the madtom catfish species, stonecat (*Noturus flavus*, n = 1 at each station) were collected. This was the only station where slender madtom (*Noturus exilis*, n = 6) were collected.

Common name	Scientific name	Tolerance	Qty
Carp	Cyprinus carpio	Tolerant	3
Creek chub	Semotilus atromaculatus	Tolerant	1
Hornyhead chub	Nocomis biguttatus	Intolerant	32
Central stoneroller	Campostoma anomalum	-	2
Largescale stoneroller	Campostoma oligolepis	-	38
Striped shiner	Luxilus chrysocephalus	-	88
Spotfin shiner	Cyprinella spiloptera	-	3
Bluntnose minnow	Pimephales notatus	Tolerant	8
Rosyface shiner	Notropis rubellus	Intolerant	39
Sand shiner	Notropis ludibundus	-	2
Northern hog sucker	Hypentelium nigricans	Intolerant	7
Black redhorse	Moxostoma duquesnei	Intolerant	54
Golden redhorse	Moxostoma erythrurum	-	1
Stonecat	Noturus flavus	-	1
Slender madtom	Noturus exilis	Intolerant	6
Rock bass	Ambloplites rupestris	-	38
Smallmouth bass	Micropterus dolomieu	Intolerant	41
Green sunfish	Lepomis cyanellus	Tolerant	11
Longear sunfish	Lepomis megalotis	-	54
Blackside darter	Percina maculata	-	1
Slenderhead darter	Percina phoxocephala	Intolerant	3
Johnny darter	Etheostoma nigrum	-	6
Banded darter	Etheostoma zonale	Intolerant	43
Rainbow darter	Etheostoma caeruleum	Intolerant	1
Fantail darter	Etheostoma flabellare	-	12
Total fish			495
Total species			25

*Tolerance reflects whether a species is Tolerant of degraded habitat and silt or mud substrate, Intolerant of habitat degradation and siltation, or not designated (-) as tolerant or intolerant.

Parameter	FK-03
Date Sampled	8/10/04
Water Temperature C ⁰ /F ⁰	21.5/71
Conductivity (umhos/cm)	665
Flow Velocity - ft/sec	-
Average Depth (feet)	1.1
Station Length (feet)	560
Sampling Effort (minutes)	42
Stream Width (feet)	41
Sampling Efficiency (poor=0/best=27)	3
Gear Type, BE=boat ES= electric seine. PE=back-pack	ES
Data ID Number	11512
IEPA Station Code Number	FB-01

Forked Creek Mainstem Station FK-04

Station Location: This station was located from the Hazelton Road bridge downstream.. It is approximately 4.2 miles (6.7 km) on Ballou Road east of Route 102, 0.5 mile (0.8 km) south of Ballou Road on Symerton Road, then east 1.4 miles (2.25 km) on Hazelton Road.

Riparian Corridor Characteristics: Grass corridors along both sides of the stream buffer the stream from adjacent agricultural fields. There is a row of trees from the bridge downstream for approximately 50 feet (15 m) on the east side. Large trees occur incidentally within the grass border on both sides of the stream.

Channel Characteristics: The channel is deeply incised with a substrate comprised of mud, clay, sand, and gravel. The channel has two sweeping curves, but meanders were absent. There were two mud/sand/gravel bars in the reach. One of the bars and the adjacent shorelines have developed a large colony of water willow.

Three pools up to a depth of 30 inches (76 cm) were adjacent to areas that ranged from 0.5 feet (15 cm) to 2.0 feet (61 cm). The average depth of 1.65 feet (50 cm) was the prevalent depth. Channel width varied from 22 feet (6.7 m) to 41 feet (12.5 m).

Stream Habitat Features: Habitat consisted of one dead-fall tree, three moderately deep pools, and water willow colonies near the upper and lower ends of the station. Although some cobble was present, it was imbedded in the substrate and did not provide cover or habitat.

