

# CALENDAR FOR WATER YEAR 1998

1997

OCTOBER							NOVEMBER							DECEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
			1	2	3	4							1		1	2	3	4	5	6
5	6	7	8	9	10	11	2	3	4	5	6	7	8	7	8	9	10	11	12	13
12	13	14	15	16	17	18	9	10	11	12	13	14	15	14	15	16	17	18	19	20
19	20	21	22	23	24	25	16	17	18	19	20	21	22	21	22	23	24	25	26	27
26	27	28	29	30	31		23	24	25	26	27	28	29	28	29	30	31			
							30													

1998

JANUARY							FEBRUARY							MARCH						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
				1	2	3	1	2	3	4	5	6	7	1	2	3	4	5	6	7
4	5	6	7	8	9	10	8	9	10	11	12	13	14	8	9	10	11	12	13	14
11	12	13	14	15	16	17	15	16	17	18	19	20	21	15	16	17	18	19	20	21
18	19	20	21	22	23	24	22	23	24	25	26	27	28	22	23	24	25	26	27	28
25	26	27	28	29	30	31								29	30	31				

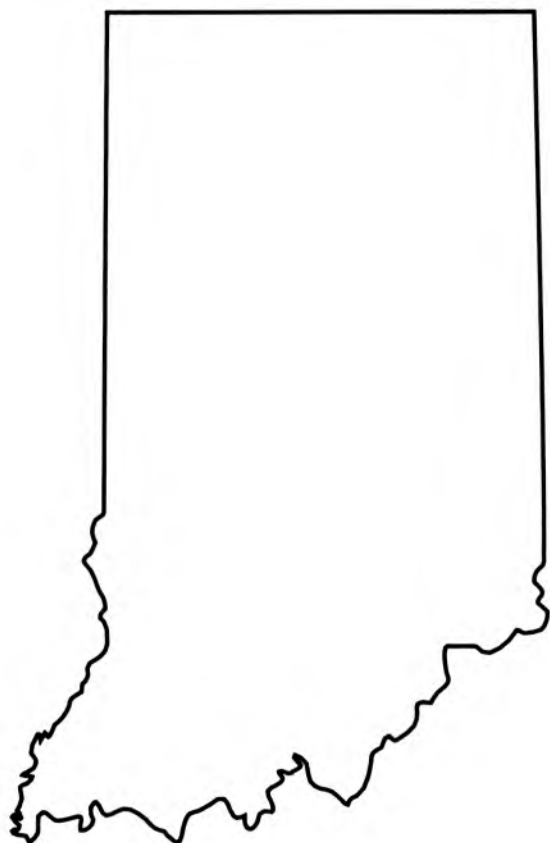
[illegible]

JULY							AUGUST							SEPTEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
			1	2	3	4							1			1	2	3	4	5
5	6	7	8	9	10	11	2	3	4	5	6	7	8	6	7	8	9	10	11	12
12	13	14	15	16	17	18	9	10	11	12	13	14	15	13	14	15	16	17	18	19
19	20	21	22	23	24	25	16	17	18	19	20	21	22	20	21	22	23	24	25	26
26	27	28	29	30	31		23	24	25	26	27	28	29	27	28	29	30			
							30	31												

# Water Resources Data Indiana Water Year 1998

By James A. Stewart, Charles R. Keeton, Lowell E. Hammil, Hieu T. Nguyen, and  
Deborah K. Majors

Water-Data Report IN-98-1





U. S. DEPARTMENT OF THE INTERIOR

BRUCE BABBITT, Secretary

U.S. Geological Survey

Charles G. Groat, Director

For additional information, write to  
District Chief, Water Resources Division  
U.S. Geological Survey  
5957 Lakeside Boulevard  
Indianapolis, Indiana 46278-1996

## PREFACE

This volume of the annual hydrologic data report of Indiana is one of a series of annual reports that document hydrologic data gathered from the U.S. Geological Survey's surface- and ground-water data-collection networks in each State, Puerto Rico, and the Trust Territories. These records of stream-flow, stage, lake levels, ground-water levels, and water quality provide the hydrologic information needed by State, local, and Federal agencies, and the private sector for developing and managing our Nation's land and water resources.

This report is the culmination of a concerted effort by dedicated personnel of the U.S. Geological Survey who collected, compiled, analyzed, verified, and organized the data, and who typed, edited, and assembled the report. In addition to the authors, who had primary responsibility for assuring that the information contained herein is accurate, complete, and adheres to Geological Survey policy and established guidelines, the following individuals contributed significantly to the collection, processing, and tabulation of the data:

D.V. Arvin	R.G. Knapp
P.R. Baker	J.D. Majors
E.R. Bayless	C.D. Menke
B.L. Benedict	R.L. Miller
J.R. Davis	S.E. Morlock
K.M. DeBroka	J.H. Poehler
K.K. Fowler	M.S. Rehm
J.W. Frey	B.T. Reinking

The following individuals contributed significantly to the typing, drafting, and assembling of the report:

J.R. Davis	L.M. Huff	D.K. Majors
------------	-----------	-------------

This report was prepared in cooperation with the State of Indiana and with other agencies under the general supervision of L.A. Swain, District Chief, Indiana, and W.J. Carswell, Jr., Regional Hydrologist, Northeastern Region.

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.				
1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE April 1999	3. REPORT TYPE AND DATES COVERED Annual-Oct. 1, 1997 to Sept. 30, 1998		
4. TITLE AND SUBTITLE Water Resources Data--Indiana, Water Year 1998		5. FUNDING NUMBERS		
6. AUTHOR(S) J.A. Stewart, C.R. Keeton, L.E. Hammil, H.T. Nguyen and D.K. Majors				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Geological Survey, Water Resources Division 5957 Lakeside Boulevard Indianapolis, Indiana 46278-1996		8. PERFORMING ORGANIZATION REPORT NUMBER USGS-WDR-IN-98-1		
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Geological Survey, Water Resources Division 5957 Lakeside Boulevard Indianapolis, Indiana 46278-1996		10. SPONSORING / MONITORING AGENCY REPORT NUMBER USGS-WDR-IN-98-1		
11. SUPPLEMENTARY NOTES Prepared in cooperation with the State of Indiana and with other agencies.				
12a. DISTRIBUTION / AVAILABILITY STATEMENT No restriction on distribution. This report may be purchased from: National Technical Information Service, Springfield, Virginia 22161.			12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) Water resources data for the 1998 water year for Indiana consists of records of discharge, stage, and water quality of streams and wells; reservoir stage and contents; and water levels in lakes and wells. This report contains records of discharge for 166 stream-gaging stations, stage for 8 stream stations, stage and contents for 1 reservoir, water quality for 3 streams, sediment analysis for 1 stream, water levels for 80 lakes and 94 observation wells, water quality for 2 wells. Also included are records of miscellaneous discharge measurements and miscellaneous water-quality sites, not part of the systematic data-collection program, and are shown as miscellaneous samplings. Data contained in this report represent that part of the National Water Data System operated by the U.S. Geological Survey in Indiana in cooperation with State and Federal agencies.				
14. SUBJECT TERMS *Indiana, *Hydrologic data, *Surface water, *Ground water, *Water quality, Flow rates, Gaging stations, Lakes, Reservoirs, Chemical analysis, Water temperatures, Water levels, Water analyses, Sampling sites, Sediment analysis.			15. NUMBER OF PAGES 472	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT	

# CONTENTS

---

	Page
Preface .....	iii
List of stream and reservoir gaging stations, in downstream order for which records are published in this volume .....	vii
List of lake gaging stations, in alphabetical order, for which records are published in this volume .....	xii
List of ground-water wells, in alphanumeric order by county, for which records are published in this volume .....	xiii
List of discontinued surface-water discharge or stage-only stations .....	xvi
List of discontinued surface-water-quality stations .....	xix
Introduction .....	1
Cooperation .....	2
Summary of hydrologic conditions .....	3
Precipitation .....	3
Surface water .....	6
Ground water .....	8
Special networks and programs .....	10
Explanation of the records .....	11
Station identification numbers .....	11
Downstream order system .....	12
Latitude-longitude system .....	12
Records of surface-water stage and discharge .....	13
Data collection and computation .....	13
Data presentation .....	15
Station manuscript .....	15
Data table of daily mean values .....	17
Statistics of monthly mean data .....	17
Summary statistics .....	18
Identifying estimated daily discharge .....	20
Accuracy of the records .....	20
Other records available .....	21
Records of surface-water quality .....	21
Classification of records .....	21
Arrangement of records .....	22
On-site measurements and sample collection .....	22
Laboratory measurements .....	23
Data presentation .....	23
Remark codes .....	24
Records of lake levels .....	25
Data collection and computation .....	25
Data presentation .....	25
Records of ground-water levels .....	26
Data collection and computation .....	27
Data presentation .....	27
Records of ground-water quality .....	29
Sample collection and analysis .....	29
Data presentation .....	29

## CONTENTS

---

	Page
Access to USGS water data .....	30
Definition of terms .....	31
Publications on Techniques of Water-Resources Investigations.....	41
Selected references.....	45
Station records, surface water.....	49
Discharge at miscellaneous sites.....	235
Analyses of samples collected at water-quality partial-record stations.....	236
Miscellaneous water-quality station analyses, miscellaneous streams in Montgomery County .....	301
Station records, lakes.....	306
Station records, ground water.....	352
Index .....	449

## ILLUSTRATIONS

---

Figure 1. Climate divisions in Indiana.....	4
2. Indiana precipitation during 1998 water year and mean annual precipitation for period 1961-90 .....	5
3. Mean discharge at Indiana index stations during 1998 water year and median discharges for period 1961-90 .....	7
4. Monthly and yearly mean of daily minimum ground-water levels at three Indiana ground-water observation wells during the 1998 water year and mean of monthly and yearly minimum ground-water levels for the period 1985-94 .....	9
5. System for numbering wells, and miscellaneous sites (latitude and longitude).....	13
6. Locations of streamflow and water-quality gaging stations in Indiana .....	46
7. Locations of streamflow gaging stations in Marion County.....	48
8. Water-quality sampling-site number for Sugar Creek and other sampling sites in Montgomery County. ....	300
9. Number of lakes by county having 1998 water-level records.....	305
10. Number of ground-water wells by county having 1998 water-level records .....	351

## TABLES

---

Table 1. Monthly precipitation during water year 1998 as a percentage of mean monthly precipitation for the period 1961-90 .....	5
2. Factors for conversion of chemical constituents in milligrams or micrograms per liter to milliequivalents per liter .....	39
3. Factors for conversion of sediment concentrations in milligrams per liter to parts per million .....	40

STREAM AND RESERVOIR GAGING STATIONS, IN DOWNSTREAM ORDER, vii  
FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME

(d-discharge, e-gage heights, c-chemical, t-temperature, v-contents)

	Station Number	Page
<b><u>OHIO RIVER BASIN</u></b>		
<b>GREAT MIAMI RIVER BASIN</b>		
Whitewater River near Economy (d).....	03274650	49
Whitewater River near Hagerstown (d).....	03274750	50
Whitewater River near Alpine (d).....	03275000	51
East Fork Whitewater River at Abington (d).....	03275600	52
East Fork Whitewater River at Brookville (d).....	03276000	53
Whitewater River at Brookville (d).....	03276500	54
<b>INDIAN-KENTUCK CREEK BASIN</b>		
Indian-Kentuck Creek near Canaan (d).....	03291780	55
<b>SILVER CREEK BASIN</b>		
Silver Creek near Sellersburg (d).....	03294000	56
<b>BUCK CREEK BASIN</b>		
Buck Creek near New Middletown (d).....	03302220	57
<b>INDIAN CREEK BASIN</b>		
Indian Creek:		
Little Indian Creek near Galena (d).....	03302300	58
<b>BLUE RIVER BASIN</b>		
Blue River:		
West Fork Blue River at Salem (d).....	03302680	59
Blue River at Fredericksburg (d).....	03302800	60
Whiskey Run at Marengo (e).....	03302849	61
Blue River near White Cloud (d).....	03303000	62
<b>ANDERSON RIVER BASIN</b>		
Anderson River:		
Middle Fork Anderson River at Bristow (d).....	03303300	63
<b>CROOKED CREEK BASIN</b>		
Crooked Creek near Santa Claus (d).....	03303400	64
<b>PIGEON CREEK BASIN</b>		
Pigeon Creek near Fort Branch (d).....	03322011	65
<b>WABASH RIVER BASIN</b>		
Wabash River at Linn Grove (d).....	03322900	66
Wabash River at Huntington (d).....	03323500	67
Little River near Huntington (d).....	03324000	68
Salamonie River near Warren (d).....	03324300	69
Salamonie River at Dora (d).....	03324500	70
Wabash River at Wabash (d).....	03325000	71
Mississinewa River:		
Mississinewa River near Ridgeville (d).....	03325500	72
Big Lick Creek near Hartford City (d).....	03326070	73
Mississinewa River at Marion (d).....	03326500	74
Mississinewa River at Peoria (d).....	03327000	75
Wabash River at Peru (d).....	03327500	76
Pipe Creek near Bunker Hill (d).....	03327520	77



# STREAM AND RESERVOIR GAGING STATIONS, IN DOWNSTREAM ORDER --Continued

	Station Number	Page
<u>OHIO RIVER BASIN--Continued</u>		
WABASH RIVER BASIN--Continued		
Eel River at North Manchester (d).....	03328000	78
Weesau Creek near Deedsville (d) .....	03328430	79
Eel River near Logansport (d) .....	03328500	80
Wabash River at Logansport (d).....	03329000	81
Deer Creek near Delphi (d).....	03329700	82
Tippecanoe River at North Webster (d) .....	03330241	83
Tippecanoe River at Oswego (d) .....	03330500	84
Walnut Creek near Warsaw (d).....	03331110	85
Tippecanoe River near Ora (d) .....	03331500	86
Tippecanoe River near Delphi (d).....	03333050	87
Wildcat Creek near Jerome (d).....	03333450	88
Kokomo Creek near Kokomo (d) .....	03333600	89
Wildcat Creek at Kokomo (d).....	03333700	90
Wildcat Creek at Owasco (d) .....	03334000	91
South Fork Wildcat Creek near Lafayette (d).....	03334500	92
Wildcat Creek near Lafayette (d) .....	03335000	93
Wabash River at Lafayette (d) .....	03335500	94
Big Pine Creek:		
Mud Pine Creek near Oxford (d).....	03335690	95
Wabash River at Covington (d) .....	03336000	96
Sugar Creek:		
Prairie Creek near Lebanon (d) .....	03339280	97
Sugar Creek at Crawfordsville (d) .....	03339500	98
Wabash River at Montezuma (d) .....	03340500	99
Big Raccoon Creek near Fincastle (d) .....	03340800	100
Big Raccoon Creek at Ferndale (d).....	03340900	101
Big Raccoon Creek at Coxville (d) .....	03341300	102
Wabash River at Terre Haute (d).....	03341500	103
Wabash River at Riverton (d).....	03342000	104
Busseron Creek near Hymera (d).....	03342100	105
Busseron Creek near Carlisle (d) .....	03342500	106
Wabash River at Vincennes (e) .....	03343000	107
White River at Muncie (d) .....	03347000	108
Buck Creek near Muncie (d) .....	03347500	109
Pipe Creek at Frankton (d) .....	03348350	110
White River at Noblesville (d) .....	03349000	111
Stony Creek near Noblesville (d) .....	03350700	112
White River near Nora (d) .....	03351000	113
White River at Broad Ripple (e) .....	03351060	114
Crooked Creek at Indianapolis (d).....	03351310	115
Fall Creek near Fortville (d) .....	03351500	116
Geist Reservoir at Indianapolis (e) .....	03351700	117
Fall Creek at Millersville (d).....	03352500	118
White River at Indianapolis (d).....	03353000	119
Pleasant Run at Arlington Avenue at Indianapolis (d) .....	03353120	120

STREAM AND RESERVOIR GAGING STATIONS, IN DOWNSTREAM ORDER  
--Continued

ix

	Station Number	Page
<u>OHIO RIVER BASIN--Continued</u>		
WABASH RIVER BASIN--Continued		
White River--Continued		
Eagle Creek--Continued		
Eagle Creek at Zionsville (d).....	03353200	121
Eagle Creek Reservoir near Indianapolis (e,v) .....	03353450	122
Eagle Creek below Reservoir at Indianapolis (d).....	03353451	123
Eagle Creek at Indianapolis (d).....	03353500	124
Little Eagle Creek at 52nd St. at Indianapolis (d).....	03353551	125
Guion Creek above 52nd St. at Indianapolis (d).....	03353560	126
Falcon Creek at 30th St. at Indianapolis (d).....	03353583	127
Little Eagle Creek at Speedway (d).....	03353600	128
White River at Stout Gen. Stn. at Indianapolis (d).....	03353611	129
Lick Creek at Indianapolis (d).....	03353620	130
Little Buck Creek near Southport (d).....	03353630	131
Derbyshire Creek at Southport (d).....	03353635	132
Little Buck Creek at Southport (d).....	03353636	133
Little Buck Creek near Indianapolis (d).....	03353637	134
White Lick Creek:		
West Fork White Lick Creek at Danville (d).....	03353700	135
White Lick Creek at Mooresville (d).....	03353800	136
White River near Centerton (d).....	03354000	137
White River at Spencer (e).....	03357000	138
Big Walnut Creek (head of Eel River)		
Plum Creek near Bainbridge (d).....	03357350	139
Big Walnut Creek near Reelsville (d).....	03357500	140
Mill Creek near Cataract (d).....	03358000	141
Mill Creek near Manhattan (d).....	03359000	142
Eel River at Bowling Green (d).....	03360000	143
White River at Newberry (d).....	03360500	144
Kessinger Ditch near Monroe City (d).....	03360895	145
Big Blue River (head of East Fork White River) at Carthage (d).....	03361000	146
Big Blue River at Shelbyville (d).....	03361500	147
Sugar Creek at New Palestine (d).....	03361650	148
Buck Creek at Acton (d).....	03361850	149
Youngs Creek near Edinburgh (d).....	03362000	150
Sugar Creek near Edinburgh (d).....	03362500	151
Driftwood River (continuation of Big Blue River)		
Flatrock River at St. Paul (d).....	03363500	152
Flatrock River at Columbus (d).....	03363900	153
East Fork White River (continuation of Driftwood River)		
at Columbus (d).....	03364000	154
Clifty Creek at Hartsville (d).....	03364500	155
East Fork White River at Seymour (d).....	03365500	156
Von Fange Ditch at Seymour (d).....	03365575	157
Graham Creek (head of Muscatatuck River):		
Big Creek:		
Harberts Creek near Madison (d).....	03366200	158



**x**      **STREAM AND RESERVOIR GAGING STATIONS, IN DOWNSTREAM ORDER**  
**--Continued**

	Station Number	Page
<b><u>OHIO RIVER BASIN--Continued</u></b>		
<b>WABASH RIVER BASIN--Continued</b>		
<b>White River--Continued</b>		
<b>East Fork White River--Continued</b>		
<b>Muscatatuck River--Continued</b>		
Muscatatuck River near Deputy (d) .....	03366500	159
<b>Vernon Fork Muscatatuck River:</b>		
Brush Creek near Nebraska (d) .....	03368000	160
Vernon Fork Muscatatuck River near Butlerville (d) .....	03369000	161
Vernon Fork Muscatatuck River at Vernon (d) .....	03369500	162
East Fork White River near Bedford (d) .....	03371500	163
<b>Guthrie Creek:</b>		
Back Creek at Leesville (d) .....	03371520	164
Salt Creek near Harrodsburg (d) .....	03372500	165
East Fork White River at Shoals (d) .....	03373500	166
Lost River near Leipsic (d) .....	03373530	167
White River above Petersburg (d) .....	03373980	168
White River at Petersburg (d) .....	03374000	169
Patoka River near Hardinsburg (d) .....	03374455	170
Patoka River near Cuzco (d) .....	03374500	171
Patoka River at Jasper (d) .....	03375500	172
<b>Straight River:</b>		
Hall Creek (head of Straight River) near St. Anthony (d) .....	03375800	173
Patoka River at Winslow (d) .....	03376300	174
Patoka River near Princeton (d) .....	03376500	175
Wabash River at Mount Carmel, IL (d) .....	03377500	176
Wabash River at New Harmony (e) .....	03378500	177
Big Creek near Wadesville (d) .....	03378550	178
<b><u>STREAMS TRIBUTARY TO LAKE MICHIGAN</u></b>		
<b>GRAND CALUMET RIVER BASIN</b>		
Grand Calumet River at Industrial Hwy. at Gary (eastern portion) (d) .....	04092677	179
Indiana Harbor Canal at East Chicago (d) .....	04092750	180
<b>BURNS WATERWAY</b>		
<b>Deep River (head of Burns Waterway) at Lake George outlet</b>		
at Hobart (d) .....	04093000	181
Little Calumet River at Gary (e) .....	04093200	182
Little Calumet River at Porter (d) .....	04094000	183
Burns Ditch at Portage (d) .....	04095090	184
<b>TRAIL CREEK BASIN</b>		
Trail Creek at Michigan City Harbor (d) .....	04095380	185
<b>GALIEN RIVER BASIN</b>		
<b>South Branch Galien River:</b>		
Galena River near LaPorte (d) .....	04096100	186
<b>ST. JOSEPH RIVER BASIN</b>		
Pigeon Creek near Angola (d) .....	04099510	187
Pigeon River near Scott (d) .....	04099750	188
Little Elkhart River at Middlebury (d) .....	04099808	189

STREAM AND RESERVOIR GAGING STATIONS, IN DOWNSTREAM ORDER      xi  
--Continued

	Station Number	Page
<u>STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued</u>		
ST. JOSEPH RIVER BASIN--Continued		
Pine Creek near Elkhart (d) .....	04099850	190
North Branch Elkhart River (head of Elkhart River) at Cosperville (d) .....	04100222	191
South Branch Elkhart River: Forker Creek near Burr Oak (d) .....	04100252	192
Rimmell Branch (head of Craft Ditch) near Albion (d) .....	04100295	193
Solomon Creek near Syracuse (d) .....	04100377	194
Elkhart River at Goshen (d) .....	04100500	195
St. Joseph River at Elkhart (d) .....	04101000	196
Juday Creek near South Bend (d) .....	04101370	197
<u>STREAMS TRIBUTARY TO LAKE ERIE</u>		
MAUMEE RIVER BASIN		
St. Joseph River (head of Maumee River):		
Fish Creek at Hamilton (d) .....	04177720	198
Fish Creek near Artic (d, c, t, s) .....	04177810	199
St. Joseph River near Newville (d, c, t, s) .....	04178000	204
Cedar Creek near Cedarville (d) .....	04180000	210
St. Joseph River near Fort Wayne (d) .....	04180500	211
St. Marys River at Decatur (d) .....	04181500	212
St. Marys River near Fort Wayne (d) .....	04182000	213
Spy Run Creek at Fort Wayne (d) .....	04182810	214
Maumee River at Fort Wayne (e) .....	04182900	215
Maumee River at New Haven (d, c, t, s) .....	04183000	216
<u>UPPER MISSISSIPPI RIVER BASIN</u>		
ILLINOIS RIVER BASIN		
Kankakee River (head of Illinois River) near North Liberty (d) .....	05515000	219
Kankakee River at Davis (d) .....	05515500	220
Yellow River at Plymouth (d) .....	05516500	221
Yellow River at Knox (d) .....	05517000	222
Kankakee River at Dunns Bridge (d) .....	05517500	223
Kankakee River near Kouts (d) .....	05517530	224
Cobb Ditch near Kouts (d) .....	05517890	225
Kankakee River at Shelby (d) .....	05518000	226
Singleton Ditch at Schneider (d) .....	05519000	227
Iroquois River at Rosebud (d) .....	05521000	228
Iroquois River at Rensselaer (d) .....	05522500	229
Iroquois River near Foresman (d) .....	05524500	230
DES PLAINES RIVER BASIN		
Chicago Sanitary and Ship Canal		
Little Calumet River (western portion):		
Hart Ditch at Dyer (d) .....	05536179	231
Hart Ditch at Munster (d) .....	05536190	232
Little Calumet River at Munster (d) .....	05536195	233
Grand Calumet River at Hohman Ave. at Hammond (d) .....	05536357	234

LAKE GAGING STATIONS, IN ALPHABETICAL ORDER,  
FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME

(e - gage heights)

