

04092677 GRAND CALUMET RIVER AT INDUSTRIAL HWY AT GARY, IN

LOCATION.--Lat 41°36'29", long 87°23'39".in NW¹/₄NW¹/₄ sec.6, T.37 N., R.8W., Lake County, Hydrologic Unit 04040001, (HIGHLAND, IN quadrangle), on left bank, 30 feet upstream of U.S. 12 (Industrial Highway), 100 feet streamward of the centerline of Interstate 90, 2,000 feet downstream of Norfolk and Western railroad bridge, 6,000 feet southeast of Gary Airport terminal.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--October 1991 to September 1994, (gage heights only), October 1994 to current year.

GAGE.--Water-stage recorder and Acoustic Doppler Velocity Meter. Datum of gage is 580.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for estimated daily discharges, which are poor. Discharge is primarily from industrial and city effluent. Gage sensors were removed and gage temporarily shutdown from May 2, 2001 through December 5, 2001, due to bridge replacement.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	641	541	490	454	449	442	496	535	590	609	709	704
2	616	533	461	447	449	435	485	523	592	621	691	694
3	622	546	458	461	454	431	479	500	605	622	743	693
4	658	539	446	466	444	425	542	516	596	623	705	669
5	627	542	455	470	441	427	510	575	601	659	689	688
6	632	518	474	461	442	436	497	541	613	632	700	685
7	608	522	472	469	447	430	489	532	604	669	703	680
8	611	519	454	459	439	433	487	548	597	640	704	677
9	597	532	461	474	432	428	490	644	582	648	723	675
10	619	557	464	451	423	430	521	597	599	660	735	681
11	616	518	466	454	438	435	533	603	583	652	696	673
12	599	505	469	453	416	436	521	550	595	655	676	637
13	590	498	474	451	434	442	530	551	601	648	687	595
14	598	508	457	453	437	446	535	529	595	638	692	588
15	594	502	451	442	422	453	559	480	600	695	707	598
16	596	499	451	451	414	466	536	482	611	659	726	611
17	578	504	455	441	419	455	530	491	618	701	754	604
18	587	489	486	443	428	463	532	522	630	731	718	595
19	577	497	484	445	428	464	545	576	617	694	700	586
20	582	522	456	440	435	471	555	613	621	685	706	582
21	576	515	458	431	448	475	530	576	619	719	708	600
22	559	510	449	425	436	466	505	580	633	705	705	593
23	559	518	446	420	415	468	519	589	631	689	708	587
24	564	516	417	435	434	482	509	591	638	695	715	584
25	581	492	401	433	434	491	487	591	642	700	709	580
26	564	482	414	424	439	493	489	599	608	702	727	596
27	552	487	446	429	428	494	509	602	616	783	708	585
28	561	449	461	426	434	512	513	607	617	720	714	570
29	545	464	448	432	---	489	517	607	618	701	746	571
30	551	476	475	441	---	494	543	602	627	713	712	573
31	560	---	472	454	---	501	---	597	---	713	716	---
TOTAL	18,320	15,300	14,171	13,835	12,159	14,213	15,493	17,449	18,299	20,981	22,032	18,754
MEAN	591	510	457	446	434	458	516	563	610	677	711	625
MAX	658	557	490	474	454	512	559	644	642	783	754	704
MIN	545	449	401	420	414	425	479	480	582	609	676	570

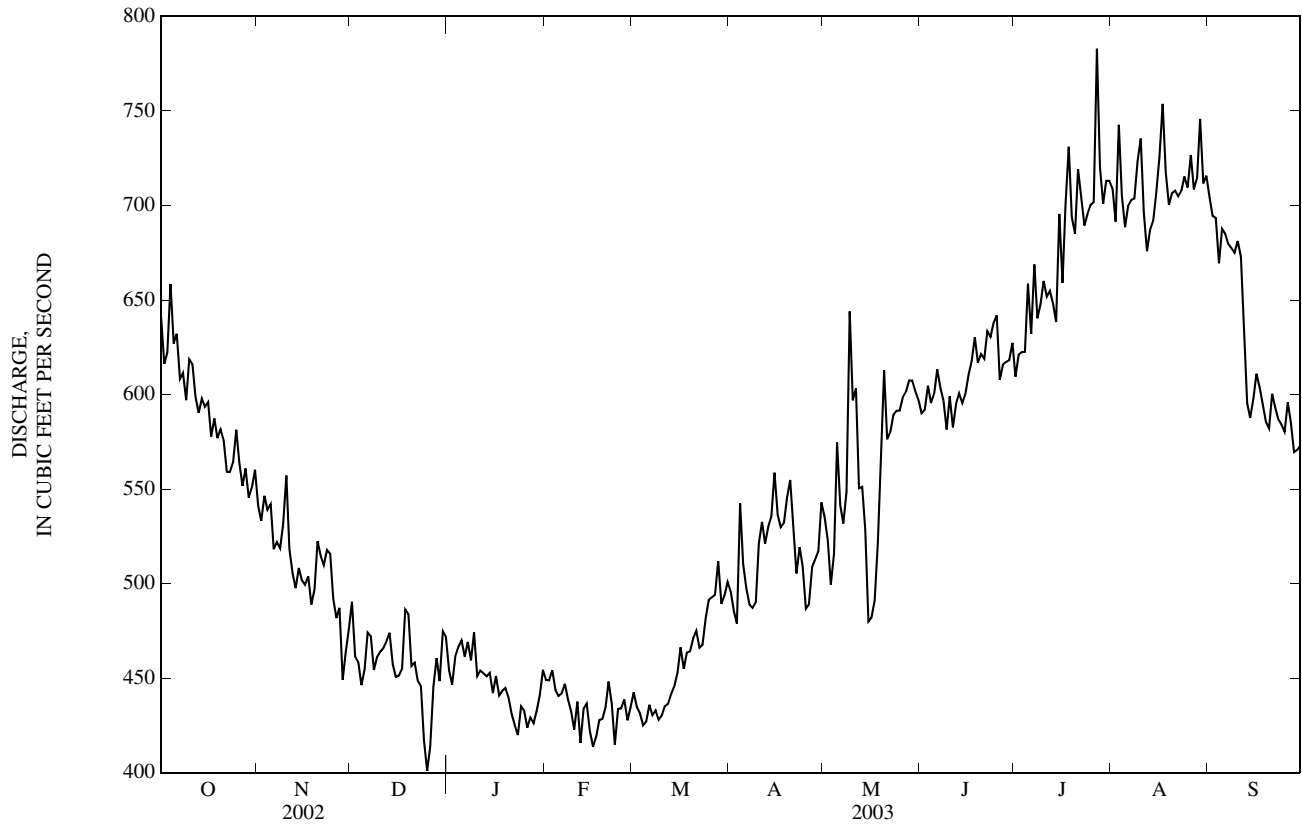
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 2003, BY WATER YEAR (WY)

MEAN	504	485	468	461	478	490	507	518	545	546	546	538
MAX	591	510	523	515	534	548	579	608	662	711	711	625
(WY)	(2003)	(2003)	(2000)	(1999)	(1999)	(1999)	(1999)	(2002)	(2002)	(2002)	(2003)	(2002)
MIN	454	438	425	416	419	404	381	400	459	434	469	478
(WY)	(1995)	(1996)	(1996)	(2002)	(1996)	(1996)	(1996)	(1996)	(1995)	(1995)	(1995)	(1995)

SUMMARY STATISTICS

	FOR 2002 CALENDAR YEAR	FOR 2003 WATER YEAR	WATER YEARS 1995 - 2003	
ANNUAL TOTAL	204,168	201,006		
ANNUAL MEAN	559	551	507	
HIGHEST ANNUAL MEAN			556	2002
LOWEST ANNUAL MEAN			444	1996
HIGHEST DAILY MEAN	759	Jul 5	783	Jul 27, 2003
LOWEST DAILY MEAN	337	Jan 13	401	Dec 25
ANNUAL SEVEN-DAY MINIMUM	369	Jan 12	424	Feb 12
MAXIMUM PEAK FLOW			1,130	Jul 27, 2003
MAXIMUM PEAK STAGE			3.36	Jul 27
10 PERCENT EXCEEDS	678	700	600	
50 PERCENT EXCEEDS	559	541	500	
90 PERCENT EXCEEDS	451	436	431	

04092677 GRAND CALUMET RIVER AT INDUSTRIAL HWY AT GARY, IN—Continued



STREAMS TRIBUTARY TO LAKE MICHIGAN

04092750 INDIANA HARBOR CANAL AT EAST CHICAGO, IN

LOCATION.--Lat 41°38'57", long 87°28'07", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.20, T.37N., R.9W., Lake County, Hydrologic Unit 04040001, (WHITING, IN quadrangle), on left bank at the site of the former Canal Street drawbridge, 3,200 ft east of U.S. Highway 20, 3,500 ft north of U.S. Highway 12, 4,300 ft south of 129th Street, and 1,000 ft west of the crossing of the centerlines of Cline Avenue and the Indiana Harbor Canal.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--October 1991 to current year.

REVISED RECORDS.--WDR IN-96-1: Instantaneous peak flow date.

GAGE.--Water-stage recorder, Acoustic Doppler Velocity Meter. Datum of gage not established. Prior to Sept. 22, 2000, gage was located 0.8 mi downstream.

REMARKS.--Records fair. Positive discharges indicate flow towards Lake Michigan; negative discharges indicate flow away from Lake Michigan.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	518	548	524	534	482	411	460	813	484	421	646	804
2	567	523	436	521	532	481	486	596	446	427	554	637
3	634	496	514	556	592	531	504	451	559	402	697	551
4	710	513	532	528	511	437	883	457	527	543	719	616
5	681	519	519	440	494	523	758	728	468	725	558	598
6	527	526	570	526	410	488	554	500	471	641	569	538
7	559	537	463	543	508	423	583	540	492	797	518	480
8	473	496	441	505	434	583	569	553	460	740	596	502
9	429	475	489	487	466	547	500	899	445	663	531	527
10	452	509	434	538	447	461	417	751	469	568	529	549
11	470	526	440	480	510	475	439	701	560	498	569	545
12	515	485	484	555	520	507	421	543	513	479	528	524
13	578	466	488	415	474	576	439	408	548	446	531	478
14	467	512	521	489	470	489	489	443	475	445	437	507
15	454	537	463	504	542	430	511	501	439	812	532	572
16	568	407	538	428	526	381	537	431	419	550	472	527
17	503	354	520	505	443	332	581	377	434	732	578	465
18	505	420	660	483	483	411	573	435	466	927	513	470
19	464	482	624	486	420	487	575	452	541	590	528	501
20	515	454	530	474	417	528	615	565	465	494	493	470
21	425	455	517	472	344	552	537	492	418	793	513	488
22	479	607	508	471	350	481	502	531	347	687	576	548
23	529	520	512	478	546	391	442	533	398	650	580	530
24	504	549	479	525	502	413	463	474	496	534	587	572
25	460	492	478	504	474	531	420	482	469	526	581	524
26	430	467	481	446	422	447	411	447	485	636	735	590
27	437	498	539	525	436	493	345	486	399	938	604	577
28	531	517	509	467	393	610	404	466	465	882	557	520
29	490	496	469	539	---	561	456	561	510	621	702	505
30	476	474	529	507	---	459	684	550	435	586	613	534
31	473	---	532	500	---	479	---	703	---	584	624	---
TOTAL	15,823	14,860	15,743	15,431	13,148	14,918	15,558	16,869	14,103	19,337	17,770	16,249
MEAN	510	495	508	498	470	481	519	544	470	624	573	542
MAX	710	607	660	556	592	610	883	899	560	938	735	804
MIN	425	354	434	415	344	332	345	377	347	402	437	465

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1994 - 2003, BY WATER YEAR (WY)

MEAN	587	591	622	621	627	644	620	638	599	582	591	571
MAX	752	916	1,094	963	843	1,111	922	1,016	724	761	759	759
(WY)	(1997)	(1997)	(1997)	(1997)	(1997)	(1999)	(1999)	(1999)	(1996)	(1996)	(1996)	(1996)
MIN	418	407	429	467	470	481	498	508	439	471	467	416
(WY)	(1998)	(1998)	(1998)	(1998)	(2003)	(2003)	(1998)	(1998)	(1998)	(1998)	(1998)	(1997)

SUMMARY STATISTICS

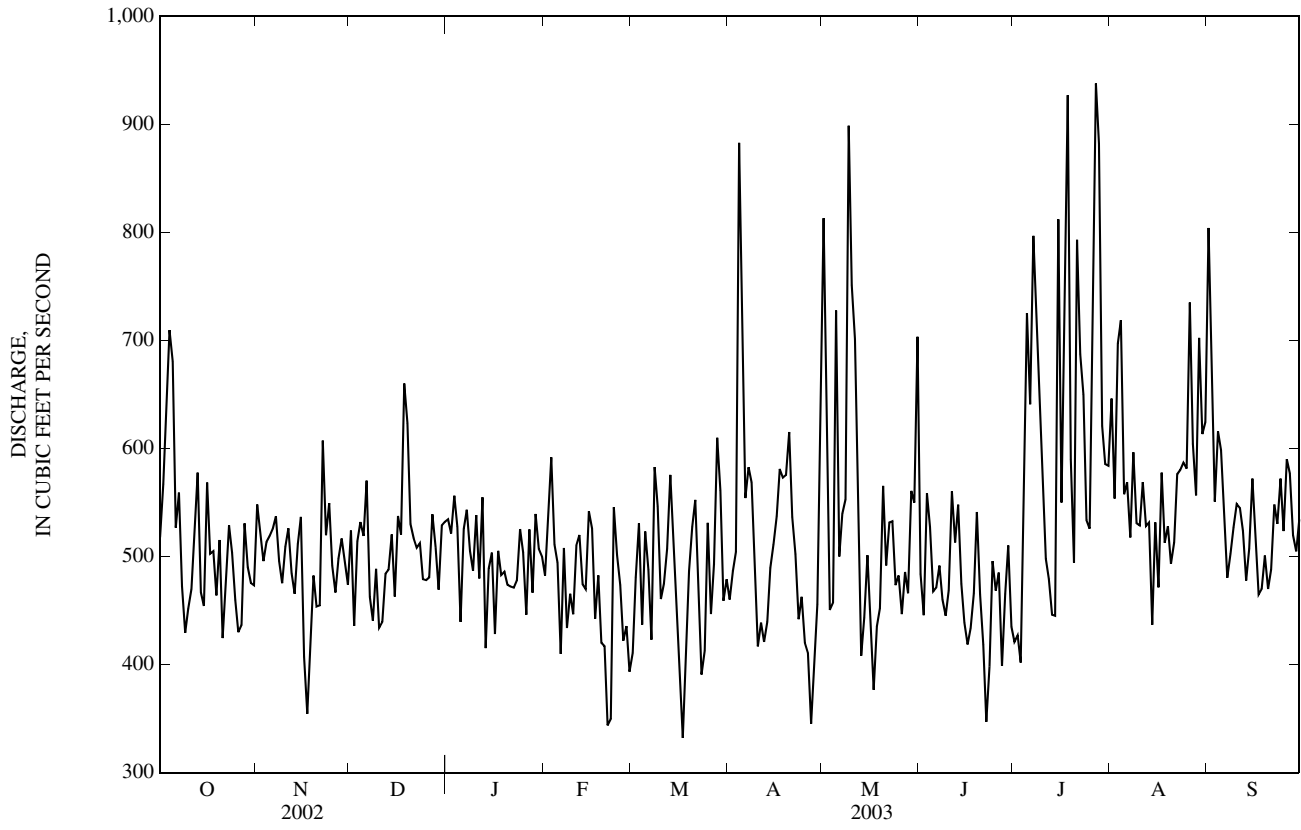
FOR 2002 CALENDAR YEAR

FOR 2003 WATER YEAR

WATER YEARS 1994 - 2003

ANNUAL TOTAL	198,268	189,809		
ANNUAL MEAN	543	520	608	
HIGHEST ANNUAL MEAN			727	1999
LOWEST ANNUAL MEAN			462	1998
HIGHEST DAILY MEAN	1,390	May 12	2,120	Mar 21, 1999
LOWEST DAILY MEAN	354	Nov 17	-641	Oct 21, 1993
ANNUAL SEVEN-DAY MINIMUM	438	Jun 30	-180	Oct 15, 1993
MAXIMUM PEAK FLOW			8,970	Jun 3, 2002
MAXIMUM PEAK STAGE		10.30	14.41	Mar 9, 1998
10 PERCENT EXCEEDS	658	622	767	
50 PERCENT EXCEEDS	528	507	581	
90 PERCENT EXCEEDS	445	429	445	

04092750 INDIANA HARBOR CANAL AT EAST CHICAGO, IN—Continued



STREAMS TRIBUTARY TO LAKE MICHIGAN

04093000 DEEP RIVER AT LAKE GEORGE OUTLET AT HOBART, IN

LOCATION.--Lat 41°32'10", long 87°15'25", in NW¹/₄NW¹/₄ sec.32, T.36 N., R.7 W., Lake County, Hydrologic Unit 04040001, (GARY, IN quadrangle), on left bank at upstream side of bridge on Ridge Road in Hobart, 300 ft upstream from Duck Creek, and 400 ft downstream from Lake George Dam, 3.3 mi north of Ainsworth, IN.

DRAINAGE AREA.--124 mi².

PERIOD OF RECORD.--April 1947 to current year.

REVISED RECORDS.--WSP 1337: 1953. WSP 1507: 1956. WDR IN-72-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 588.17 ft above National Geodetic Vertical Datum of 1929 (levels by State of Indiana, Department of Natural Resources). Prior to July 29, 1952, nonrecording gage, and July 30, 1952, to July 20, 1955, water-stage recorder at site 400 ft upstream at datum 11.80 ft higher.