Fish Sampling Results: Sampling with an electric seine electrofishing system resulted in the collection of 635 fishes representing 23 species. Tolerant species were nearly twice as prevalent at this station than intolerant species. Seven tolerant species (n = 146 fish) represented 23% of all fish collected at this station, while six intolerant species (n = 78) only represented 12% of the fish. The collection of invertivore fish included only 36 individuals of five species. Invertivores represented less than 6% of the total collection. Invertebrates are more prevalent in reaches with more of a cobble or rocky substrate. An IBI value of 47 was calculated for this station, qualifying for a BSC rating of 'B'.

Additional Notes: This was one of only two stations in the survey

where orangespotted sunfish were collected (the other was FK-02).

Common name	Scientific name	Tolerance	Qty
Carp	Cyprinus carpio	Tolerant	1
Creek chub	Semotilus atromaculatus	Tolerant	10
Hornyhead chub	Nocomis biguttatus	Intolerant	51
Central stoneroller	Camptostoma anomalum	-	28
Striped shiner	Luxilus chrysocephalus	-	255
Redfin shiner	Lythrurus umbratilis	-	19
Bluntnose minnow	Pimephales notatus	Tolerant	104
Rosyface shiner	Notropis rubellus	Intolerant	14
Sand shiner	Notropis ludibundus	-	11
White sucker	Catostomus commersoni	Tolerant	22
Northern hog sucker	Hypentelium nigricans	Intolerant	1
Black redhorse	Moxostoma duquesnei	Intolerant	4
Golden redhorse	Moxostoma erythrurum	-	27
Yellow bullhead	Ameiurus natalis	Tolerant	2
Blackstripe topminnow	Fundulus notatus	-	3
Rock bass	Ambloplites rupestris	-	18
Largemouth bass	Micropterus salmoides	-	1
Smallmouth bass	Micropterus dolomieu	Intolerant	7
Green sunfish	Lepomis cyanellus	Tolerant	5
Bluegill x Green sunfish hybrid	Lepomis macrochirus x	Tolerant	2
	L. cyanellus		
Longear sunfish	Lepomis megalotis	-	45
Orangespotted sunfish	Lepomis humilis	-	1
Johnny darter	Etheostoma nigrum	-	3
Banded darter	Etheostoma zonale	Intolerant	1
Total fish			635
Total species			23

*Tolerance reflects whether a species is Tolerant of degraded habitat and silt or mud substrate, Intolerant of habitat degradation and siltation, or not designated (-) as tolerant or intolerant.

Parameter	FK-04
Date Sampled	8/10/04
Water Temperature C ⁰ /F ⁰	21.5/71
Conductivity (umhos/cm)	746
Flow Velocity - ft/sec	-
Average Depth (feet)	1.65
Station Length (feet)	615
Sampling Effort (minutes)	44
Stream Width (feet)	31.5
Sampling Efficiency (poor=0/best=27)	27
Gear Type, BE=boat ES= electric seine. PE=back-pack	ES
Data ID Number	11513
IEPA Station Code Number	none

Forked Creek Mainstem Station FK-05

Station Location: The sample area is located in Laughton/Gerdes Grove Forest Preserve, 0.9 mile (1.4 km) east of the Village of Wilton Center, north of Joliet Road (U.S. Route 52).

Riparian Corridor Characteristics: A dense forested flood plain corridor is present on the west side of the stream. A woody buffer corridor on the east side of the stream separates it from agricultural fields at this location. As the water proceeds downstream, the channel turns west. At this point, densely forested flood plain is present on both sides of the stream .

Channel Characteristics: Channel exhibited several meanders, five pools, and three riffles. Water depth in the main flow of the channel was highly variable. The average depth was 12.5 inches (31.8 cm), the maximum depth was 24 inches (61 cm), and minimum was 2.4 inches (6 cm). The channel ranged from 10.2 feet (3 m) wide to 21 feet (6.4 m) wide, with an average width of 17 feet (5 m). Substrate was predominately silt/mud (65% coverage) with gravel (30% coverage) in the riffles and some of the runs. Approximately 5% of the channel exhibited exposed claypan.

Stream Habitat Features: Submerged logs and woody debris were abundant, providing nearly 40% of the sample area with cover. However, there was no aquatic vegetation and boulders and cobble were absent.