	Station Number	Page
Adams Lake near Wolcottville (e).....	04100030	306
Ball Lake near Hamilton (e) .....	04177680	306
Bass Lake at Bass Lake (e) .....	05517200	307
Bear Lake near Wolflake (e).....	04100260	307
Big Chapman Lake near Warsaw (e).....	03331010	308
Big Lake near Wolflake (e).....	03330040	308
Big Long Lake near Stroh (e).....	04099600	309
Bixler Lake at Kendallville (e).....	04100140	309
Blue Lake near Churubusco (e) .....	03327600	310
Bower Lake near Pleasant Lake (e) .....	04099250	310
Cass Lake near Shipshewana (e).....	04099810	311
Cedar Lake at Cedar Lake (e).....	05518700	311
Center Lake at Warsaw (e) .....	03331160	312
Clear Lake at Clear Lake (e).....	04177200	312
Clear Lake at LaPorte (e).....	05515240	313
Crooked Lake at Crooked Lake (e) .....	04097850	313
Dewart Lake near Leesburg (e) .....	04100470	314
Diamond Lake near Silver Lake (e).....	03331320	314
Diamond Lake near Wawaka (e).....	04100350	315
Engle Lake near Ligonier (e) .....	04100370	315
Fish Lake near Plato (e).....	04099670	316
Fish Lake near Scott (e) .....	04099760	316
Flint Lake near Valparaiso (e) .....	05517700	317
Gilbert Lake near Washington Center (e).....	03330160	317
Hackenburg Lake near Wolcottville (e) .....	04100110	318
Hamilton Lake at Hamilton (e) .....	04177700	318
Heaton Lake near Elkhart (e).....	04099860	319
High Lake near Wolflake (e) .....	04100258	319
Hill Lake near Silver Lake (e) .....	03331300	320
Hogback Lake near Angola (e).....	04099500	320
Hudson Lake at Hudson Lake (e) .....	05514741	321
Jimmerson Lake at Nevada Mills (e) .....	04097680	321
King Lake near Delong (e) .....	03331438	322
Knapp Lake near Washington Center (e).....	04100390	322
Koontz Lake at Koontz Lake (e) .....	05515600	323
Lake Eliza near Beatrice (e) .....	05517800	323
Lake Gage at Panama (e).....	04097950	324
Lake George at Hobart (e).....	04092990	324
Lake George at Jamestown (e).....	04097550	325
Lake Manitou at Rochester (e).....	03331380	325
Lake Maxinkuckee at Culver (e).....	03331440	326
Lake of the Woods near Bremen (e).....	05516200	326
Lake of the Woods near Helmer (e) .....	04099580	327
Lake Pleasant near Nevada Mills (e) .....	04097520	327
Little Long Lake at Kendallville (e) .....	04100160	328
Long Lake at Laketon (e).....	03328100	328

	Station Number	Page
Long Lake at Moonlight (e).....	04099200	329
Lost Lake at Culver (e).....	03331460	329
Lukens Lake near Disko (e).....	03328400	330
Muncie Lake near Burr Oak (e).....	04100280	330
North Twin Lake near Howe (e).....	04099700	331
Nyona Lake at Greenoak (e).....	03331400	331
Ogle Lake near Nashville (e).....	03371700	332
Oliver Lake near Valentine (e).....	04100100	332
Palestine Lake at Palestine (e).....	03331180	333
Pike Lake at Warsaw (e).....	03331040	333
Pine Lake at LaPorte (e).....	05515220	334
Pretty Lake near Plymouth (e).....	05516600	334
Riddles Lake near Lakeville (e).....	05515800	335
Ridinger Lake near Pierceton (e).....	03330300	335
Sawmill Lake near North Webster (e).....	03330460	336
Sherburn Lake near Pierceton (e).....	03331120	336
Shipshewana Lake near Shipshewana (e).....	04099740	337
Shoe Lake near Oswego (e).....	03330380	337
Shriner Lake at Tri-Lakes (e).....	03327650	338
Silver Lake at Silver Lake (e).....	03328350	338
Simonton Lake near Elkhart (e).....	04099880	339
Skinner Lake near Albion (e).....	04100300	339
Smalley Lake near Washington Center (e).....	03330140	340
Stone Lake near Scott (e).....	04099780	340
Sylvan Lake at Rome City (e).....	04100180	341
Syracuse Lake at Syracuse (e).....	04100460	341
Tippecanoe Lake at Oswego (e).....	03330480	342
Upper Long Lake near Wolf Lake (e).....	04100320	342
Versailles Lake near Versailles (e).....	03276800	343
Waldron Lake near Cosperville (e).....	04100220	343
Wauhob Lake near Valparaiso (e).....	05517600	344
Webster Lake at North Webster (e).....	03330240	344
Wharton Lake near South Bend (e).....	05514770	345
Winona Lake at Warsaw (e).....	03331140	345
Records available on lakes.....		346
Other lake maps available.....		350

GROUND-WATER WELLS, IN ALPHANUMERIC ORDER BY COUNTY,  
FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME

(e - gage heights, h-hydrographs, c-chemical, t-temperature.)

	Well Number	Page
Allen 5 (e, h).....	410426084495201	352
Allen 6 (e, h).....	410932084561101	353



	Well Number	Page
Allen 8 (e, h).....	410335085190701	354
Bartholomew 4 (e, h) .....	391627085534401	355
Bartholomew 8 (e, h) .....	390950085553501	356
Bartholomew 9 (e, h) .....	391035085560401	357
Bartholomew 10 (e, h) .....	390317085523701	358
Bartholomew 13 (e, h) .....	390658085572201	359
Benton 4 (e, h).....	402851087213501	360
Boone 17 (e, h).....	400532086183901	361
Cass 3 (e, h).....	403407086175701	362
Clay 6 (e, h) .....	392653087120501	363
Clay 7 (e, h) .....	391124087134701	364
Decatur 2 (e, h) .....	392022085371801	365
Delaware 4 (e, h).....	400541085213701	366
Elkhart 4 (e, h).....	413121085481301	367
Elkhart 5 (e, h).....	414419085544601	368
Elkhart 6 (e, h).....	414351085540401	369
Elkhart 7 (e, h).....	414514085505001	370
Elkhart 9 (e, h).....	414419085595801	371
Fountain 3 (e, h) .....	401200087121701	372
Franklin 5 (e, h).....	392416085004301	373
Fulton 7 (e, h).....	405829086175801	374
Grant 8 (e, h).....	402322085481901	375
Grant 10 (e, h).....	403836085374401	376
Hamilton 5 (e, h).....	400000086023001	377
Harrison 8 (e, h).....	382323086044501	378
Hendricks 4 (e, h).....	394025086400801	379
Huntington 2 (e, h) .....	404858085284301	380
Jasper 4 (e, h).....	410249087011201	381
Jasper 7 (e, h).....	410809087580801	382
Jasper 8 (e, h).....	410535087035801	383
Jasper 9 (e, h).....	410713087063201	384
Jasper 11 (e, h).....	410322087163101	385
Jasper 12 (e, h).....	410145087130401	386
Jasper 13 (e, h).....	405902087141501	387
Jasper 15 (e, h, c, t).....	405550087092301	388
Jefferson 5 (e, h) .....	384949085251901	390
Jennings 3 (e, h).....	385601085365701	391
Knox 7 (e, h).....	383247087361001	392
Knox 8 (e, h) .....	384951087202501	393
Kosciusko 9 (e, h).....	412556085513401	394
Lagrange 2 (e, h).....	414318085200601	395
Lagrange 3 (e, h).....	414158085253401	396
Lake 12 (e, h) .....	411038087284701	397
Lake 13 (e, h) .....	413559087270301	398
Lake 14 (e, h) .....	411146087204101	399
LaPorte 8 (e, h) .....	413700086445401	400
LaPorte 9 (e, h) .....	412350086512801	401

GROUND-WATER WELLS, IN ALPHANUMERIC ORDER BY COUNTY,  
--Continued

xv

	Well Number	Page
LaPorte 10 (e, h) .....	413139086341401	402
LaPorte 11 (e, h).....	412839086533101	403
LaPorte 12 (e, h) .....	413434086434701	404
Marion 34 (e, h).....	393855086120701	405
Marion 35 (e, h).....	394632086092701	406
Marion 36 (e, h).....	394626086100201	407
Marion 37 (e, h).....	394732086115501	408
Marion 38 (e, h, c, t).....	393950086124701	409
Martin 5 (e, h) .....	383659086545901	411
Montgomery 7 (e, h).....	400247086482101	412
Morgan 4 (e, h).....	393423086161001	413
Newton 6 (e, h).....	405105087173301	414
Newton 7 (e, h).....	405959087282901	415
Newton 8 (e, h).....	410428087231501	416
Newton 9 (e, h).....	405959087282902	417
Newton 10 (e, h).....	410428087235021	418
Newton 11 (e, h).....	410235087305901	419
Newton 14 (e, h).....	410917087285801	420
Noble 8 (e, h).....	411922085221801	421
Noble 9 (e, h).....	413106085232701	422
Noble 11 (e, h) .....	412405085154501	423
Noble 14 (e, h).....	412405085154504	424
Parke 6 (e, h).....	393619087043001	425
Posey 3 (e, h).....	380758087551001	426
Posey 5 (e, h).....	380546087474301	427
Pulaski 6 (e, h).....	405916086530701	428
Pulaski 7 (e, h).....	410739086365201	429
Randolph 3 (e, h).....	401532085085301	430
St. Joseph 31 (e, h).....	413120086055601	431
Shelby 2 (e, h) .....	393943085490901	432
Starke 2 (e, h).....	411342086365601	433
Steuben 6 (e, h).....	414204085054002	434
Tippecanoe 17 (e, h).....	402734087033401	435
Tippecanoe 18 (e, h).....	402734087033402	436
Vanderburgh 6 (e, h).....	380608087395901	437
Vanderburgh 7 (e, h).....	380626087344401	438
Vigo 7 (e, h) .....	392820087242601	439
Wabash 3 (e, h).....	404424085422801	440
Wabash 4 (e, h).....	403948085414601	441
Warrick 4 (e, h) .....	380624087164801	442
Washington 2 (e, h).....	383012086124501	443
Wayne 6 (e, h).....	394426085080601	444
Wells 4 (e, h).....	404331085064701	445
White 4 (e, h).....	404914086403001	446
Whitley 3 (e, h).....	410337085264201	447

## DISCONTINUED SURFACE-WATER DISCHARGE OR STAGE-ONLY STATIONS

The following continuous-record surface-water discharge or stage-only stations (gaging stations) in Indiana have been discontinued. Daily streamflow or stage records were collected and published for the period of record, expressed in water years, shown for each station. Discontinued short-term project stations have not been included. Information regarding these stations may be obtained from the District Office at the address given on the back side of the title page of this report.

(Most stations are surface-water discharge, exceptions are designated with footnotes)

Station name	Station number	Drainage area (mi <sup>2</sup> )	Period of record
OHIO RIVER BASIN			
Little Williams Creek at Connersville	03274950	9.16	1968-91
East Fork Whitewater River at Richmond	03275500	121	1949-78
South Hogan Creek near Dillsboro	03276700	38.1	1961-93
Laughery Creek near Farmers Retreat (a)	03277000	248	1941-73
Indian Creek near Corydon	03302500	129	1943-93
Whiskey Run at Marengo (d)	03302849	7.02	1986-93
Friday Branch tributary near Saint Meinrad (b)	03303276	.096	1981
Little Pigeon Creek near Tennyson	03304000	150	1944-47
Pigeon Creek at Evansville	03322100	323	1960-85
WABASH RIVER BASIN			
Wabash River near New Corydon	03322500	262	1951-88
Wabash River at Bluffton	03323000	532	1930-71, 1987-92 (d)
Salamonie River at Portland	03324200	85.6	1959-93
Little Mississinewa River at Union City	03325311	9.67	1982-97
Mississinewa River near Eaton (b)	03326000	310	1952-71
Wabash River at Delphi	03329500	4,072	1940-71
Tippecanoe River near Warsaw	03331000	126	1943-49
Tippecanoe River at Pulaski	03332000	1,089	1928-31
Little Indian Creek near Royal Center (a)	03332300	35.0	1959-73
Tippecanoe River at Buffalo (e)	03332345	1,285	1986-92
Big Monon Creek near Francesville (a)	03332400	152	1959-73
Tippecanoe River near Monticello (c)	03332500	1,732	1932-81
Rattlesnake Creek near Patton	03329400	6.83	1968-93
Wildcat Creek at Greentown	03333500	168	1945-61
Marshall Ditch near Montmorenci	03335677	1.58	1990-94
Indian Creek near Montmorenci	03335678	27.8	1990-94
Little Pine Creek at Green Hill	03335679	42.3	1990-94
Big Pine Creek near Williamsport	03335700	323	1955-87
East Fork Coal Creek near Hillsboro	03339108	33.4	1968-91
Coal Creek at Coal Creek	03339120	214	1965-72
Little Vermilion River near Newport	03339150	237	1965-72
Sugar Creek tributary near Deer Mill (b)	03339855	.45	1981
Sugar Creek near Byron (b)	03340000	670	1941-71
Big Raccoon Creek at Mansfield (d)	03341000	248	1939-58
Little Raccoon Creek near Catlin (d,g)	03341200	134	1957-71
Big Raccoon Creek near Mecca (d)	03341315	473	1988-92
Brouillets Creek near Universal (b)	03341420	321	1966-71
North Coal Creek near Terre Haute	03341470	1.91	1974-76
Honey Creek near Riley (b)	03341570	5.79	1981
West Fork Busseron Creek near Hymera	03342150	14.4	1966-86
Mud Creek near Cass	03342244	9.16	1981-91
Mud Creek near Dugger	03342250	11.9	1966-81
Busseron Creek near Sullivan	03342300	138	1966-86
Buttermilk Creek near Paxton	03342350	16.5	1966-73
Buttermilk Creek near Sullivan	03342360	17.6	1975-78
South Fork Smalls Creek at Bruceville (b,g)	03342800	4.94	1972-75
White River at Anderson	03348000	406	1925-26, 1932-93
Killbuck Creek near Gaston	03348020	25.5	1968-91
Killbuck Creek near Anderson	03348100	97.8	1964-68
White River near Noblesville	03348500	828	1915-26, 1929-74 (b)
Cicero Creek near Arcadia (a)	03349500	131	1955-76

Station name	Station number	Drainage area (mi <sup>2</sup> )	Period of record
WABASH RIVER BASIN--Continued			
Little Cicero Creek near Arcadia (a)	03349700	40.4	1956-76
Cicero Creek near Cicero	03350000	196	1946-54
Hinkle Creek near Cicero (a)	03350100	18.5	1956-76
Cicero Creek at Noblesville	03350500	216	1950-80, 1986-92
Sugar Creek near Middletown	03351400	5.80	1969-89
Lawrence Creek at Fort Benjamin Harrison	03352000	2.74	1952-56, 1958-69
Mud Creek at Indianapolis (a)	03352200	42.4	1958-76
Fall Creek at 16th St. at Indianapolis	03352875	317	1986-91
Pleasant Run at Brookville Road at Indpls.	03353160	10.1	1960-81
Bean Creek at Indianapolis	03353180	4.4	1970-93
White River at Waverly	03353660	2,026	1986-88
Beanblossom Creek at Beanblossom	03354500	14.6	1952-93
Bear Creek near Trevlac (a)	03355000	6.94	1952-73
Beanblossom Creek at Dolan	03356000	100	1946-78
Beanblossom Creek near Bloomington	03356500	112	1931-33
Big Walnut Creek at Greencastle	03357420	216	1975-82
Deer Creek near Putnamville	03359500	59.0	1955-65, 1968-72
Jordan Creek near Jordan (b)	03359980	25.9	1981
Driftwood River near Edinburgh	03363000	1,060	1940-91
Haw Creek near Clifford	03364200	47.5	1967-91
Sand Creek near Brewersville	03365000	155	1948-86
Graham Creek near Vernon	03366000	77.2	1955-73
Muscatatuck River near Austin	03367000	359	1932-43, 1944-71 (f)
Stucker Creek near Austin	03367500	127	1932-33
Vernon Fork near Crothersville	03370000	391	1932-33
Muscatatuck River near Tampico	03370500	960	1939
Muscatatuck River near Vallonia	03371000	1,134	1932-33
South Fork Salt Creek at Kurtz	03371600	38.2	1961-71, 1972-75 (e)
North Fork Salt Creek at Nashville (a)	03371650	76.1	1962-76
North Fork Salt Creek near Belmont	03372000	120	1946-71
Stephens Creek near Bloomington	03372300	10.9	1970-91
Clear Creek near Harrodsburg	03372700	55.2	1960-71
Salt Creek near Peerless	03373000	573	1939-50, 1957-71, 1971-84 (d)
Indian Creek near Springville (a)	03373200	60.7	1961-73
Lost River near West Baden Springs	03373700	287	1964-93
White River at Hazelton (h)	03374100	11,305	1928-38
Patoka River near Jasper (g)	03376000	348	1944-47
Flat Creek near Otwell	03376260	21.3	1965-82
Little Flat Creek near Otwell (b)	03376279	6.56	1981
South Fork Patoka River near Spurgeon	03376350	42.8	1964-86

## STREAMS TRIBUTARY TO LAKE MICHIGAN

Dunes Creek at Porter	04095050	3.40	1979-82
Burns Ditch at Gary (g)	04093500	160	1943-91
Salt Creek near McCool	04094500	74.6	1945-91
Derby Ditch at Beverly Shores	04095100	4.64	1980
Trail Creek at Michigan City	04095300	54.1	1969-94
Lime Lake outlet at Panama	04097970	17.5	1969-86
Fawn River at Orland	04098000	86.4	1943-47
Pigeon Creek and Hogback Lake near Angola	04099500	103	1946-74
Pretty Lake Inlet near Stroh	04099610	1.96	1963-80
Christiana Creek at Elkhart	04100000	127	1947-52
North Branch Elkhart River near Cosperville	04100220	134	1951-71
Turkey Creek at Syracuse	04100465	43.8	1969-87



xviii DISCONTINUED SURFACE-WATER DISCHARGE OR STAGE-ONLY STATIONS--Continued

Station name	Station number	Drainage area (mi <sup>2</sup> )	Period of record
STREAMS TRIBUTARY TO LAKE ERIE			
St. Joseph River at Hursh	04178500	734	1950-54
St. Joseph River at Cedarville	04179000	763	1931-32, 1956-81
Cedar Creek near Auburn (a)	04179500	87.3	1943-73
Harber Ditch at Fort Wayne	04182590	21.9	1960-64 (g), 1961-64 (e), 1964-91
St. Marys River at Fort Wayne	04182700	810	1905-06
UPPER MISSISSIPPI RIVER BASIN			
Kingsbury Creek near LaPorte	05515400	7.08	1970-86
Yellow River near Bremen (a)	05516000	135	1955-73
Singleton Ditch near Hebron	05518500	34.2	1949-51
West Creek near Schneider	05519500	54.7	1948-52, 1954-72
Singleton Ditch at Illinois, IL	05520000	220	1945-77
Oliver Ditch near Aix	05521500	79.6	1948-51
Iroquois River near North Marion	05522000	144	1948-93
Bice Ditch at South Marion	05523000	21.8	1948-93
Slough Creek near Collegeville	05523500	83.7	1948-52, 1953-82
Carpenter Creek at Egypt	05524000	44.8	1948-52, 1953-82

a Continued as a crest-stage and low-flow partial-record station through 1984.

b Some quality of water data available.

c Records of daily discharges furnished by Northern Indiana Public Service Company.

d Continued as a stage only station.

e Stage only station.

f High-water records only.

g Some record fragmentary.

h Some quality of water data available after station discontinued for stream-gaging records.

## DISCONTINUED SURFACE-WATER-QUALITY STATIONS

xix

The following stations were discontinued as surface-water-quality stations. Records of temperature (T), specific conductance, pH, dissolved oxygen (C) or sediment (S) were collected and published for the record shown for each station. Discontinued short-term project stations have not been included. Information regarding these stations may be obtained from the District Office at the address given on the back side of the title page of this report.

Station name	Station number	Drainage area (mi <sup>2</sup> )	Type of Record	Period of record
OHIO RIVER BASIN				
Whitewater River near Alpine	03275000	529	C,T,S	1987-94, 1968-79
East Fork Whitewater River at Abington	03275600	198	C T T	1969-76, 1970-71, 1973-76
East Fork Whitewater at Brookville	03276000	380	C,T	1974-75
Whitewater River at Brookville	03276500	1224	T C	1974-81, 1974-86
South Hogan Creek near Dillsboro	03276700	38.1	C,T,S	1961-93
Trib to Friday Branch at St. Meinard	03303276	.096	C,T,S	1980-81
WABASH RIVER BASIN				
Wabash River near New Corydon	03322500	262	C	1969-73
Wabash River at Huntington	03323500	710	T	1963-77
Salamonie Creek at Warren	03324288	402	T	1980-81
Mississinewa River at Marion	03326500	682	C,T	1975-76,79
Eel River near Logansport	03328500	789	S,T	1969-80
Wildcat Creek near Lafayette	03335000	794	C T	1970-79, 1970-74
Wabash River at Lafayette	03335500	7247	T T S	1954-64, 1967-75, 1978-80
Big Pine Creek at Williamsport	03335700	323	C T	1970-76, 1970-75
Big Raccoon Creek near Fincastle	03340800	132	C,T,S T	1980-81 1965-77
Honey Creek at Riley	03341570	5.79	C,T,S	1975-77 1980-81
Wabash River near Sullivan	03341805	12,600	C,T	1963-64
Wabash River at Riverton	03342000	13,100	T T T	1954-61, 1962-65, 1967-78
South Fork Smalls Creek at Bruceville	03342800	4.94	C	1973-75
White River at Noblesville	03348500	814	T	1952-76
White River near Nora	03351000	1200	T T	1954-60, 1962-72
Big Walnut Creek at Greencastle	03357420	216	C,T	1973-77
Mill Creek at Cataract	03358000	245	C,T	1978-82
Jordan Creek at Jordan	03359980	25.9	C,T	1980-81
Big Blue River at Carthage	03361000	184	T C,T S	1974-77, 1979-82, 1977-81
Flatrock River at St. Paul	03363500	303	C C,T	1973-77 1976-79
Clifty Creek at Hartsville	03364500	91.4	C,T	1970-75
East Fork White River at Seymour	03365500	2333	S T	1966-80, 1954-79
North Fork Salt Creek near Nashville	03371650	761	C,T	1974-76
Salt Creek near Harrodsburg	03372500	441	T	1966-76
White River at Petersburg	03374000	11125	T	1964-77
White River near Hazelton	03374100	11305	T S C	1973-81, 1973-83, 1973-86
Patoka River near English	03374470	308	T C	1970-76, 1969-76
Little Flat Creek near Otwell	03376279	6.36	C,T,S	1980-81
Wabash River at New Harmony	03378500	29234	T C S	1974-80 1974-86 1974-83
STREAM TRIBUTARY TO LAKE MICHIGAN				
Trail Creek near Michigan City	04095300	54.1	C,T S	1977-81 1990-94

xx

## DISCONTINUED SURFACE-WATER-QUALITY STATIONS--Continued

Station name	Station number	Drainage area (mi <sup>2</sup> )	Type of Record	Period of record
STREAMS TRIBUTARY TO LAKE ERIE				
St. Joseph River near Newville	04178100	615	C	1969-73
St. Marys River at Wilshire	04181050	435	C	1969-73
St. Marys River near Ft Wayne	04182000	762	S	1953-67
			T	1964-67
UPPER MISSISSIPPI RIVER BASIN				
Yellow Creek near Plymouth	05516500	29.4	S,T	1979-81

# WATER RESOURCES DATA - INDIANA, 1998

## INTRODUCTION

The Water Resources Division of the U.S. Geological Survey, in cooperation with State and Federal agencies, obtains a large amount of data pertaining to the water resources of Indiana each water year. These data, accumulated during many water years, constitute a valuable data base for developing an improved understanding of the water resources of the State. To make these data readily available to interested parties outside the U.S. Geological Survey, the data are published annually in this report series entitled "Water Resources Data - Indiana."