REMARKS.--Records fair. Flow subject to regulation by operation of Lake George Dam.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

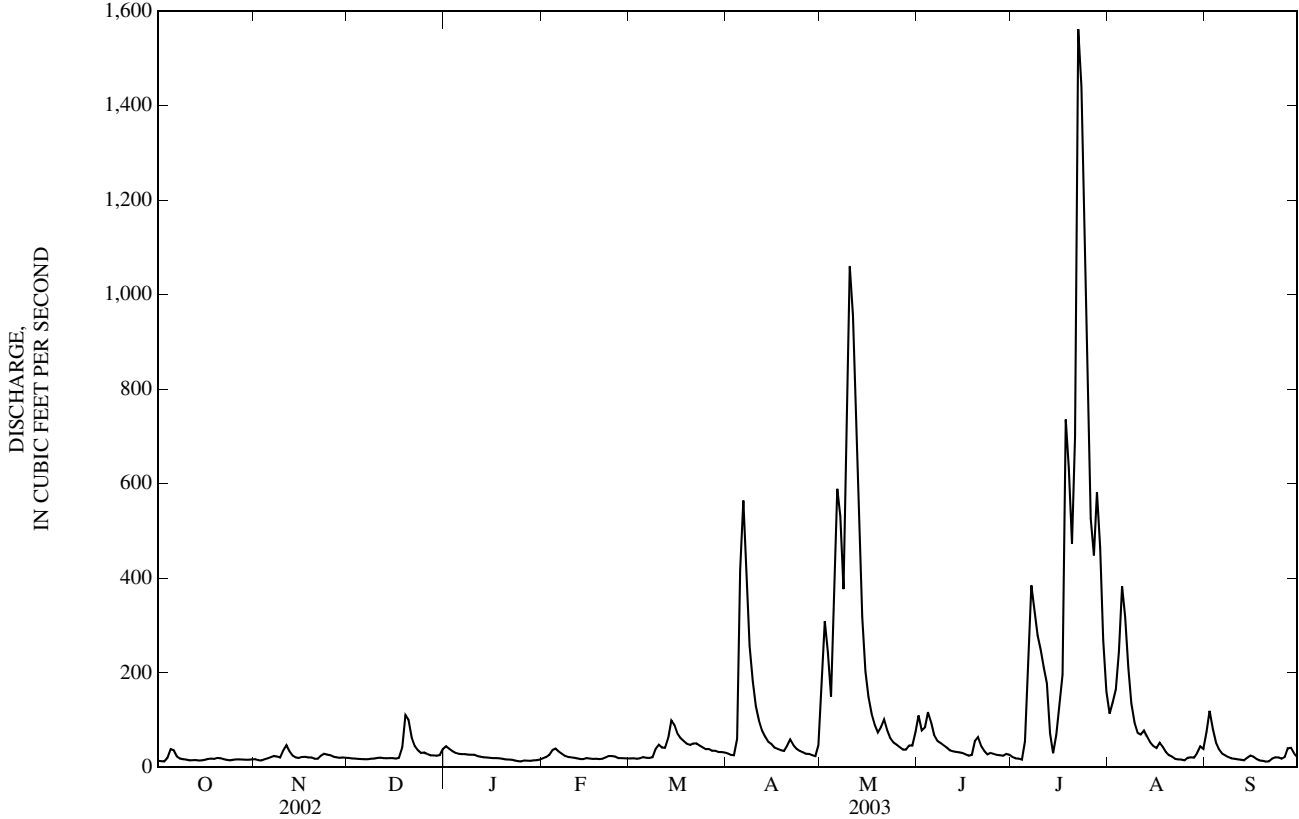
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	17	20	45	19	19	29	193	109	22	114	75
2	13	15	19	39	22	19	26	309	78	19	137	119
3	13	15	19	34	26	18	26	245	85	18	165	82
4	20	17	18	31	36	19	60	150	117	16	244	53
5	39	19	18	29	40	22	418	319	95	55	383	38
6	36	21	17	28	34	20	565	589	68	207	319	29
7	23	24	17	28	29	20	411	531	56	385	211	25
8	18	23	18	27	24	22	257	377	52	330	135	21
9	17	20	18	27	22	39	182	628	47	280	95	19
10	17	36	20	27	21	48	130	1,060	42	249	73	18
11	15	47	20	24	20	42	98	956	36	210	69	17
12	15	34	20	22	19	41	78	705	34	178	78	16
13	15	25	19	21	18	63	64	491	33	71	65	15
14	15	21	20	21	18	99	54	318	32	30	53	20
15	15	20	19	20	19	89	49	203	31	69	45	25
16	16	22	19	19	19	71	42	149	27	134	41	23
17	18	22	20	19	18	61	39	113	25	196	52	18
18	19	21	42	19	18	56	36	89	26	736	43	14
19	18	21	111	18	18	50	35	74	55	633	32	14
20	20	18	101	17	18	47	46	85	64	473	26	12
21	19	18	63	17	21	50	59	102	45	699	22	13
22	17	24	45	16	24	51	47	78	35	1,560	18	18
23	16	29	36	14	24	46	39	62	27	1,440	17	21
24	15	27	30	13	23	42	35	53	30	1,040	17	21
25	16	26	31	13	20	38	32	48	29	702	15	18
26	17	23	28	14	19	39	29	43	26	527	20	22
27	17	21	25	14	19	35	28	38	26	448	21	40
28	16	20	25	14	19	35	25	37	25	583	21	41
29	16	21	25	15	---	32	24	46	28	465	30	29
30	16	20	26	15	---	33	47	46	27	270	44	22
31	17	---	39	16	---	31	---	75	---	160	39	---
TOTAL	558	687	948	676	627	1,297	3,010	8,212	1,410	12,205	2,644	898
MEAN	18.0	22.9	30.6	21.8	22.4	41.8	100	265	47.0	394	85.3	29.9
MAX	39	47	111	45	40	99	565	1,060	117	1,560	383	119
MIN	13	15	17	13	18	18	24	37	25	16	15	12
CFSM	0.15	0.18	0.25	0.18	0.18	0.34	0.81	2.14	0.38	3.18	0.69	0.24
IN.	0.17	0.21	0.28	0.20	0.19	0.39	0.90	2.46	0.42	3.66	0.79	0.27

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1948 - 2003, BY WATER YEAR (WY)

	57.7	90.0	108	116	151	212	210	154	116	68.7	48.8	46.7
MEAN	57.7	90.0	108	116	151	212	210	154	116	68.7	48.8	46.7
MAX	433	499	393	475	456	688	477	454	557	394	427	312
(WY)	(1955)	(1986)	(1983)	(1993)	(1997)	(1979)	(1950)	(1970)	(1993)	(2003)	(1990)	(1993)
MIN	6.42	10.7	12.5	10.8	14.7	38.3	23.1	21.8	16.4	10.7	8.81	6.91
(WY)	(1957)	(1957)	(1963)	(1977)	(1964)	(1957)	(1963)	(1958)	(1988)	(1988)	(1964)	(1948)

04093000 DEEP RIVER AT LAKE GEORGE OUTLET AT HOBART, IN—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1948 - 2003	
ANNUAL TOTAL	39,302.4		33,172		115	
ANNUAL MEAN	108		90.9		234	
HIGHEST ANNUAL MEAN					35.3	
LOWEST ANNUAL MEAN					1963	
HIGHEST DAILY MEAN	2,150	May 13	1,560	Jul 22	3,900	Nov 28, 1990
LOWEST DAILY MEAN	9.0	Sep 9	12	Sep 20	0.00	Nov 5, 1978
ANNUAL SEVEN-DAY MINIMUM	10	Sep 6	14	Jan 23	0.04	Aug 29, 1996
MAXIMUM PEAK FLOW			1,700	Jul 22	4,230	Nov 28, 1990
MAXIMUM PEAK STAGE			12.20	Jul 22	19.48	Oct 11, 1954
ANNUAL RUNOFF (CFSM)	0.87		0.73		0.92	
ANNUAL RUNOFF (INCHES)	11.79		9.95		12.57	
10 PERCENT EXCEEDS	279		224		272	
50 PERCENT EXCEEDS	33		28		48	
90 PERCENT EXCEEDS	14		17		14	



STREAMS TRIBUTARY TO LAKE MICHIGAN

04094000 LITTLE CALUMET RIVER AT PORTER, IN

LOCATION.--Lat 41°37'18", long 87°05'13", in NE¼NE¼ sec.34, T.37 N., R.6 W., Porter County, Hydrologic Unit 04040001, (CHESTERTON, IN quadrangle), on right bank at downstream end of county road bridge, 200 ft upstream from bridge on U.S. Highway 20, 0.8 mi northwest of Porter, and 4.5 mi upstream from Salt Creek.

DRAINAGE AREA.--66.2 mi².

PERIOD OF RECORD.--May 1945 to current year.

REVISED RECORDS.--WSP 1084: 1945. WSP 1337: 1946-47. WDR IN-72-1: Drainage area. WDR IN-83-1: 1982.

GAGE.--Water-stage recorder. Datum of gage is 603.48 ft above National Geodetic Vertical Datum of 1929. Prior to June 26, 1952, nonrecording gage at same site and datum.

REMARKS.--Records fair except for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	30	35	58	e39	e36	40	96	52	32	38	43
2	26	30	34	52	e40	e35	40	109	46	31	37	46
3	24	32	33	49	e41	e33	38	79	53	31	36	36
4	29	33	30	47	72	e35	63	66	57	30	52	32
5	34	35	35	46	e58	e36	298	139	51	36	45	30
6	27	37	32	46	e50	e37	269	179	47	38	39	29
7	25	39	36	46	e47	e38	111	99	46	92	36	29
8	24	40	34	46	e45	e39	95	172	44	120	34	28
9	24	38	32	47	e43	e40	83	308	42	103	34	30
10	24	53	32	47	e42	e39	74	609	41	78	33	27
11	24	53	32	40	e41	e41	65	281	41	61	32	28
12	24	42	32	e42	e41	e45	59	170	48	50	34	27
13	27	38	33	e41	e40	68	55	112	46	42	32	27
14	26	37	34	e40	e39	77	51	87	44	37	31	29
15	25	39	34	e41	e38	66	51	79	41	41	30	29
16	25	38	34	e41	e37	66	49	73	40	41	32	28
17	25	37	34	e40	e37	69	46	66	46	41	30	26
18	26	36	57	e40	e36	65	45	62	45	64	28	26
19	26	35	95	e41	e36	59	43	59	54	47	28	25
20	27	36	73	e41	e37	57	45	62	45	39	28	27
21	27	37	59	e40	e38	55	48	61	39	100	27	28
22	25	44	54	e39	e39	53	45	55	36	142	27	28
23	28	48	51	e38	e38	50	42	51	35	79	29	30
24	26	43	47	e37	e38	45	41	49	33	55	31	30
25	26	40	47	e37	e37	46	40	47	32	46	28	28
26	29	39	47	e38	e37	46	39	45	34	41	27	30
27	30	38	43	e40	e36	45	39	44	36	56	29	32
28	28	37	47	e39	e36	44	39	45	34	92	27	29
29	28	36	45	e38	---	48	38	50	34	63	29	31
30	31	36	48	e38	---	44	49	49	33	49	31	30
31	31	---	62	e39	---	41	---	58	---	42	29	---
TOTAL	825	1,156	1,341	1,314	1,158	1,498	2,040	3,461	1,275	1,819	1,003	898
MEAN	26.6	38.5	43.3	42.4	41.4	48.3	68.0	112	42.5	58.7	32.4	29.9
MAX	34	53	95	58	72	77	298	609	57	142	52	46
MIN	24	30	30	37	36	33	38	44	32	30	27	25
CFSM	0.40	0.58	0.65	0.64	0.62	0.73	1.03	1.69	0.64	0.89	0.49	0.45
IN.	0.46	0.65	0.75	0.74	0.65	0.84	1.15	1.94	0.72	1.02	0.56	0.50

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2003, BY WATER YEAR (WY)

MEAN	59.0	74.9	78.6	79.3	95.4	120	116	88.9	73.7	48.0	42.4	42.9
MAX	414	285	186	202	208	319	292	277	272	190	277	143
(WY)	(1955)	(1991)	(1966)	(1993)	(1997)	(1982)	(1947)	(1996)	(1993)	(1981)	(1990)	(1972)
MIN	22.3	27.4	24.5	27.0	30.9	48.3	44.6	33.5	25.6	22.2	23.1	21.4
(WY)	(1964)	(1954)	(1964)	(1977)	(1964)	(2003)	(1963)	(1958)	(1965)	(1988)	(1964)	(1953)

SUMMARY STATISTICS

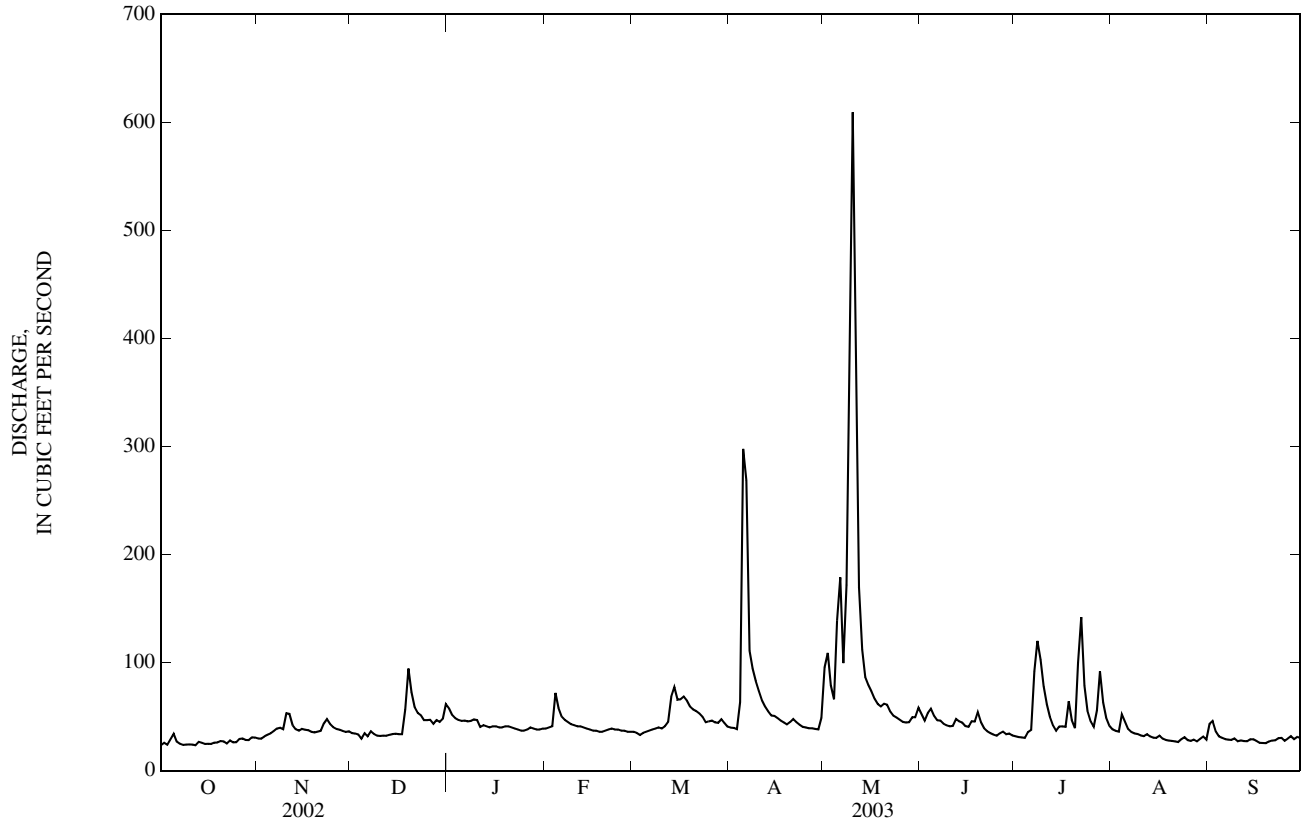
FOR 2002 CALENDAR YEAR

FOR 2003 WATER YEAR

WATER YEARS 1946 - 2003

ANNUAL TOTAL	23,858	17,788		
ANNUAL MEAN	65.4	48.7	76.4	
HIGHEST ANNUAL MEAN			124	1991
LOWEST ANNUAL MEAN			36.5	1964
HIGHEST DAILY MEAN	908	May 13	3,040	Nov 28, 1990
LOWEST DAILY MEAN	21	Sep 24	17	Aug 24, 1965
ANNUAL SEVEN-DAY MINIMUM	22	Sep 24	19	Aug 20, 1965
MAXIMUM PEAK FLOW			793	May 10
MAXIMUM PEAK STAGE			7.86	May 10
ANNUAL RUNOFF (CFSM)	0.99	0.74		1.15
ANNUAL RUNOFF (INCHES)	13.41	10.00		15.69
10 PERCENT EXCEEDS	110	66	139	
50 PERCENT EXCEEDS	43	39	49	
90 PERCENT EXCEEDS	25	28	28	

04094000 LITTLE CALUMET RIVER AT PORTER, IN—Continued



STREAM TRIBUTARY TO LAKE MICHIGAN

04095090 BURNS DITCH AT PORTAGE, IN

LOCATION.--Lat 41°37'20", long 87°10'35", in NE¼NW¼ sec. 36, T.37 N., R.7 W., Porter County, Hydrologic Unit 04040001, (PORTAGE, IN quadrangle), on right bank at an industrial road bridge, 1,300 feet north of U.S. Highway 12, 0.7 mi south of the mouth, 1.2 mi west of the State Road 249 overpass over U.S. Highway 12, 2.4 mi east of County Line Road, 3.2 mi north of the intersection of Central Avenue and Willow Creek Road in Portage.

DRAINAGE AREA.--331 mi².

PERIOD OF RECORD.--February 2, 1995 to current year.

REVISED RECORDS.--WDR IN-01-1: 1998-2000 (M).

GAGE.--Water-stage recorder and Acoustic Doppler Velocity Meter. Datum of gage is 575 ft above National Geodetic Vertical Datum of 1929 from topographic map.