Fish Sampling Results: Sampling with a back-pack electrofishing system resulted in the collection of 305 fishes representing 20 species. Benthic invertivores (fish that require invertebrates for food) were represented by only one species; johnny darter (*Etheostoma nigrum*, n=8). The absence of rocky substrate materials provides only minimal opportunity for invertebrates to establish a population. It also appeared possible that this reach of stream may not have water available in all months. An IBI of 37 was calculated for this station, which qualifies for a BSC rating of ‘C’.

Common name	Scientific name	Tolerance	Qty
Golden shiner	Notemigonus crysoleucas	Tolerant	1
Creek chub	Semotilus atromaculatus	Tolerant	29
Hornyhead chub	Nocomis biguttatus	Intolerant	30
Central stoneroller	Camptostoma anomalum	-	37
Striped shiner	Luxilus chrysocephalus	-	35
Redfin shiner	Lythrurus umbratilis	-	2
Spotfin shiner	Cyprinella spiloptera	-	19
Bluntnose minnow	Pimephales notatus	Tolerant	38
Rosyface shiner	Notropis rubellus	Intolerant	1
Sand shiner	Notropis ludibundus	-	2
White sucker	Catostomus commersoni	Tolerant	5
Yellow bullhead	Ameiurus natalis	Tolerant	1
Blackstripe topminnow	Fundulus notatus	-	3
Rock bass	Ambloplites rupestris	-	8
Largemouth bass	Micropterus salmoides	-	1
Smallmouth bass	Micropterus dolomieu	Intolerant	1
Green sunfish	Lepomis cyanellus	Tolerant	52
Bluegill x Green sunfish hybrid	Lepomis macrochirus x	Tolerant	1
	L. cyanellus		
Bluegill	Lepomis macrochirus	-	12
Longear sunfish	Lepomis megalotis	-	19
Johnny darter	Etheostoma nigrum	-	8
Total fish			305
Total species			20

*Tolerance reflects whether a species is Tolerant of degraded habitat and silt or mud substrate, Intolerant of habitat degradation and siltation, or not designated (-) as tolerant or intolerant.

Parameter	FK-05
Date Sampled	8/10/04
Water Temperature C ⁰ /F ⁰	21.8/71
Conductivity (umhos/cm)	767
Flow Velocity - ft/sec	-
Average Depth (feet)	1.0
Station Length (feet)	430
Sampling Effort (minutes)	30
Stream Width (feet)	17.3
Sampling Efficiency (poor=0/best=27)	9
Gear Type, BE=boat ES= electric seine. PE=back-pack	ES
Data ID Number	11514
IEPA Station Code Number	none

Forked Creek Mainstem Station FK-06

Station Location: Located in Green Garden township, this was the highest head-water station sampled. The station was approximately 0.5 mile (0.8 km) north of Pauling Road on the west side of 104th Avenue.

Riparian Corridor Characteristics: A narrow, mowed grass, corridor separated the stream from adjacent agricultural fields on the west side of 104th Avenue. It appeared that the construction of a sub-division was underway on the east side of 104th Avenue.

Channel Characteristics: The channel was deeply incised with sweeping curves. It is recovering from prior channelization with very small meanders beginning to form. Broken concrete rubble had been placed along the outside bend of one of the curves for erosion control. Gravel, cobble and boulders were abundant (approximately 60% coverage) through much of the reach. The three pools in the reach exhibited substrates of sand and mud. Approximately 10% of the reach had exposed claypan in eroded areas of streambank.

Stream Habitat Features: Cobble and boulders provided the majority of habitat. Additional habitat was provided by small amounts of submerged roots and logs, brush, overhanging terrestrial grasses, and one colony of the floating leaved aquatic plant, American pondweed (*Potamogeton nodosus*).

Fish Sampling Results: Sampling was conducted with a back-pack electrofishing system, and resulted in the collection of 264 fishes representing 16 native species and one non-native species, the common carp (*Cyprinus carpio*). Low fish abundance, and species diversity may reflect this stations position in the watershed. Three benthic invertivore fish species were collected, reflecting an adequate supply of invertebrates, due to favorable habitat (boulders, cobble, logs, roots, etc.). An IBI of 32 was calculated for this station, qualifying for a BSC rating of ‘C’.