Water-resources data for the 1998 water year for Indiana consist of records of discharge, stage, and water quality of streams, and water levels of lakes and ground-water wells. This volume contains records for water discharge at 166 gaging stations, stage at 8 gaging stations, stage and contents at 1 reservoir, water quality at 3 stream sites, sediment data at 1 site, water levels at 80 lakes, and 94 observation wells and water quality at 2 observation wells. Also included are streamflow discharge at miscellaneous sites, quality water data for the Lake Erie National Water-Quality Assessment, and water quality data from a study done in Montgomery County. Locations of the streamflow and water-quality sites are shown on figures 6, 7, and 8. The number of lakes and ground-water observation wells by county having 1998 water-level records are shown on figures 9 and 10. In addition, miscellaneous discharge measurements, and water quality data are contained in this report. A systematic collection of stages on selected lakes was begun in 1943 in cooperation with the State of Indiana, Department of Natural Resources. The data collected since the beginning of record have not been published previously in the annual water data reports for Indiana. They are available from the Indiana District Office. A selected amount of lake data was published in Water-Supply Paper 1363, "Hydrology of Indiana Lakes," by J. I. Perrey and D. M. Corbett (1956). Additional lake data were published in Open-File Report 88-331, "Annual Maximum and Minimum Lake Levels for Indiana, Water Years 1942-85," by Kathleen K. Fowler (1988). These data represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in Indiana.

This series of annual reports for Indiana began with the 1961 water year with a report that contained only data relating to the quantities of surface water. For the 1964 water year, a similar report was introduced that contained only data relating to water quality. Beginning with the 1975 water year, the report format was changed to present, in one volume, data on quantity and quality of surface and ground water.

Prior to introduction of this series and for several water years concurrent with it, water-resources data for Indiana were published in U.S. Geological Survey Water-Supply Papers. Data on stream discharge and stage; and on lake or reservoir contents and stage, through September 1960, were published annually under the title "Surface-Water Supply of the United States." Stream discharge and stage data were published in four compilation reports (through the 1950, 1951-60, 1961-65, and 1966-70 water years). Data on water quality, temperature, and suspended sediment for the 1941 through 1970 water years were published annually under the title "Quality of Surface Waters of the

United States," and water levels for the 1935 through 1974 water years were published under the title "Ground-Water Levels in the United States." The above mentioned Water-Supply Papers may be consulted in the libraries of the principal cities of the United States and may be purchased from U.S. Geological Survey, Branch of Information Services, Box 25286, Denver, CO 80225-0286.

Publications similar to this report are published annually by the U.S. Geological Survey for all States. These official U.S. Geological Survey reports have an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water-Data Report IN-98-1." For archiving and general distribution, the reports for 1971-74 water years also are identified as water-data reports. These water-data reports are for sale in paper copy or in microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

The U.S. Geological Survey has compiled and disseminated estimates of water use for the Nation at 5-year intervals since 1950. A large amount of the Indiana withdrawal data presented in the publication, "Estimated Use of Water in the United States in 1995" U.S. Geological Survey Circular 1200, were provided by the Indiana Department of Natural Resources, Division of Water. The data indicated that in 1995 over 9.1 billion gallons per day were withdrawn from the surface- and ground-water resources of Indiana to meet the needs of its citizens. Approximately 92 percent of this withdrawal was from surface-water sources. Nearly 5.7 billion gallons per day of surface water was used for thermoelectric power production, making it the largest category of use in Indiana. A small percentage of those withdrawals were consumed in the power-production process and the rest of the water was returned to the source, making it available for future use.

Additional information, including current prices, for ordering specific reports may be obtained from the District Chief at the address given on the back of the title page or by telephone (317) 290-3333.

## COOPERATION

The U.S. Geological Survey and agencies of the State of Indiana have had cooperative agreements for the systematic collection of streamflow records since 1930, for ground-water levels since 1940, for lake stages since 1943, and for water-quality records since 1951. Organizations that supplied data are acknowledged in station manuscripts. Organizations that assisted in collecting data in this report through cooperative agreement with the U.S. Geological Survey are:

State of Indiana, Department of Natural Resources, Larry D. Macklin, Director, through  
the Bureau of Resource and Regulation, Lori Kaplan, Deputy Director

State of Indiana, Department of Environmental Management, John M. Hamilton,  
Commissioner, Matthew Rueff, Assistant Commissioner, Office of Water Management

State of Indiana, Department of Transportation, Curt Wiley, Commissioner

Assistance in the form of funds or services was given by the U.S. Army Corps of Engineers in collecting records for surface-water gaging stations published in this report.

The following organizations aided in collecting records: The cities of Columbus, Elkhart, Fort Wayne, and Indianapolis; Hoosier Energy; Indianapolis Water Co.; IPALCO; CINERGY; Jefferson Smurfit Corp.; Prudential Insurance Co.; Northern Indiana Public Service Co.

## SUMMARY OF HYDROLOGIC CONDITIONS

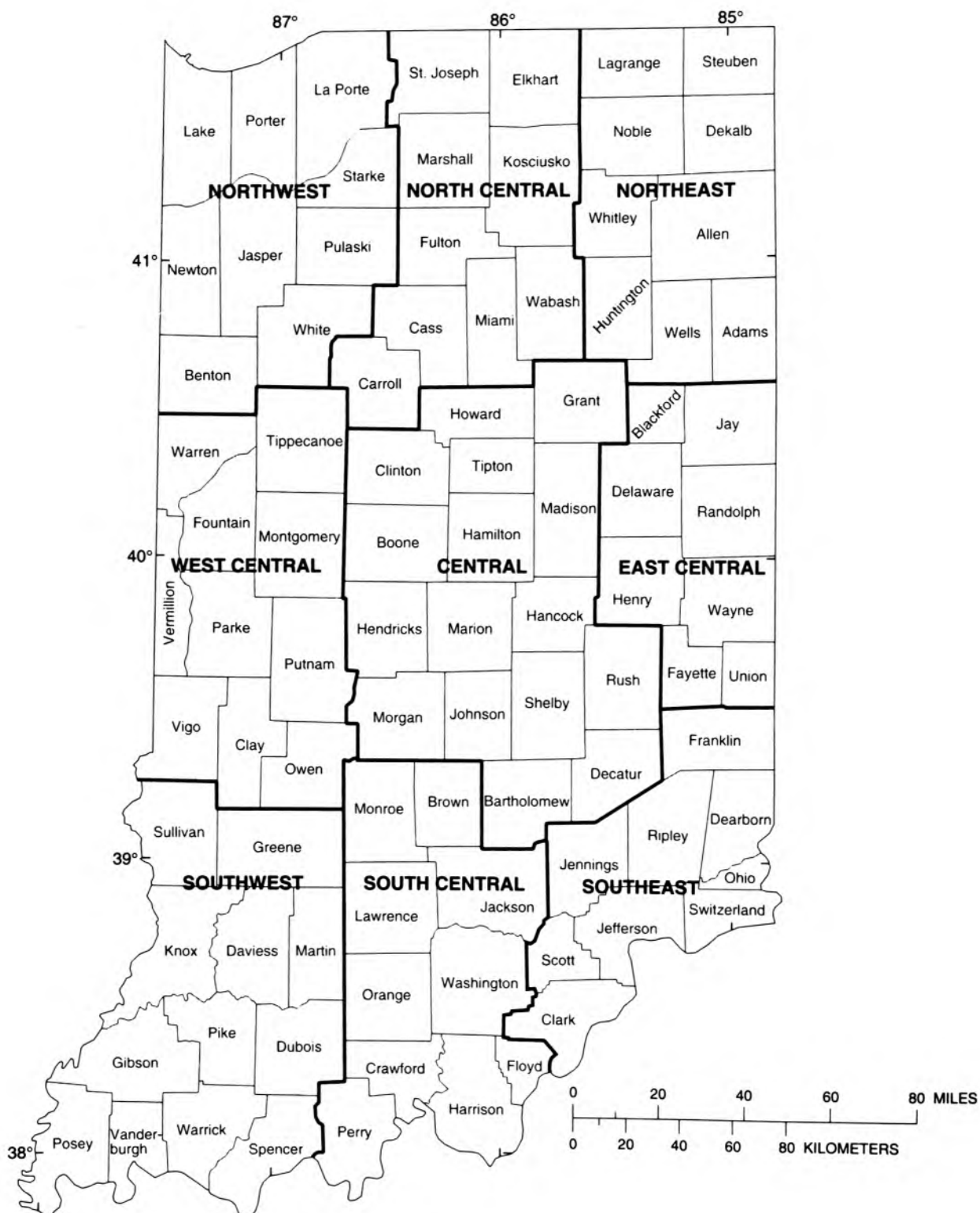
### Precipitation

There is a general regional pattern for precipitation in Indiana in which southern Indiana has the highest annual precipitation amounts, followed by central then northern Indiana. Normal precipitation (for this discussion normal precipitation is the mean annual precipitation for the period 1961-90) ranges from about 36 inches in the northeast climate division (Indiana climate divisions are shown in figure 1) to nearly 46.5 inches in the south-central climate division (Pam Beneker, Assistant Indiana State Climatologist, written commun., 1996). The general regional pattern was repeated during the 1998 water year (figure 2). Precipitation totals for the 1998 water year were greater than normal for all Indiana climate divisions.

In addition to the regional precipitation pattern, there is a general seasonal pattern. Spring and early summer are normally the wettest periods of year, as storm systems tap moisture from the Gulf of Mexico north and travel across Indiana. Early fall is generally the driest period. Seasonal patterns may vary geographically, particularly in the summer when isolated thunderstorms are common, and during the winter when lake effect snows can affect northern Indiana.

During the 1998 water year, September, October, November, and December were drier than normal for all Indiana climate divisions (table 1) (National Oceanic and Atmospheric Agency, National Climatic Data Center World Wide Web page: <http://www.ncdc.noaa.gov/onlineprod/drought/xmgrg1.html>). January precipitation was above normal in the northern and central climate divisions, and slightly lower than normal in the southern divisions. February precipitation was below normal to nearly normal across the entire state. In March, precipitation was above normal in northern and central Indiana and below normal in southern Indiana. Precipitation was above normal for all climate divisions in April and June. The May precipitation pattern was regionally variable, with some divisions reporting above normal and some below normal precipitation in north, central, and southern Indiana. July precipitation was above normal for all climate divisions except the west-central and southeast. August precipitation was above normal in northern Indiana in August, nearly normal in central Indiana, and lower than normal to nearly normal in southern Indiana.





EXPLANATION  
 Climate division boundaries

Figure 1.--Climate divisions in Indiana.

(Data from National Oceanic and Atmospheric Administration, 1994.)

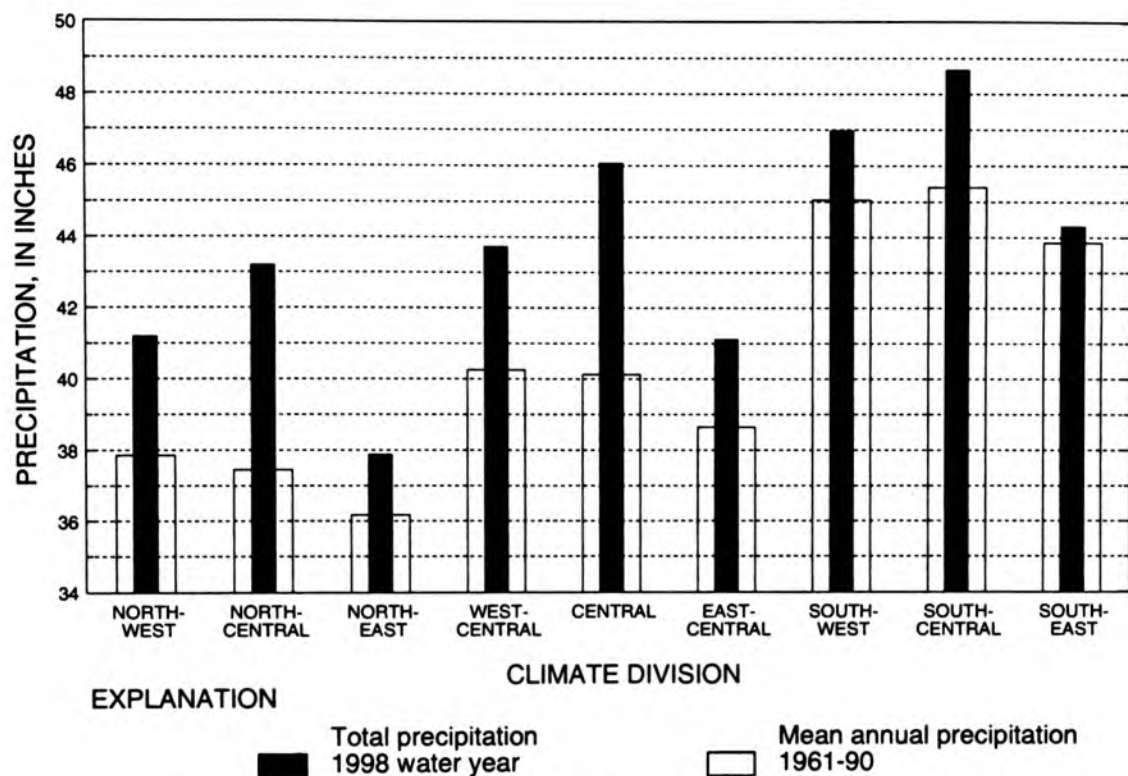


Figure 2.--Indiana precipitation during 1998 water year and mean annual precipitation for period 1961-90

Table 1.--Monthly precipitation during water year 1998 as a percentage of mean monthly precipitation for the period 1961-90

Climate Division	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Northwest	78	75	66	217	98	178	112	101	154	110	100	58
North-central	65	83	63	242	88	193	125	85	142	148	129	52
Northeast	67	82	57	177	86	147	128	58	124	149	159	29
West-central	54	66	48	144	58	156	129	130	264	89	85	31
Central	50	68	49	132	68	129	147	132	283	121	101	48
East-central	49	70	63	116	98	120	143	85	221	138	92	30
Southwest	59	92	72	86	89	66	202	131	176	108	87	43
South-central	44	93	66	95	97	65	208	133	216	100	95	31
Southeast	50	87	78	96	88	85	196	91	213	96	60	45



### Surface Water

Streamflow in Indiana follows a general seasonal pattern; in October streamflow is at a minimum, then rises steadily through the fall and winter to peak in March. Streamflow then steadily declines through the summer and early fall. Patterns of streamflow in Indiana during the 1998 water year are discussed in the context of three surface-water index stations. These stations are the Mississinewa River at Marion (03326500), East Fork White River at Shoals (03373500), and Wabash River at Mount Carmel, Illinois (03377500).

The index station Mississinewa River at Marion is located in Randolph County (the locations of all Indiana surface-water stations, including the index stations, are shown in figure 6), in the east-central climate division. The drainage area above this station is 682 square miles. For the period October through May, streamflow followed the general seasonal pattern. Mean monthly discharges were lower than normal (for this discussion normal is the median discharge for the period 1961-90) for the period October through February, and higher than normal for March, April, and May (figure 3). The streamflow pattern for June, July, and August departed the general seasonal pattern, as the above normal precipitation for this period caused streamflows to be higher than normal; the 1998 highest monthly discharge occurred in June. Streamflows remained high through July and August, then returned to normal in September, because of below normal precipitation. The mean discharge for the 1998 water year was higher than normal, due to the higher than normal streamflows that occurred during the spring and summer.

The East Fork White River at Shoals index station is located in Martin County within the southwest climate division. The East Fork White River drains 4,927 square miles above the station. Streamflows were lower than normal and followed the general seasonal pattern during the period October through March (figure 3). The highest monthly discharge for 1998 occurred in April; the second highest occurred in June. Streamflows were higher than normal from April to August, then returned to normal in September. Because of the wet spring and summer, the mean discharge for the 1998 water year was higher than normal.

The index station Wabash River at Mount Carmel is located in Illinois, adjacent to Gibson County of Indiana. It is in the same climate division, the southwest, as the index station East Fork White River at Shoals. The drainage area of the Wabash River at this location is 28,635 square miles, and includes a large portion of Indiana. As a result, it is affected by precipitation patterns over portions of northern, central, and southern Indiana. The general seasonal pattern of streamflow occurred in 1998 through March, followed by a departure from the general pattern caused by the wet spring and summer. June had the highest monthly discharge, followed by April and May. July and August had declining but still above normal streamflow, and the September streamflow was nearly normal. The mean discharge for the 1998 water year was higher than normal, but the departure from normal was lessened by the lower than normal streamflows that occurred during the relatively dry fall and winter.

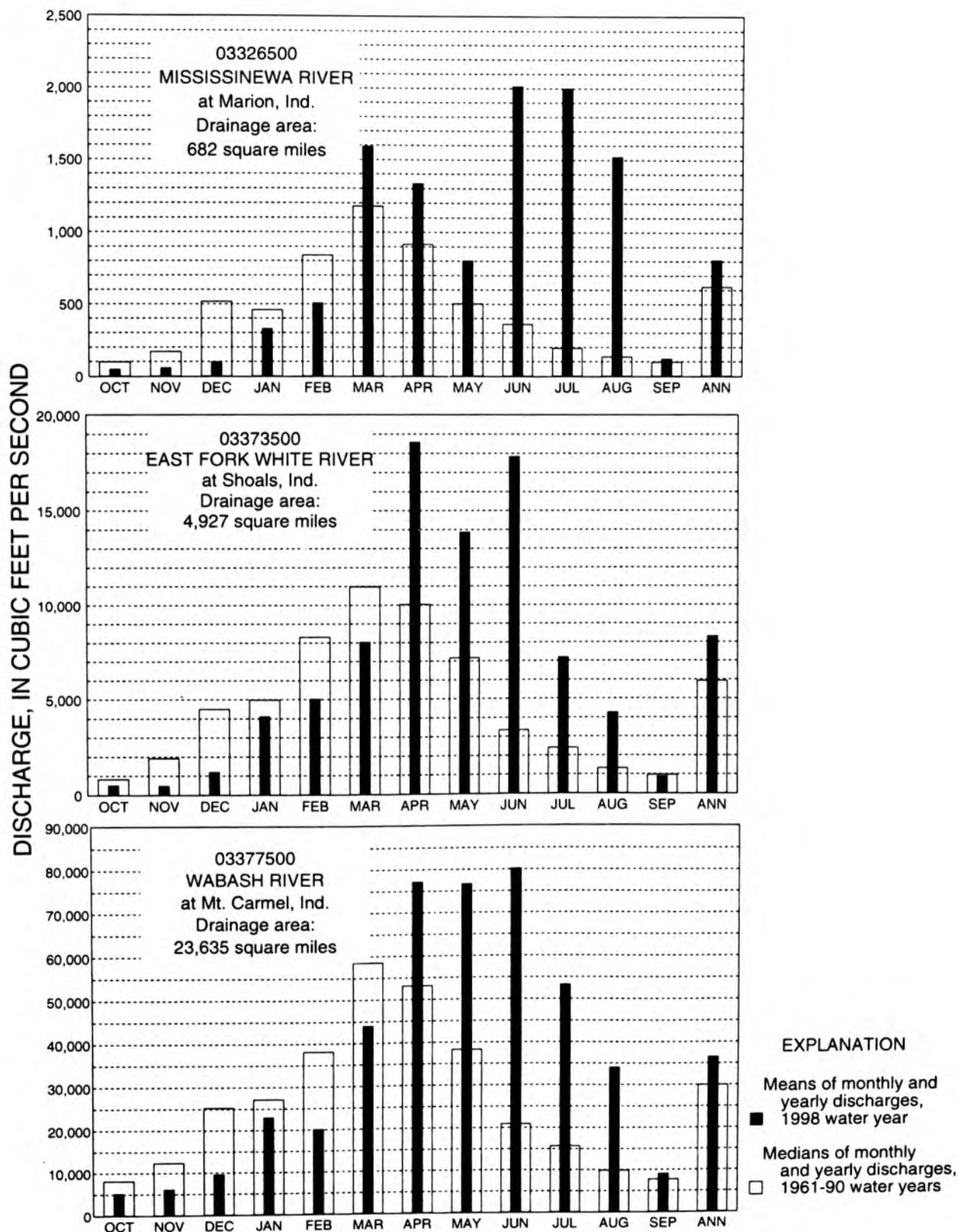


Figure 3. --Mean discharge at Indiana index stations during 1998 water year and median discharges for period 1961-90

### Ground Water

Changes in ground-water levels are produced by natural influences such as precipitation and by man-made causes such as ground-water withdrawals. Generally, in Indiana, ground water levels follow a fairly consistent seasonal pattern, reaching annual high levels in late April or early May, and then beginning a slow but continuous decline throughout the summer. In the fall ground-water levels begin to rise with increasing precipitation and reductions in evapotranspiration. (Clark, 1980).

This seasonal pattern is generally followed over a relatively long period in three index ground-water observation wells in Indiana. The three wells are designated Decatur 2, Martin 5, and Elkhart 4. While the seasonal water level pattern is generally followed in the long term, levels can diverge significantly from the pattern in a given year.

The observation well Decatur 2 is located in a Devonian brown limestone aquifer, in the central climate division. Generally, 1998 ground-water levels (in this discussion the term ground-water level(s) will refer to a height above an arbitrary datum; however, ground-water level data is normally quantified in terms of distance lower than a land-surface datum) were lower than normal (normal refers to ground-water level data for the period 1985-94) (figure 4). May and June were the only months where levels were higher than normal, reflecting recharge from higher-than-normal precipitation. In general, the ground water level trend in this well during the 1998 water year followed the normal seasonal pattern described above.

Martin 5 is located in a Pennsylvanian rock aquifer in the southwest climactic division of Indiana. The 1998 water year ground-water levels were higher than normal the entire year (figure 4). The highest levels occurred in July, partly due to the seasonal cycle and partly due to the higher-than-normal precipitation that occurred in May and June. The general seasonal pattern of ground water discussed above was reflected in the 1998 water year for this well.

The index observation well Elkhart 4 is located in the north-central climactic division, in a sand and gravel aquifer. Ground water levels were higher than normal in April, May, and September, and lower than normal for all other months (figure 4). The general seasonal cycle of ground water was generally followed during the 1998 water year. That ground water levels do not always reflect precipitation trends is probably due to ground-water withdrawals from the sand and gravel aquifer containing this well.

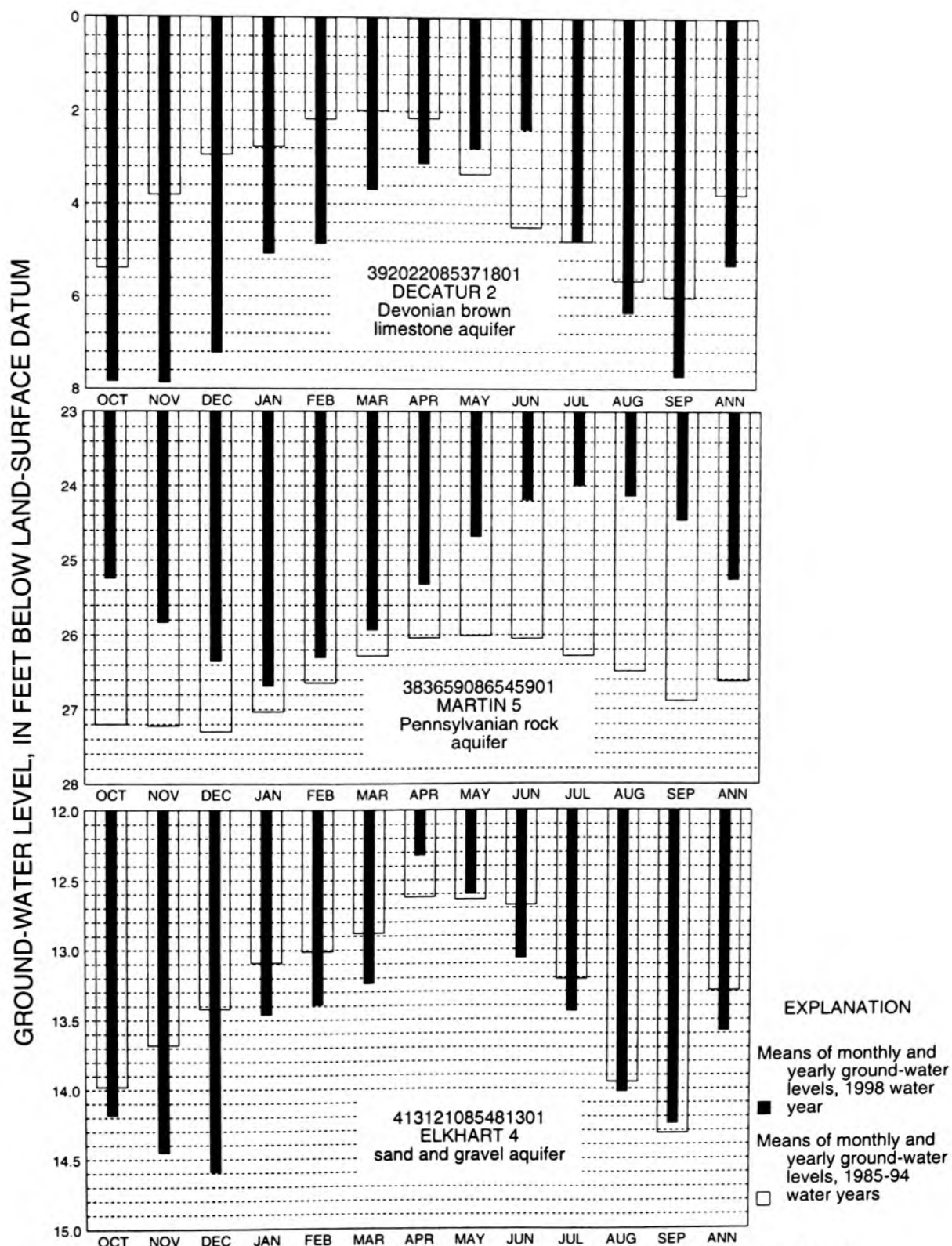


Figure 4. --Monthly and yearly mean of daily minimum ground-water levels at three Indiana ground-water observation wells during the 1998 water year and mean of monthly and yearly minimum ground-water levels for the period 1985-94



## SPECIAL NETWORKS AND PROGRAMS

Hydrologic Benchmark Network is a network of 50 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by human activities.