REMARKS.--Records poor. Peak stage and peak flow for the period of record probably occurred on May 10, 1996 during period of missing record.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e306	269	319	316	e316	e322	e304	742	513	248	694	e378
2	e294	272	261	362	e307	e315	309	969	500	273	641	e347
3	e306	301	323	363	341	e308	256	761	525	287	650	e332
4	333	288	276	364	421	e297	443	615	609	273	720	e360
5	446	270	321	339	e341	e294	1,360	1,130	539	408	846	382
6	311	303	e328	266	e329	e319	1,670	1,500	506	647	873	387
7	331	343	e298	e265	e345	e318	1,180	1,330	372	1,010	788	348
8	320	337	249	e254	e314	e329	945	1,470	356	1,000	706	347
9	294	324	e280	310	e327	e390	786	1,920	378	1,000	609	282
10	305	343	e289	288	e296	e334	659	2,780	376	905	562	336
11	303	389	314	e265	e287	e313	564	2,470	369	834	425	321
12	286	371	348	e288	e323	e315	468	2,000	362	690	385	321
13	318	348	262	e250	e283	439	484	1,480	365	611	415	315
14	283	242	e268	e287	e272	e382	e448	1,180	344	432	459	320
15	e317	210	211	e292	227	e344	e404	949	311	531	450	335
16	e303	191	316	e241	183	e359	348	815	312	512	432	297
17	332	236	357	e287	e232	e412	386	672	341	689	468	e302
18	335	250	437	e266	e308	472	369	602	363	1,670	458	e313
19	287	292	643	e252	e297	495	380	596	403	1,590	338	e309
20	295	294	625	e243	e319	470	449	623	462	1,250	352	e296
21	276	218	e558	237	e311	e437	412	596	363	1,530	360	308
22	265	323	e443	268	e287	e392	373	557	325	2,160	345	285
23	302	343	e358	270	317	e326	355	493	319	2,350	307	259
24	292	311	274	e318	301	e350	358	439	347	2,120	344	e317
25	290	287	270	e290	e311	e345	329	405	367	1,790	285	320
26	296	308	e280	217	e300	e335	318	354	317	1,410	342	e332
27	241	350	e315	e257	e315	e326	370	390	371	1,420	e326	421
28	271	334	e285	e281	e313	393	284	386	325	e1,440	e313	319
29	262	269	322	e297	---	325	255	461	280	1,400	e350	297
30	275	229	332	e316	---	e304	368	433	228	997	e339	209
31	279	---	325	e299	---	e311	---	422	---	809	e326	---
TOTAL	9,354	8,845	10,487	8,848	8,523	11,071	15,634	29,540	11,548	32,286	14,908	9,695
MEAN	302	295	338	285	304	357	521	953	385	1,041	481	323
MAX	446	389	643	364	421	495	1,670	2,780	609	2,350	873	421
MIN	241	191	211	217	183	294	255	354	228	248	285	209

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 2003, BY WATER YEAR (WY)

MEAN	356	362	400	415	579	547	610	736	628	464	362	272
MAX	976	540	569	587	1,305	981	1,094	1,539	1,187	1,041	505	398
(WY)	(2002)	(2002)	(2002)	(1998)	(2001)	(2002)	(2002)	(2002)	(2000)	(2003)	(1995)	(1995)
MIN	107	144	179	231	255	321	358	288	237	214	205	147
(WY)	(1996)	(1999)	(1999)	(1996)	(1996)	(1996)	(1997)	(1999)	(1999)	(1997)	(1999)	(1997)

SUMMARY STATISTICS

FOR 2002 CALENDAR YEAR

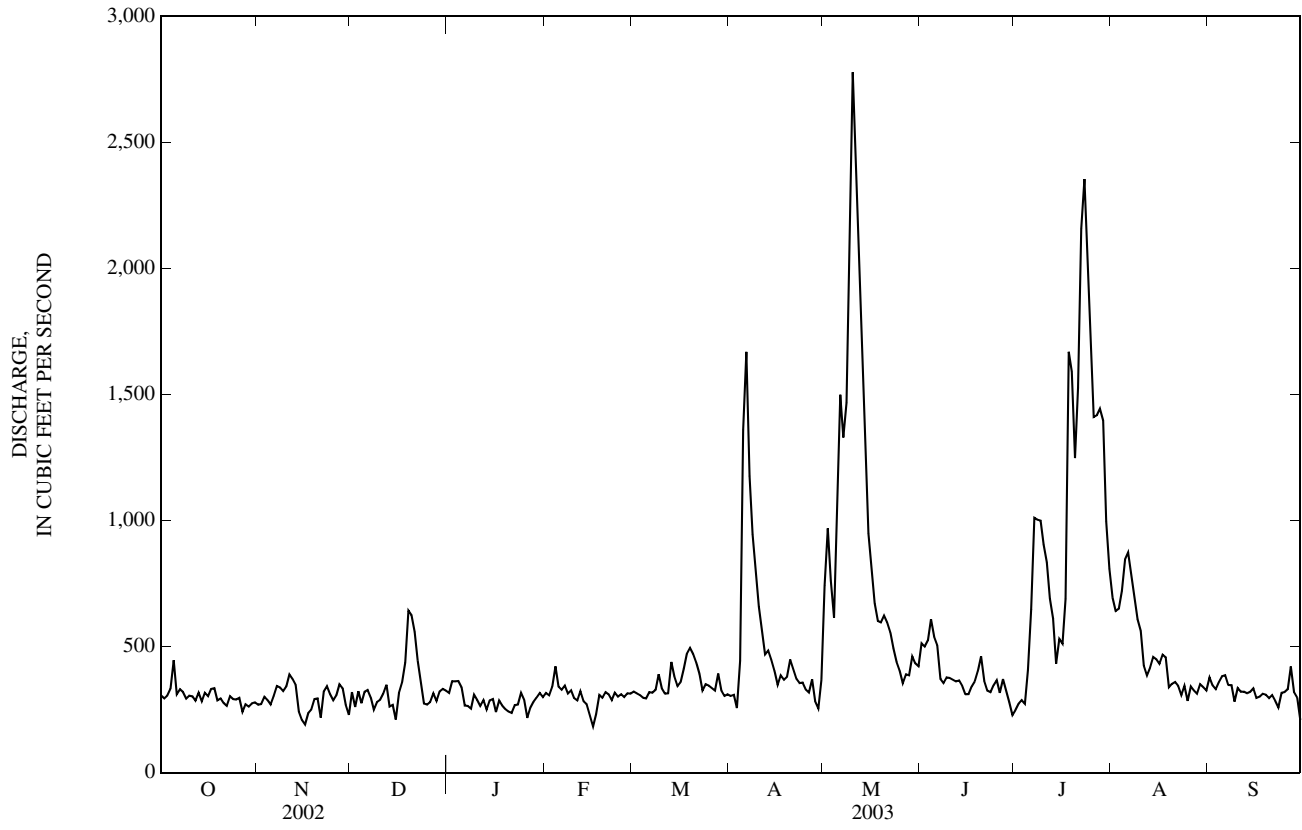
FOR 2003 WATER YEAR

WATER YEARS 1995 - 2003

ANNUAL TOTAL	220,750	170,739		
ANNUAL MEAN	605	468	477	
HIGHEST ANNUAL MEAN			702	2002
LOWEST ANNUAL MEAN			288	1999
HIGHEST DAILY MEAN	5,260	May 13	2,780	May 10, 1996
LOWEST DAILY MEAN	191	Nov 16	183	Feb 16, 1995
ANNUAL SEVEN-DAY MINIMUM	242	Nov 15	242	Nov 15, 1995
MAXIMUM PEAK FLOW			unknown	unknown
MAXIMUM PEAK STAGE			unknown	unknown
10 PERCENT EXCEEDS	1,140		823	819
50 PERCENT EXCEEDS	383		333	375
90 PERCENT EXCEEDS	280		268	190

e Estimated

STREAM TRIBUTARY TO LAKE MICHIGAN
04095090 BURNS DITCH AT PORTAGE, IN—Continued



STREAMS TRIBUTARY TO LAKE MICHIGAN

04095380 TRAIL CREEK AT MICHIGAN CITY HARBOR, IN

LOCATION.--Lat 41°43'22", long 86°54'15", sec. 29, T.38 N., R.4 W., LaPorte County, Hydrologic Unit 04040001, (MICHIGAN CITY WEST, IN quadrangle), on right bank in the northeast drawbridge tower, 2000 ft north of Michigan Street, 2,600 ft southeast of lake end of west breakwater, 0.5 mi southwest of Washington Park, 3000 ft downstream of U.S. Hwy 12 bridge in Michigan City.

DRAINAGE AREA.--59.1 mi².

PERIOD OF RECORD.--October 1994 to current year.

GAGE.--Water-stage recorder and Acoustic Velocity Meter. Datum of gage is 575 ft above National Geodetic Vertical Datum of 1929 from topographic map.

REMARKS.--Records poor. Positive discharges indicate flow towards Lake Michigan; negative discharges indicate flow away from Lake Michigan.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	55	48	e69	70	59	47	181	87	22	16	e123
2	35	48	48	e57	61	58	51	144	65	18	-0.07	e90
3	44	37	60	76	77	54	47	85	101	40	99	e67
4	67	51	48	63	142	35	159	83	82	51	78	e78
5	87	48	58	61	98	36	313	e293	71	64	e73	e74
6	31	62	66	74	67	59	131	160	61	84	e72	e60
7	66	60	43	66	95	57	107	112	57	123	e60	e48
8	46	41	45	58	66	63	97	111	75	138	e75	e53
9	65	47	52	64	87	89	85	457	75	97	e61	e59
10	60	89	50	71	63	67	61	297	47	65	e60	e62
11	43	47	44	50	53	55	63	214	60	79	e68	e61
12	50	48	59	70	84	55	52	142	70	59	e61	e57
13	53	57	49	56	60	74	49	97	62	40	e60	e47
14	39	42	70	69	38	72	65	85	54	53	e40	e54
15	54	38	46	73	27	56	57	96	57	41	e60	e68
16	44	38	79	e45	22	75	42	76	36	50	e48	e57
17	61	50	58	e63	37	58	35	69	63	35	e69	e44
18	54	41	126	e47	63	51	39	15	62	42	e55	e45
19	62	48	126	e55	50	52	42	-23	49	31	e58	e51
20	41	47	103	e49	56	69	84	59	63	66	e50	e45
21	43	45	e66	46	54	65	69	72	44	150	e54	e49
22	52	80	e59	e44	24	63	51	53	48	100	e67	e62
23	56	69	e69	e46	79	40	39	69	45	47	e69	e59
24	52	42	e52	67	54	64	47	63	41	50	e72	e68
25	56	43	e51	57	54	68	37	58	51	44	e69	e57
26	51	54	e54	54	42	55	50	66	69	24	e101	e72
27	47	e46	e73	56	53	51	55	72	65	35	e74	e70
28	42	41	e43	48	55	55	26	53	56	64	e63	e57
29	40	e37	e38	57	---	57	34	69	43	27	e95	e55
30	37	e30	e66	73	---	40	72	70	51	23	e77	e60
31	48	---	e68	56	---	45	---	161	---	8.0	e78	---
TOTAL	1,571	1,481	1,917	1,840	1,731	1,797	2,106	3,559	1,810	1,770.0	1,981.93	1,852
MEAN	50.7	49.4	61.8	59.4	61.8	58.0	70.2	115	60.3	57.1	63.9	61.7
MAX	87	89	126	76	142	89	313	457	101	150	101	123
MIN	31	30	38	44	22	35	26	-23	36	8.0	-0.07	44

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1994 - 2003, BY WATER YEAR (WY)

	105	113	123	124	135	134	148	146	118	105	93.8	88.2
MEAN	105	113	123	124	135	134	148	146	118	105	93.8	88.2
MAX	127	173	185	176	208	191	201	216	192	150	126	113
(WY)	(1998)	(1995)	(1997)	(1995)	(2001)	(2002)	(2002)	(2002)	(2000)	(1998)	(1995)	(2000)
MIN	50.7	49.4	61.8	59.4	61.8	58.0	70.2	111	60.3	57.1	63.9	61.7
(WY)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2001)	(2003)	(2003)	(2003)	(2003)

SUMMARY STATISTICS

FOR 2002 CALENDAR YEAR

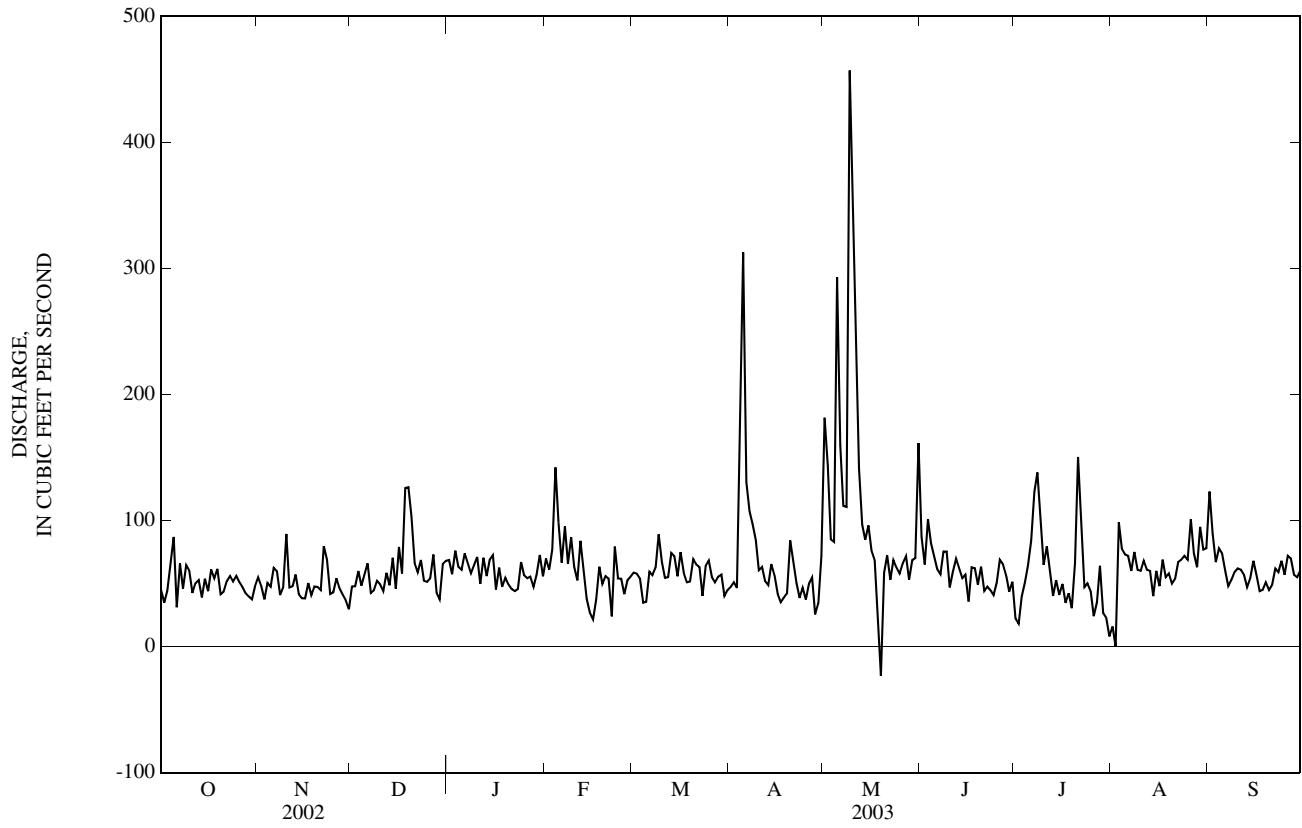
FOR 2003 WATER YEAR

WATER YEARS 1994 - 2003

ANNUAL TOTAL	39,523.7	23,415.93	
ANNUAL MEAN	108	64.2	118
HIGHEST ANNUAL MEAN			145
LOWEST ANNUAL MEAN			64.2
HIGHEST DAILY MEAN	822	May 12	457
LOWEST DAILY MEAN	-29	Jul 6	-23
ANNUAL SEVEN-DAY MINIMUM	20	Jul 6	25
MAXIMUM PEAK FLOW			unknown
MAXIMUM PEAK STAGE			unknown
10 PERCENT EXCEEDS	204		89
50 PERCENT EXCEEDS	80		57
90 PERCENT EXCEEDS	44		39
			169
			112
			58
			unknown
			unknown
			unknown
			1995
			2003

e Estimated

04095380 TRAIL CREEK AT MICHIGAN CITY HARBOR, IN—Continued



STREAMS TRIBUTARY TO LAKE MICHIGAN

04096100 GALENA RIVER NEAR LAPORTE, IN

LOCATION.--Lat 41°44'54", long 86°40'30", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.17, T.38 N., R.2 W., LaPorte County, Hydrologic Unit 04040001, (SPRINGVILLE, IN quadrangle), on left bank at downstream side of bridge on County Road 125 East, 1.3 mi south of Indiana- Michigan State line, 7.5 mi west of LaPorte-St. Joseph County line, and 9.8 mi north of Courthouse in LaPorte.

DRAINAGE AREA.--17.2 mi², of which 2.30 mi² does not contribute directly to surface runoff.

PERIOD OF RECORD.--October 1969 to October 2003 (discontinued).

REVISED RECORDS.--WDR IN-80-1: 1970, 1971(P), 1972, 1973, 1974(P), 1975 (M), 1976 (P), and 1978 (P).

GAGE.--Water-stage recorder. Datum of gage is 625.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except for estimated daily discharges, which are poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum instantaneous gage height may have occurred Nov. 28, 1990 during period of no gage height record.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.7	16	e18	22	17	16	20	43	23	12	15	22
2	10	17	e16	20	17	16	16	39	20	12	15	20
3	10	18	e12	19	20	e15	15	29	25	11	16	16
4	14	19	e14	19	30	e15	46	25	22	10	19	14
5	17	20	e15	19	23	e19	146	70	20	19	16	13
6	13	22	e11	19	20	e18	41	38	19	18	15	12
7	13	21	e16	19	19	e19	36	30	19	38	14	11
8	13	20	18	19	e16	e19	34	33	18	42	12	11
9	12	21	18	20	e16	e18	33	140	19	31	11	11
10	12	35	18	19	e15	e17	30	57	18	24	12	10
11	12	25	17	e15	e14	e20	28	40	18	21	12	8.8
12	12	23	17	e15	e13	26	25	38	19	19	13	8.6
13	15	22	18	e15	e19	32	24	31	18	17	12	9.8
14	14	21	19	e16	e18	28	23	29	17	16	12	11
15	13	24	18	e15	e14	29	21	33	16	15	12	11
16	13	22	18	e15	e13	31	20	29	15	15	10	10
17	13	21	17	e14	e14	32	20	26	15	14	12	9.7
18	14	21	28	e13	14	30	19	25	15	13	9.6	9.4
19	14	21	37	e13	14	28	19	23	16	13	10	9.5
20	14	21	26	e14	15	28	22	29	15	12	10	9.7
21	14	21	22	e15	15	28	22	27	14	83	9.9	9.5
22	14	26	21	e15	15	25	20	23	13	33	9.4	11
23	14	24	19	e14	15	24	19	22	13	23	8.3	13
24	14	22	19	e14	15	25	19	21	12	19	8.2	14
25	15	22	e18	e14	e14	26	18	20	12	17	9.1	15
26	16	21	e17	e14	e14	25	18	19	14	16	9.8	14
27	15	21	e17	e13	e14	24	17	19	15	22	10	17
28	15	20	19	e17	e15	23	17	18	13	26	9.7	14
29	15	20	18	e18	---	22	17	19	14	19	12	22
30	16	21	22	e17	---	22	23	19	13	17	12	18
31	16	---	28	16	---	21	---	32	---	16	11	---
TOTAL	421.7	648	591	507	458	721	828	1,046	500	663	367.0	385.0
MEAN	13.6	21.6	19.1	16.4	16.4	23.3	27.6	33.7	16.7	21.4	11.8	12.8
MAX	17	35	37	22	30	32	146	140	25	83	19	22
MIN	9.7	16	11	13	13	15	15	18	12	10	8.2	8.6
CFSM	0.79	1.26	1.11	0.95	0.95	1.35	1.60	1.96	0.97	1.24	0.69	0.75
IN.	0.91	1.40	1.28	1.10	0.99	1.56	1.79	2.26	1.08	1.43	0.79	0.83