Common name	Scientific name	Tolerance	Qty
Carp	Cyprinus carpio	Tolerant	1
Creek chub	Semotilus atromaculatus	Tolerant	11
Hornyhead chub	Nocomis biguttatus	Intolerant	4
Central stoneroller	Campostoma anomalum	-	16
Striped shiner	Luxilus chrysocephalus	-	13
Bluntnose minnow	Pimephales notatus	Tolerant	8
Sand shiner	Notropis ludibundus	-	6
White sucker	Catostomus commersoni	Tolerant	17
Golden redhorse	Moxostoma erythrurum	-	1
Yellow bullhead	Ameiurus natalis	Tolerant	3
Rock bass	Ambloplites rupestris	-	2
Largemouth bass	Micropterus salmoides	-	1
Green sunfish	Lepomis cyanellus	Tolerant	108
Bluegill x Green sunfish	Lepomis macrochirus x	Tolerant	7
hybrid	L. cyanellus		
Bluegill	Lepomis macrochirus	-	55
Longear sunfish	Lepomis megalotis	-	6
Blackside darter	Percina maculata	-	2
Fantail darter	Etheostoma flabellare	-	3
Total fish			264
Total species			17

*Tolerance reflects whether a species is Tolerant of degraded habitat and silt or mud substrate, Intolerant of habitat degradation and siltation, or not designated (-) as tolerant or intolerant.

Parameter	FK-06
Date Sampled	8/10/04
Water Temperature C ⁰ /F ⁰	20.8/69
Conductivity (umhos/cm)	944
Flow Velocity - ft/sec	-
Average Depth (feet)	1.25
Station Length (feet)	430
Sampling Effort (minutes)	34
Stream Width (feet)	12
Sampling Efficiency (poor=0/best=27)	27
Gear Type, BE=boat ES= electric seine. PE=back-pack	ES
Data ID Number	11515
IEPA Station Code Number	none

South Branch of Forked Creek FKS-01

Station Location: Located on the east side of County Line Road (7000W), this was the only Forked Creek system station located in Kankakee County.

Riparian Corridor Characteristics: A grass corridor of 100 to 200 feet in width separated the stream from agricultural fields. Numerous trees grew along the stream bank, providing shade over approximately 75% of channel. Most trees appeared to be box elder.

Channel Characteristics: Channel is deeply incised with steep banks. There was some meanders beginning to develop, and the stream forms a bend just before it crosses under the road. Substrate was comprised almost entirely of sand (50%), gravel (30%), and silt-mud (20%).

Stream Habitat Features: Instream habitat was minimal. Habitat that was available, such as boulders, undercut banks, roots, and woody debris, occurred in less than 5% of this station.

Fish Sampling Results: Sampling with an electric seine electrofishing system resulted in the collection of 322 fishes representing 19 native species. This station exhibited low species diversity (approximately 60% of the best station) and low fish abundance. Both results reflect the paucity of habitat. It is likely that this area of the stream serves as a spawning and/or nursery area for smallmouth and rock bass. Smallmouth bass (1.3 to 6.5 inch in length, n=15), and rock bass (2.3 to 7.7 inches in length, n=11) were collected at this location. An IBI of 41 was calculated for this station, qualifying for a BSC rating of 'B'