National Stream-Quality Accounting Network (NASQAN) monitors the water quality of large rivers within four of the Nation's largest river basins--the Mississippi, Columbia, Colorado, and Rio Grande. The network consists of 39 stations. Samples are collected with sufficient frequency that the flux of a wide range of constituents can be estimated. The objective of NASQAN is to characterize the water quality of these large rivers by measuring concentration and mass transport of a wide range of dissolved and suspended constituents, including nutrients, major ions, dissolved and sediment-bound heavy metals, common pesticides, and inorganic and organic forms of carbon. This information will be used (1) to describe the long-term trends and changes in concentration and transport of these constituents; (2) to test findings of the National Water-Quality Assessment Program (NAWQA); (3) to characterize processes unique to large-river systems such as storage and re-mobilization of sediments and associated contaminants; and (4) to refine existing estimates of off-continent transport of water, sediment, and chemicals for assessing human effects on the world's oceans and for determining global cycles of carbon, nutrients, and other chemicals.

The National Atmospheric Deposition Program/National Trends Network (NADP/NTN) provides continuous measurement and assessment of the chemical climate of precipitation throughout the United States. As the lead federal agency, the USGS works together with over 100 organizations to accomplish the following objectives; (1) Provide a long-term, spatial and temporal record of atmospheric deposition generated from a network of 191 precipitation chemistry monitoring sites. (2) Provide the mechanism to evaluate the effectiveness of the significant reduction in SO<sub>2</sub> emissions that began in 1995 as implementation of the Clean Air Act Amendments (CAAA) occurred. (3) Provide the scientific basis and nationwide evaluation mechanism for implementation of the Phase II CAAA emission reductions for SO<sub>2</sub> and NO<sub>x</sub> scheduled to begin in 2000.

Data from the network, as well as information about individual sites, are available through the world wide web at:

<http://nadp.nrel.colostate.edu/NADP>

The National Water-Quality Assessment (NAWQA) Program of the U.S. Geological Survey is a long-term program with goals to describe the status and trends of water-quality conditions for a large, representative part of the Nation's ground- and surface-water resources; provide an improved understanding of the primary natural and human factors affecting these observed conditions and trends; and provide information that supports development and evaluation of management, regulatory, and monitoring decisions by other agencies.

Assessment activities are being conducted in 53 study units (major watersheds and aquifer systems) that represent a wide range of environmental settings nationwide and that account for a large percentage of the Nation's water use. A wide array of chemical constituents will be measured in ground water, surface water, streambed sediments, and fish tissues. The coordinated application of comparative hydrologic studies at a wide range of spatial and temporal scales will provide information for decision making by water-resources managers and a foundation for aggregation and comparison of findings to address water-quality issues of regional and national interest.

Communication and coordination between USGS personnel and other local, State, and federal interests are critical components of the NAWQA Program. Each study unit has a local liaison committee consisting of representatives from key federal, State, and local water resources agencies, Indian nations, and universities in the study unit. Liaison committees typically meet semiannually to discuss their information needs, monitoring plans and progress, desired information products, and opportunities to collaborate efforts among the agencies.

Additional information about the NAWQA Program is available through the world wide web at:

[http://www.rvares.er.usgs.gov/nawqa/nawqa\\_home.html](http://www.rvares.er.usgs.gov/nawqa/nawqa_home.html)

## EXPLANATION OF THE RECORDS

The surface-water and ground-water records published in this report, are for the 1998 water year that began October 1, 1997 and ended September 30, 1998. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow and stage data, stage and content data for a reservoir, water-quality data for surface water, and ground water, lake-level data, peak-flow data, and ground-water-level data. The following sections of the introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

### Station Identification Numbers

Each data station, whether streamsite, lake, or well, in this report is assigned a unique identification number. This number is unique in that it applies specifically to a given station and to no other. The number usually is assigned when a station is first established and is retained for that station indefinitely. The systems used by the U.S. Geological Survey to assign identification numbers for surface-water stations and for ground-water well sites differ, but both are based on geographic location. The "downstream order" system is used for regular surface-water stations and for surface-water stations where only miscellaneous measurements are made; the "latitude-longitude" system is used for wells.

### Downstream Order System

Since October 1, 1950, the order of listing hydrologic-station records in U.S. Geological Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a mainstream station are listed before that station. A station on a tributary that enters between two mainstream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary with respect to the stream to which it is an immediate tributary is indicated by an indentation in the "List of Stations" in the front of this report. Each indentation represents one rank. This downstream order and system of indentation show which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

The station-identification number is assigned according to downstream order. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete 8-digit number for each station, such as 03335500, which appears just to the left of the station name, includes the 2-digit Part number "03" plus the 6-digit downstream-order number "335500." The Part number designates the major river basin; for example, Part "03" is the Ohio River basin.

Records in this report are in Part 03 (Ohio River basin), Part 04 (St. Lawrence River basin), and Part 05 (Upper Mississippi River basin). All records for a drainage basin encompassing more than one State can be arranged in downstream order by assembling pages from the various State reports by station number to include all records in the basin.

### Latitude-Longitude System

The identification numbers for wells are assigned according to the grid system of latitude and longitude. The number consists of 15 digits. The first six digits denote the degrees, minutes, and seconds of latitude, the next seven digits denote degrees, minutes, and seconds of longitude, and the last two digits (assigned sequentially) identify the wells or other sites within a 1-second grid. This site-identification number, once assigned, is a pure number and has no locational significance. In the rare instance where the initial determination of latitude and longitude are found to be in error, the station will retain its initial identification number; however, its true latitude and longitude will be listed in the LOCATION paragraph of the station description.

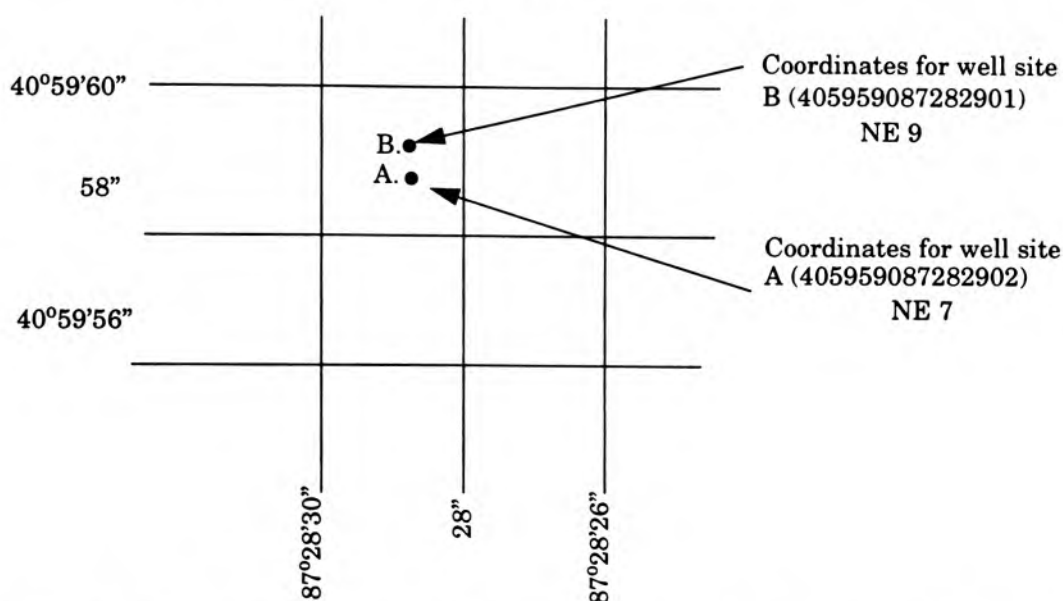


Figure 5.--System for numbering wells, and miscellaneous sites (latitude and longitude).

In addition, each well in Indiana carries dual-identification numbers for example, NE 7. The second system is by county name with a sequential number of the well; that is, number one is the first well in that county for which records were obtained.

#### Records of Surface-Water Stage and Discharge

##### Data Collection and Computation

The data obtained at a complete-record gaging station on a stream or canal consist of a continuous record of stage, individual measurements of discharge throughout a range of stages, and notations regarding factors that may affect the relations between stage and discharge. These data, together with supplemental information, such as weather records, are used to compute daily discharges.

Continuous records of stage are obtained with electronic recorders, or with data collection platforms that store stage data electronically. Measurements of discharge are made with current meters or acoustic flow meters using methods adopted by the U.S. Geological Survey as a result of experience accumulated since 1880. These methods are described in standard textbooks, Water-Supply Paper 2175, and the U.S. Geological Survey Techniques of Water-Resources Investigations (TWRI), Book 3,



Chap. A1 through A19 and Book 8, Chapters A2 and B2. The methods are consistent with the American Society for Testing and Materials (ASTM) standards and generally follow the standards of the International Organization for Standards (ISO).

In computing discharge records, results of individual measurements are plotted against the corresponding stages, and stage-discharge relation curves are then constructed. From these curves, rating tables indicating the approximate discharge for any stage within the range of the measurements are prepared. If it is necessary to define extremes of discharge outside the range of the current-meter measurements, the curves are extended using: (1) Logarithmic plotting; (2) velocity-area studies; (3) results of indirect measurements of peak discharge, such as slope-area or contracted-opening measurements, and computations of flow over dams or weirs; or (4) step-backwater techniques.

Daily mean discharges are computed by applying the instantaneous stages (gage heights) to the stage-discharge curves or tables and then assigning the arithmetic mean. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is determined by the shifting-control method, in which correction factors based on the individual discharge measurements and notes of the personnel making the measurements are applied to the gage heights before the discharges are determined from the curves or tables. This shifting-control method also is used if the stage-discharge relation is changed temporarily because of aquatic growth or debris on the control. For some stations, formation of ice in the winter may so obscure the stage-discharge relations that daily mean discharges must be estimated from other information such as temperature and precipitation records, notes of observations, and records for other stations in the same or nearby basins for comparable periods.

At some stream-gaging stations, the stage-discharge relation is affected by the backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations, the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

For some gaging stations, there are periods when no gage-height record is obtained, or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods, the daily discharges are estimated from the recorded range in stage, previous or following record, discharge measurements, weather-records, and comparison with other station records from the same or nearby basins. Information explaining how estimated daily-discharge values are identified in station records is included in the next two sections, "Data Presentation" (REMARKS paragraph) and "Identifying Estimated Daily Discharge."

At some gaging stations, acoustic velocity meter (AVM) systems are used to compute discharge. The AVM system measures the stream's velocity at one or more paths in the cross section. Coefficients are developed to relate this path velocity to the mean velocity in the cross section. Because the AVM sensors are fixed in position, the adjustment coefficients generally vary with stage. Cross-sectional area curves are developed to relate stage, recorded as noted above, to cross section area. Discharge is computed by multiplying path velocity by the appropriate stage related coefficient and area.

### Data Presentation

Streamflow data in this report are presented in a new format that is considerably different from the format in data reports prior to the 1991 water year. The major changes are that statistical characteristics of discharge now appear in tabular summaries following the water-year data table and less information is provided in the text or station manuscript above the table. These changes represent the results of a pilot program to reformat the annual water-data report to meet current user needs and data preferences.

The records published for each continuous-record surface-water discharge station (gaging station) now consist of four parts: the manuscript or station description; the data table of daily mean values of discharge for the current water year with summary data; a tabular statistical summary of that monthly mean flow data for a designated period, by water year; and a summary statistics table includes statistical data of annual, daily, and instantaneous flows as well as data pertaining to annual runoff, 7-day low-flow minimums, and flow duration.

#### Station manuscript

The manuscript provides, under various headings, descriptive information, such as station location; period of record; historical extremes outside the period of record; record accuracy; and other remarks pertinent to station operation and regulation. The following information, as appropriate, is provided with each continuous record of discharge or lake content. Comments to follow clarify information presented under the various headings of the station description.

**LOCATION.**--Information on locations is obtained from the most accurate maps available. The location of the gage with respect to the cultural and physical features in the vicinity and with respect to the reference place mentioned in the station name is given. River mileages were determined by methods given in "River Mileage Measurement," Bulletin 14, revision of October 1968, prepared by the Water Resources Council or were provided by the U.S. Army Corps of Engineers.

**DRAINAGE AREA.**--Drainage areas are measured using the most accurate maps available.

**PERIOD OF RECORD.**--This indicates the period for which there are published records for the station or for an equivalent station. An equivalent station is one that was in operation at a time that the present station was not, and whose location was such that records from it can reasonably be considered equivalent with records from the present station.

**REVISED RECORDS.**--Because of new information, published records, occasionally are found to be incorrect, and revisions are printed in later reports. Listed under this heading are all the reports in which revisions have been published for the station and the water years to which the revisions apply. If a revision did not include daily, monthly, or annual figures of discharge, that fact is noted after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the most recently revised figure was first published is given.

**GAGE.**--The type of gage in current use, the datum of the current gage referred to sea level (see glossary), and a condensed history of the types, locations, and datums of previous gages are given under this heading.

**REMARKS.**--All periods of estimated daily-discharge record will either be identified by date in this paragraph of the station description for water-discharge stations or flagged in the daily-discharge table. (See next section, "Identifying Estimated Daily Discharge.") If a remarks statement is used to identify estimated record, the paragraph will begin with this information presented as the first entry. The paragraph is also used to present information relative to the accuracy of the records, to special methods of computation, to conditions that affect natural flow at the station and, possibly, to other pertinent items. For reservoir stations, information is given on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir.

**COOPERATION.**--Records provided by a cooperating organization or obtained for the U.S. Geological Survey by a cooperating organization are identified here.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Included here is information concerning major floods or unusually low flows that occurred outside the stated period of record. The information may or may not have been obtained by the U.S. Geological Survey.

**REVISIONS.**--If a critical error in published records is discovered, a revision is included in the first report published following discovery of the error.

Although rare, occasionally the records of a discontinued gaging station may need revision. Because for these stations there would be no current or, possibly, future station manuscript published to document the revision in a "Revised Records" entry, users of data for these stations who obtained the record from previously published data reports may wish to contact the offices whose addresses are given on the back of the title page of this report to determine if the published records were ever revised

after the station was discontinued. Of course, if the data were obtained by computer retrieval, the data would be current and there would not need to be check because any published revision of data is always accompanied by revision of the corresponding data in computer storage.

Manuscript information for lake or reservoir stations differs from that for stream stations in the nature of the "Remarks" and in the inclusion of a skeleton stage-capacity table when daily contents are given.

Headings for AVERAGE DISCHARGE, EXTREMES FOR PERIOD OF RECORD, AND EXTREMES FOR CURRENT YEAR have been deleted and the information contained in these paragraphs, except for the listing of secondary instantaneous peak discharges in the EXTREMES FOR CURRENT YEAR paragraph, is now presented in the tabular summaries following the discharge table or in the REMARKS paragraph, as appropriate. No changes have been made to the data presentations of lake contents.

#### Data table of daily mean values

The daily table for stream-gaging stations gives mean discharge for each day of the water year. In the monthly summary for the table, the line headed "TOTAL" gives the sum of the daily figures for each month. the line headed "MEAN" gives the average flow in cubic feet per second for the month; and the lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for each month. Discharge for the month also is usually expressed in cubic feet per second per square mile (line headed "CFSM"); or in inches (line headed "IN."); or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches or in acre-feet may be omitted if there is extensive regulation or diversion or if the drainage area includes large noncontributing areas. At some stations monthly and (or) yearly observed discharges are adjusted for reservoir storage or diversion, or diversion data or reservoir contents are gives. These figures are identified by a symbol and corresponding footnote.

#### Statistics of monthly mean data

A tabular summary of the mean (line headed "MEAN"), maximum (line headed "MAX"), and minimum (line headed "MIN") of monthly mean flows for each month for a designated period is provided below the mean values table. The water years of the first occurrence of the maximum and minium monthly flows are provided immediately below those figures. The designated period will be expressed as "FOR WATER YEARS \_\_\_\_ - \_\_\_\_, BY WATER YEAR (WY)," and will list the first and last water years of the range of years selected from the PERIOD OF RECORD paragraph in the station manuscript. It will consist of all of the station record within the specified water years, inclusive, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water years for which the statistics are computed will be consecutive, unless a break in the station record is indicated in the manuscript.



Summary statistics

A table titled "SUMMARY STATISTICS" follows the statistics of monthly mean data tabulation. This table consists of four columns, with the first column containing the line headings of the statistics being reported. The table provides a statistical summary of yearly, daily, and instantaneous flows, not only for the current water year but also for the previous calendar year and for a designated period, as appropriate. The designated period selected, "WATER YEARS \_\_\_\_ - \_\_\_\_," will consist of all of the station record within the specified water years, inclusive, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water year for which the statistics are computed will be consecutive, unless a break in the station record is indicated in the manuscript. All of the calculations for the statistical characteristics designated ANNUAL (See line headings below.), except for the "ANNUAL 7-DAY MINIMUM" statistic, are calculated for the designated period using complete water years. The other statistical characteristics may be calculated using partial water years.

The date or water year, as appropriate, of the first occurrence of each statistic reporting extreme values of discharge is provided adjacent to the statistic. Repeated occurrences may be noted in the REMARKS paragraph of the manuscript or in footnotes. Because the designated period may not be the same as the station period of record published in the manuscript, occasionally the dates of occurrence listed for the daily and instantaneous extremes in the designated-period column may not be within the selected water years listed in the heading. When this occurs, it will be noted in the REMARKS paragraph or in footnotes. Selected streamflow duration curve statistics and runoff data are also given. Runoff data may be omitted if there is extensive regulation or diversion of flow in the drainage basin.

The following summary statistics data, as appropriate, are provided with each continuous record of discharge. Comments to follow clarify information presented under the various line headings of the summary statistics table.

**ANNUAL TOTAL.**--The sum of the daily mean values of discharge for the year. At some stations the annual total discharge is adjusted for reservoir storage or diversion. The adjusted figures are identified by a symbol and corresponding footnotes.

**ANNUAL MEAN.**--The arithmetic mean of the individual daily mean discharges for the year noted or for the designated period. At some stations the yearly mean discharge is adjusted for reservoir storage or diversion. The adjusted figures are identified by a symbol and corresponding footnotes.

**HIGHEST ANNUAL MEAN.**--The maximum annual mean discharge occurring for the designated period.

**LOWEST ANNUAL MEAN.**--The minimum annual mean discharge occurring for the designated period.

**HIGHEST DAILY MEAN.**--The maximum daily mean discharge for the year or for the designated period.

**LOWEST DAILY MEAN.**--The minimum daily mean discharge for the year or for the designated period.

**ANNUAL 7-DAY MINIMUM.**--The lowest mean discharge for seven consecutive days for a calendar year or a water year. Note that most low-flow frequency analyses of annual 7-day minimum flows use a climatic year (April 1-March 31). The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day 10-year low-flow statistic.)

**INSTANTANEOUS PEAK FLOW.**--The maximum instantaneous discharge occurring for the water year or for the designated period. Note that secondary instantaneous peak discharges above a selected base discharge are stored in District computer files for stations meeting certain criteria. Those discharge values may be obtained by writing to the District Office. (See address on back of title page of this report.)

**INSTANTANEOUS PEAK STAGE.**--The maximum instantaneous stage occurring for the water year or for the designated period. If the dates of occurrence for the instantaneous peak flow and instantaneous peak stage differ, the REMARKS paragraph in the manuscript or a footnote may be used to provide further information.

**INSTANTANEOUS LOW FLOW.**--The minimum instantaneous discharge occurring for the water year or for the designated period.

**ANNUAL RUNOFF.**--Indicates the total quantity of water in runoff for a drainage area for the year. Data reports may use any of the following units of measurement in presenting annual runoff data:

Acre-foot (AC-FT) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

Cubic feet per second per square mile (CFSM) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Inches (INCHES) indicates the depth to which the drainage area would be covered if all of the runoff for a given time period were uniformly distributed on it.



10 PERCENT EXCEEDS.--The discharge that has been exceeded 10 percent of the time for the designated period.

50 PERCENT EXCEEDS.--The discharge that has been exceeded 50 percent of the time for the designated period.

90 PERCENT EXCEEDS.--The discharge that has been exceeded 90 percent of the time for the designated period.

### Identifying Estimated Daily Discharge

Estimated daily-discharge values published in the water-discharge tables of annual State data reports are identified either by flagging individual daily values with the letter symbol "e" and printing a table footnote, "Estimated," or by listing the dates of the estimated record in the "REMARKS" paragraph of the station description.

### Accuracy of the Records

The accuracy of streamflow records depends primarily on: (1) The stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements; and (2) the accuracy of measurements of stage, measurements of discharge, and interpretation of records.

The accuracy attributed to the records is indicated under "REMARKS." "Excellent" means that about 95 percent of the daily discharges are within 5 percent of their true values; "good," within 10 percent; and "fair," within 15 percent. Records that do not meet the criteria mentioned are rated "poor." Different accuracies may be attributed to different parts of a given record.

Daily mean discharges in this report are given to the nearest hundredth of a cubic foot per second for values less than 1 ft<sup>3</sup>/s; to the nearest tenth between 1.0 and 10 ft<sup>3</sup>/s; to whole numbers between 10 and 1,000 ft<sup>3</sup>/s; and to 3 significant figures for more than 1,000 ft<sup>3</sup>/s. The number of significant figures used is based solely on the magnitude of the discharge value. The same rounding rules apply to discharges listed for partial-record stations and miscellaneous sites.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures of cubic feet per second per square mile and of runoff, in inches, are not published unless satisfactory adjustments can be made for diversions, for changes in contents of reservoirs, or for other changes incident to use and control. Evapora-

tion from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

#### Other Records Available

Information used in the preparation of the records in this publication, such as discharge-measurement notes, gage-height records, temperature measurements, and rating tables is on file in the Indiana District Office. Also, most of the daily mean discharges are in computer-readable form and have been analyzed statistically. Information on the availability of the unpublished information or on the results of statistical analyses of the published records may be obtained from the Indiana District Office.

#### Records of Surface-Water Quality

Records of surface-water quality ordinarily are obtained at or near stream-gaging stations because interpretation of records of surface-water quality nearly always requires corresponding discharge data.

#### Classification of Records

Water-quality data for surface-water sites are grouped into one of three classifications. A continuing-record station is a site where data are collected on a regularly scheduled basis. Frequency may be one or more times daily, weekly, monthly, or quarterly. A partial-record station is a site where limited water-quality data are collected systematically over a period of years. Frequency of sampling usually is less than quarterly. A miscellaneous sampling site is a location other than a continuing or partial-record station where random samples are collected to give better areal coverage to define water-quality conditions in the river basin.