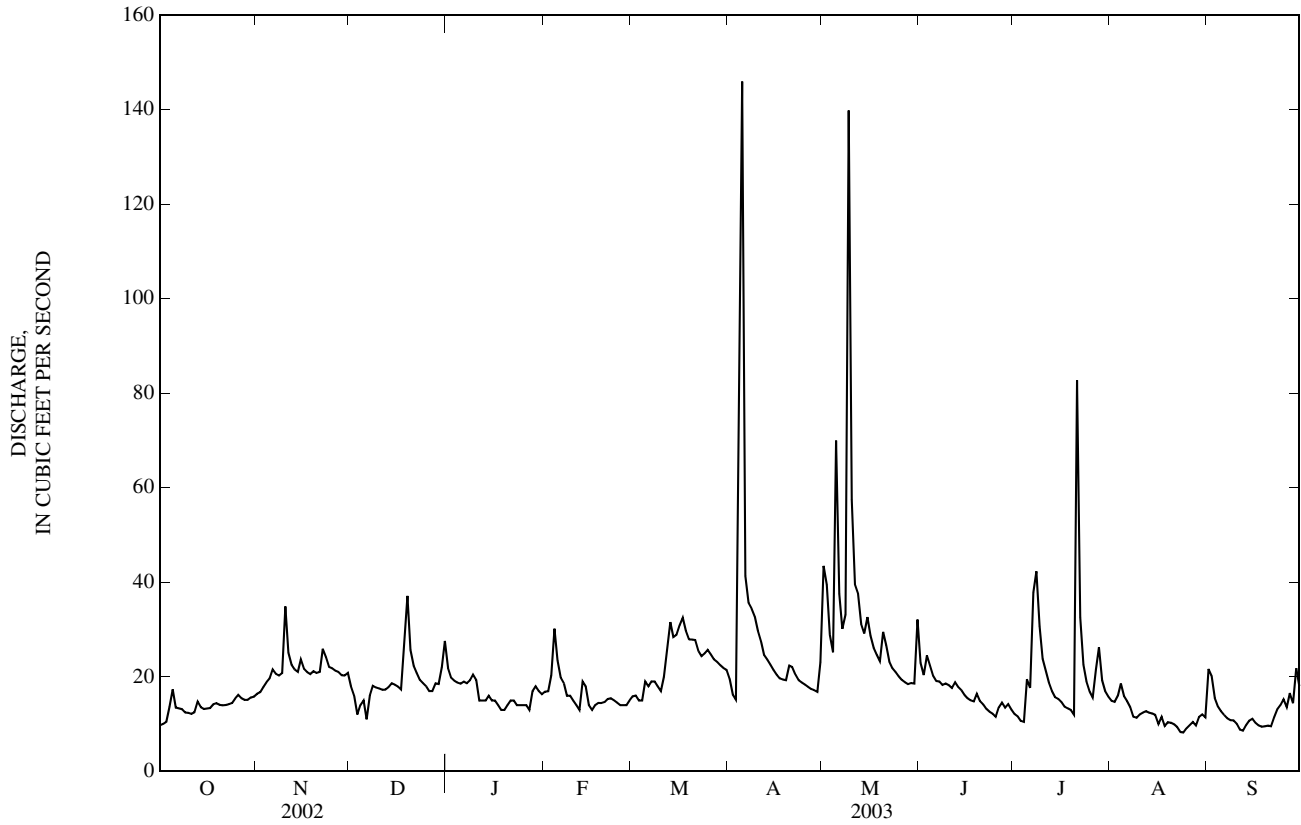
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 2003, BY WATER YEAR (WY)

MEAN	22.9	29.6	29.5	26.9	31.3	36.5	33.8	27.7	23.8	17.6	15.5	16.4
MAX	47.5	64.4	51.8	54.5	65.3	70.1	56.0	65.5	69.7	39.0	28.5	32.6
(WY)	(2002)	(1991)	(1973)	(1998)	(1997)	(1982)	(1970)	(1996)	(1993)	(1996)	(1996)	(1993)
MIN	13.6	15.7	15.6	15.0	16.4	19.4	18.2	15.5	12.3	10.3	9.71	8.98
(WY)	(2003)	(2000)	(1990)	(1976)	(2003)	(1981)	(1971)	(1992)	(1971)	(1988)	(1970)	(2002)

04096100 GALENA RIVER NEAR LAPORTE, IN—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1970 - 2003	
ANNUAL TOTAL	8,358.9		7,135.7		25.9	
ANNUAL MEAN	22.9		19.5		19.1	
HIGHEST ANNUAL MEAN					35.4	1993
LOWEST ANNUAL MEAN					19.1	2000
HIGHEST DAILY MEAN	387	May 12	146	Apr 5	650	Nov 28, 1990
LOWEST DAILY MEAN	7.2	Sep 8	8.2	Aug 24	6.7	Sep 13, 1973
ANNUAL SEVEN-DAY MINIMUM	7.8	Sep 7	9.2	Aug 22	7.6	Aug 27, 1970
MAXIMUM PEAK FLOW			222	Apr 5	900	Nov 28, 1990
MAXIMUM PEAK STAGE			4.70	Apr 5	7.04	Jun 8, 1993
ANNUAL RUNOFF (CFSM)	1.33		1.14		1.51	
ANNUAL RUNOFF (INCHES)	18.08		15.43		20.47	
10 PERCENT EXCEEDS	32		29		41	
50 PERCENT EXCEEDS	20		17		21	
90 PERCENT EXCEEDS	10		12		12	

e Estimated



STREAMS TRIBUTARY TO LAKE MICHIGAN

04099510 PIGEON CREEK NEAR ANGOLA, IN

LOCATION.--Lat 41°38'04", long 85°06'35", in NW¹/₄SE¹/₄ sec.26, T.37 N., R.12 E., Steuben County, Hydrologic Unit 04050001, (ANGOLA WEST, IN quadrangle), on left bank 5 ft upstream from bridge on U.S. Highway 20, 1.3 mi downstream from outlet of Hogback Lake, 1.3 mi southeast of Flint, and 5.8 mi west of Angola.

DRAINAGE AREA.--106 mi², of which 22.5 mi² does not contribute directly to surface runoff.

PERIOD OF RECORD.--October 1945 to current year. Prior to October 1947, published as "near Flint". Published as Pigeon Creek at Hogback Lake Outlet near Angola, October 1947 to September 1971, and Pigeon Creek and Hogback Lake near Angola, October 1971 to September 1974.

REVISED RECORDS.--WSP 1144: 1948. WSP 2111: Drainage area. WDR IN 92-1: 1991.

GAGE.--Water-stage recorder. Datum of gage is 940.00 ft above National Geodetic Vertical Datum of 1929. Prior to October 1947, nonrecording gage at site 0.3 mi downstream at different datum. Oct. 1947 to Aug. 3, 1953, nonrecording gage at site 1.2 mi upstream at same datum. Aug. 4, 1953, to Apr. 3, 1974, recording gage at site 1.3 mi upstream at same datum. Apr. 18, 1974, to Sept. 2, 1974, nonrecording gage at same site and datum.

REMARKS.--Records fair.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAILY MEAN VALUES

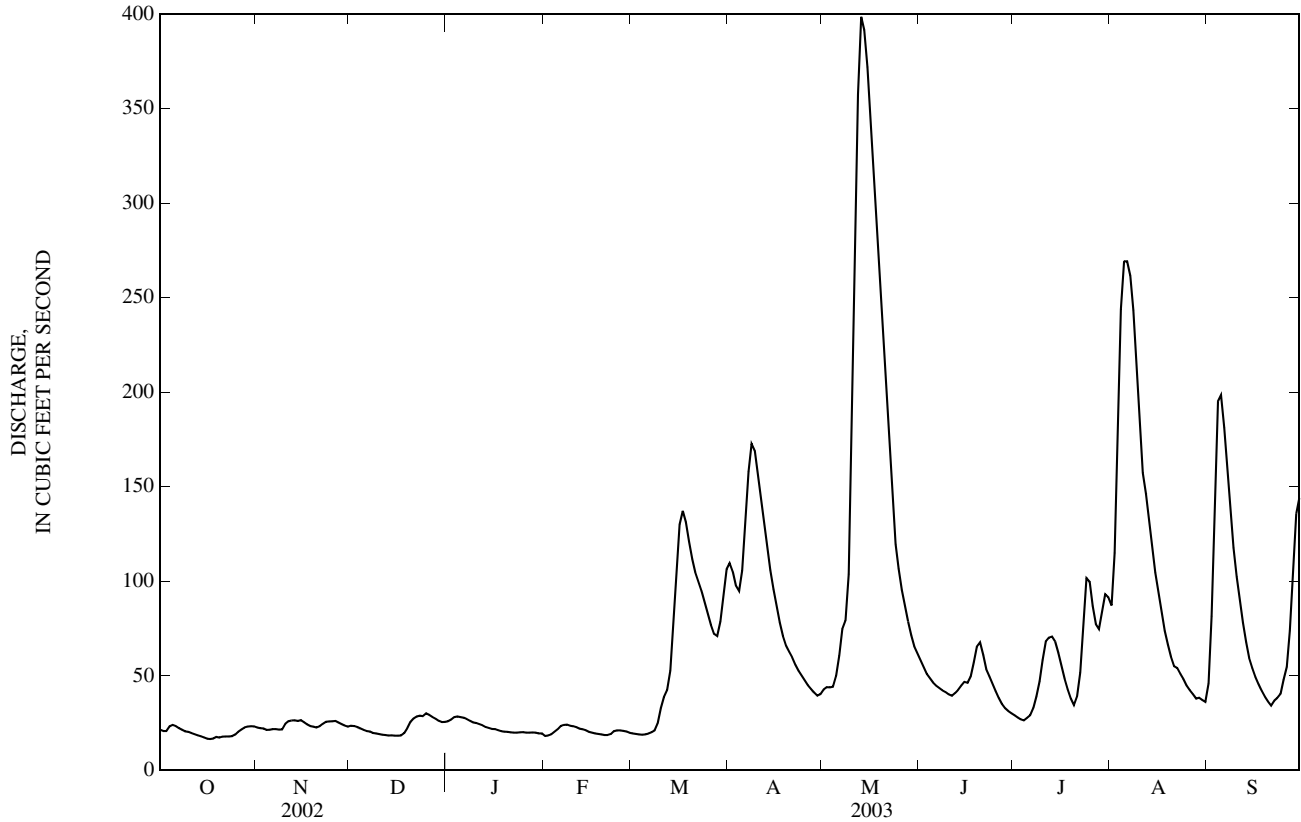
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	23	24	26	18	20	110	43	58	29	87	46
2	21	22	23	27	18	19	105	44	55	28	115	81
3	21	22	23	28	19	19	98	44	51	27	184	150
4	23	21	22	28	20	19	95	44	49	26	244	195
5	24	22	21	28	22	19	106	50	46	28	269	198
6	23	22	21	28	23	19	129	61	45	29	269	181
7	22	22	21	27	24	20	158	75	43	33	262	158
8	21	22	20	26	24	21	173	79	42	39	243	136
9	21	22	20	25	24	25	169	104	41	47	214	118
10	20	25	19	25	23	33	157	169	40	58	182	102
11	20	26	19	24	23	39	144	254	39	68	157	90
12	19	26	19	24	22	42	130	358	41	70	146	78
13	19	26	18	23	22	53	117	399	43	71	132	68
14	18	26	18	22	21	77	106	392	45	68	117	59
15	17	27	18	22	20	106	96	372	47	62	105	54
16	17	25	18	22	20	130	87	336	46	55	94	49
17	17	24	18	21	19	137	78	299	49	49	83	45
18	17	23	20	21	19	131	71	263	57	43	74	42
19	18	23	22	20	19	121	66	230	65	38	66	39
20	17	23	26	20	19	112	63	200	68	34	60	36
21	18	23	27	20	19	105	60	176	61	39	55	34
22	18	25	28	20	19	100	56	156	53	52	54	37
23	18	26	29	20	21	95	53	137	50	80	51	38
24	18	26	29	20	21	89	50	120	46	102	48	40
25	19	26	30	20	21	83	47	107	42	100	45	48
26	20	26	29	20	21	77	45	95	38	87	42	55
27	22	25	28	20	20	72	43	87	35	77	40	74
28	23	24	27	20	20	71	41	79	33	75	38	106
29	23	24	26	20	---	79	40	71	31	84	38	136
30	23	23	26	20	---	93	40	66	30	93	37	144
31	23	---	26	20	---	106	---	62	---	92	36	---
TOTAL	621	720	715	707	581	2,132	2,733	4,972	1,389	1,783	3,587	2,637
MEAN	20.0	24.0	23.1	22.8	20.8	68.8	91.1	160	46.3	57.5	116	87.9
MAX	24	27	30	28	24	137	173	399	68	102	269	198
MIN	17	21	18	20	18	19	40	43	30	26	36	34
CFSM	0.24	0.29	0.28	0.27	0.25	0.82	1.09	1.92	0.55	0.69	1.39	1.05
IN.	0.28	0.32	0.32	0.31	0.26	0.95	1.22	2.22	0.62	0.79	1.60	1.17

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2003, BY WATER YEAR (WY)

MEAN	36.7	53.5	75.7	92.7	110	157	163	118	81.5	50.1	39.1	33.5
MAX	181	195	195	385	343	437	491	423	362	164	126	119
(WY)	(2002)	(1993)	(1968)	(1993)	(2001)	(1982)	(1950)	(1996)	(1996)	(1981)	(1981)	(1981)
MIN	4.12	4.51	7.20	7.95	8.55	20.4	48.1	29.8	21.6	10.8	8.12	5.83
(WY)	(1965)	(1965)	(1964)	(1964)	(1963)	(1964)	(1946)	(1963)	(1988)	(1963)	(1964)	(1963)

04099510 PIGEON CREEK NEAR ANGOLA, IN—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1946 - 2003	
ANNUAL TOTAL	34,398		22,577			
ANNUAL MEAN	94.2		61.9		84.1	
HIGHEST ANNUAL MEAN					151	1950
LOWEST ANNUAL MEAN					19.5	1964
HIGHEST DAILY MEAN	645	May 16	399	May 13	996	May 21, 1996
LOWEST DAILY MEAN	17	Sep 16	17	Oct 15	3.4	Oct 25, 1964
ANNUAL SEVEN-DAY MINIMUM	17	Oct 14	17	Oct 14	3.5	Oct 22, 1964
MAXIMUM PEAK FLOW			408	May 13	1,000	May 21, 1996
MAXIMUM PEAK STAGE			8.67	May 13	13.90	Mar 22, 1982
ANNUAL RUNOFF (CFSM)	1.13		0.74		1.01	
ANNUAL RUNOFF (INCHES)	15.32		10.06		13.69	
10 PERCENT EXCEEDS	260		136		188	
50 PERCENT EXCEEDS	42		38		54	
90 PERCENT EXCEEDS	20		20		17	



STREAMS TRIBUTARY TO LAKE MICHIGAN

04099750 PIGEON RIVER NEAR SCOTT, IN

LOCATION.--Lat 41°44'56", long 85°34'35", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.14, T.38 N., R.8 E., Lagrange County, Hydrologic Unit 04050001, (SHIPSHEWANA, IN quadrangle), on right bank 20 ft downstream from bridge on County Road 750 North, 1,200 ft downstream from Page Ditch, 0.7 mi south of Indiana-Michigan State line, and 1.2 mi northwest of Scott.

DRAINAGE AREA.--361 mi² of which 53.9 mi² does not contribute directly to surface runoff.

PERIOD OF RECORD.--June 1968 to current year.

REVISED RECORDS.--WSP 2111: Drainage area. WDR IN-92-1: 1991.

GAGE.--Water-stage recorder. Datum of gage is 815.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	112	112	130	120	e120	e85	292	223	283	138	203	208
2	109	111	128	110	e121	e72	318	236	264	119	294	311
3	109	112	183	104	e122	e68	308	222	254	105	347	323
4	116	111	337	94	e123	e67	309	211	237	123	325	317
5	129	114	e280	87	e125	e66	460	277	227	148	355	334
6	125	122	e210	95	e127	e66	489	327	227	161	410	363
7	121	122	e170	96	e129	e68	452	297	222	170	413	345
8	123	121	e150	95	e130	e72	447	288	217	220	410	332
9	118	119	e140	100	e130	e80	464	419	212	238	406	309
10	114	132	e150	104	e129	e97	477	697	206	227	385	275
11	110	149	139	e95	e128	e116	444	787	206	225	351	230
12	108	146	124	e97	e127	e134	426	816	216	228	304	233
13	109	141	111	e99	e128	179	400	869	216	232	279	225
14	108	136	89	e100	e129	228	375	860	211	213	271	207
15	106	137	85	e105	e130	266	338	862	205	199	248	183
16	103	135	84	e110	e128	291	322	884	197	191	222	189
17	103	132	82	e115	e129	357	310	836	196	186	219	182
18	105	128	87	e120	e130	363	296	760	199	179	199	164
19	113	130	113	e130	e132	345	281	682	205	165	175	160
20	115	130	138	e135	133	353	267	608	195	153	157	155
21	111	132	125	e132	130	372	268	571	188	210	144	143
22	110	143	121	e130	124	363	262	524	183	226	186	161
23	108	145	100	e128	138	309	231	462	177	215	206	234
24	110	141	100	e127	e116	305	225	419	170	213	182	219
25	113	137	e107	e126	e112	323	222	392	164	214	161	200
26	119	134	e110	e125	e110	301	216	373	160	227	145	193
27	118	133	e109	e124	e96	282	207	334	155	246	144	225
28	115	131	e108	e123	e93	278	201	318	149	278	139	264
29	111	129	108	e122	---	292	195	306	148	257	146	265
30	111	128	107	e121	---	286	197	292	145	225	170	295
31	110	---	129	e121	---	278	---	292	---	212	171	---
TOTAL	3,492	3,893	4,154	3,490	3,469	6,762	9,699	15,444	6,034	6,143	7,767	7,244
MEAN	113	130	134	113	124	218	323	498	201	198	251	241
MAX	129	149	337	135	138	372	489	884	283	278	413	363
MIN	103	111	82	87	93	66	195	211	145	105	139	143
CFSM	0.37	0.42	0.44	0.37	0.40	0.71	1.05	1.62	0.66	0.65	0.82	0.79
IN.	0.42	0.47	0.50	0.42	0.42	0.82	1.18	1.87	0.73	0.74	0.94	0.88

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 2003, BY WATER YEAR (WY)

MEAN	223	290	353	383	443	579	588	466	381	257	219	202
MAX	575	684	719	1,169	875	1,389	1,089	976	1,103	654	516	538
(WY)	(1987)	(1993)	(1983)	(1993)	(2001)	(1982)	(1978)	(1996)	(1981)	(1981)	(1981)	(1981)
MIN	96.3	96.7	134	113	124	218	323	233	132	104	92.5	85.8
(WY)	(1972)	(1972)	(2003)	(2003)	(2003)	(2003)	(2003)	(1971)	(1988)	(1988)	(1988)	(1971)