Common name	Scientific name	Tolerance	Qty
Creek chub	Semotilus atromaculatus	Tolerant	30
Hornyhead chub	Nocomis biguttatus	Intolerant	8
Central stoneroller	Campostoma anomalum	-	18
Striped shiner	Luxilus chrysocephalus	-	142
Redfin shiner	Lythrurus umbratilis	-	7
Spotfin shiner	Cyprinella spiloptera	-	4
Bluntnose minnow	Pimephales notatus	Tolerant	16
Sand shiner	Notropis ludibundus	-	16
White sucker	Catostomus commersoni	Tolerant	27
Northern hog sucker	Hypentelium nigricans	Intolerant	1
Golden redbhorse	Moxostoma erythrurum	-	2
Blackstripe topminnow	Fundulus notatus	-	2
Rock bass	Ambloplites rupestris	-	11
Largemouth bass	Micropterus salmoides	-	0
Smallmouth bass	Micropterus dolomieu	Intolerant	15
Green sunfish	Lepomis cyanellus	Tolerant	1
Bluegill	Lepomis macrochirus	-	3
Longear sunfish	Lepomis megalotis	-	3
Johnny darter	Etheostoma nigrum	-	13
Rainbow darter	Etheostoma caeruleum	Intolerant	3
Total fish			322
Total species			19

*Tolerance reflects whether a species is Tolerant of degraded habitat and silt or mud substrate, Intolerant of habitat degradation and siltation, or not designated (-) as tolerant or intolerant.

Parameter	FKS-01
Date Sampled	8/11/04
Water Temperature C ⁰ /F ⁰	18.1
Conductivity (umhos/cm)	579
Flow Velocity - ft/sec	-0-
Average Depth (feet)	1.7
Station Length (feet)	540
Sampling Effort (minutes)	33
Stream Width (feet)	30
Sampling Efficiency (poor=0/best=27)	27
Gear Type, BE=boat ES= electric seine. PE=back-pack	ES
Data ID Number	11516
IEPA Station Code Number	FBC-02

South Branch of Forked Creek FKS-02

Station Location: Station was on the east side of Elevator Road in Will County, approximately ½ mile north of the county line (12000N), and two miles west of U.S. Route 52/45.

Riparian Corridor Characteristics: The lower portion of the west side of the stream was residential lawn. The upper portion of the west side was wooded along the stream bank. The east side supported brush and tall grass between the stream and agricultural fields.

Channel Characteristics: Much of the channel is in bedrock. Riffles of cobble, boulders, and some gravel separated shallow pools. Channel exhibited only moderate meanders.

Stream Habitat Features: Principal habitat was cobble and boulders, which were located mostly in riffles (about 40% coverage). Other habitat/cover, such as undercut banks, a rock ledge, and minimal woody debris was available over approximately 15% of the sample reach.

Fish Sampling Results: Sampling was conducted with a back-pack electrofishing system, and resulted in the collection of 453 fishes representing 12 native species. Darter abundance was higher (n=123) at this station than any other survey station. However, darter species diversity was low, with orangethroat darter (*Etheostoma spectabile*, n=96) and johnny darter (*Etheostoma nigrum*, n=27) the only two species collected. This was the only station where suckermouth minnow (*Phenacobius mirabilis*, n = 24) were collected. Sportfish were represented by young-of-the-year rock bass (*Ambloplites rupestris*, n = 2). An IBI of 41 was calculated for this station, qualifying for a BSC rating of 'B'.

Common name	Scientific name	Tolerance	Qty
Creek chub	<i>Semotilus atromaculatus</i>	Tolerant	20
Hornyhead chub	<i>Nocomis biguttatus</i>	Intolerant	40
Central stoneroller	<i>Campostoma anomalum</i>	-	177
Suckermouth minnow	<i>Phenacobius mirabilis</i>	-	24
Striped shiner	<i>Luxilus chrysocephalus</i>	-	42
Bluntnose minnow	<i>Pimephales notatus</i>	Tolerant	21
White sucker	<i>Catostomus commersoni</i>	Tolerant	2
Blackstripe topminnow	<i>Fundulus notatus</i>	-	1
Rock bass	<i>Ambloplites rupestris</i>	-	2
Green sunfish	<i>Lepomis cyanellus</i>	Tolerant	1
Johnny darter	<i>Etheostoma nigrum</i>	-	27
Orangethroat darter	<i>Etheostoma spectabile</i>	-	96
Total fish			453
Total species			12

*Tolerance reflects whether a species is Tolerant of degraded habitat and silt or mud substrate, Intolerant of habitat degradation and siltation, or not designated (-) as tolerant or intolerant.