A careful distinction needs to be made between "continuing records," as used in this report, and "continuous recordings," which refers to a continuous graph or a series of discrete values punched at short intervals on a paper tape. Some records of water quality, such as temperature and specific conductance, may be obtained through continuous recordings; however, because of cost, most data are obtained monthly or less frequently.

Records of surface-water quality in this report are for continuing-record stations and miscellaneous sampling sites. These stations are part of a cooperative agreement with Montgomery County Commissioners or the National Water-Quality Assessment Program (NAWQA). Locations of stations for which records on the quality of surface water appear in this report are shown on figures 6, 7, and 8.

### Arrangement of Records

Water-quality records collected at a surface-water daily record station are published immediately following that record, regardless of the frequency of sample collection. Station number and name are the same for both records. Water-quality records collected at the miscellaneous sampling sites are published in tables following the surface-water records.

### On-site Measurements and Sample Collection

The major concern in obtaining water-quality data is assuring that the data represent the in situ quality of the water. To assure this, certain measurements, such as water temperature, pH, specific conductance, alkalinity, and dissolved oxygen, are made on-site when the samples are taken. To assure that measurements made in the laboratory also represent the in situ water, carefully prescribed procedures need to be followed in collecting the samples, in treating the samples to prevent changes in quality pending analysis, and in shipping the samples to the laboratory. Procedures for on-site measurements and for collecting, treating, and shipping samples are detailed in the TWRI Book 1, Chapter D2; Book 3, Chapter C2; and Book 5, Chapters A1, A3, and A4. These references are listed in PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS section of this report. These methods are consistent with ASTM standards and generally follow ISO standards.

One sample can define adequately the water quality at a given time only if the mixture of solutes and sediment throughout the stream cross section is homogeneous. However, the concentration of solutes and sediment at different locations in the cross section can vary widely with different rates of water discharge, depending on the sources of the solutes and sediment, the turbulence and mixing of the stream, and other factors. Most streams must be sampled through several vertical sections using a depth-integrating sampler to obtain a representative sample. All samples obtained for the National Water-Quality Assessment Program and the Montgomery County agreement are obtained from at least several verticals.

**NOTE:** In March 1989 the National Water-Quality Laboratory discovered a bias in the turbidimetric method for sulfate analysis, indicating that values below 75 mg/L have a median positive bias of 2 mg/L above the true value for the period between 1982 and 1989. Correct sulfate values have been made by the laboratory and published in this report since April 17, 1989.

### Laboratory Measurements

Specific conductance, pH, air and water temperatures, dissolved oxygen, barometric pressure, and alkalinity are measured on-site. Fecal coliform and fecal streptococci bacteria are analyzed in the Indiana District laboratory. Suspended sediment and particle-size distribution are analyzed in the U.S. Geological Survey laboratory in Louisville, Kentucky. All other samples are analyzed in the U.S. Geological Survey National Water-Quality Laboratory in Arvada, Colorado. Methods used to analyzing sediment samples and to compute sediment records are described in the TWRI Book 5, Chap. C1. Methods used by the U.S. Geological Survey laboratories are given in the TWRI Book 1, Chapter D2; Book 3, Chapter C2; and Book 5, Chapters A1, A3, A4, and A5. These methods are consistent with ASTM standards and generally follow ISO standards.

### Data Presentation

For continuing-record stations, information pertinent to the history of station operation is provided in descriptive headings preceding the tabular data. These descriptive headings give details regarding location, drainage area, period of record, and type of data available.

In the descriptive headings, if the location is identical to that of the discharge gaging station, neither the LOCATION nor the DRAINAGE AREA statements are repeated. The following information, as appropriate, is provided with each continuous-record station. Comments that follow clarify information presented under the various headings of the station description.

LOCATION.--See "Data Presentation" under "Records of Stage and Water Discharge."

DRAINAGE AREA.--See "Data Presentation" under "Records of Stage and Water Discharge."

PERIOD OF RECORD.--This indicates the periods for which there are published water-quality records for the station.

REMARKS.--Remarks provide added information pertinent to the collection, analysis, or computation of the records.

REVISIONS.--If errors in published water-quality records are discovered after publication, appropriate updates are made to the Water-Quality File in the U.S. Geological Survey's computerized data system, WATSTORE, and subsequently by monthly transfer of update transactions to the U.S. Environmental Protection Agency's STORET system. Because the usual volume of updates makes it impractical to document individual changes in the State data-report series or elsewhere, potential users of U.S. Geological Survey water-quality data are encouraged to obtain all required data from the appropriate computer file to ensure the most recent updates.

## Remark Codes

The following remark codes may appear with the water-quality data in this report:

PRINTED OUTPUT	REMARK
E	Estimated value
>	Actual value is known to be greater than the value shown
<	Actual value is known to be less than the value shown
K	Results based on colony count outside the acceptance range (non-ideal colony count)
L	Biological organism count less than 0.5 percent (organism may be observed rather than counted.)
D	Biological organism count equal to or greater than 15 percent (dominant).
&	Biological organism estimated as dominant.
V	Analyte was detected in both the environmental sample and the associated blanks.

## Dissolved Trace-Element Concentrations

**NOTE.**--Traditionally, dissolved trace-element concentrations have been reported at the microgram per liter ( $\mu\text{g/L}$ ) level. Recent evidence, mostly from large rivers, indicates that actual dissolved-phase concentrations for a number of trace elements are within the range of 10's to 100's of nanograms per liter ( $\text{ng/L}$ ). Data above the  $\mu\text{g/L}$  level should be viewed with caution. Such data may actually represent elevated environmental concentrations from natural or human causes; however, these data could reflect contamination introduced during sampling, processing, or analysis. To confidently produce dissolved trace-element data with insignificant contamination, the U.S. Geological Survey began using new trace-element protocols at some stations in water year 1994.

## Change in National Trends Network procedures

**NOTE.**--Sample handling procedures at all National Trends Network stations were changed substantially on January 11, 1994, in order to reduce contamination from the sample shipping container. The data for samples before and after that date are different and not directly comparable. A tabular summary of the differences based on a special intercomparison study, is available from the NADP/NTN Coordination Office, Colorado State University, Fort Collins, CO 80523 ( Telephone: 303-491-5643).



### Records of Lake Levels

Water-level data from a network of lake gaging stations are given in this report. These data are intended to provide a historical record of water-level changes in lakes where established average legal levels have been designated by the State. Numbers of lakes by county having current water-level records are shown on figure 9.

### Data Collection and Computation

Measurements of water levels are made under varying conditions, but the methods are standardized to the extent possible. The equipment and measuring techniques used at each lake gage will ensure that the measurements are of consistent accuracy and reliability.

Tables of water-level data are presented by lake names arranged in alphabetical order. The prime identification number for a given lake is the "downstream-order" number previously discussed in this report and appears to the left of the lake name.

Lake-level records are obtained from direct measurement with a steel tape, from observation of steel staff gages, or from an electronic water-stage recorder. The water-level measurements in this report are given in feet above gage datum. Gage datum is a datum plane above the National Geodetic Vertical Datum of 1929. Water levels are reported to one-hundredth of a foot.

### Data Presentation

Each lake record consists of two parts, the station description, and the data table of water levels observed during the year. The description of the lake gage is presented first through use of descriptive headings preceding the tabular data. Comments that follow clarify information presented under the various headings.

LOCATION.--See "Data Presentation" under "Records of Stage and Water Discharge."

SURFACE AREA.--This entry specifies the surface area of the lake at its established legal level.

DRAINAGE AREA.--See "Data Presentation" under "Records of Stage and Water Discharge."

PERIOD OF RECORD.--This entry indicates the periods for which lake-level records at the site have been collected.

DATUM OF GAGE.--This entry indicates the datum of the current gage referred to sea level (see glossary).

**GAGE.**--The type of gage in current use and a condensed history of the types, locations, and datums of previous gages are given under this heading.

**ESTABLISHED LEGAL LEVEL.**--This entry indicates the average level in feet above gage datum and sea level at which the lake is to be maintained, the data of decree, and court specifying the decreed level.

**LAKE-LEVEL CONTROL.**--This entry indicates the type of structure used to maintain the lake level.

**INLET AND OUTLET.**--This entry, if appropriate, describes where surface inflow comes into the lake and where outflow departs. Some lakes may have neither inlets, outlets, nor both; in such cases parts or all of this heading may not appear.

**EXTREMES FOR PERIOD OF RECORD.**--Extremes include maximum and minimum levels and the dates of occurrence.

**REVISIONS.**--If a critical error in published records is discovered, a revision is included in the first report published following discovery of the error.

A table of water levels follows the station description for each lake gage. Water levels are reported in feet above gage datum. Only abbreviated tables are published; water-levels at midnight (2400) are listed for every fifth day and at the end of the month (EOM). The highest and lowest 2400 levels with dates of occurrence and mean of the water year are shown on a line below the abbreviated table. Because all values are not published, the extremes may be values not listed in the table. Missing records are indicated by dashes in place of the water level.

#### Records of Ground-Water Levels

Only water-level data from a representative network of observation wells are given in this report. These data are intended to provide a sampling and historical record of water-level changes in the State's most important aquifers. Locations of the observation wells in this network in Indiana are shown on figure 10.

### Data Collection and Computation

Measurements of water levels are made in many types of wells under varying conditions, but the methods of measurement are standardized to the extent possible. The equipment and measuring techniques used at each observation well ensure that measurements at each well are of consistent accuracy and reliability.

Tables of water-level data are presented by counties arranged in alphabetical order. The prime identification number for a given well is the 15-digit number that appears in the upper left corner of the table. The secondary identification number is the local well number.

Water-level records are obtained from direct measurements with a steel tape or from a electronic water-stage data logger. The water-level measurements in this report are given in feet with reference to land-surface datum (lsd). Land-surface datum is a datum plane that is approximately at land surface at each well. If known, the elevation of the land-surface datum is given in the well description. The height of the measuring point (MP) above or below land-surface datum is given in each well description.

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error of determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only one-hundredth or a few hundredths of a foot. For lesser depths to water, the accuracy is greater. Accordingly, most measurements are reported to one-hundredth of a foot, but some are given to one-tenth of a foot or a larger unit.

### Data Presentation

Each well record consists of two parts, the station description and the data table of water levels observed during the water year. The description of the well is presented first through use of descriptive headings preceding the tabular data. The comments that follow clarify information presented under the various headings of the well description.

**LOCATION.**--This paragraph follows the well-identification number and reports the latitude and longitude (given in degrees, minutes, and seconds), a landline location designation, the hydrologic-unit number, the distance and direction from a geographic point of reference, and the owner's name.

**AQUIFER.**--This entry designates by name (if a name exists) and geologic age the aquifer(s) open to the well.

**WELL CHARACTERISTICS.**--This entry describes the well in terms of depth, diameter, casing depth and/or screened interval, method of construction, use, and additional information such as casing breaks, collapsed screen, and other changes since construction.

**INSTRUMENTATION.**--This paragraph provides information on both the frequency of measurement and the collection method used, allowing the user to better evaluate the reported water-level extremes by knowing whether they are based on weekly, monthly, or some other frequency of measurement.

**DATUM.**--This entry describes both the measuring point and the land-surface elevation at the well. The measuring point is described physically (such as top of collar, notch in top of casing, plug in pump base and so forth), and in relation to land surface (such as 1.3 ft above land-surface datum). The elevation of the land-surface datum is described in feet above (or below) sea level; it is reported with a precision depending on the method of determination.

**REMARKS.**--This entry describes factors that may influence the water level in a well or the measurement of the water level. It should identify wells that also are water-quality observation wells and may be used to acknowledge the assistance of local (non-U.S. Geological Survey) observers.

**PERIOD OF RECORD.**--This entry indicates the period for which there are published records for the well. It reports the month and year of the start of publication of water-level records by the U.S. Geological Survey and the words "to current year" if the records are to be continued into the following year. Periods for which water-level records are available but are not published by the U.S. Geological Survey may be noted.

**EXTREMES FOR PERIOD OF RECORD.**--This entry contains the highest and lowest water levels of the period of published record, with respect to land-surface datum, and the dates of their occurrence.

Tables of water levels follow the station description for each well. Water levels are reported in feet below land-surface datum. Only abbreviated tables are published; water-level highs and lows are listed for every fifth day and at the end of the month (EOM). The highest and lowest water levels of the water year and their dates of occurrence are shown on a line below the abbreviated tables. Because all values are not published, the extremes may be values that are not listed in the tables. Missing records are indicated by dashes in place of the water level. A hydrograph for a selected period of record follows water-level tables.

### Records of Ground-Water Quality

Records of ground-water quality in this report differ from other types of records in that they consist of only one set of measurements for the water year. Ground-water quality is sampled immediately after installation and development of a new observation well. As new observation wells are usually installed late in the water year, records of ground-water quality are typically published in the first water year with complete records for ground-water levels.

### Sample Collection and Analysis

Measurements of specific conductance, pH, water temperature, dissolved oxygen, and alkalinity are measured on-site. Other constituents and properties are analyzed in the U.S. Geological Survey National Water-Quality Laboratory in Arvada, Colorado. Methods used in collecting and analyzing ground-water-quality samples are given in TWRI, Book 1, Chap. D2, and Book 5, Chap. A1.

### Data Presentation

Records of ground-water quality immediately follow records of ground-water levels.



## ACCESS TO USGS WATER DATA

The USGS provides near real-time stage and discharge data for many of the gaging stations equipped with the necessary telemetry. Historic daily-mean and peak-flow discharge data are also available for most current or discontinued gaging stations. These data are made available to the public through the world wide web (WWW), and may be accessed:

<http://water.usgs.gov>

Some water-quality and ground-water data also are available through the WWW. In addition, data can be provided in various machine-readable formats on magnetic tape or 3-1/2 inch floppy disk. Information about the availability of specific types of data or products, and user charges, can be obtained locally from each of the Water Resources Division District Offices (See address on the back of the title page).

## DEFINITION OF TERMS

Terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below. Also, see table for converting English units to International System (SI) units on the inside of the back cover.

Acre-foot (AC-FT, ac-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equal to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Artesian means confined and is used to describe a well in which the water level stands above the top of the aquifer tapped by the well. A flowing artesian well is one in which the water level is above the land surface.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and thread-like in shape, often clumped into colonies. Some bacteria cause disease, while others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

Fecal coliform bacteria are bacteria that are present in the intestine or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory, they are defined as all organisms that produce blue colonies within 24 hours when incubated at  $44.5\text{ }^{\circ}\text{C} \pm 0.2\text{ }^{\circ}\text{C}$  on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal streptococcal bacteria are bacteria found also in the intestine of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as Gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory, they are defined as all the organisms which produce red or pink colonies within 48 hours at  $35\text{ }^{\circ}\text{C} \pm 1.0\text{ }^{\circ}\text{C}$  on KF-streptococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Bed material is the sediment mixture of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

Bottom material: See Bed material.

Color unit is produced by 1 milligram per liter of platinum in the form of the chloro-platinate ion. Color is expressed in units of the platinum-cobalt scale.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

Control structure as used in this report is a structure on a stream, canal, or lake that is used to regulate the flow or stage or to prevent the intrusion of salt water.

Cubic foot per second ( $\text{ft}^3/\text{s}$ ) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

Cubic foot per second-day is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, about 646,000 gallons, or 2,445 cubic meters.

Cubic feet per second per square mile [ $(\text{ft}^3/\text{s})/\text{mi}^2$ ] is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Discharge is the volume of water (or more broadly, volume of fluid plus suspended sediment) that passes a given point within a given period of time.

Mean discharge (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period.

Instantaneous discharge is the discharge at a particular instant of time.

Annual 7-day minimum is the lowest mean discharge for 7 consecutive days for a calendar year or a water year. Note that most low-flow frequency analyses of annual 7-day minimum flows use a climatic year (April 1 - March 31). The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day 10-year low-flow statistic.)

Dissolved refers to that material in a representative water sample which passes through a 0.45-micron ( $\mu\text{m}$ ) membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate.

Dissolved-solids concentration of water is determined either analytically by the "residue-on-evaporation" method, or mathematically by totaling the concentrations of individual constituents reported in a comprehensive chemical analysis. During the analytical determination of dissolved solids, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. Therefore, in the mathematical calculation of dissolved-solids concentration, the bicarbonate value, in milligrams per liter, is multiplied by 0.492 to reflect the change.

Drainage area of a stream at a specified location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the stream above the specified point. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless otherwise specified.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of hydrologic data are obtained.

Glass fiber filter (GF, GF/F) a 0.7-micrometer pore-diameter filter used to filter water samples before analyzing the sample for organic constituents.

Hardness of water is a physical-chemical characteristic that commonly is recognized by the increased quantity of soap required to produce lather. It is computed as the sum of equivalents of polyvalent cations and is expressed as the equivalent concentration of calcium carbonate ( $\text{CaCO}_3$ ).

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an 8-digit number.

Land-surface datum (lsd) is a datum plane that is approximately at land surface at each ground-water observation well.

Measuring point (MP) is an arbitrary permanent reference point from which the distance to the water surface in a well is measured to obtain the water level.

Membrane filter (MF) a 0.7 micrometer pore-diameter filter used to filter water samples before analyzing the sample for fecal coliform bacteria, or a 0.45 micrometer pore-diameter filter used to filter water samples before analyzing the sample for fecal streptococcal bacteria.

Micrograms per gram ( $\mu\text{g/g}$ ) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the element per unit mass (gram) of material analyzed.

Micrograms per liter (UG/L,  $\mu\text{g/L}$ ) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Micrometer (UM/ $\mu\text{m}$ ) is a unit expressing the pore diameter of a filter. One thousand micrometers is equivalent to one millimeter.

Milligrams per liter (MG/L,  $\text{mg/L}$ ) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represents the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in  $\text{mg/L}$  and is based on the mass of dry sediment per liter of water-sediment mixture.

National Geodetic Vertical Datum of 1929 (NGVD of 1929) is a geodetic datum derived from a general adjustment of the first order level nets of both the United States and Canada. It was formerly called "Sea Level Datum of 1929" or "mean sea level" in this series of reports. Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific coasts, it does not necessarily represent local mean sea level at any particular place.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliter (mL) or liter (L). Numbers of planktonic organisms can be expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Parameter code is a 5-digit number used in the U.S. Geological Survey computerized data system, WATSTORE, to uniquely identify a specific constituent. The codes used in WATSTORE are the same as those used in the U.S. Environmental Protection Agency data system, STORET. The U.S. Environmental Protection Agency assigns and approves all requests for new codes.

Partial-record station is a particular site where limited streamflow and/or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

Particle size is the diameter, in millimeters (mm), of a particle determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).



Particle-size classification used in this report agrees with the recommendation made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

<u>Classification</u>	<u>Size (mm)</u>	<u>Method of analysis</u>
Clay.....	0.00024 - 0.004	Sedimentation
Silt.....	.004 - .062	Sedimentation
Sand.....	.062 - 2.0	Sedimentation or sieve
Gravel.....	2.0 - 64.0	Sieve

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic matter is removed, and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native-water analysis.

Picocurie (PC, pCi) is one-trillionth ( $1 \times 10^{-12}$ ) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields  $3.7 \times 10^{10}$  radioactive disintegrations per second (dpm). A picocurie yields 2.22 dpm.

Recoverable (REC) pertains to the constituents extracted from a representative water sample. Complete extraction generally is not achieved, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the filtered portion of the sample.

Return period is the average time interval between occurrences of a hydrological event of a given or greater magnitude, usually expressed in years. May also be called recurrence interval.

Runoff in inches (IN., in) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Sea level: In this report "sea Level" refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)--a geodetic datum derived from a general adjustment of the first-order level nets of both the United States and Canada, formerly called Sea Level Datum of 1929.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Bed load is the sediment that is transported in a stream by rolling, sliding, or skipping along the bed and very close to it. In this report, bed load is considered to consist of particles in transit within 0.25 ft of the streambed.

Bed load discharge (tons per day) is the quantity of bed load measured by dry weight that moves past a section as bed load in a given time.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L).

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Suspended-sediment discharge (tons/day) is the rate at which dry mass of sediment passes a section of a stream or is the quantity of sediment, as measured by dry mass or volume, that passes a section in a given time. It is calculated in units of tons per day as follows: Concentration (mg/L) x discharge (ft<sup>3</sup>/s) x 0.0027.

Suspended-sediment load is a general term that refers to material in suspension. It is not synonymous with either discharge or concentration.

Total-sediment discharge (tons/day) is the sum of the suspended-sediment discharge and the bed-load discharge. It is the total quantity of sediment, as measured by dry mass or volume, that passes a section during a given time.

Total-sediment load or total load is a term which refers to the total sediment (bed load plus suspended-sediment load) that is in transport. It is not synonymous with total-sediment discharge.

7-day 10-year low flow ( $7 Q^{10}$ ) is the discharge at the 10-year recurrence interval taken from a frequency curve of annual values of the lowest mean discharge for 7 consecutive days (the 7-day low flow).

Sodium-adsorption-ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions within soil and is an index of sodium or alkali hazard to the soil. Waters range in respect to sodium hazard from those which can be used for irrigation on almost all soils to those which are generally unsatisfactory for irrigation.

Solute is any substance that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current. It is expressed in microsiemens per centimeter at 25 °C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in microsiemens). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stage-discharge relation is the relation between gage height (stage) and volume of water, per unit of time, flowing in a channel.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff," as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Surface area of a lake is that area outlined on the latest U.S. Geological Survey topographic map as the boundary of the lake and measured by a planimeter in acres. In localities not covered by topographic maps, the areas are computed from the best maps available at the time planimeted. All areas shown are those for the stage when the planimeted map was made.

Surficial bed material is the part (0.1 to 0.2 ft) of the bed material that is sampled using U.S. Series Bed-Material Samplers.

Suspended (as used in tables of chemical analyses) refers to the amount (concentration) of undissolved material in a water-sediment mixture. It is associated with the material retained on a 0.45- $\mu$ m filter.

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45- $\mu$ m membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of: (1) Dissolved; and (2) total recoverable concentrations of the constituent.

Suspended, total is the total amount of a given constituent in the part of a representative water-suspended sediment sample that is retained on a 0.45- $\mu$ m membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total."

Determinations of "suspended, total" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of: (1) Dissolved; and (2) total concentrations of the constituent.

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

Tons per acre-foot indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration of the constituent, in milligrams per liter, by 0.00136.

Tons per day (T/DAY) is the quantity of a substance in solution or suspension that passes a stream section during a 24-hour period.

Total is the total amount of a given constituent in a representative water-suspended sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." (Note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determined all of the constituent in the sample.)

Total discharge is the total quantity of any individual constituent, as measured by dry mass or volume, that passes through a stream cross section per unit of time. This term needs to be qualified, such as "total sediment discharge," "total chloride discharge," and so on.

Total, recoverable is the amount of a given constituent that is in solution after a representative water-suspended sediment sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the dissolved and suspended phases of the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Water year in U.S. Geological Survey reports dealing with surface-water supply is the 12-month period October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 1985, is called the "1985 water year."

WDR is used as an abbreviation for "Water-Data Report" in the REVISED RECORDS paragraph to refer to State annual hydrologic-data reports (WRD was used as an abbreviation for "Water-Resources Data" in reports published prior to 1976).



Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

WSP is used as an abbreviation for "Water-Supply Paper" in reference to previously published reports.