SUMMARY STATISTICS

FOR 2002 CALENDAR YEAR

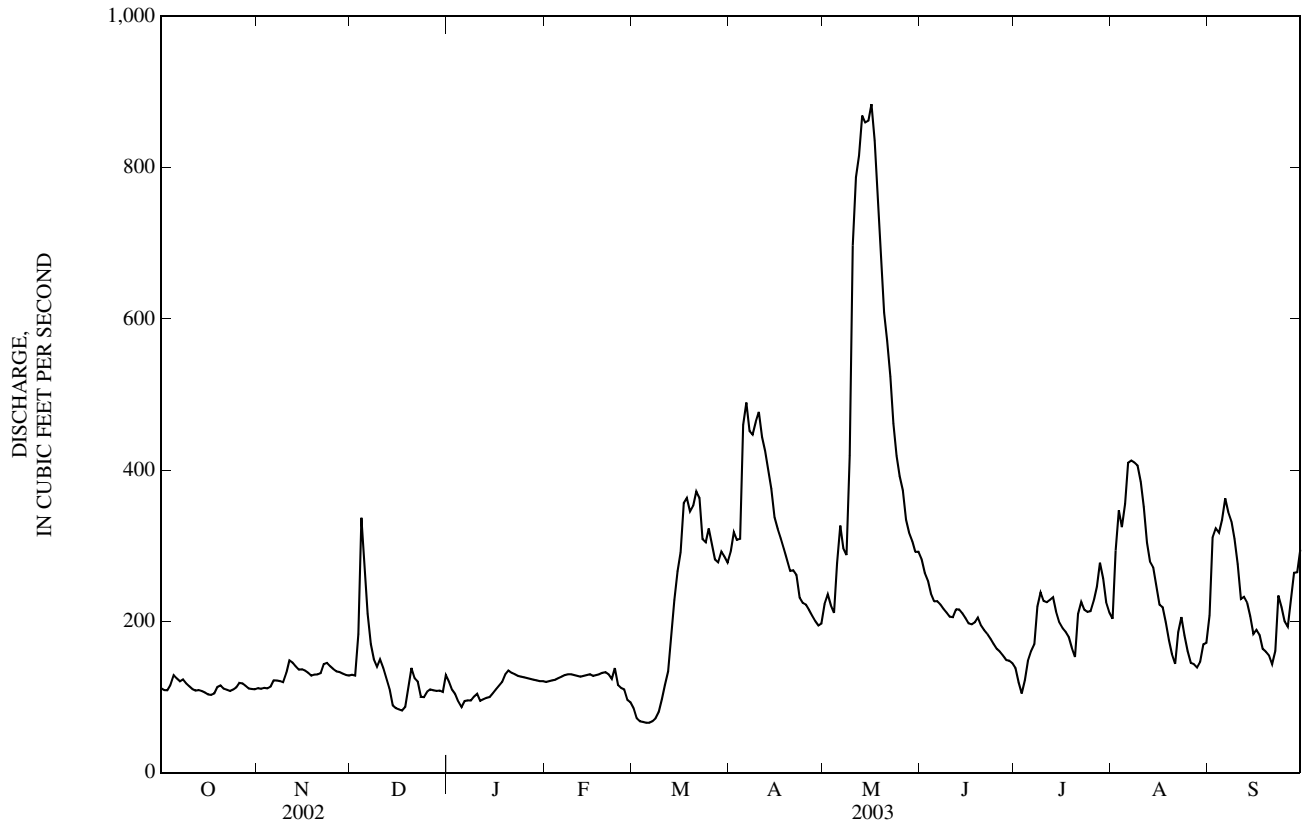
FOR 2003 WATER YEAR

WATER YEARS 1968 - 2003

ANNUAL TOTAL	128,558	77,591	
ANNUAL MEAN	352	213	364
HIGHEST ANNUAL MEAN			545
LOWEST ANNUAL MEAN			207
HIGHEST DAILY MEAN	1,650	May 14	884
LOWEST DAILY MEAN	82	Dec 17	66
ANNUAL SEVEN-DAY MINIMUM	93	Dec 13	68
MAXIMUM PEAK FLOW			892
MAXIMUM PEAK STAGE			5.35
ANNUAL RUNOFF (CFSM)	1.15		0.69
ANNUAL RUNOFF (INCHES)	15.58		9.40
10 PERCENT EXCEEDS	775		679
50 PERCENT EXCEEDS	206		290
90 PERCENT EXCEEDS	110		144

e Estimated

04099750 PIGEON RIVER NEAR SCOTT, IN—Continued



STREAMS TRIBUTARY TO LAKE MICHIGAN

04099808 LITTLE ELKHART RIVER AT MIDDLEBURY, IN

LOCATION.--Lat 41°40'31", long 85°42'01", in NE¼SE¼ sec.10, T.37 N., R.7 E., Elkhart County, Hydrologic Unit 04050001, (MIDDLEBURY, IN quadrangle), on left bank 15 ft downstream from bridge on County Road 16, 0.1 mi east of Middlebury, 0.4 mi upstream from intersection of State Road 13 bridge and Little Elkhart River, and 1.7 mi downstream from Rowe Eden Ditch.

DRAINAGE AREA.--97.6 mi², of which 5.89 mi² does not contribute directly to surface runoff.

PERIOD OF RECORD.--October 1979 to October 2003 (discontinued).

REVISED RECORDS.--WDR IN-82-1: 1980, 1981. WDR IN-92-1: 1991.

GAGE.--Water-stage recorder. Datum of gage is 810.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	37	35	49	39	e37	50	57	73	42	41	57
2	36	38	35	47	39	e37	48	55	69	41	55	70
3	37	37	e31	46	43	e36	47	51	68	37	48	58
4	42	38	e32	45	80	e37	61	49	66	37	49	47
5	44	39	33	45	e51	e38	122	102	64	42	48	43
6	41	40	32	44	e44	e36	92	85	62	42	44	40
7	40	39	32	44	e41	e36	83	70	61	47	42	38
8	39	39	32	43	e39	e48	78	69	60	65	42	36
9	39	39	31	43	e38	e82	77	271	59	57	41	35
10	38	45	31	42	e37	e56	74	318	57	51	39	32
11	38	42	30	e39	e36	e52	69	214	56	49	38	31
12	38	40	30	e39	e35	55	65	237	58	45	35	30
13	39	40	30	e38	e35	76	62	185	57	43	39	30
14	39	40	30	e38	e36	80	59	147	55	42	34	33
15	38	40	30	e37	e37	66	57	169	53	41	32	35
16	37	39	30	e37	e35	64	55	154	51	37	32	34
17	38	38	30	e36	e37	62	53	133	50	35	33	33
18	38	37	36	e33	e38	59	53	120	49	34	33	33
19	41	38	47	e33	39	57	52	109	49	32	33	32
20	40	38	54	e33	40	56	54	106	47	33	29	32
21	39	39	50	e32	41	57	55	99	46	50	30	32
22	38	42	48	e32	42	55	52	93	45	47	37	40
23	37	39	46	e32	e39	53	51	89	44	44	35	40
24	37	38	45	e32	e38	51	49	86	43	42	34	38
25	38	38	45	e33	e37	53	49	83	42	41	34	38
26	39	37	45	e33	e36	51	48	79	42	39	34	38
27	38	36	44	e32	e35	49	47	77	41	43	37	47
28	37	36	43	e33	e36	49	47	74	41	50	36	46
29	37	36	43	e34	---	55	46	72	43	45	41	44
30	38	36	45	e35	---	52	54	71	43	41	41	42
31	37	---	52	e36	---	50	---	80	---	39	39	---
TOTAL	1,193	1,160	1,177	1,175	1,123	1,645	1,809	3,604	1,594	1,333	1,185	1,184
MEAN	38.5	38.7	38.0	37.9	40.1	53.1	60.3	116	53.1	43.0	38.2	39.5
MAX	44	45	54	49	80	82	122	318	73	65	55	70
MIN	36	36	30	32	35	36	46	49	41	32	29	30
CFSM	0.42	0.42	0.41	0.41	0.44	0.58	0.66	1.27	0.58	0.47	0.42	0.43
IN.	0.48	0.47	0.48	0.48	0.46	0.67	0.73	1.46	0.65	0.54	0.48	0.48

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 2003, BY WATER YEAR (WY)

MEAN	75.1	91.0	101	107	123	139	132	112	98.7	68.2	60.5	59.0
MAX	172	202	207	307	280	404	210	264	278	189	160	118
(WY)	(1991)	(1986)	(1991)	(1993)	(1985)	(1982)	(1985)	(1996)	(1993)	(1981)	(1998)	(1981)
MIN	36.0	38.6	36.4	37.9	40.1	53.1	60.3	55.3	36.7	34.9	37.7	35.5
(WY)	(1995)	(1981)	(2001)	(2003)	(2003)	(2003)	(2003)	(1988)	(1988)	(2001)	(2001)	(2002)

SUMMARY STATISTICS

FOR 2002 CALENDAR YEAR

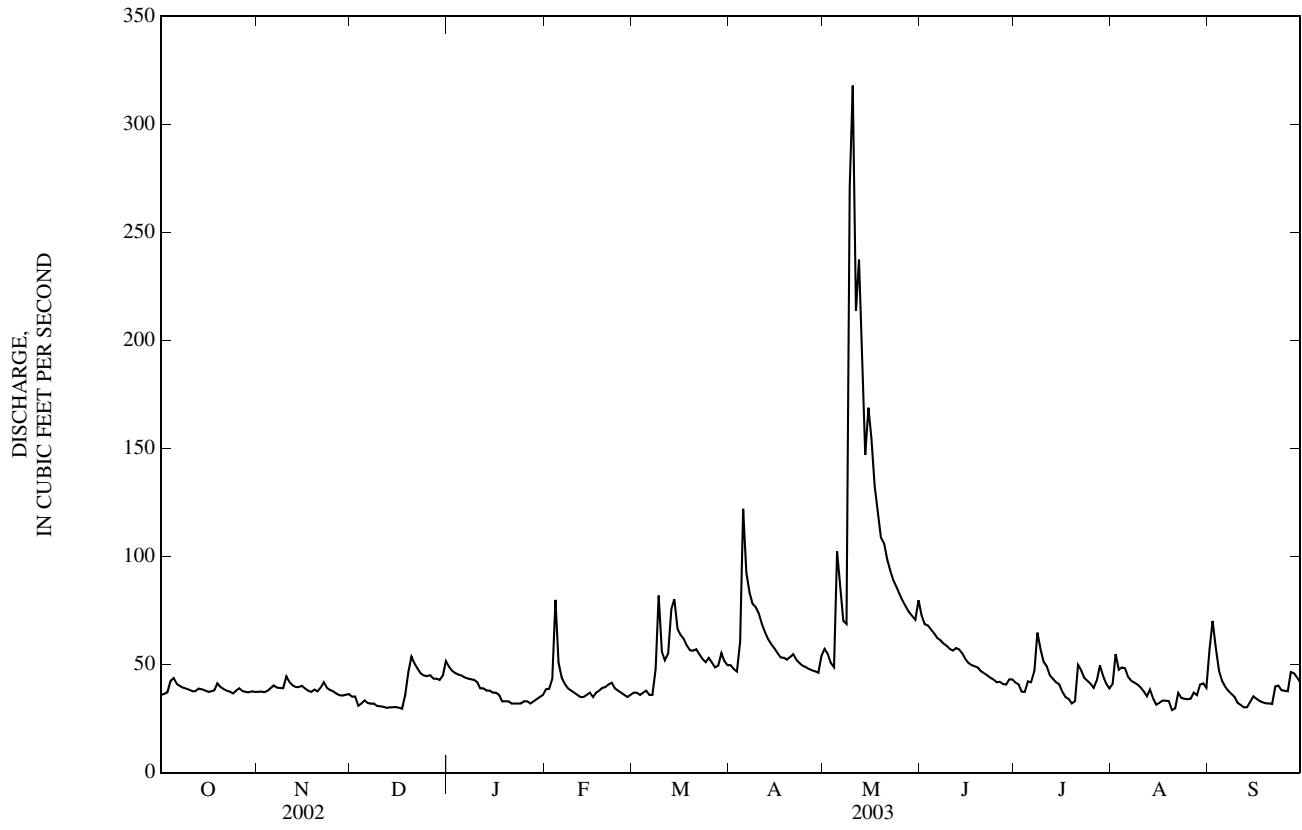
FOR 2003 WATER YEAR

WATER YEARS 1980 - 2003

ANNUAL TOTAL	31,541	18,182	
ANNUAL MEAN	86.4	49.8	97.0
HIGHEST ANNUAL MEAN			155
LOWEST ANNUAL MEAN			49.8
HIGHEST DAILY MEAN	871	318	2,040
LOWEST DAILY MEAN	30	29	22
ANNUAL SEVEN-DAY MINIMUM	30	30	24
MAXIMUM PEAK FLOW		506	2,470
MAXIMUM PEAK STAGE		7.05	10.52
ANNUAL RUNOFF (CFSM)	0.94	0.54	1.06
ANNUAL RUNOFF (INCHES)	12.80	7.38	14.38
10 PERCENT EXCEEDS	151	70	163
50 PERCENT EXCEEDS	60	41	76
90 PERCENT EXCEEDS	36	33	41

e Estimated

04099808 LITTLE ELKHART RIVER AT MIDDLEBURY, IN—Continued



STREAMS TRIBUTARY TO LAKE MICHIGAN

04099850 PINE CREEK NEAR ELKHART, IN

LOCATION.--Lat 41°40'53", long 85°52'57", in NE¹/₄NW¹/₄ sec. 7, T.37 N., R.6 E., Elkhart County, Hydrologic Unit 04050001, (ELKHART, IN quadrangle), on right bank 50 ft upstream from bridge on County Road 14, 0.3 mi east of the intersection of County Roads 17 and 14, 3.1 mi east of Elkhart, and at mile 2.0.

DRAINAGE AREA.--31.0 mi², of which 8.75 mi² does not contribute directly to surface runoff.

PERIOD OF RECORD.--October 1979 to October 2003 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 755.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.7	6.9	6.6	7.3	4.9	6.7	8.1	9.7	11	7.3	11	11
2	7.7	6.8	6.7	6.8	5.0	6.6	7.5	9.5	11	6.8	23	15
3	8.1	6.9	5.6	6.6	5.7	6.7	7.4	8.8	11	6.7	12	10
4	9.1	7.0	5.8	6.4	13	6.6	10	8.5	11	6.9	11	8.4
5	9.1	7.1	6.0	6.3	8.5	6.6	22	28	11	8.3	9.8	7.6
6	8.3	7.3	5.8	6.2	9.3	6.3	14	18	10	8.3	9.2	6.9
7	8.1	7.1	5.7	6.1	7.9	6.2	13	14	10	10	8.4	6.5
8	8.0	7.0	5.8	6.1	7.6	12	12	12	10	16	8.0	6.1
9	7.7	7.0	5.1	6.1	e7.1	17	13	77	9.8	13	7.7	5.6
10	7.6	7.5	5.5	6.0	e6.8	8.8	13	52	9.7	11	6.9	5.4
11	7.5	7.4	5.7	5.1	e6.2	8.5	12	28	9.6	11	7.0	5.3
12	7.5	7.1	5.7	5.7	e6.0	8.7	11	43	9.8	10	7.3	5.3
13	7.4	7.1	5.8	5.3	e6.0	13	11	26	9.7	9.4	6.5	4.7
14	7.1	7.0	6.1	5.6	e6.0	12	10	20	9.5	8.8	5.9	5.0
15	7.0	7.2	6.1	4.5	e5.6	10	9.5	28	9.2	8.9	5.9	5.3
16	7.0	7.0	6.1	e4.4	e5.0	10	9.4	22	8.9	9.0	5.6	5.0
17	7.0	7.0	5.9	e4.3	6.4	10	9.3	18	8.9	7.4	5.1	4.6
18	7.0	7.0	7.0	e4.0	6.6	10	9.1	17	9.1	6.7	4.4	4.4
19	7.6	7.3	8.2	e4.0	6.8	9.7	8.7	15	9.0	5.8	3.3	4.5
20	7.3	7.0	8.9	e4.2	6.7	9.8	8.7	17	8.6	6.2	3.1	4.4
21	7.2	7.5	7.8	e4.4	6.9	9.9	8.9	16	8.4	13	2.7	3.9
22	7.2	8.4	7.2	e4.1	7.5	9.4	8.5	15	8.4	11	5.2	6.6
23	7.1	7.5	6.7	e4.0	6.8	9.0	8.2	14	8.1	11	5.3	7.0
24	7.1	7.3	6.6	e4.0	6.9	8.5	7.9	14	7.5	11	4.7	6.1
25	7.4	7.2	6.0	e4.0	5.9	9.1	7.6	13	6.8	10	4.6	6.4
26	7.7	7.0	6.8	e3.8	6.1	9.0	7.5	13	7.1	9.8	4.8	6.1
27	7.3	6.9	6.0	e3.6	6.1	8.5	7.2	12	7.4	11	5.7	7.3
28	7.1	6.7	6.2	e4.0	6.1	8.2	7.0	12	6.8	13	4.8	6.9
29	7.0	6.7	6.1	e4.0	---	8.7	6.9	11	8.1	11	7.2	6.8
30	7.0	6.9	6.4	4.0	---	8.2	8.6	11	7.9	10	7.3	6.2
31	7.0	---	7.8	4.7	---	8.0	---	12	---	9.8	6.3	---
TOTAL	232.9	213.8	197.7	155.6	189.4	281.7	297.0	614.5	273.3	298.1	219.7	194.3
MEAN	7.51	7.13	6.38	5.02	6.76	9.09	9.90	19.8	9.11	9.62	7.09	6.48
MAX	9.1	8.4	8.9	7.3	13	17	22	77	11	16	23	15
MIN	7.0	6.7	5.1	3.6	4.9	6.2	6.9	8.5	6.8	5.8	2.7	3.9
CFSM	0.24	0.23	0.21	0.16	0.22	0.29	0.32	0.64	0.29	0.31	0.23	0.21
IN.	0.28	0.26	0.24	0.19	0.23	0.34	0.36	0.74	0.33	0.36	0.26	0.23

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 2003, BY WATER YEAR (WY)

MEAN	14.5	16.1	18.7	18.7	22.3	25.4	25.1	21.7	21.5	15.2	12.8	11.8
MAX	42.4	32.8	52.7	45.6	47.6	82.3	42.7	50.7	68.1	39.2	26.7	23.7
(WY)	(1991)	(1986)	(1991)	(1993)	(1985)	(1982)	(1999)	(1996)	(1993)	(1981)	(1997)	(1981)
MIN	4.12	5.26	4.44	4.96	6.76	9.09	9.90	8.00	7.79	6.17	5.01	3.22
(WY)	(2001)	(2001)	(2001)	(2001)	(2003)	(2003)	(2003)	(2000)	(1988)	(2001)	(2000)	(2000)