Parameter	FKS-02
Date Sampled	8/10/04
Water Temperature C ⁰ /F ⁰	19.2
Conductivity (umhos/cm)	652
Flow Velocity - ft/sec	-0-
Average Depth (feet)	0.5
Station Length (feet)	350
Sampling Effort (minutes)	30
Stream Width (feet)	12
Sampling Efficiency (poor=0/best=27)	27
Gear Type, BE=boat ES= electric seine. PE=back-pack	PE
Data ID Number	11517
IEPA Station Code Number	na

Jordan Creek FKJ-01

Station Location: The sampling site was northeast of the Village of Wilmington in Will County. The station was located in a pasture area on the east side of Smith Road.

Riparian Corridor Characteristics: Both sides of the stream was grazed pasture (grasses) with cattle present. Much of the stream corridor appeared to be floodplain.

Channel Characteristics: The channel exhibited moderate pool, riffle, and meander development. The streambed was not incised, as much of it was bedrock (approximately 40%). The sampled area had two large, shallow, pools (80% of area) that averaged approximately six inches in depth. The channel also had two runs (15% of area), and two riffles (5%). While much of the channel was exposed bedrock, some silt, sand, and gravel was present (25%), with considerable cobble (15%) and boulders (20%).

Stream Habitat Features: The main habitat features were colonies of aquatic plants and cobble/boulders. Large colonies of water stargrass (*Heteranthera dubia*) were present, covering approximately 20% of the sampled area. Combined with the abundant boulders and cobble, the sampled reach exhibited good habitat for such a shallow stream segment (average depth = six inches).

Fish Sampling Results: Sampling was conducted with a back-pack electrofishing system, and resulted in the largest number of fish collected at any station in the survey. Sampling resulted in the collection of 1,716 fishes, representing 16 native species. More than 35% of the fish collected were one species, central stoneroller (*Campostoma anomalum*, n= 602). Stonerollers are a vegetarian species, that forage by scraping algae from hard surfaces. The presence of young-of-the-year smallmouth bass (*Micropterus dolomieu*, n= 21) indicates that this portion of stream serves as a nursery area, and may be a spawning area for the bass. Three species of darter were collected, johnny darter

(n=12), orangethroat darter (n=42), and fantail darter (*Etheostoma flabellare*, n=3). An IBI of 37 was calculated for this station, qualifying for a BSC rating of ‘C’.

Common name	Scientific name	Tolerance	Qty
Golden shiner	Notemigonus crysoleucas	Tolerant	1
Creek chub	Semotilus atromaculatus	Tolerant	103
Hornyhead chub	Nocomis biguttatus	Intolerant	160
Central stoneroller	Campostoma anomalum	-	602
Largescale stoneroller	Campostoma oligolepis	-	1
Striped shiner	Luxilus chrysocephalus	-	350
Redfin shiner	Lythrurus umbratilis	-	1
Bluntnose minnow	Pimephales notatus	Tolerant	103
White sucker	Catostomus commersoni	Tolerant	30
Yellow bullhead	Ameiurus natalis	Tolerant	2
Blackstripe topminnow	Fundulus notatus	-	1
Smallmouth bass	Micropterus dolomieu	Intolerant	21
Green sunfish	Lepomis cyanellus	Tolerant	254
Johnny darter	Etheostoma nigrum	-	12
Orangethroat darter	Etheostoma spectabile	-	42
Fantail darter	Etheostoma flabellare	-	33
Total fish			1716
Total species			16

*Tolerance reflects whether a species is Tolerant of degraded habitat and silt or mud substrate, Intolerant of habitat degradation and siltation, or not designated (-) as tolerant or intolerant.

Parameter	FKJ-01
Date Sampled	8/11/04
Water Temperature C ⁰ /F ⁰	na
Conductivity (umhos/cm)	na
Flow Velocity - ft/sec	na
Average Depth (feet)	0.5
Station Length (feet)	295
Sampling Effort (minutes)	31
Stream Width (feet)	15
Sampling Efficiency (poor=0/best=27)	27
Gear Type, BE=boat ES= electric seine. PE=back-pack	PE
Data ID Number	11518
IEPA Station Code Number	na