Table 2.--Factors for conversion of chemical constituents in milligrams or micrograms per liter to milliequivalents per liter

Ion	Multiply by	Ion	Multiply by
Aluminum ( $Al^{+3}$ )	0.11119	Iodide ( $I^{-1}$ )	0.00788
Ammonia as $NH_4^{+1}$	.05544	Iron ( $Fe^{+3}$ )*	.05372
Barium ( $Ba^{+2}$ )	.01456	Lead ( $Pb^{+2}$ )*	.00965
Bicarbonate ( $HCO_3^{-1}$ )	.01639	Lithium ( $Li^{+1}$ )*	.14411
Bromide ( $Br^{-1}$ )	.01251	Magnesium ( $Mg^{+2}$ )	.08226
Calcium ( $Ca^{+2}$ )	.04990	Manganese ( $Mn^{+2}$ )*	.03640
Carbonate ( $CO_3^{-2}$ )	.03333	Nickel ( $Ni^{+2}$ )*	.03406
Chloride ( $Cl^{-1}$ )	.02821	Nitrate ( $NO_3^{-1}$ )	.01613
Chromium ( $Cr^{+6}$ )*	.11539	Nitrite ( $NO_2^{-1}$ )	.02174
Cobalt ( $Co^{+2}$ )*	.03394	Phosphate ( $PO_4^{-3}$ )	.03159
Copper ( $Cu^{+2}$ )*	.03148	Potassium ( $K^{+1}$ )	.02557
Cyanide ( $CN^{-1}$ )	.03844	Sodium ( $Na^{+1}$ )	.04350
Fluoride ( $F^{-1}$ )	.05264	Strontium ( $Sr^{+2}$ )*	.02283
Hydrogen ( $H^{+1}$ )	.99209	Sulfate ( $SO_4^{-2}$ )	.02082
Hydroxide ( $OH^{-1}$ )	.05880	Zinc ( $Zn^{+2}$ )*	.03060

\*Constituent reported in micrograms per liter; multiply by factor and divide results by 1,000.



Table 3.--Factors for conversion of sediment concentrations in milligrams per liter to parts per million\*  
(All values calculated to three significant figures)

Range of concentration in 1,000 mg/L	Divide by	Range of concentration in 1,000 mg/L	Divide by	Range of concentration in 1,000 mg/L	Divide by	Range of concentration in 1,000 mg/L	Divide by
0 - 8	1.00	201-217	1.13	411-424	1.26	619-634	1.39
8.05 - 24	1.01	218-232	1.14	427-440	1.27	636-650	1.40
24.2 - 40	1.02	234-248	1.15	443-457	1.28	652-666	1.41
40.5 - 56	1.03	250-264	1.16	460-473	1.29	668-682	1.42
56.5 - 72	1.04	266-280	1.17	476-489	1.30	684-698	1.43
72.5 - 88	1.05	282-297	1.18	492-508	1.31	700-715	1.44
88.5 - 104	1.06	299-313	1.19	508-522	1.32	717-730	1.45
105 - 120	1.07	315-329	1.20	524-538	1.33	732-747	1.46
121 - 136	1.08	331-345	1.21	540-554	1.34	749-762	1.47
137 - 152	1.09	347-361	1.22	556-570	1.35	765-780	1.48
153 - 169	1.10	363-378	1.23	572-585	1.36	782-796	1.49
170 - 185	1.11	380-393	1.24	587-602	1.37	798-810	1.50
186 - 200	1.12	395-409	1.25	604-617	1.38		

\*Based on water density of 1.000 mg/L and a specific gravity of sediment of 2.65.

The U.S. Geological Survey publishes a series of manuals describing procedures for planning and conducting specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) pertains to surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises.

The reports listed below are for sale by the U.S. Geological Survey, Branch of Information Services, Box 25286, Federal Center, Denver, Colorado 80225 (authorized agent of the Superintendent of Documents, Government Printing Office). Prepayment is required. Remittance should be sent by check or money order payable to the U.S. Geological Survey. Prices are not included because they are subject to change. Current prices can be obtained by writing to the above address. When ordering or inquiring about prices for any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations."

- 1-D1. *Water temperature--influential factors, field measurement, and data presentation*, by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages.
- 1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W. W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages.
- 2-D1. *Application of surface geophysics to ground-water investigations*, by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages.
- 2-D2. *Application of seismic-refraction techniques to hydrologic studies*, by F. P. Haeni: USGS--TWRI Book 2, Chapter D2. 1988. 86 pages.
- 2-E1. *Application of borehole geophysics to water-resources investigations*, by W. S. Keys and L.M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.
- 2-E2. *Borehole geophysics applied to ground-water investigations*, by W. S. Keys: USGS--TWRI Book 2, Chapter E2. 1990. 150 pages.
- 2-F1. *Application of drilling, coring, and sampling techniques to test holes and wells*, by Eugene Shuter and W. E. Teasdale: USGS--TWRI Book 2, Chapter F1. 1989. 97 pages.
- 3-A1. *General field and office procedures for indirect discharge measurements*, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages.
- 3-A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages.
- 3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages.
- 3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 pages.
- 3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages.
- 3-A6. *General procedure for gaging streams*, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 pages.
- 3-A7. *Stage measurement at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages.

- 3-A8. *Discharge measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages.
- 3-A9. *Measurement of time of travel in streams by dye tracing*, by F. A. Kilpatrick and J. F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1989. 27 pages.
- 3-A10. *Discharge ratings at gaging stations*, by E. J. Kennedy: USGS--TWRI Book 3, Chapter A10. 1984. 59 pages.
- 3-A11. *Measurement of discharge by the moving-boat method*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages.
- 3-A12. *Fluorometric procedures for dye tracing*, Revised, by J. F. Wilson, Jr., E. D. Cobb, and F. A. Kilpatrick: USGS--TWRI Book 3, Chapter A12. 1986. 34 pages.
- 3-A13. *Computation of continuous records of streamflow*, by E. J. Kennedy: USGS--TWRI Book 3, Chapter A13. 1983. 53 pages.
- 3-A14. *Use of flumes in measuring discharge*, by F. A. Kilpatrick and V. R. Schneider: USGS--TWRI Book 3, Chapter A14. 1983. 46 pages.
- 3-A15. *Computation of water-surface profiles in open channels*, by Jacob Davidian: USGS--TWRI Book 3, Chapter A15. 1984. 48 pages.
- 3-A16. *Measurement of discharge using tracers*, by F. A. Kilpatrick and E. D. Cobb: USGS--TWRI Book 3, Chapter A16. 1985. 52 pages.
- 3-A17. *Acoustic velocity meter systems*, by Antonius Laenen: USGS--TWRI Book 3, Chapter A17. 1985. 38 pages.
- 3-A18. *Determination of stream reaeration coefficients by use of tracers*, by F. A. Kilpatrick, R. E. Rathbun, Nobuhiro Yotsukura, G. W. Parker, and L. L. DeLong: USGS--TWRI Book 3, Chapter A18. 1989. 52 pages.
- 3-A19. *Levels at streamflow gaging stations*, by E. J. Kennedy: USGS--TWRI Book 3, Chapter A19. 1990. 31 pages.
- 3-A20. *Simulation of soluble waste transport and buildup in surface waters using tracers*, by F. A. Kilpatrick: USGS--TWRI Book 3, Chapter A20. 1993. 38 pages.
- 3-A21. *Stream-gaging cableways*, by C. Russell Wagner: USGS--TWRI Book 3, Chapter A21. 1995. 56 pages.
- 3-B1. *Aquifer-test design, observation, and data analysis*, by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages.
- 3-B2. *Introduction to ground-water hydraulics, a programmed text for self-instruction*, by G. D. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages.
- 3-B3. *Type curves for selected problems of flow to wells in confined aquifers*, by J. E. Reed: USGS--TWRI Book 3, Chapter B3. 1980. 106 pages.
- 3-B4. *Regression modeling of ground-water flow*, by R. L. Cooley and R. L. Naff: USGS--TWRI Book 3, Chapter B4. 1990. 232 pages.
- 3-B4. *Supplement 1. Regression modeling of ground-water flow - Modifications to the computer code for nonlinear regression solution of steady-state ground-water flow problems*, by R. L. Cooley: USGS--TWRI Book 3, Chapter B4. 1993. 8 pages.
- 3-B5. *Definition of boundary and initial conditions in the analysis of saturated ground-water flow systems--An introduction*, by O. L. Franke, T. E. Reilly, and G. D. Bennett: USGS--TWRI Book 3, Chapter B5. 1987. 15 pages.
- 3-B6. *The principle of superposition and its application in ground-water hydraulics*, by T. E. Reilly, O. L. Franke, and G. D. Bennett: USGS--TWRI Book 3, Chapter B6. 1987. 28 pages.

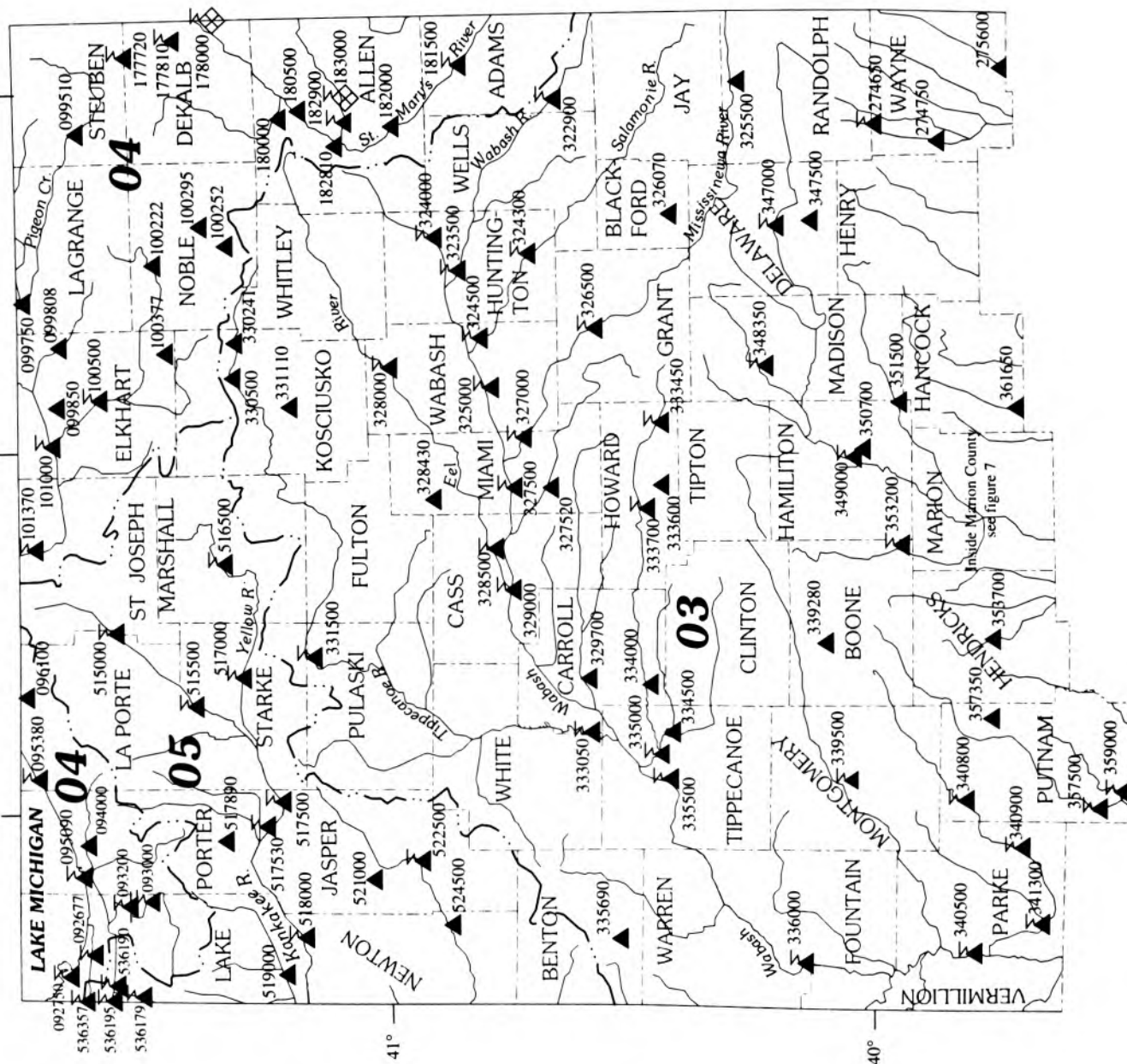
- 3-B7. *Analytical solutions for one-, two-, and three-dimensional solute transport in ground-water systems with uniform flow*, by E. J. Wexler: USGS--TWRI Book 3, Chapter B7. 1992. 190 pages.
- 3-C1. *Fluvial sediment concepts*, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages.
- 3-C2. *Field methods for measurement of fluvial sediment*, by Thomas K. Edwards and G. Douglas Glysson: USGS--TWRI Book 3, Chapter C2. 1988. 80 pages.
- 3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages.
- 4-A1. *Some statistical tools in hydrology*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 pages.
- 4-A2. *Frequency curves*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages.
- 4-B1. *Low-flow investigations*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 pages.
- 4-B2. *Storage analyses for water supply*, by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages.
- 4-B3. *Regional analyses of streamflow characteristics*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages.
- 4-D1. *Computation of rate and volume of stream depletion by wells*, by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages.
- 5-A1. *Methods for determination of inorganic substances in water and fluvial sediments*, by M. J. Fishman and L. C. Friedman, editors: USGS--TWRI Book 5, Chapter A1. 1989. 545 pages.
- 5-A2. *Determination of minor elements in water by emission spectroscopy*, by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages.
- 5-A3. *Methods for the determination of organic substances in water and fluvial sediments*, edited by R. L. Wershaw, M. J. Fishman, R. R. Grabbe, and L. E. Lowe: USGS--TWRI Book 5, Chapter A3. 1987. 80 pages.
- 5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples*, by L. J. Britton and P. E. Greeson, editors: USGS--TWRI Book 5, Chapter A4. 1989. 363 pages.
- 5-A5. *Methods for determination of radioactive substances in water and fluvial sediments*, by L. L. Thatcher, V. J. Janzer, and K. W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages.
- 5-A6. *Quality assurance practices for the chemical and biological analyses of water and fluvial sediments*, by L. C. Friedman and D. E. Erdmann: USGS--TWRI Book 5, Chapter A6. 1982. 181 pages.
- 5-C1. *Laboratory theory and methods for sediment analysis*, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages.
- 6-A1. *A modular three-dimensional finite-difference ground-water flow model*, by M. G. McDonald and A. W. Harbaugh: USGS--TWRI Book 6, Chapter A1. 1988. 586 pages.
- 6-A2. *Documentation of a computer program to simulate aquifer-system compaction using the modular finite-difference ground-water flow model*, by S. A. Leake and D. E. Prudic: USGS--TWRI Book 6, Chapter A2. 1991. 68 pages.
- 6-A3. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 1: Model Description and User's Manual*, by L. J. Torak: USGS--TWRI Book 6, Chapter A3. 1993. 136 pages.
- 6-A4. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 2: Derivation of finite-element equations and comparisons with analytical solutions*, by R. L. Cooley: USGS--TWRI Book 6, Chapter A4. 1992. 108 pages.

- 6-A5. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 3: Design philosophy and programming details*, by L. J. Torak: USGS--TWRI Book 6, Chapter A5, 1993. 243 pages.
- 6-A6. *A coupled surface-water and ground-water flow model (MODBRANCH) for simulation of stream-aquifer interaction*, by Eric D. Swain and Eliezer J. Wexler. 1996. 125 pages.
- 7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages.
- 7-C2. *Computer model of two-dimensional solute transport and dispersion in ground water*, by L. F. Konikow and J. D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 pages.
- 7-C3. *A model for simulation of flow in singular and interconnected channels*, by R. W. Schaffranek, R. A. Baltzer, and D. E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1981. 110 pages.
- 8-A1. *Methods of measuring water levels in deep wells*, by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages.
- 8-A2. *Installation and service manual for U.S. Geological Survey manometers*, by J. D. Craig: USGS--TWRI Book 8, Chapter A2. 1983. 57 pages.
- 8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages.
- 9-A6. *National Field Manual for the Collection of Water-Quality Data: Field Measurements*, edited by F. D. Wilde and D.B. Radtke: USGS--TWRI Book 9, Chapter A6. 1998. Variously paginated.
- 9-A7. *National Field Manual for the Collection of Water-Quality Data: Biological Indicators*, by D. N. Myers and F. D. Wilde: USGS--TWRI Book 9, Chapter A7. 1997. 49 pages.
- 9-A8. *National Field Manual for the Collection of Water-Quality Data: Bottom Material Samples*, by D.B. Radtke: USGS--TWRI Book 9, Chapter A8. 1998. 48 pages.
- 9-A9. *National Field Manual for the Collection of Water-Quality Data: Safety in Field Activities*, by S.L. Lane and R.G. Fay: USGS--TWRI Book 9, Chapter A9. 1998. 60 pages.



## SELECTED REFERENCES

- Clark, G. D., ed., 1980, The Indiana water resource: Availability, uses, and needs: Indianapolis, Indiana Department of Natural Resources, 1508 p.
- Fowler, K. K., 1988, Annual maximum and minimum lake levels for Indiana, water years 1942-85: U.S. Geological Survey Open-File Report 88-331, 363 p.
- Fowler, K. K., and Wilson, J. T., 1996, Low-flow characteristics of Indiana streams: U.S. Geological Survey Open-File Report 96-4128, 313 p.
- Glatfelter, D. R., 1984, Techniques for estimating magnitude and frequency of floods on streams in Indiana: U.S. Geological Survey Water-Resources Investigations Report 84-4134, 110 p.
- Indiana Department of Natural Resources, 1993, Coordinated discharges of selected streams in Indiana: Indiana Department of Natural Resources, Division of Water.
- National Oceanic and Atmospheric Administration, 1992, Monthly normals of temperature, precipitation, and heating and cooling days, 1961-90: no. 81.
- National Oceanic and Atmospheric Administration, 1997-98, Climatological data, Indiana: Asheville, N.C., National Climatic Center, v. 102, nos. 10-13, and v. 103, nos. 1-9.
- Perrey, J. I., and Corbett, D. M., 1956, Hydrology of Indiana lakes: U.S. Geological Survey Water-Supply Paper 1363, 347 p.
- Rantz, S. E., and others, 1982, Volume 1, Measurement of stage and discharge: U.S. Geological Survey Water-Supply Paper 2175, 284 p.
- Rantz, S. E., and others, 1982, Volume 2, Computation of discharge: U.S. Geological Survey Water-Supply Paper 2175, 631 p.
- Solly, W. B., Pierce, R. R., and Perlman, H. A., 1998, Estimated use of water in the United States in 1995: U.S. Geological Survey Circular 1200, 71 p.
- Stewart, J. A., Miller, R. L., and Butch, G. K., 1986, Cost-effectiveness of the U.S. Geological Survey stream-gaging program in Indiana: U.S. Geological Survey Water-Resources Investigations Report 85-4343, 92 p.



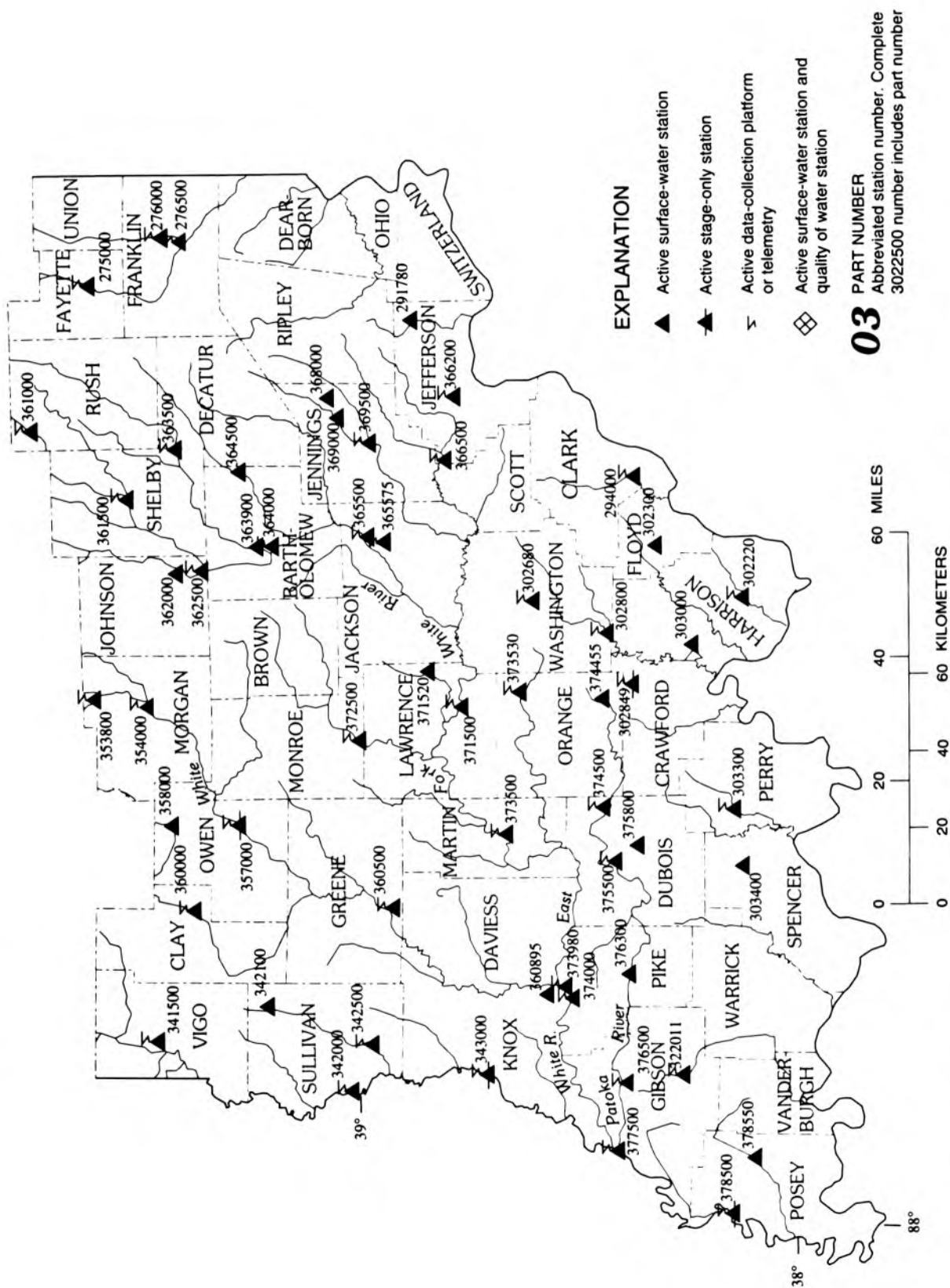
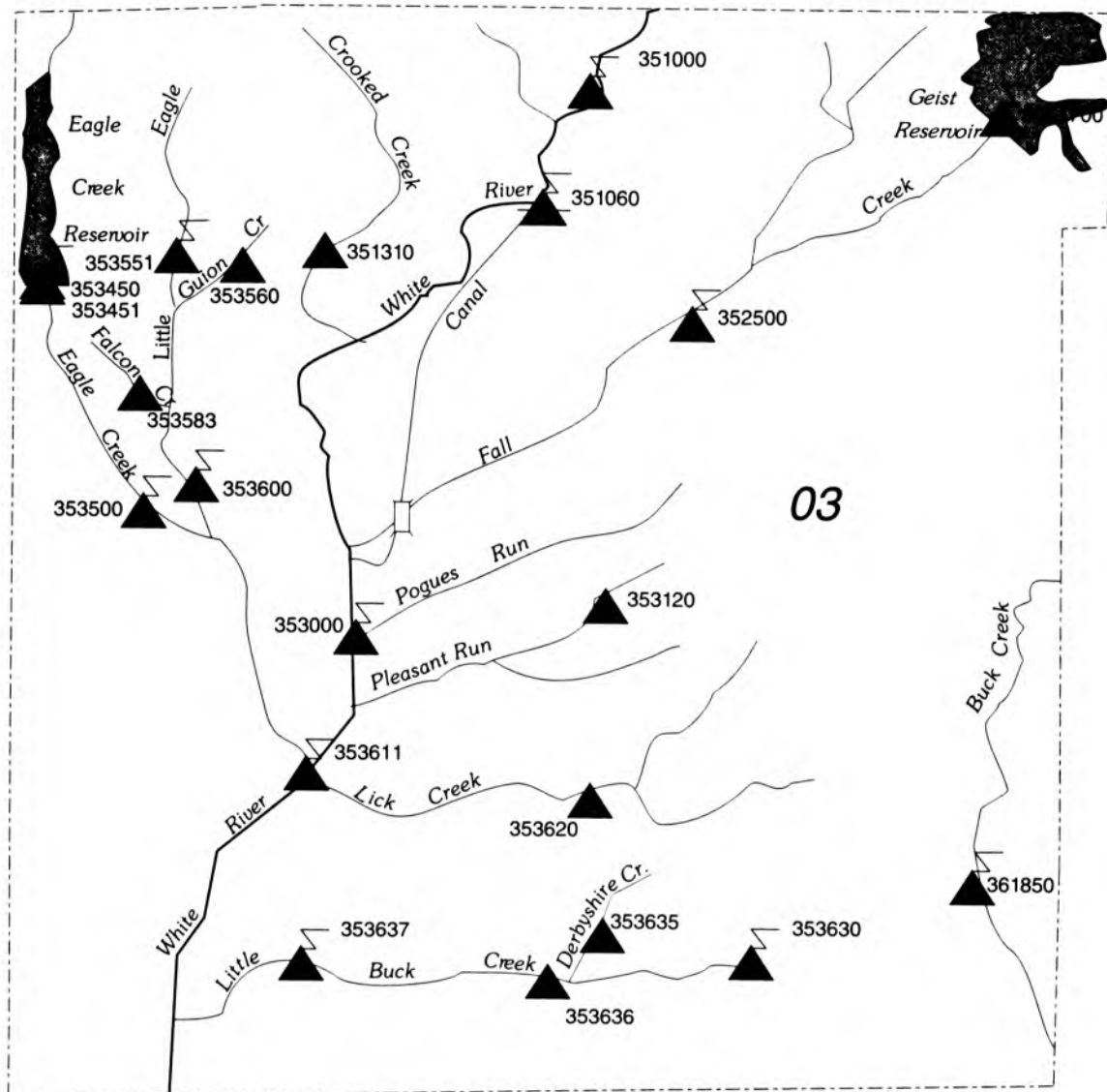


Figure 6.--Locations of streamflow and water-quality gaging stations in Indiana.