SUMMARY STATISTICS

FOR 2002 CALENDAR YEAR

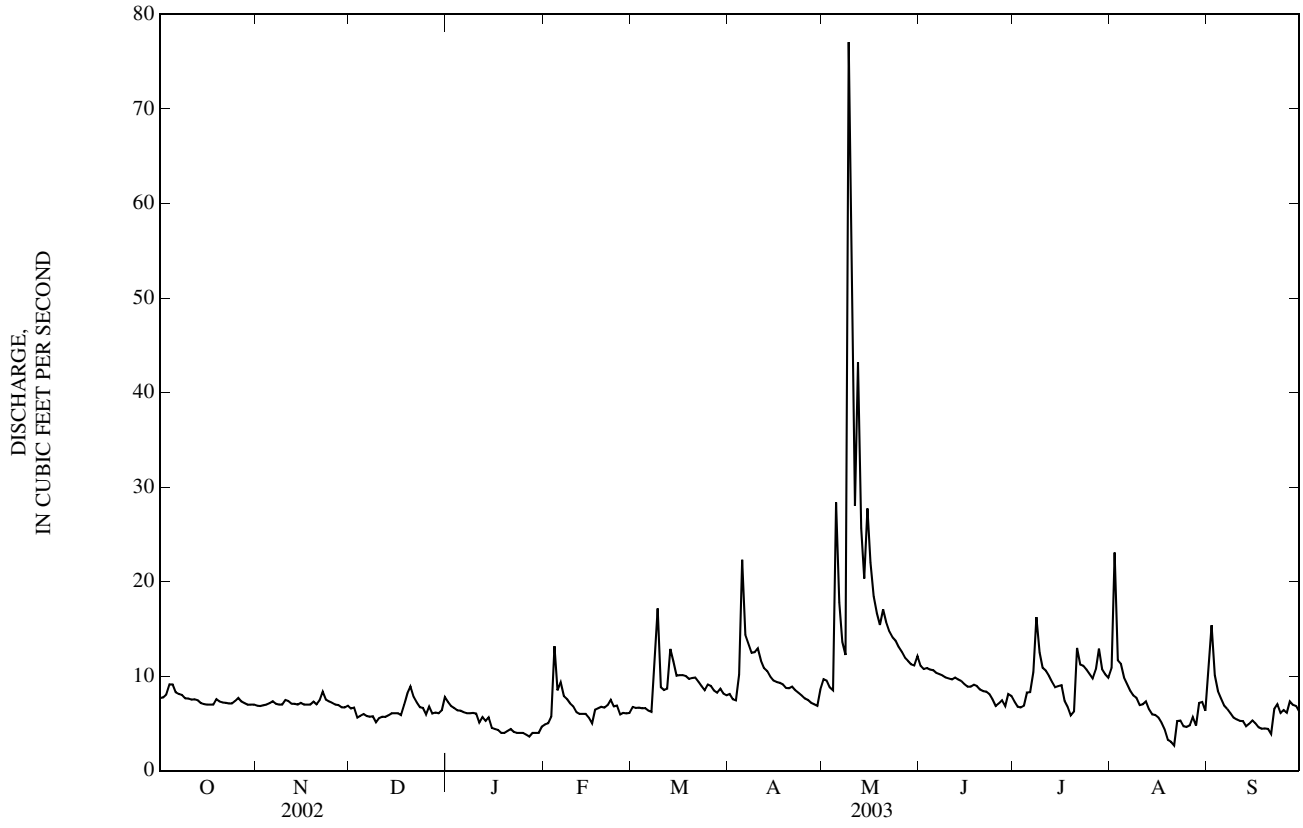
FOR 2003 WATER YEAR

WATER YEARS 1980 - 2003

ANNUAL TOTAL	6,391.1	3,168.0	
ANNUAL MEAN	17.5	8.68	18.6
HIGHEST ANNUAL MEAN			30.1
LOWEST ANNUAL MEAN			8.29
HIGHEST DAILY MEAN	175	77	532
LOWEST DAILY MEAN	5.1	2.7	1.8
ANNUAL SEVEN-DAY MINIMUM	5.6	3.9	2.2
MAXIMUM PEAK FLOW		119	607
MAXIMUM PEAK STAGE		3.90	9.74
ANNUAL RUNOFF (CFSM)	0.56	0.28	0.60
ANNUAL RUNOFF (INCHES)	7.67	3.80	8.16
10 PERCENT EXCEEDS	28	12	30
50 PERCENT EXCEEDS	14	7.3	15
90 PERCENT EXCEEDS	7.0	5.1	6.9

e Estimated

04099850 PINE CREEK NEAR ELKHART, IN—Continued



04100222 NORTH BRANCH ELKHART RIVER AT COSPERVILLE, IN

LOCATION.--Lat 41°28'54", long 85°28'32", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.22, T.35 N., R.9 E., Noble County, Hydrologic Unit 04050001, (ALBION, IN quadrangle), on right bank at downstream side of bridge on County Road 900 North at Cosperville, 1,300 ft downstream from Boyd Ditch, 1.7 mi upstream from Hustin Ditch, and 3.1 mi downstream from Waldron Lake.

DRAINAGE AREA.--142 mi².

PERIOD OF RECORD.--October 1971 to current year.

GAGE.--Water-stage recorder. Datum of gage is 880.12 ft above National Geodetic Vertical Datum of 1929 (levels by State of Indiana, Department of Natural Resources).

REMARKS.--Records good except for estimated daily discharges, which are poor. Flow regulated at times by dam at Waldron Lake.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	18	24	67	e42	e38	105	79	116	33	67	67
2	17	17	24	68	e42	e37	104	89	110	32	75	99
3	17	17	26	66	e43	e37	104	92	106	31	81	111
4	17	18	25	64	e44	e37	109	92	101	29	80	117
5	17	19	25	64	e45	e38	138	114	93	30	77	118
6	17	21	25	63	e46	e38	156	128	88	32	71	118
7	16	20	25	60	e47	e39	164	134	84	60	65	115
8	15	20	25	60	e48	e43	167	137	73	99	64	111
9	14	19	24	59	e47	e49	169	161	41	131	58	104
10	14	21	24	59	e45	e66	168	181	45	134	51	98
11	14	16	23	e56	e43	73	163	196	50	128	47	92
12	13	17	22	e54	e41	73	158	222	57	120	44	86
13	22	18	21	e52	e41	92	154	235	64	110	42	81
14	51	17	21	e50	e40	110	147	240	68	99	41	75
15	49	16	21	e50	e40	119	138	257	68	87	40	69
16	45	18	23	e50	e39	121	130	266	67	75	39	62
17	42	24	24	e48	e38	123	125	266	67	62	36	54
18	39	22	27	e48	40	125	118	261	69	53	33	46
19	39	22	35	e47	39	125	112	251	67	45	29	38
20	38	22	48	e47	38	124	107	243	61	38	26	33
21	36	23	56	e46	38	126	105	235	56	54	23	28
22	33	26	63	e46	38	126	102	221	51	71	29	34
23	30	26	65	e45	e36	126	97	207	47	75	30	52
24	28	26	68	e45	e37	123	93	194	44	73	30	60
25	28	26	70	e45	e40	121	89	182	41	65	28	66
26	27	27	70	e45	e40	118	84	169	39	58	28	73
27	27	26	70	e45	e39	116	79	157	36	52	34	90
28	25	26	69	e44	e39	111	74	145	34	66	34	101
29	23	25	68	e44	---	110	70	132	34	80	36	107
30	22	24	67	e43	---	110	70	123	34	79	42	107
31	19	---	66	e43	---	108	---	121	---	74	40	---
TOTAL	812	637	1,244	1,623	1,155	2,802	3,599	5,530	1,911	2,175	1,420	2,412
MEAN	26.2	21.2	40.1	52.4	41.2	90.4	120	178	63.7	70.2	45.8	80.4
MAX	51	27	70	68	48	126	169	266	116	134	81	118
MIN	13	16	21	43	36	37	70	79	34	29	23	28
CFSM	0.18	0.15	0.28	0.37	0.29	0.64	0.84	1.26	0.45	0.49	0.32	0.57
IN.	0.21	0.17	0.33	0.43	0.30	0.73	0.94	1.45	0.50	0.57	0.37	0.63

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 2003, BY WATER YEAR (WY)

MEAN	79.4	112	136	153	160	244	238	173	140	81.5	60.5	62.5
MAX	272	314	341	542	307	553	530	354	405	211	171	161
(WY)	(1987)	(1973)	(1986)	(1993)	(2001)	(1985)	(1985)	(1996)	(1996)	(1981)	(1997)	(1972)
MIN	17.8	17.8	40.1	42.2	41.2	87.2	111	67.2	18.1	16.4	18.3	9.59
(WY)	(1975)	(1972)	(2003)	(1977)	(2003)	(2000)	(2000)	(1988)	(1988)	(1988)	(1978)	(1999)

SUMMARY STATISTICS

FOR 2002 CALENDAR YEAR

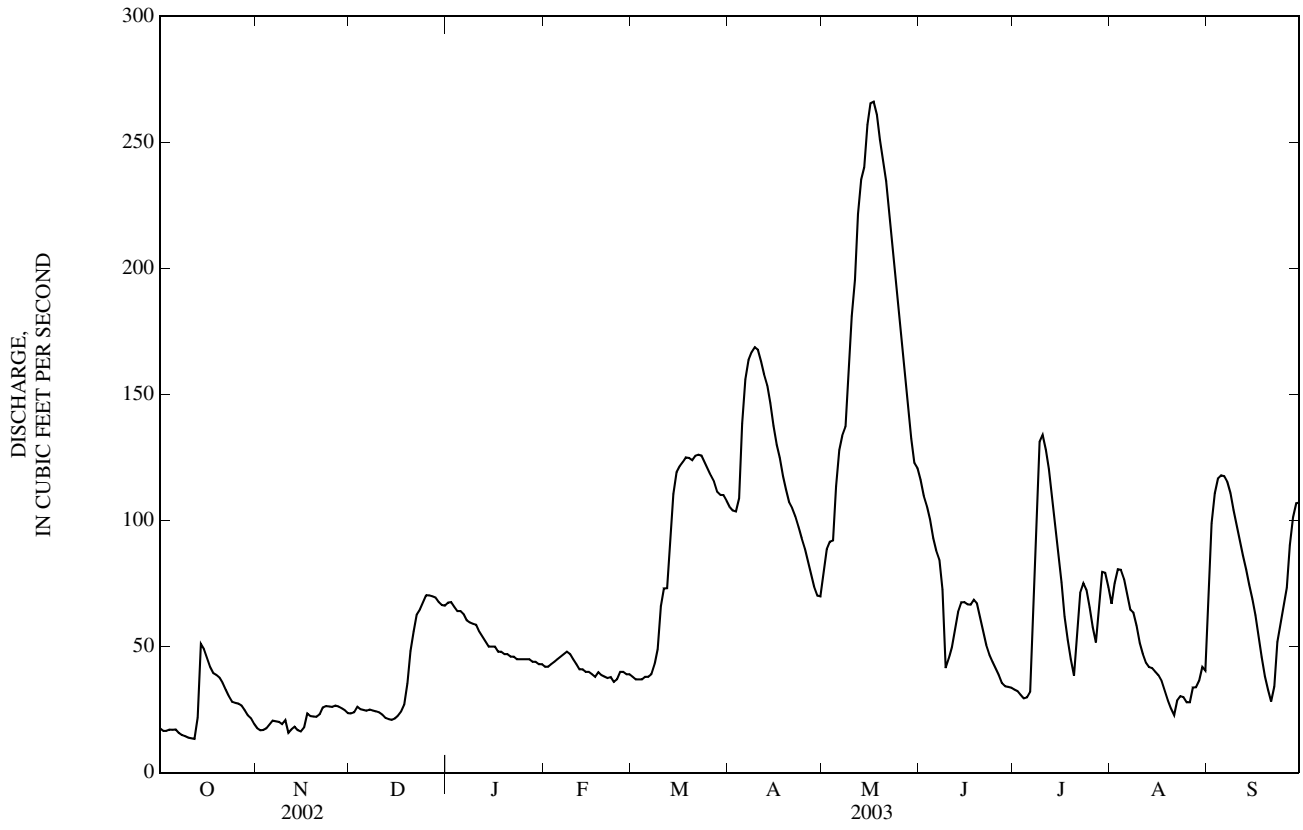
FOR 2003 WATER YEAR

WATER YEARS 1972 - 2003

ANNUAL TOTAL	42,084.9	25,320	
ANNUAL MEAN	115	69.4	136
HIGHEST ANNUAL MEAN			222
LOWEST ANNUAL MEAN			69.4
HIGHEST DAILY MEAN	402	May 18	916
LOWEST DAILY MEAN	5.1	Sep 24	2.2
ANNUAL SEVEN-DAY MINIMUM	6.2	Sep 20	2.8
MAXIMUM PEAK FLOW			266
MAXIMUM PEAK STAGE			5.25
ANNUAL RUNOFF (CFSM)	0.81		0.49
ANNUAL RUNOFF (INCHES)	11.03		6.63
10 PERCENT EXCEEDS	303		130
50 PERCENT EXCEEDS	69		51
90 PERCENT EXCEEDS	14		22

e Estimated

04100222 NORTH BRANCH ELKHART RIVER AT COSPERVILLE, IN—Continued



STREAMS TRIBUTARY TO LAKE MICHIGAN

04100252 FORKER CREEK NEAR BURR OAK, IN

LOCATION.--Lat 41°19'58", long 85°25'25", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.12, T.33 N., R.9 E., Noble County, Hydrologic Unit 04050001, (MERRIAN, IN quadrangle), on right bank 300 ft downstream from bridge on State Highway 9, and 400 ft downstream from Miller Lake Outlet, 0.8 mi northeast of Burr Oak, and 4.5 mi south of Albion.

DRAINAGE AREA.--19.2 mi².

PERIOD OF RECORD.--June 1969 to October 2003 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 889.00 ft above National Geodetic Vertical Datum of 1929 (Indiana Department of Highways bench mark).

REMARKS.--Records poor. Occasional regulation at Miller Lake Outlet.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e1.2	0.76	0.68	0.36	0.64	5.9	34	7.3	5.8	3.4	14	16
2	e1.1	0.81	0.71	0.38	0.58	5.8	32	6.7	5.1	3.6	12	51
3	e0.86	0.79	0.80	0.46	0.56	5.9	29	6.4	5.0	3.7	12	73
4	0.85	0.76	0.61	0.51	1.0	6.2	30	5.7	4.6	3.7	13	63
5	0.78	0.75	0.51	0.51	2.0	6.6	42	8.4	4.7	4.0	14	46
6	0.76	0.75	0.52	0.51	2.8	6.8	59	18	4.4	4.8	17	33
7	0.76	0.76	0.45	0.55	3.3	6.7	60	23	4.0	5.3	16	23
8	0.73	0.72	0.42	0.63	3.5	6.6	e51	20	3.8	5.5	15	17
9	0.75	0.76	0.42	0.78	3.4	6.4	e45	40	3.7	6.2	13	13
10	0.73	0.81	0.45	0.70	3.4	8.9	e38	127	3.6	4.9	12	9.2
11	0.70	0.87	0.41	0.73	3.4	9.1	e32	159	3.4	5.0	11	7.6
12	0.70	0.90	0.38	0.67	3.3	7.8	e27	131	3.9	5.1	11	7.4
13	0.72	0.76	0.43	0.67	3.4	12	e22	99	4.0	5.4	11	6.9
14	0.65	0.91	0.48	0.71	3.5	23	e18	72	4.1	5.4	10	7.0
15	0.61	0.81	0.42	0.82	3.1	28	e13	56	4.6	5.7	9.0	6.5
16	0.52	0.95	0.37	0.68	3.2	26	e11	48	5.0	6.1	8.7	6.1
17	0.51	0.78	0.42	0.68	3.1	24	11	38	5.5	5.0	8.5	6.4
18	0.51	0.76	0.35	0.68	3.0	22	10	30	5.9	5.4	8.2	6.3
19	0.57	0.71	0.35	0.62	2.9	20	11	23	6.0	5.7	7.9	6.2
20	0.52	0.70	0.42	0.60	3.0	17	11	18	5.6	6.5	7.7	6.2
21	0.51	0.78	0.34	0.46	3.3	17	9.2	15	6.0	9.6	6.8	6.2
22	0.50	0.86	0.34	0.42	3.6	17	8.8	12	5.9	12	7.3	6.4
23	0.49	0.97	0.32	0.42	3.2	16	7.9	9.9	4.0	12	7.1	6.4
24	0.50	0.93	0.25	0.42	2.9	15	8.0	8.6	2.6	12	7.2	7.0
25	0.49	0.84	0.34	0.35	3.8	14	8.2	8.1	2.8	12	6.9	9.2
26	0.52	0.80	0.34	0.25	4.6	14	7.6	8.0	3.3	12	7.7	13
27	0.52	0.75	0.34	0.28	4.4	14	6.8	7.8	3.6	13	8.2	24
28	0.55	0.69	0.32	0.24	4.8	14	6.1	8.0	3.8	18	7.5	33
29	0.71	0.74	0.30	0.35	---	21	6.8	7.8	3.9	21	8.0	32
30	0.78	0.68	0.21	0.38	---	34	6.7	8.0	4.2	21	8.0	25
31	0.77	---	0.22	0.52	---	36	---	7.8	---	19	7.8	---
TOTAL	20.87	23.86	12.92	16.34	83.68	466.7	662.1	1,037.5	132.8	262.0	313.5	573.0
MEAN	0.67	0.80	0.42	0.53	2.99	15.1	22.1	33.5	4.43	8.45	10.1	19.1
MAX	1.2	0.97	0.80	0.82	4.8	36	60	159	6.0	21	17	73
MIN	0.49	0.68	0.21	0.24	0.56	5.8	6.1	5.7	2.6	3.4	6.8	6.1
CFSM	0.04	0.04	0.02	0.03	0.16	0.78	1.15	1.74	0.23	0.44	0.53	0.99
IN.	0.04	0.05	0.03	0.03	0.16	0.90	1.28	2.01	0.26	0.51	0.61	1.11

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 2003, BY WATER YEAR (WY)

MEAN	7.89	12.9	18.1	17.5	23.7	33.7	33.6	19.8	18.8	8.66	4.91	5.36
MAX	50.6	48.8	52.5	67.1	62.5	111	60.5	41.9	90.7	49.5	36.4	33.4
(WY)	(1991)	(1989)	(1978)	(1993)	(1985)	(1982)	(1978)	(1996)	(1981)	(1986)	(1990)	(1990)
MIN	0.31	0.25	0.21	0.53	2.96	9.28	9.61	4.70	1.98	0.41	0.25	0.23
(WY)	(1995)	(1995)	(2000)	(2003)	(1979)	(2000)	(1971)	(1988)	(1988)	(1971)	(1971)	(1978)

SUMMARY STATISTICS

FOR 2002 CALENDAR YEAR

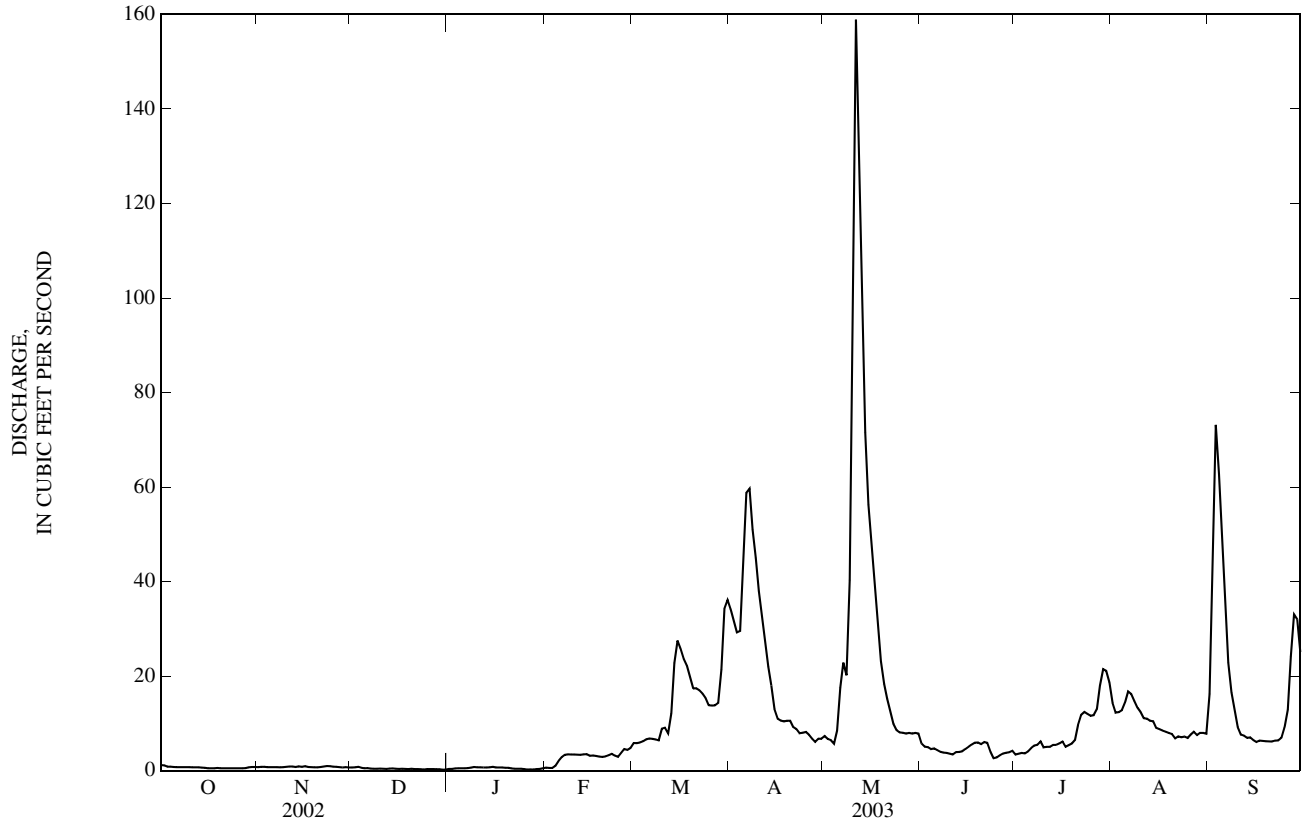
FOR 2003 WATER YEAR

WATER YEARS 1970 - 2003

ANNUAL TOTAL	6,099.05	3,605.27		
ANNUAL MEAN	16.7	9.88	17.0	
HIGHEST ANNUAL MEAN			29.0	1982
LOWEST ANNUAL MEAN			6.54	2000
HIGHEST DAILY MEAN	112	May 13	519	May 11
LOWEST DAILY MEAN	0.21	Dec 30	0.21	Dec 30
ANNUAL SEVEN-DAY MINIMUM	0.30	Dec 25	0.30	Dec 25
MAXIMUM PEAK FLOW			167	May 11
MAXIMUM PEAK STAGE			5.23	May 11
ANNUAL RUNOFF (CFSM)	0.87		0.51	
ANNUAL RUNOFF (INCHES)	11.82		6.99	
10 PERCENT EXCEEDS	43		23	
50 PERCENT EXCEEDS	6.4		5.1	
90 PERCENT EXCEEDS	0.52		0.46	

e Estimated

04100252 FORKER CREEK NEAR BURR OAK, IN—Continued



STREAMS TRIBUTARY TO LAKE MICHIGAN

04100377 SOLOMON CREEK NEAR SYRACUSE, IN

LOCATION.--Lat 41°27'30", long 85°43'12", in NW¼SE¼ sec.28, T.35 N., R.7 E., Elkhart County, Hydrologic Unit 04050001, (LAKE WAWASEE, IN quadrangle), on right bank 40 ft upstream from County Road 52 East bridge over Solomon Creek, and 2.5 mi northeast of Syracuse, and 6.8 mi west of Ligonier.

DRAINAGE AREA.--36.1 mi².

PERIOD OF RECORD.--October 1987 to October 2003 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 840.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	14	17	22	e14	15	21	30	33	13	26	54
2	15	14	e16	22	17	14	20	32	30	9.9	27	89
3	14	14	e13	21	19	e13	20	31	31	10	26	77
4	15	14	e12	21	24	14	24	29	30	11	31	67
5	16	14	e13	21	e17	15	49	58	28	16	36	60
6	15	14	e12	20	e16	14	43	59	27	16	30	55
7	15	14	e13	20	e17	14	40	52	26	19	27	51
8	15	14	e13	21	e17	17	39	48	26	24	25	48
9	15	15	e12	20	e17	24	37	64	25	38	24	45
10	14	15	e14	20	e17	e20	35	73	25	36	23	42
11	14	15	e15	e17	e16	e19	33	71	26	32	23	38
12	13	19	16	e17	e13	20	32	80	27	29	21	37
13	13	18	16	e17	e13	30	30	74	27	26	19	36
14	12	17	15	e18	e13	36	29	66	27	24	14	33
15	12	16	15	e15	e13	29	28	74	27	24	12	32
16	12	16	15	e14	e12	27	27	73	26	21	10	31
17	12	16	15	e14	e12	26	26	66	26	17	13	30
18	12	16	17	e13	e12	25	26	61	25	15	12	29
19	16	17	20	e13	e15	24	25	58	25	14	11	29
20	15	18	23	e14	e14	23	25	56	24	13	10	28
21	14	17	23	e14	e13	25	26	55	23	24	11	27
22	14	18	22	e13	e13	24	25	52	23	25	17	29
23	14	18	20	e12	e13	23	24	49	20	23	18	29
24	14	18	20	e12	e13	22	24	45	16	21	16	28
25	14	18	19	e13	e13	22	23	41	15	20	15	29
26	14	17	20	e13	e12	22	23	36	17	19	14	29
27	14	17	19	e12	e12	22	22	32	17	25	18	45
28	14	17	20	e12	e13	21	22	30	16	42	16	43
29	14	17	19	e13	---	22	22	29	17	36	18	39
30	14	17	20	e12	---	22	23	29	16	31	22	36
31	14	---	22	e12	---	21	---	41	---	28	20	---
TOTAL	434	484	526	498	410	665	843	1,594	721	701.9	605	1,245
MEAN	14.0	16.1	17.0	16.1	14.6	21.5	28.1	51.4	24.0	22.6	19.5	41.5
MAX	16	19	23	22	24	36	49	80	33	42	36	89
MIN	12	14	12	12	12	13	20	29	15	9.9	10	27
CFSM	0.39	0.45	0.47	0.45	0.41	0.59	0.78	1.42	0.67	0.63	0.54	1.15
IN.	0.45	0.50	0.54	0.51	0.42	0.69	0.87	1.64	0.74	0.72	0.62	1.28

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 2003, BY WATER YEAR (WY)

	2002	1993	1991	1993	2001	1998	2002	2002	1993	1997	2001	2003
MEAN	26.0	30.5	32.0	39.5	40.5	44.0	51.1	44.5	47.0	29.0	21.5	21.8
MAX	72.8	60.1	60.3	94.8	79.9	75.4	91.2	86.9	82.3	56.3	38.3	41.5
(WY)	(2002)	(1993)	(1991)	(1993)	(2001)	(1998)	(2002)	(2002)	(1993)	(1997)	(2001)	(2003)
MIN	11.2	12.5	14.8	13.7	14.6	18.7	23.4	24.4	16.5	12.1	10.5	11.7
(WY)	(1996)	(2000)	(1990)	(2000)	(2003)	(2000)	(2000)	(1989)	(1988)	(1988)	(1988)	(1994)

SUMMARY STATISTICS

FOR 2002 CALENDAR YEAR

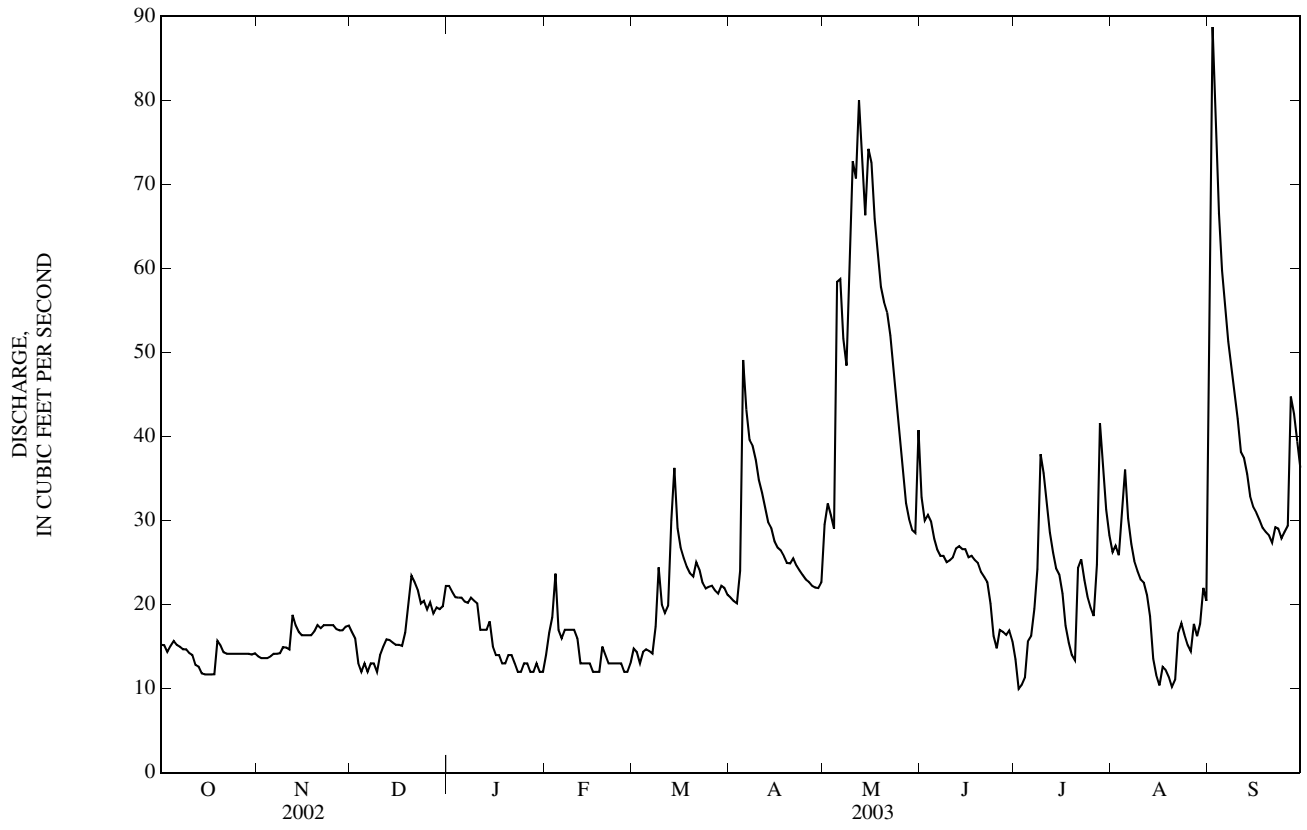
FOR 2003 WATER YEAR

WATER YEARS 1988 - 2003

ANNUAL TOTAL	15,554.4	8,726.9	
ANNUAL MEAN	42.6	23.9	35.6
HIGHEST ANNUAL MEAN			53.6
LOWEST ANNUAL MEAN			17.5
HIGHEST DAILY MEAN	242	May 12	89
LOWEST DAILY MEAN	6.8	Sep 1	9.9
ANNUAL SEVEN-DAY MINIMUM	8.6	Aug 27	11
MAXIMUM PEAK FLOW			91
MAXIMUM PEAK STAGE			3.98
ANNUAL RUNOFF (CFSM)	1.18		0.66
ANNUAL RUNOFF (INCHES)	16.03		8.99
10 PERCENT EXCEEDS	86		41
50 PERCENT EXCEEDS	32		20
90 PERCENT EXCEEDS	13		13

e Estimated

04100377 SOLOMON CREEK NEAR SYRACUSE, IN—Continued



STREAMS TRIBUTARY TO LAKE MICHIGAN

04100500 ELKHART RIVER AT GOSHEN, IN

LOCATION.--Lat 41°35'36", long 85°50'55", in NE¼NE¼ sec.8, T.36 N., R.6 E., Elkhart County, Hydrologic Unit 04050001, (GOSHEN, IN quadrangle), on right bank 20 ft downstream from River Avenue bridge at Goshen, 0.4 mi upstream from Rock Run, 9.1 mi northwest of Millersburg and at mile 16.1.

DRAINAGE AREA.--594 mi².

PERIOD OF RECORD.--April 1931 to current year.

REVISED RECORDS.--WSP 1337: 1939(M), WSP 1557: 1954, WSP 2111: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 769.43 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 20, 1931, nonrecording gage at same site and datum.

REMARKS.--Records fair except estimated daily discharges, which are poor. Occasional low-flow regulation at Goshen Dam, 3.4 mi upstream.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	148	110	153	216	155	e142	381	332	454	133	332	404
2	145	105	152	221	163	e133	381	394	419	122	386	773
3	148	103	135	216	188	e125	362	372	403	119	353	848
4	153	107	e118	203	271	157	410	352	382	115	358	646
5	140	116	e117	218	249	170	656	611	355	149	396	545
6	134	124	e115	211	e210	174	691	915	337	187	373	514
7	129	122	113	209	e190	176	602	639	333	245	340	518
8	133	121	121	207	e180	195	620	556	322	333	332	531
9	137	125	118	219	e170	334	630	994	315	409	312	543
10	142	146	124	213	e166	283	635	1,420	284	434	290	529
11	145	137	136	194	e162	260	579	978	277	408	276	496
12	134	133	136	e170	e160	295	556	952	291	382	253	456
13	134	134	141	e160	e158	364	543	1,030	299	361	244	426
14	135	135	145	e153	e156	557	533	958	288	345	231	410
15	155	141	144	e146	e154	480	517	1,090	281	333	225	392
16	171	136	142	e150	e152	443	484	1,210	278	317	214	362
17	171	118	123	e151	e150	451	447	1,150	279	291	203	336
18	164	105	140	e150	e149	465	434	1,090	280	265	196	309
19	160	117	173	e151	e149	453	373	1,040	256	240	183	292
20	164	122	199	e153	e160	439	368	998	249	221	170	275
21	158	134	194	e154	175	450	362	942	241	327	164	268
22	155	151	174	e155	188	450	337	880	232	415	183	305
23	149	151	172	e152	174	448	316	826	220	364	197	335
24	134	146	e167	e149	e155	445	300	767	207	341	188	329
25	122	149	e165	e148	e144	426	298	707	193	324	184	335
26	130	148	e164	e150	e141	426	299	660	186	309	182	350
27	127	150	e163	e148	e140	422	248	603	180	310	194	445
28	124	138	e165	e149	e141	409	241	561	172	377	193	476
29	115	140	e170	e150	---	420	241	527	178	377	238	452
30	115	149	179	e150	---	421	278	485	182	360	325	433
31	113	---	203	e151	---	393	---	504	---	338	278	---
TOTAL	4,384	3,913	4,661	5,367	4,750	10,806	13,122	24,543	8,373	9,251	7,993	13,333
MEAN	141	130	150	173	170	349	437	792	279	298	258	444
MAX	171	151	203	221	271	557	691	1,420	454	434	396	848
MIN	113	103	113	146	140	125	241	332	172	115	164	268
CFSM	0.24	0.22	0.25	0.29	0.29	0.59	0.74	1.33	0.47	0.50	0.43	0.75
IN.	0.27	0.25	0.29	0.34	0.30	0.68	0.82	1.54	0.52	0.58	0.50	0.83

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1932 - 2003, BY WATER YEAR (WY)

	318	392	495	590	702	930	942	718	514	357	271	254
MEAN	318	392	495	590	702	930	942	718	514	357	271	254
MAX	1,652	1,132	1,276	2,058	1,657	2,497	2,424	2,354	1,521	1,079	712	784
(WY)	(1955)	(1973)	(1983)	(1993)	(1959)	(1982)	(1950)	(1943)	(1996)	(1951)	(1958)	(1958)
MIN	75.9	95.9	122	122	108	301	363	222	101	94.0	73.0	58.5
(WY)	(1965)	(1965)	(1964)	(1963)	(1963)	(1964)	(1946)	(1958)	(1934)	(1934)	(1941)	(1941)

SUMMARY STATISTICS

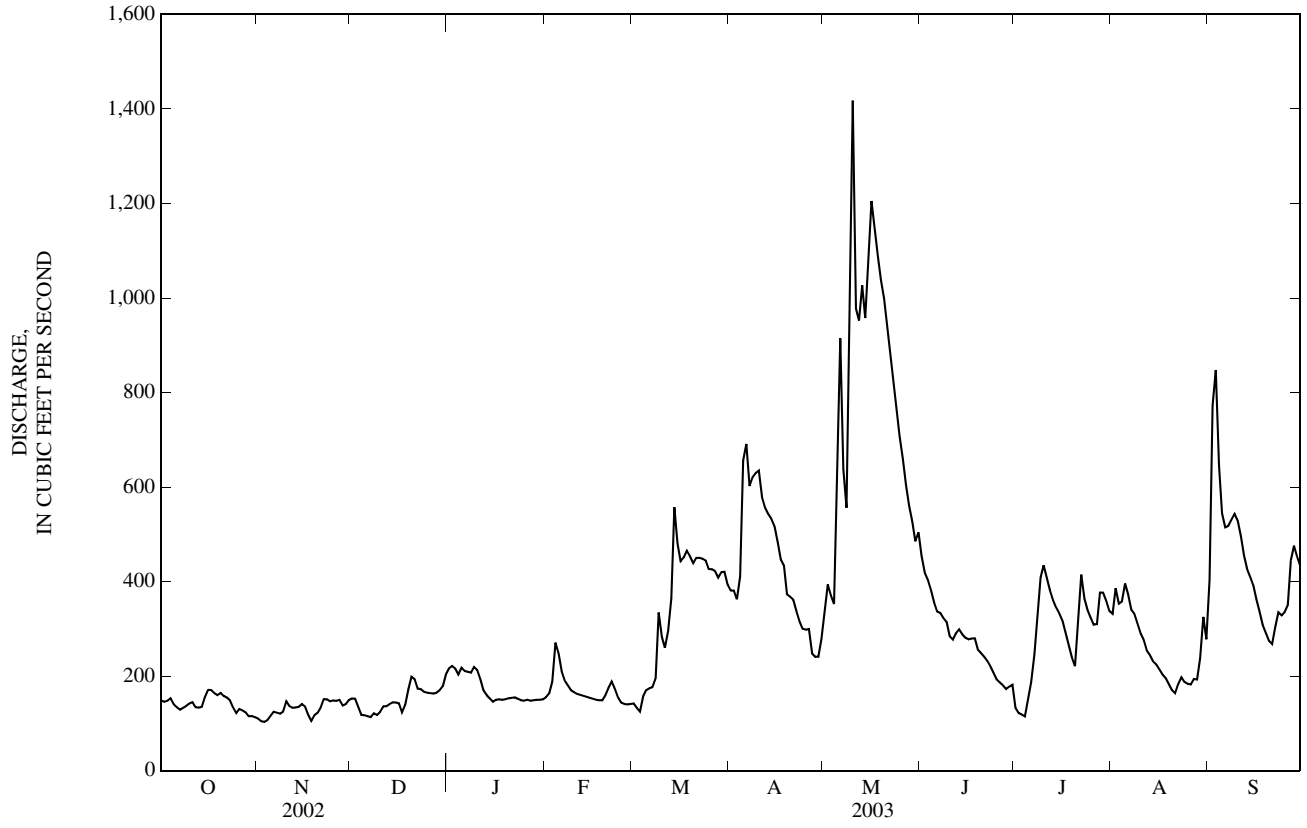
FOR 2002 CALENDAR YEAR

FOR 2003 WATER YEAR

WATER YEARS 1932 - 2003

ANNUAL TOTAL	227,643	110,496	
ANNUAL MEAN	624	303	539
HIGHEST ANNUAL MEAN			1,005
LOWEST ANNUAL MEAN			197
HIGHEST DAILY MEAN	4,160	May 13	6,010
LOWEST DAILY MEAN	103	Nov 3	7.0
ANNUAL SEVEN-DAY MINIMUM	110	Oct 29	50
MAXIMUM PEAK FLOW			6,360
MAXIMUM PEAK STAGE			11.94
INSTANTANEOUS LOW FLOW			7.0
ANNUAL RUNOFF (CFSM)	1.05	0.51	0.91
ANNUAL RUNOFF (INCHES)	14.26	6.92	12.33
10 PERCENT EXCEEDS	1,420	549	1,110
50 PERCENT EXCEEDS	415	220	389
90 PERCENT EXCEEDS	134	133	155

04100500 ELKHART RIVER AT GOSHEN, IN—Continued



STREAMS TRIBUTARY TO LAKE MICHIGAN

04101000 ST. JOSEPH RIVER AT ELKHART, IN

LOCATION.--Lat 41°41'30", long 85°58'30", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.5, T.37 N., R.5 E., Elkhart County, Hydrologic Unit 04050001, (ELKHART, IN quadrangle), on left bank 200 ft downstream from Elkhart River, 200 ft upstream from Main Street bridge in Elkhart, 2,000 ft downstream from Christiana Creek, 0.5 mi downstream from Elkhart Hydroelectric Plant, and at mile 76.5.