Base from U.S. Geological Survey digital data, 1:2,000,000, 1996  
 Albers Equal Area projection  
 Standard parallels 29°30' and 45°30' central meridian -96°

0 1 2 3 4 5 MILES  
 0 1 2 3 4 5 KILOMETERS

#### EXPLANATION

- ▲ Active stage-only station
- ▲ Active surface-water station
- Σ Active data-collection platform or telemetry

**03** PART NUMBER  
 Abbreviated station number: complete  
 302500 number includes part number

Figure 7.--Locations of streamflow gaging stations in Marion County.

03274650 WHITEWATER RIVER NEAR ECONOMY, IN

LOCATION.--Lat 40°00'05", long 85°06'56", in NW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.19, T.18 N., R.13 E., Wayne County, Hydrologic Unit 05080003, on right bank 15 ft downstream from bridge on Wayne County Line Road, 1.7 mi upstream from Little Creek, 2.4 mi northwest of Economy, and at mile 91.9.

DRAINAGE AREA.--10.4 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1970 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,066.00 ft above sea level.

REMARKS.--Records poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.70	e.54	e2.5	e1.7	4.0	4.7	9.1	15	5.6	7.3	1.8	e.56
2	e.60	e.96	e1.2	e1.7	3.9	4.4	6.9	11	4.5	5.4	1.8	e.54
3	e.50	e.74	e.80	e1.9	3.5	4.2	5.9	9.7	3.7	4.7	1.8	e.52
4	e.45	e.64	e.90	e1.9	3.7	3.9	5.8	8.7	3.5	4.9	1.8	e.50
5	e.39	e.60	e.86	e2.0	3.4	3.3	5.0	7.7	3.7	4.1	2.8	e.48
6	e.34	e.58	e.84	e8.0	3.3	3.0	4.6	7.1	3.5	3.6	3.9	e.45
7	e.32	e.57	e.82	e70	3.2	2.9	4.3	25	3.0	12	2.6	e1.0
8	e.31	e.56	e.80	104	3.1	4.2	4.8	32	2.9	18	2.4	e.60
9	e.40	e.55	e1.5	51	2.9	42	223	20	5.1	7.9	e2.1	e.52
10	e.35	e.54	e6.0	34	2.5	21	94	14	5.9	5.1	e1.8	e.45
11	e.34	e.53	e4.3	25	2.7	13	36	11	110	3.9	e1.6	e.40
12	e.33	e.52	e3.3	19	4.7	10	27	8.7	120	3.3	e1.5	e.37
13	e.37	e.60	e2.7	14	3.7	8.8	24	7.5	63	2.8	e1.4	e.35
14	e1.0	e1.2	e2.2	10	3.1	8.4	21	6.5	34	2.6	e1.3	e.34
15	e.70	e.80	e1.9	9.0	2.7	7.2	18	5.8	140	2.3	e1.4	e.34
16	e.56	e.66	e1.7	7.4	2.9	6.4	56	5.5	48	2.2	e1.9	e.50
17	e.50	e.64	e1.5	6.4	9.3	25	34	4.9	31	2.0	e1.4	e.39
18	e.47	e.62	e1.4	5.4	70	66	22	4.7	23	2.0	e1.1	e.33
19	e.44	e.60	e1.3	4.8	34	53	19	4.5	24	2.0	e1.0	e.31
20	e.42	e.58	e1.2	4.3	26	46	15	4.3	19	2.4	e.96	e.29
21	e.41	e.70	e1.2	4.0	19	41	13	4.3	15	2.5	e.92	e.45
22	e.40	e1.7	e1.9	4.1	13	28	13	4.0	12	18	e.90	e.35
23	e.39	e1.1	e2.8	8.6	11	21	15	4.8	10	16	e.86	e.32
24	e.43	e.90	e5.0	7.9	8.9	17	12	8.9	8.4	6.6	e2.1	e.29
25	e.50	e.78	e13	6.2	7.2	13	11	7.7	6.9	4.2	e1.5	e.29
26	e.62	e.70	e7.0	5.3	6.6	11	11	5.6	6.2	3.3	e1.1	e.28
27	e.90	e.64	e4.2	4.8	6.3	9.2	14	4.8	5.6	2.9	e.86	e.28
28	e.60	e.61	e3.0	4.8	5.1	8.7	11	4.2	5.1	2.6	e.70	e.27
29	e.50	e.70	e2.4	5.2	---	8.1	9.9	4.0	5.8	2.3	e.66	e.27
30	e.47	e9.0	e2.1	4.4	---	7.2	12	8.3	15	2.2	e.62	e.27
31	e.45	---	e1.9	4.2	---	6.7	---	6.1	---	2.0	e.60	---
TOTAL	15.16	29.86	82.22	441.0	269.7	508.3	757.3	276.3	743.4	161.1	47.18	12.31
MEAN	.49	1.00	2.65	14.2	9.63	16.4	25.2	8.91	24.8	5.20	1.52	.41
MAX	1.0	9.0	13	104	70	66	223	32	140	18	3.9	1.0
MIN	.31	.52	.80	1.7	2.5	2.9	4.3	4.0	2.9	2.0	.60	.27
CFSM	.05	.10	.26	1.37	.93	1.58	2.43	.86	2.38	.50	.15	.04
IN.	.05	.11	.29	1.58	.96	1.82	2.71	.99	2.66	.58	.17	.04

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 1998, BY WATER YEAR (WY)

	3.63	11.4	12.9	13.6	18.4	20.7	18.9	14.0	9.62	6.90	4.60	3.15
MEAN	3.63	11.4	12.9	13.6	18.4	20.7	18.9	14.0	9.62	6.90	4.60	3.15
MAX	39.9	67.0	39.7	37.7	56.0	41.6	46.0	58.4	24.8	27.5	61.5	32.2
(WY)	1987	1994	1978	1996	1985	1978	1996	1996	1998	1979	1979	1989
MIN	.46	.45	.51	.33	3.31	2.58	2.96	1.47	1.03	.57	.41	.40
(WY)	1992	1972	1977	1977	1978	1981	1971	1988	1977	1977	1988	1988

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1971 - 1998
ANNUAL TOTAL	4237.56	3343.83	
ANNUAL MEAN	11.6	9.16	11.4
HIGHEST ANNUAL MEAN			18.8
LOWEST ANNUAL MEAN			3.26
HIGHEST DAILY MEAN	210 Jun 1	223 Apr 9	647 Nov 14 1993
LOWEST DAILY MEAN	.31 Oct 8	.27 Sep 28	.22 Sep 1 1988
ANNUAL SEVEN-DAY MINIMUM	.34 Oct 6	.28 Sep 24	.24 Nov 9 1991
INSTANTANEOUS PEAK FLOW		661 Apr 9	1120 Nov 14 1993
INSTANTANEOUS PEAK STAGE		8.15 Apr 9	8.91 Nov 14 1993
ANNUAL RUNOFF (CFSM)	1.12	.88	1.10
ANNUAL RUNOFF (INCHES)	15.16	11.96	14.95
10 PERCENT EXCEEDS	29	21	26
50 PERCENT EXCEEDS	4.0	3.5	4.0
90 PERCENT EXCEEDS	.55	.45	.75

e Estimated



## GREAT MIAMI RIVER BASIN

03274750 WHITEWATER RIVER NEAR HAGERSTOWN, IN

LOCATION.--Lat 39°52'25", long 85°09'47", in NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.3, T.16 N., R.12 E., Wayne County, Hydrologic Unit 05080003, on right bank at upstream side of bridge on Jerry Meyers Road, 1.0 mi upstream from Pronghorn Run, 1.5 mi north of Interstate 70, 2.0 mi downstream from Nettle Creek, 2.6 mi south of Hagerstown, and at mile 84.9.

DRAINAGE AREA.--58.7 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1970 to current year.

GAGE.--Water-stage recorder. Datum of gage is 950.00 ft above sea level (Indiana Flood Control and Water Resources Commission bench mark).

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	20	34	e21	35	43	69	99	74	75	31	17
2	18	20	27	e21	34	42	60	90	54	69	30	17
3	18	19	26	22	33	41	55	96	50	65	30	17
4	15	19	26	22	32	40	54	93	48	67	29	17
5	16	18	24	23	32	39	50	79	49	62	31	17
6	16	18	23	44	31	37	49	74	47	59	33	16
7	15	18	22	444	31	36	48	310	45	58	34	17
8	16	18	21	560	30	39	50	247	44	79	31	17
9	18	18	20	162	30	194	1230	138	54	62	29	16
10	16	18	26	106	30	100	481	111	55	56	28	16
11	16	18	26	86	32	75	207	96	732	52	27	16
12	16	17	24	75	35	59	154	86	669	50	26	15
13	18	18	23	69	33	57	132	78	449	48	25	15
14	20	20	22	60	32	60	123	72	280	47	25	15
15	18	19	21	57	31	54	110	68	1260	48	24	14
16	18	19	20	52	32	50	462	64	526	46	23	15
17	18	18	20	48	37	113	232	60	269	43	23	15
18	17	18	19	45	310	321	144	57	196	42	22	14
19	18	19	19	43	126	265	126	55	249	44	21	14
20	17	19	18	41	106	201	112	55	165	74	21	14
21	17	21	18	39	87	194	104	56	140	44	19	15
22	18	23	22	39	72	139	101	56	125	74	19	14
23	18	22	22	54	64	114	110	65	120	77	18	14
24	19	21	26	50	58	101	96	171	106	53	20	14
25	19	20	59	45	53	88	89	93	96	44	20	14
26	20	19	39	42	51	80	90	72	89	40	19	14
27	20	19	32	41	49	72	104	62	83	38	18	13
28	18	18	29	40	45	70	86	57	78	37	18	13
29	18	17	27	39	---	66	84	53	77	35	19	13
30	17	38	e25	37	---	61	93	56	86	34	18	13
31	18	---	e23	36	---	58	---	56	---	33	17	---
TOTAL	544	589	783	2463	1571	2909	4905	2825	6315	1655	748	451
MEAN	17.5	19.6	25.3	79.5	56.1	93.8	164	91.1	211	53.4	24.1	15.0
MAX	20	38	59	560	310	321	1230	310	1260	79	34	17
MIN	15	17	18	21	30	36	48	53	44	33	17	13
CFSM	.30	.33	.43	1.35	.96	1.60	2.79	1.55	3.59	.91	.41	.26
IN.	.34	.37	.50	1.56	1.00	1.84	3.11	1.79	4.00	1.05	.47	.29

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 1998, BY WATER YEAR (WY)

	MEAN	29.1	56.9	74.0	78.7	100	115	116	94.9	70.8	50.8	36.6	24.4
MAX	188	235	205	208	233	224	286	420	212	219	312	121	121
(WY)	1987	1994	1978	1996	1975	1973	1996	1996	1996	1979	1979	1989	1989
MIN	11.6	12.1	12.0	8.48	23.0	25.6	28.0	23.0	14.6	8.18	8.56	8.37	8.37
(WY)	1977	1977	1977	1977	1995	1981	1971	1988	1977	1977	1988	1983	1983

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

## WATER YEARS 1971 - 1998

ANNUAL TOTAL	30569.3	25758	70.5
ANNUAL MEAN	83.8	70.6	121
HIGHEST ANNUAL MEAN			25.4
LOWEST ANNUAL MEAN			1996
HIGHEST DAILY MEAN	1340	1260	1880
LOWEST DAILY MEAN	4.7	13	4.7
ANNUAL SEVEN-DAY MINIMUM	5.9	13	5.9
INSTANTANEOUS PEAK FLOW		1920	2310
INSTANTANEOUS PEAK STAGE		10.36	11.52
ANNUAL RUNOFF (CFSM)	1.43	1.20	1.20
ANNUAL RUNOFF (INCHES)	19.37	16.32	16.32
10 PERCENT EXCEEDS	152	124	130
50 PERCENT EXCEEDS	48	39	38
90 PERCENT EXCEEDS	17	17	14

e Estimated

## 03275000 WHITEWATER RIVER NEAR ALPINE, IN

(Former National stream-quality accounting network station)

LOCATION.--Lat 39°34'23", long 85°09'27", in SW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.14, T.13 N., R.12 E., Fayette County, Hydrologic Unit 05080003, on right bank 500 ft downstream from highway bridge, 0.4 mile downstream from Wilson Creek, 1.6 mile northeast of Alpine, 4.6 mile upstream from Bear Creek, and at mile 54.3.

DRAINAGE AREA.--529 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1928 to current year. Prior to October 1936, published as West Fork Whitewater River near Alpine.

REVISED RECORDS.--WSP 1143: 1943-44(M), 1947 (M). WSP 1335: 1929-30, 1932(M), 1938, 1946-47(m), 1949-50. WSP 1505: 1942(P). WSP 1908: 1937(M), 1944, 1949(M), drainage area. WDR IN-79-1: 1975 (P).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 750.19 ft above sea level. Prior to Nov. 9, 1928, nonrecording gage at same site and datum. Oct. 1, 1982 to June 30, 1993, at site 0.5 mile upstream at same datum.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	122	125	237	e180	279	420	580	729	399	542	234	e146
2	122	128	236	191	273	405	568	660	435	489	226	146
3	121	127	203	186	264	393	518	593	379	461	221	144
4	120	124	193	179	259	386	512	598	360	460	217	140
5	118	123	185	185	260	373	482	542	358	556	217	138
6	117	121	179	226	258	356	459	503	352	472	268	136
7	112	119	169	3070	251	348	444	1490	334	433	276	133
8	111	117	162	7130	248	358	460	4010	323	652	298	132
9	114	116	157	3490	245	1270	4990	1750	419	581	385	130
10	119	116	172	1400	242	1420	10000	1110	463	456	265	129
11	116	115	198	900	252	842	2930	850	7090	403	247	126
12	114	115	209	699	297	677	1690	700	11600	369	234	123
13	117	116	194	594	307	607	1270	607	7840	345	221	121
14	127	127	181	515	293	575	1090	543	3190	329	212	121
15	124	125	171	483	278	526	1130	496	11600	322	204	119
16	122	123	164	441	277	492	6610	465	9670	320	199	119
17	121	123	158	403	320	570	3670	435	4530	303	194	119
18	120	120	153	371	1310	2410	1620	407	2270	290	191	119
19	120	120	150	345	1680	2660	1180	395	4960	284	184	118
20	120	120	145	327	1020	1950	972	393	2740	1750	180	120
21	118	128	143	312	918	2720	835	378	1570	556	177	122
22	117	140	150	302	741	1590	781	367	1200	379	172	121
23	124	142	161	350	651	1120	742	801	1330	500	169	118
24	124	138	174	398	583	935	683	1010	1010	420	164	117
25	125	133	312	369	526	808	616	1360	817	338	170	116
26	124	130	423	343	489	727	590	727	703	302	163	117
27	125	127	336	326	473	658	606	570	628	283	157	116
28	124	124	287	315	446	621	568	490	575	269	155	114
29	122	127	256	311	---	592	538	443	545	259	153	113
30	120	165	e230	303	---	553	662	424	572	256	151	113
31	118	---	e200	290	---	530	---	400	---	246	146	---
TOTAL	3718	3774	6288	24934	13440	27892	47796	24246	78262	13625	6450	3746
MEAN	120	126	203	804	480	900	1593	782	2609	440	208	125
MAX	127	165	423	7130	1680	2720	10000	4010	11600	1750	385	146
MIN	111	115	143	179	242	348	444	367	323	246	146	113
CFSM	.23	.24	.38	1.52	.91	1.70	3.01	1.48	4.93	.83	.39	.24
IN.	.26	.27	.44	1.75	.95	1.96	3.36	1.71	5.50	.96	.45	.26

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 1998, BY WATER YEAR (WY)

	189	355	555	826	869	1013	1000	775	553	365	243	176
MEAN	189	355	555	826	869	1013	1000	775	553	365	243	176
MAX	1685	1978	2531	4409	2639	2522	2360	3763	2609	1777	2342	920
(WY)	1987	1994	1991	1937	1950	1963	1964	1996	1998	1979	1979	1989
MIN	47.1	49.8	50.6	58.9	56.9	120	122	70.0	68.9	61.1	61.3	50.3
(WY)	1935	1935	1935	1935	1935	1935	1941	1941	1934	1934	1988	1934

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1929 - 1998
ANNUAL TOTAL	245963	254171	575
ANNUAL MEAN	674	696	1009
HIGHEST ANNUAL MEAN			117
LOWEST ANNUAL MEAN			26300
HIGHEST DAILY MEAN	12600	11600	30
LOWEST DAILY MEAN	111	111	33
ANNUAL SEVEN-DAY MINIMUM	115	115	37100
INSTANTANEOUS PEAK FLOW		14300	19.70
INSTANTANEOUS PEAK STAGE		15.15	1.09
ANNUAL RUNOFF (CFSM)	1.27	1.32	14.77
ANNUAL RUNOFF (INCHES)	17.30	17.87	1150
10 PERCENT EXCEEDS	1410	1290	279
50 PERCENT EXCEEDS	382	307	88
90 PERCENT EXCEEDS	123	120	

e Estimated

## GREAT MIAMI RIVER BASIN

03275600 EAST FORK WHITEWATER RIVER AT ABINGTON, IN

LOCATION.--Lat 39°43'59", long 84°57'35", in NE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.2, T.12 N., R.2 W., Wayne County, Hydrologic Unit 05080003, 15 ft downstream of bridge on county road at Abington, 3 mi downstream from Elkhorn Creek, 8 mi southwest of Richmond, and at mile 26.7.

DRAINAGE AREA.--200 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1965 to current year.

REVISED RECORDS.--WSP 2108: Drainage area. WDR IN-90-1: 1966(M), 1967-75(P), 1976-77(M), 1978-79(P), 1982(P), 1987(P), 1989(P).

GAGE.--Water-stage recorder. Datum of gage is 791.00 ft above sea level. Prior to Aug. 2, 1991 at site 250 ft downstream at same datum.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	42	81	e56	94	143	187	326	150	213	60	e35
2	25	55	52	63	91	134	159	272	126	171	56	e34
3	23	46	45	60	85	129	147	242	108	153	53	e33
4	26	43	61	56	86	129	156	225	107	208	49	e32
5	24	39	47	58	89	125	133	207	107	239	398	e31
6	22	37	41	138	82	113	125	190	98	180	292	e30
7	23	37	38	952	81	107	121	669	84	163	167	e31
8	25	37	36	2330	81	129	139	1140	75	222	124	e29
9	29	36	36	943	81	683	1390	473	149	182	106	e28
10	39	35	105	470	82	454	1390	334	165	144	156	e27
11	31	37	96	324	110	303	468	274	3410	123	95	e26
12	28	37	87	232	207	243	315	240	2910	111	82	e25
13	28	38	71	207	185	215	257	216	1910	102	74	e26
14	63	62	61	172	152	200	239	196	625	99	70	e25
15	38	55	53	173	132	167	222	178	4850	99	66	e24
16	33	49	48	154	132	150	2070	170	2630	103	60	e28
17	32	44	44	137	172	248	832	151	1140	91	62	e31
18	32	42	41	126	603	846	406	134	452	87	62	e28
19	31	42	38	108	537	674	339	126	1640	96	54	e27
20	30	40	36	103	393	779	296	156	567	196	50	e29
21	29	46	35	95	344	942	267	154	341	99	48	e33
22	29	97	59	95	286	483	255	148	276	88	47	e35
23	31	61	67	188	256	358	237	223	280	122	46	e32
24	35	49	78	194	224	317	220	954	243	94	45	e28
25	43	45	230	161	196	276	210	441	218	83	62	e26
26	38	43	201	139	178	254	230	274	202	76	45	e25
27	41	43	140	129	173	226	276	216	180	72	42	e24
28	38	43	110	122	154	214	221	182	167	70	39	e23
29	36	43	93	118	---	196	217	163	161	75	39	e24
30	35	133	e80	109	---	178	306	239	295	71	37	e23
31	34	---	e66	99	---	168	---	163	---	65	35	---
TOTAL	994	1456	2276	8311	5286	9583	11830	9076	23666	3897	2621	852
MEAN	32.1	48.5	73.4	268	189	309	394	293	789	126	84.5	28.4
MAX	63	133	230	2330	603	942	2070	1140	4850	239	398	35
MIN	22	35	35	56	81	107	121	126	75	65	35	23
CFSM	.16	.24	.37	1.34	.94	1.55	1.97	1.46	3.94	.63	.42	.14
IN.	.18	.27	.42	1.55	.98	1.78	2.20	1.69	4.40	.72	.49	.16

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1998, BY WATER YEAR (WY)

MEAN	76.3	174	285	272	318	376	385	344	206	162	110	55.7
MAX	615	732	929	708	901	884	1019	1049	789	773	773	242
(WY)	1987	1994	1991	1969	1975	1978	1996	1968	1998	1979	1979	1979
MIN	22.5	32.7	26.5	21.3	83.8	111	88.7	55.9	24.6	22.9	18.6	19.9
(WY)	1989	1977	1977	1977	1992	1992	1976	1976	1988	1988	1988	1983

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1966 - 1998	
ANNUAL TOTAL	75427		79848		230	
ANNUAL MEAN	207		219		388	
HIGHEST ANNUAL MEAN					92.3	
LOWEST ANNUAL MEAN					1977	
HIGHEST DAILY MEAN	6660	Jun 1	4850	Jun 15	9990	Dec 30 1990
LOWEST DAILY MEAN	22	Oct 6	22	Oct 6	11	Aug 18 1988
ANNUAL SEVEN-DAY MINIMUM	24	Sep 30	24	Oct 1	13	Aug 13 1988
INSTANTANEOUS PEAK FLOW			9160	Jun 11	20000	Jul 20 1969
INSTANTANEOUS PEAK STAGE			13.08	Jun 11	16.18	Jul 20 1969
ANNUAL RUNOFF (CFSM)	1.03		1.09		1.15	
ANNUAL RUNOFF (INCHES)	14.03		14.85		15.62	
10 PERCENT EXCEEDS	376		372		457	
50 PERCENT EXCEEDS	120		107		114	
90 PERCENT EXCEEDS	33		31		34	

e Estimated

## 03276000 EAST FORK WHITEWATER RIVER AT BROOKVILLE, IN

LOCATION.--Lat 39°26'02", long 85°00'12", in NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.20, T.9 N., R.2 W., Franklin County, Hydrologic Unit 05080003, on right bank 100 ft upstream from bridge on State Highway 101, at Brookville, 0.4 mi downstream from Brookville Lake, and 1.8 mi upstream from mouth.

DRAINAGE AREA.--380 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1954 to current year.

REVISED RECORDS.--WSP 1555: 1954(M), 1955(P). WSP 1908: 1955, drainage area.