DRAINAGE AREA.--3,370 mi².

PERIOD OF RECORD.--August 1947 to current year. Gage heights at site 0.8 mi downstream at different datum from September 1924 to March 1926 are available from the district office.

REVISED RECORDS.--WSP 2111: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 700.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. The flow is regulated by Elkhart Hydroelectric Plant.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,090	1,110	1,270	1,690	1,200	1,190	2,190	2,470	2,820	1,410	1,500	1,740
2	1,100	1,140	1,320	1,650	1,190	1,190	2,140	2,670	2,700	1,390	1,800	2,300
3	1,080	1,110	1,280	1,660	1,270	1,060	2,120	2,560	2,490	1,300	2,090	2,370
4	1,200	1,150	1,120	1,630	1,560	1,170	2,520	2,490	2,530	1,190	2,270	2,290
5	1,250	1,160	1,240	1,590	1,530	1,230	3,400	3,190	2,480	1,170	2,210	2,080
6	1,150	1,170	1,240	1,580	1,460	1,200	3,820	3,690	2,360	1,400	2,120	2,010
7	1,160	1,230	1,280	1,460	1,470	1,200	3,980	3,420	2,340	1,610	2,130	2,010
8	1,100	1,210	1,360	1,500	1,220	1,240	4,250	3,280	2,250	1,950	2,170	2,000
9	1,130	1,220	1,230	1,450	1,430	1,590	4,130	4,510	2,160	2,090	2,340	1,960
10	1,220	1,290	1,250	1,440	1,400	1,500	4,010	5,630	2,160	2,050	1,960	1,910
11	1,210	1,320	1,300	1,420	1,210	1,380	3,940	5,120	2,230	2,040	1,890	1,850
12	1,170	1,260	1,280	1,310	1,200	1,490	3,770	5,230	2,230	2,120	2,210	1,770
13	1,170	1,330	1,280	1,240	1,200	1,690	3,590	5,360	2,240	1,900	2,010	1,700
14	1,100	1,350	1,290	1,320	1,230	2,060	3,350	5,220	2,260	1,830	1,690	1,650
15	1,150	1,360	1,270	1,160	1,270	2,200	3,190	5,460	2,220	1,720	1,640	1,740
16	1,130	1,310	1,490	1,160	1,080	2,230	3,110	5,520	2,200	1,680	1,600	1,790
17	1,100	1,280	1,430	1,120	1,140	2,330	2,920	5,330	2,250	1,570	1,620	1,580
18	1,130	1,280	1,500	1,020	1,220	2,470	2,850	5,120	2,070	1,530	1,520	1,470
19	1,210	1,380	1,760	1,120	1,170	2,690	2,750	4,910	1,870	1,460	1,420	1,520
20	1,220	1,380	1,810	1,180	1,180	2,610	2,640	4,840	1,840	1,410	1,220	1,470
21	1,190	1,460	1,800	1,200	1,200	2,740	2,630	4,590	1,840	1,530	1,150	1,370
22	1,280	1,530	1,740	1,190	1,250	2,700	2,570	4,140	1,690	1,750	1,180	1,580
23	1,270	1,520	1,680	1,150	1,250	2,660	2,530	4,010	1,620	1,780	1,420	1,740
24	1,250	1,500	1,720	1,170	1,240	2,530	2,450	3,760	1,600	1,680	1,380	1,860
25	1,210	1,490	1,610	1,200	1,190	2,600	2,390	3,600	1,470	1,540	1,220	1,980
26	1,240	1,480	1,520	1,190	1,150	2,540	2,260	3,470	1,570	1,470	1,230	2,000
27	1,240	1,440	1,510	1,110	1,170	2,390	2,150	3,250	1,570	1,560	1,300	1,940
28	1,230	1,380	1,520	1,150	1,190	2,330	2,140	3,130	1,500	1,580	1,250	2,100
29	1,160	1,360	1,570	1,180	---	2,450	2,090	3,060	1,560	1,620	1,270	2,080
30	1,110	1,350	1,530	1,190	---	2,410	2,190	2,950	1,490	1,590	1,350	2,120
31	1,150	---	1,620	1,220	---	2,230	---	2,950	---	1,540	1,350	---
TOTAL	36,400	39,550	44,820	40,650	35,270	61,300	88,070	124,930	61,610	50,460	51,510	55,980
MEAN	1,174	1,318	1,446	1,311	1,260	1,977	2,936	4,030	2,054	1,628	1,662	1,866
MAX	1,280	1,530	1,810	1,690	1,560	2,740	4,250	5,630	2,820	2,120	2,340	2,370
MIN	1,080	1,110	1,120	1,020	1,080	1,060	2,090	2,470	1,470	1,170	1,150	1,370
CFSM	0.35	0.39	0.43	0.39	0.37	0.59	0.87	1.20	0.61	0.48	0.49	0.55
IN.	0.40	0.44	0.49	0.45	0.39	0.68	0.97	1.38	0.68	0.56	0.57	0.62

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1948 - 2003, BY WATER YEAR (WY)

MEAN	2,197	2,614	3,164	3,544	3,885	5,029	5,153	4,135	3,259	2,350	1,955	1,885
MAX	5,752	5,883	5,795	9,270	7,039	10,760	12,690	7,725	7,535	4,409	4,180	3,855
(WY)	(1987)	(1993)	(1991)	(1993)	(1968)	(1982)	(1950)	(1956)	(1989)	(1968)	(1981)	(1981)
MIN	791	856	958	1,127	1,120	1,679	2,633	1,911	1,280	898	737	721
(WY)	(1964)	(1965)	(1964)	(1964)	(1963)	(1964)	(1958)	(1958)	(1988)	(1988)	(1964)	(1964)

SUMMARY STATISTICS

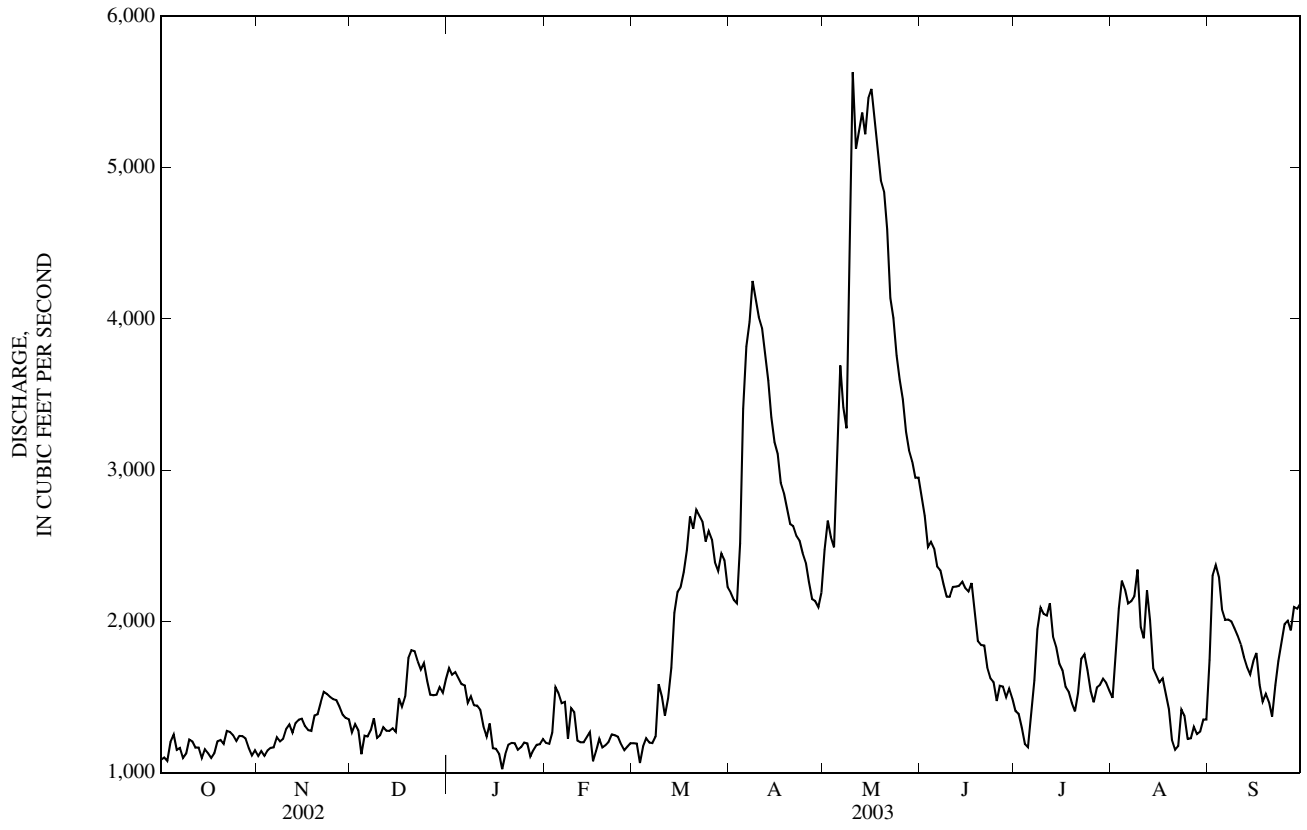
FOR 2002 CALENDAR YEAR

FOR 2003 WATER YEAR

WATER YEARS 1948 - 2003

ANNUAL TOTAL	1,103,603	690,550		
ANNUAL MEAN	3,024	1,892		3,260
HIGHEST ANNUAL MEAN				5,264
LOWEST ANNUAL MEAN				1,283
HIGHEST DAILY MEAN	10,200	May 13	5,630	May 10
LOWEST DAILY MEAN	900	Sep 18	1,020	Jan 18
ANNUAL SEVEN-DAY MINIMUM	962	Sep 12	1,130	Oct 29
MAXIMUM PEAK FLOW			5,960	May 15
MAXIMUM PEAK STAGE			21.28	May 15
ANNUAL RUNOFF (CFSM)	0.90		0.56	
ANNUAL RUNOFF (INCHES)	12.18		7.62	
10 PERCENT EXCEEDS	5,690		3,080	5,790
50 PERCENT EXCEEDS	2,220		1,560	2,780
90 PERCENT EXCEEDS	1,130		1,170	1,370

04101000 ST. JOSEPH RIVER AT ELKHART, IN—Continued



STREAMS TRIBUTARY TO LAKE MICHIGAN

04101370 JUDAY CREEK NEAR SOUTH BEND, IN

LOCATION.--Lat 41°43'43", long 85°15'46", in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec .23, T. 38 N., R. 2 E., St. Joseph County, Hydrologic Unit 04050001, (SOUTH BEND WEST, IN quadrangle), on right bank at downstream side of bridge on access road to Izaak Walton League property, 0.1 mi south of Darden Road in Roseland, 0.5 mi northeast of intersection of St. Joseph River and Interstate 80/90, 0.6 mi from mouth.

DRAINAGE AREA.--Approx. 38 mi².

PERIOD OF RECORD.--October 1992 to current year.

GAGE.--Water-stage recorder. Datum of gage is about 690.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.5	3.0	e4.3	7.3	e5.0	e3.9	6.9	13	17	7.7	5.9	5.5
2	4.5	2.8	e4.3	7.0	e5.0	e4.0	6.2	12	17	7.2	5.6	5.6
3	4.6	2.9	e4.2	6.7	e5.2	e4.0	5.7	11	16	6.8	5.5	4.6
4	5.7	3.0	e4.2	6.3	e7.0	e4.1	11	11	15	6.5	5.4	4.1
5	4.8	3.1	e4.3	6.1	e7.4	e4.1	22	27	14	9.1	5.4	3.9
6	3.5	3.3	e4.3	5.8	e7.0	e4.0	20	25	14	5.5	5.1	3.6
7	3.4	3.0	e4.3	5.6	e6.6	e4.0	18	23	13	7.6	4.8	3.2
8	3.4	3.0	e4.1	5.7	e6.4	e4.2	16	25	13	12	4.6	2.9
9	3.3	3.1	e4.0	5.7	e6.2	e4.6	15	43	12	9.6	4.3	2.7
10	3.2	5.1	e4.0	e5.5	e6.0	e5.0	14	45	11	9.1	4.2	2.6
11	3.0	4.3	e4.1	e5.5	e5.8	e5.2	13	39	11	9.0	4.0	2.4
12	3.0	4.0	e4.1	e5.4	e5.5	5.4	12	46	11	7.9	4.4	2.2
13	3.4	4.1	e4.2	e5.5	e5.3	5.9	11	40	11	7.0	4.0	2.1
14	3.3	4.0	e4.2	e5.4	e5.1	5.8	10	34	10	6.5	3.4	2.4
15	3.5	4.3	e4.2	e5.3	e4.9	5.8	9.7	35	9.4	6.0	3.1	2.6
16	3.3	4.1	e4.1	e5.3	e4.7	5.5	9.2	32	9.0	3.9	3.0	2.5
17	3.1	4.1	e4.2	e5.2	e4.6	5.8	8.8	29	8.1	3.4	2.9	2.3
18	2.9	4.1	e6.0	e5.2	e4.5	5.7	9.1	26	8.5	3.4	2.7	2.2
19	3.3	4.3	9.6	e5.4	e4.4	5.8	8.3	24	9.7	3.3	2.7	2.2
20	3.0	4.0	9.7	e5.1	e4.3	7.2	8.7	26	8.5	4.2	2.6	2.3
21	2.9	4.5	8.6	e4.9	e4.2	8.3	8.4	23	7.9	27	2.4	2.3
22	2.9	5.6	7.7	e4.8	e4.1	8.1	8.8	22	7.0	14	2.3	4.1
23	2.9	5.0	6.9	e4.7	e4.0	7.8	8.8	21	6.6	13	2.1	4.6
24	2.9	4.6	6.9	e4.7	e4.0	7.4	8.2	20	6.1	12	2.1	4.2
25	3.1	4.5	e5.2	e4.7	e4.1	7.5	7.7	20	5.7	11	1.9	4.6
26	3.3	4.3	e5.1	e4.8	e4.2	7.0	7.3	19	6.2	8.5	2.3	4.3
27	3.1	4.2	e5.0	e5.0	e4.0	6.8	7.1	18	6.2	9.7	2.9	4.5
28	3.0	4.4	e4.9	e4.9	e4.0	6.6	6.5	18	5.7	9.9	2.2	5.0
29	2.9	4.3	4.7	e4.8	---	6.7	5.9	17	5.8	9.0	2.2	5.5
30	3.0	4.6	5.0	e4.8	---	6.7	8.0	17	5.6	8.3	2.5	5.1
31	3.1	---	6.8	e4.9	---	6.7	---	19	---	7.5	2.5	---
TOTAL	105.8	119.6	163.2	168.0	143.5	179.6	311.3	780	301.0	265.6	109.0	106.1
MEAN	3.41	3.99	5.26	5.42	5.12	5.79	10.4	25.2	10.0	8.57	3.52	3.54
MAX	5.7	5.6	9.7	7.3	7.4	8.3	22	46	17	27	5.9	5.6
MIN	2.9	2.8	4.0	4.7	4.0	3.9	5.7	11	5.6	3.3	1.9	2.1

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 2003, BY WATER YEAR (WY)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
MEAN	13.0	15.7	15.4	18.4	19.1	22.0	25.3	23.2	21.1	14.9	13.4	10.9
MAX	27.3	31.6	23.6	38.3	30.5	33.8	47.0	32.7	44.9	28.6	36.4	24.0
(WY)	(1994)	(1994)	(1993)	(1993)	(1997)	(1993)	(1998)	(2002)	(1993)	(1996)	(1995)	(1993)
MIN	3.41	3.32	4.49	5.42	5.12	5.79	10.4	11.3	10.0	7.18	3.52	3.54
(WY)	(2003)	(2000)	(2000)	(2003)	(2003)	(2003)	(2003)	(2001)	(2003)	(2001)	(2003)	(2003)

SUMMARY STATISTICS

FOR 2002 CALENDAR YEAR

FOR 2003 WATER YEAR

WATER YEARS 1993 - 2003

ANNUAL TOTAL	5,215.6	2,752.7	
ANNUAL MEAN	14.3	7.54	17.7
HIGHEST ANNUAL MEAN			27.7
LOWEST ANNUAL MEAN			7.54
HIGHEST DAILY MEAN	73	May 13	163
LOWEST DAILY MEAN	2.8	Nov 2	1.9
ANNUAL SEVEN-DAY MINIMUM	3.0	Oct 28	2.2
MAXIMUM PEAK FLOW			49
MAXIMUM PEAK STAGE			b3.76
10 PERCENT EXCEEDS	26		15
50 PERCENT EXCEEDS	12		5.2
90 PERCENT EXCEEDS	4.0		2.9

e Estimated

b Ice jam

04101370 JUDAY CREEK NEAR SOUTH BEND, IN—Continued