GAGE.--Water-stage recorder. Datum of gage is 621.76 ft above sea level. Prior to May 22, 1954, nonrecording gage site 100 ft downstream at datum 2.00 ft higher. May 22, 1954 to Aug. 20, 1965, water-stage recorder at site 165 ft downstream at datum 2.00 ft higher. Aug. 21, 1965 to Sept. 30, 1981, water-stage recorder at same site and datum. Data Collection Platform with water temperature probe since Nov. 5, 1986.

REMARKS.--Flow regulated by The U.S. Army Corps of Engineers from Brookville Lake since January 1974.

COOPERATION.--Records of Daily discharge provided by U.S. Army Corps of Engineers beginning Oct. 1, 1991.

AVERAGE DISCHARGE.--44 years, 418 ft<sup>3</sup>/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,100 ft<sup>3</sup>/s Jan. 21, 1959, gage height 17.35 ft; no flow Nov. 27, 1991, July 14-16, 21-26, Aug. 4-27, 1992.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 5,000 ft<sup>3</sup>/s June 25; minimum daily discharge 27 ft<sup>3</sup>/s Aug. 22 to Sept. 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	490	247	93	370	370	380	493	200	362	157	27
2	42	490	247	93	370	370	380	494	200	677	57	27
3	42	489	247	93	370	370	380	494	200	676	57	27
4	42	489	247	93	370	370	380	494	200	1030	57	27
5	42	489	247	93	370	370	380	493	200	784	57	27
6	42	488	189	93	370	370	380	493	200	382	147	27
7	42	488	93	94	235	370	266	494	200	200	200	27
8	42	488	93	94	138	370	197	836	200	200	200	27
9	42	487	93	1840	138	371	198	1040	317	200	200	27
10	42	487	93	2870	138	372	199	1040	387	200	317	27
11	42	487	93	2860	138	372	199	1690	195	200	387	27
12	42	486	93	2210	274	284	200	2080	58	200	387	27
13	42	486	93	967	371	139	200	2070	59	200	387	27
14	42	486	93	191	371	139	382	1020	59	200	387	27
15	257	485	93	191	371	139	598	491	273	200	387	27
16	454	485	93	296	371	139	179	491	404	200	386	27
17	490	484	93	370	371	139	1010	425	1780	200	386	27
18	490	484	93	370	759	139	1570	270	4060	200	180	27
19	490	484	93	370	992	139	1570	200	4400	135	57	27
20	490	483	93	370	992	140	1790	200	4470	58	57	27
21	490	483	93	296	991	140	2080	200	4450	672	38	27
22	490	483	81	191	672	140	1380	200	4430	1040	27	27
23	490	482	93	191	411	290	1040	200	4420	1040	27	27
24	490	482	93	191	370	379	1040	686	4660	1040	27	27
25	490	482	93	191	370	379	1030	1030	5000	1040	27	27
26	490	481	93	281	370	380	1030	1030	4970	1030	27	27
27	490	481	93	371	370	380	1030	1030	2420	740	27	27
28	490	345	93	371	370	380	829	1030	1030	491	27	27
29	490	247	93	371	---	380	491	670	1030	417	27	27
30	490	247	93	371	---	380	492	244	707	386	27	27
31	490	---	93	371	---	380	---	162	---	386	27	---
TOTAL	8649	13948	3737	16847	11803	9080	21280	21790	51179	14786	4758	810
MEAN	279	465	121	543	422	293	709	703	1706	477	153	27.0
MAX	490	490	247	2870	992	380	2080	2080	5000	1040	387	27
MIN	42	247	81	93	138	139	179	162	58	58	27	27

CAL YR 1997 TOTAL 173017 MEAN 474 MAX 4860 MIN 27  
WTR YR 1998 TOTAL 178667 MEAN 489 MAX 5000 MIN 27

## GREAT MIAMI RIVER BASIN

03276500 WHITEWATER RIVER AT BROOKVILLE, IN

(Former National stream-quality accounting network station)

LOCATION.--Lat 39°24'24", long 85°00'46", in NE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.32, T.9 N., R.2 W., Franklin County, Hydrologic Unit 05080003, on right bank at downstream side of highway bridge, 0.3 mi downstream from East Fork Whitewater River, 1.1 mi south of Brookville, and at mile 29.3.

DRAINAGE AREA.--1,224 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1915 to September 1917, October 1917 to May 1920 (gage heights only), and July 1923 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 1335: 1915-17, 1929, 1930(M), 1933(M), 1934, 1935(m), 1936. WSP 1505: 1916(M). WSP 1908: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 595.71 ft above sea level. Prior to July 1923, nonrecording gage at same site at datum 1.5 ft higher. July 1923 to Sept. 27, 1928, nonrecording gage at same site and datum.

REMARKS.--Records fair. Flow regulated by Brookville Lake since January 1974.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 25, 1913, reached a stage of 39.0 ft, at present datum, from floodmarks (discharge not determined).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	179	679	512	377	657	826	1130	2720	992	1200	548	208
2	175	687	500	365	642	791	1120	2070	909	1430	422	190
3	173	692	466	362	629	767	1030	1810	884	1370	405	191
4	166	681	451	355	619	756	1050	1820	805	1760	394	191
5	157	678	450	352	629	743	1010	1650	793	1630	386	186
6	153	678	399	419	633	716	951	1530	828	1140	503	182
7	150	677	316	2210	551	697	857	4640	755	817	592	179
8	148	673	305	8540	472	716	1130	6320	714	897	609	172
9	148	677	299	5980	486	2740	3680	3860	1360	1080	775	172
10	152	675	354	4730	515	2550	11300	2890	2160	890	687	172
11	152	671	422	4040	1050	1630	4040	2980	12100	797	678	172
12	151	668	382	3140	1690	1270	2360	3100	14900	740	649	165
13	156	670	362	1930	1050	1060	1820	2930	12100	666	624	163
14	170	682	341	968	888	992	1760	1960	4500	675	606	158
15	286	691	324	907	798	897	1990	1380	13100	660	589	163
16	571	686	311	899	760	828	19500	1300	11000	632	579	161
17	684	679	302	883	814	888	7680	1120	6960	629	573	163
18	680	678	294	834	2110	2530	4750	940	6870	607	455	163
19	679	674	288	787	3190	3190	3920	841	10200	555	355	157
20	678	673	284	752	2420	3030	3540	825	8130	2830	344	168
21	678	679	276	684	2260	3600	3750	792	6620	1780	304	203
22	678	700	290	598	1790	2460	3030	762	6070	1720	268	173
23	678	723	381	695	1320	1920	2640	2080	8340	2000	260	157
24	687	706	380	790	1110	1750	2460	4030	6310	1760	259	154
25	686	695	781	741	1010	1530	2270	3850	6140	1610	264	154
26	683	681	684	723	945	1390	2200	2350	5820	1530	251	152
27	678	678	604	752	915	1270	2320	2000	3560	1230	241	145
28	678	501	521	729	873	1180	1950	1830	1950	983	234	145
29	676	342	471	714	---	1130	1560	1430	1760	771	230	142
30	671	376	445	699	---	1070	4160	1030	1570	710	222	143
31	670	---	405	677	---	1020	---	910	---	696	215	---
TOTAL	13271	19650	12600	46632	30826	45937	100958	67750	158200	35795	13521	5044
MEAN	428	655	406	1504	1101	1482	3365	2185	5273	1155	436	168
MAX	687	723	781	8540	3190	3600	19500	6320	14900	2830	775	208
MIN	148	342	276	352	472	697	857	762	714	555	215	142
CFSM	.35	.54	.33	1.23	.90	1.21	2.75	1.79	4.31	.94	.36	.14
IN.	.40	.60	.38	1.42	.94	1.40	3.07	2.06	4.81	1.09	.41	.15

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1916 - 1998, BY WATER YEAR (WY)

	MEAN	470	910	1301	1969	1999	2285	2186	1761	1260	761	507	406
MAX	2796	4160	5468	9401	6290	5909	4664	8618	5273	3390	4271	4239	
(WY)	1927	1994	1991	1937	1950	1963	1964	1996	1998	1958	1979	1926	
MIN	95.5	98.1	95.1	102	122	294	275	186	161	138	102	98.9	
(WY)	1935	1935	1935	1977	1935	1941	1941	1941	1934	1934	1930	1940	

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

## WATER YEARS 1916 - 1998

ANNUAL TOTAL	540733	550184											
ANNUAL MEAN	1481	1507											
HIGHEST ANNUAL MEAN										1314			
LOWEST ANNUAL MEAN										2398			1996
HIGHEST DAILY MEAN	21600	Jun 1	19500	Apr 16	55000	Jan 21	1959						
LOWEST DAILY MEAN	148	Oct 8	142	Sep 29	60	Jul 27	1934						
ANNUAL SEVEN-DAY MINIMUM	151	Oct 6	148	Sep 24	66	Sep 25	1941						
INSTANTANEOUS PEAK FLOW			29800	Apr 16	81800	Jan 21	1959						
INSTANTANEOUS PEAK STAGE			17.14	Apr 16	27.78	Jan 21	1959						
ANNUAL RUNOFF (CFSM)	1.21		1.23		1.07								
ANNUAL RUNOFF (INCHES)	16.43		16.72		14.59								
10 PERCENT EXCEEDS	3070		3550		2870								
50 PERCENT EXCEEDS	751		714		632								
90 PERCENT EXCEEDS	291		179		166								



03291780 INDIAN-KENTUCK CREEK NEAR CANAAN, IN

LOCATION.--Lat 38°52'41", long 85°15'26", in SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.13, T.5 N., R.11 E., Jefferson County, Hydrologic Unit 05140101, on downstream end of left pier of bridge on State Highway 62, 1,500 ft upstream from Wilson Fork, 2.0 mi northeast of Canaan, and at mile 16.7.

DRAINAGE AREA.--27.5 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1969 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 590 ft above sea level, from topographic map.

REMARKS.--Records good except for estimated daily discharges and those below 1 ft<sup>3</sup>/s, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.02	36	e4.5	6.4	11	15	114	3.9	10	1.7	.05
2	.00	.03	10	e3.9	6.4	10	9.5	51	2.7	6.8	1.1	.04
3	.00	.01	7.0	e5.2	5.6	10	7.8	50	2.2	5.0	.84	.03
4	.00	.01	11	6.3	6.1	9.7	18	40	2.2	53	.68	.02
5	.00	.00	8.7	6.3	e6.6	10	13	26	2.9	13	.61	.01
6	.00	.00	6.4	22	e7.0	12	10	19	3.4	7.1	.80	.01
7	.00	.01	5.1	625	e8.0	11	9.1	410	2.3	31	36	.01
8	.00	.01	4.6	471	e10	28	422	188	2.0	24	3.8	.01
9	.00	.00	4.4	85	e13	652	165	77	216	11	2.8	.00
10	.00	.00	54	41	e30	87	151	43	32	6.9	69	.00
11	.00	.01	22	27	464	39	46	28	590	4.8	5.1	.00
12	.00	.02	11	22	261	28	28	20	205	3.4	2.2	.00
13	.00	.08	7.8	18	79	21	20	15	342	2.6	1.4	.00
14	.00	4.3	6.1	14	42	16	18	11	44	6.4	.99	.00
15	.00	3.8	4.9	14	30	12	97	9.0	25	7.5	.77	.00
16	.00	1.9	4.1	12	28	9.7	1260	7.3	22	6.4	.59	.00
17	.00	1.2	3.7	11	65	9.5	149	5.7	15	4.2	.47	.00
18	.00	.86	3.3	9.1	102	19	59	4.6	8.8	2.8	.34	.00
19	.00	.66	3.0	8.7	53	33	49	3.9	123	2.1	.26	.00
20	.00	.54	2.7	7.8	44	249	35	6.1	141	1100	.20	.01
21	.00	.62	2.6	7.4	36	147	27	4.3	126	41	.16	.83
22	.00	1.4	6.8	7.3	29	59	24	3.6	91	15	.12	.99
23	.00	2.6	14	25	25	33	21	167	394	9.7	.11	.51
24	.00	1.8	63	20	20	23	17	29	61	6.3	.11	.24
25	.00	1.3	99	15	17	18	14	15	29	4.3	.14	.18
26	.01	1.1	30	13	15	16	15	9.9	20	3.1	.18	.18
27	.01	.86	18	11	16	13	118	7.6	15	2.5	.12	.16
28	.00	.76	e12	10	13	11	26	6.0	11	2.1	.12	.12
29	.00	.71	e9.0	9.4	---	9.3	66	4.7	9.2	1.7	.11	.10
30	.00	25	e6.8	8.2	---	8.0	570	3.8	28	2.6	.10	.08
31	.00	---	e5.4	7.1	---	7.3	---	3.6	---	3.2	.07	---
TOTAL	0.02	49.61	482.4	1547.2	1438.1	1621.5	3479.4	1383.1	2569.6	1399.5	130.99	3.58
MEAN	.001	1.65	15.6	49.9	51.4	52.3	116	44.6	85.7	45.1	4.23	.12
MAX	.01	25	99	625	464	652	1260	410	590	1100	69	.99
MIN	.00	.00	2.6	3.9	5.6	7.3	7.8	3.6	2.0	1.7	.07	.00
CFSM	.00	.06	.57	1.81	1.87	1.90	4.22	1.62	3.11	1.64	.15	.00
IN.	.00	.07	.65	2.09	1.95	2.19	4.71	1.87	3.48	1.89	.18	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 1998, BY WATER YEAR (WY)

	MEAN	10.1	33.7	51.2	49.5	55.5	69.1	64.4	50.5	31.1	14.1	12.3	7.18
	MAX	83.6	137	173	169	136	134	216	198	152	50.9	78.9	57.9
	(WY)	1984	1980	1991	1982	1990	1975	1996	1996	1996	1995	1995	1979
	MIN	.000	.22	3.95	.60	5.24	11.7	6.55	3.82	.44	.12	.001	.000
	(WY)	1988	1988	1977	1977	1992	1983	1976	1992	1988	1975	1975	1987

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1970 - 1998
ANNUAL TOTAL	17208.20	14105.00	
ANNUAL MEAN	47.1	38.6	37.3
HIGHEST ANNUAL MEAN			77.2
LOWEST ANNUAL MEAN			17.0
HIGHEST DAILY MEAN	1160	1260	2370
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
INSTANTANEOUS PEAK FLOW		5870	7800
INSTANTANEOUS PEAK STAGE		10.31	11.34
ANNUAL RUNOFF (CFSM)	1.71	1.41	1.36
ANNUAL RUNOFF (INCHES)	23.28	19.08	18.42
10 PERCENT EXCEEDS	90	67	78
50 PERCENT EXCEEDS	10	7.0	9.0
90 PERCENT EXCEEDS	.00	.00	.11

e Estimated

## SILVER CREEK BASIN

03294000 SILVER CREEK NEAR SELLERSBURG, IN

LOCATION.--Lat 38°22'15", long 85°43'35", in lot 68, Clark Military Grant, Clark County, Hydrologic Unit 05140101, on downstream side of Straws Mill bridge on Watson Road, 0.3 mi downstream from Pleasant Run, 2.4 mi southeast of Sellersburg, and 12.2 mi upstream from mouth.

DRAINAGE AREA.--189 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1954 to current year.

REVISED RECORDS.--WSP 1705: 1955-58. WDR IN-72-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 429.78 ft above sea level, (levels by State of Indiana, Department of Natural Resources). Prior to Oct. 6, 1976, and Feb. 15 to Sept. 20, 1984 nonrecording gage and crest-stage gage at same site and datum.

REMARKS.--Records good except for estimated daily discharges, and those below 10 ft<sup>3</sup>/s, which are poor. Some regulation by Deam Lake.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.86	e1.4	482	42	70	119	255	1830	124	220	25	1.3
2	e.80	e1.6	120	41	69	116	212	655	83	120	17	1.1
3	e.76	e1.8	63	42	64	101	155	399	62	88	13	.93
4	e.72	e2.5	97	41	64	95	214	319	61	66	9.8	e.80
5	e.70	18	86	39	74	100	221	252	72	56	8.7	e.66
6	e.68	6.0	47	106	85	92	168	210	61	44	9.7	e.58
7	e.66	2.8	34	568	100	87	151	501	49	38	37	e.90
8	e.66	e2.5	27	2520	113	124	143	590	46	111	39	e.70
9	e.68	e2.3	25	744	147	2810	196	339	270	78	165	e.58
10	e1.1	e2.2	95	332	202	1110	197	258	272	55	206	e.52
11	e.90	e2.1	141	223	852	e700	166	239	133	39	56	e.49
12	e.80	e2.0	71	181	2680	e400	132	184	96	30	25	e.47
13	e.76	e1.9	50	158	1080	e250	114	146	229	26	14	e.45
14	e1.6	e6.0	39	137	619	219	117	119	154	24	8.2	e.44
15	e2.0	e12	e32	129	425	183	416	98	185	33	6.2	e.43
16	e1.7	25	27	123	451	148	3530	83	177	38	5.3	e.42
17	e1.4	9.9	e25	100	619	133	3260	68	128	33	7.7	e.52
18	e1.3	4.7	e23	93	750	158	691	59	96	24	4.0	e.47
19	e1.2	3.0	e21	90	451	226	515	54	118	19	2.9	e.46
20	e1.1	e2.2	20	75	331	1100	397	74	115	98	2.8	e.45
21	e1.0	e2.7	18	69	279	1850	300	72	93	188	3.2	e.58
22	e.96	e4.0	33	66	231	630	270	69	261	53	2.9	e.52
23	.93	e7.0	86	105	205	396	241	2000	2190	31	3.2	e.51
24	1.0	e11	128	122	179	300	205	3010	572	22	2.8	e.50
25	1.3	19	512	96	156	237	171	540	233	19	2.0	e.68
26	1.5	8.5	194	84	139	216	147	310	154	17	2.1	e.60
27	1.7	4.6	118	83	140	181	193	232	112	14	1.5	e.58
28	1.6	3.7	e82	84	136	158	160	186	83	11	.79	e.57
29	e1.4	3.9	e70	71	---	140	151	148	71	9.6	.76	e.56
30	e1.3	62	63	70	---	130	2420	117	716	47	1.0	e.66
31	e1.2	---	53	73	---	112	---	108	---	36	1.3	---
TOTAL	34.27	236.3	2882	6707	10711	12621	15508	13269	7016	1687.6	683.85	18.43
MEAN	1.11	7.88	93.0	216	383	407	517	428	234	54.4	22.1	.61
MAX	2.0	62	512	2520	2680	2810	3530	3010	2190	220	206	1.3
MIN	.66	1.4	18	39	64	87	114	54	46	9.6	.76	.42
CFSM	.01	.04	.49	1.14	2.02	2.15	2.74	2.26	1.24	.29	.12	.00
IN.	.01	.05	.57	1.32	2.11	2.48	3.05	2.61	1.38	.33	.13	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1955 - 1998, BY WATER YEAR (WY)

MEAN	31.0	119	252	300	406	530	408	328	166	74.2	49.4	35.3
MAX	143	805	862	1150	1323	2252	1117	1369	1337	316	514	390
(WY)	1978	1980	1979	1959	1956	1964	1970	1983	1960	1973	1978	1979
MIN	.21	.61	.60	5.43	32.0	112	72.3	25.4	3.07	2.75	1.85	.24
(WY)	1965	1964	1964	1977	1992	1981	1976	1988	1988	1959	1994	1957

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1955 - 1998

ANNUAL TOTAL	130874.39	71374.45	224
ANNUAL MEAN	359	196	423
HIGHEST ANNUAL MEAN			92.8
LOWEST ANNUAL MEAN			15100
HIGHEST DAILY MEAN	12200	3530	Mar 10 1964
LOWEST DAILY MEAN	.33	.42	Sep 16
ANNUAL SEVEN-DAY MINIMUM	.51	.46	Sep 13
INSTANTANEOUS PEAK FLOW		4680	Apr 17
INSTANTANEOUS PEAK STAGE		18.86	Apr 17
ANNUAL RUNOFF (CFSM)	1.90	1.03	1.19
ANNUAL RUNOFF (INCHES)	25.76	14.05	16.10
10 PERCENT EXCEEDS	752	406	479
50 PERCENT EXCEEDS	80	70	53
90 PERCENT EXCEEDS	1.3	.80	3.2

e Estimated

03302220 BUCK CREEK NEAR NEW MIDDLETOWN, IN

LOCATION.--Lat 38°07'13", long 86°05'16", in SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.32, T.4 S., R.4 E., Harrison County, Hydrologic Unit 05140104, on right bank at downstream side of bridge on State Highway 337 (revised), 0.6 mi downstream from South Fork Buck Creek, 3.6 mi southwest of New Middletown, and 14.6 mi upstream from mouth.

DRAINAGE AREA.--65.2 mi<sup>2</sup>, of which 28.1 mi<sup>2</sup> does not contribute directly to surface runoff.

PERIOD OF RECORD.--October 1969 to current year.

REVISED RECORDS.--WDR IN-72-1: 1971(P).

GAGE.--Water-stage recorder. Datum of gage is 501.63 ft above sea level (levels by State of Indiana, Department of Natural Resources).

REMARKS.--Records fair except for estimated daily discharges, and those below 10 ft<sup>3</sup>/s, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e1.8	e4.0	89	e13	16	41	78	383	255	86	6.4	6.1
2	e1.7	e12	27	e12	14	27	53	234	105	50	4.6	5.1
3	e1.7	e9.0	21	12	13	21	44	185	60	32	4.2	4.5
4	e1.6	e7.4	45	11	e13	18	66	149	65	27	4.1	3.6
5	e1.6	e6.2	25	13	e14	15	57	115	74	20	3.7	3.2
6	e1.5	e5.6	15	199	e16	12	49	91	61	14	9.4	2.5
7	e1.5	e5.4	11	386	e18	11	42	112	44	641	22	2.3
8	e1.4	e4.3	8.4	771	23	18	38	83	36	629	80	2.0
9	e1.4	e3.5	8.1	e350	34	447	42	78	45	233	409	1.6
10	e1.5	e3.1	57	172	70	184	34	72	44	121	184	1.5
11	e1.4	e2.8	42	120	679	112	26	60	52	58	98	e1.4
12	e1.4	e2.6	25	94	620	77	23	50	99	39	25	e1.4
13	e1.6	e3.4	18	78	333	e56	22	41	1100	47	15	e1.3
14	e6.0	20	14	e63	211	e44	44	33	309	50	11	e1.3
15	e4.0	13	11	e50	148	38	178	28	204	327	7.9	e1.2
16	e3.0	8.0	8.9	42	144	31	1070	24	139	267	6.3	e1.2
17	e2.6	5.4	7.7	35	166	29	448	18	90	155	4.8	e1.3
18	e2.4	4.0	6.6	30	235	31	247	15	63	93	4.0	e1.2
19	e2.2	3.2	5.9	27	173	27	217	12	55	62	3.8	e1.2
20	e2.1	3.1	5.5	24	136	488	171	19	46	46	3.8	e1.6
21	e2.0	5.2	5.2	22	76	446	120	70	97	34	3.8	e1.4
22	e1.9	9.1	24	21	62	241	98	92	272	25	3.9	e1.3
23	e1.8	7.8	31	26	57	154	79	302	402	20	4.7	e1.2
24	e2.2	5.4	82	26	44	102	65	161	198	15	6.0	e1.2
25	e6.0	3.9	135	25	37	80	55	100	122	11	6.5	e1.7
26	e7.0	3.4	70	23	33	80	49	71	81	8.6	6.9	e1.5
27	e9.6	3.1	49	22	32	59	46	75	56	7.5	7.4	e1.4
28	e5.4	2.9	37	27	35	48	30	59	41	6.4	7.2	e1.3
29	e3.7	4.1	31	24	---	39	38	46	57	5.2	8.8	e1.2
30	e2.8	119	26	21	---	32	552	36	241	6.8	7.3	e1.2
31	e2.3	---	19	18	---	31	---	208	---	13	7.0	---
TOTAL	87.1	289.9	960.3	2757	3452	3039	4081	3022	4513	3149.5	976.5	58.9
MEAN	2.81	9.66	31.0	88.9	123	98.0	136	97.5	150	102	31.5	1.96
MAX	9.6	119	135	771	679	488	1070	383	1100	641	409	6.1
MIN	1.4	2.6	5.2	11	13	11	22	12	36	5.2	3.7	1.2
CFSM	.08	.26	.83	2.40	3.32	2.64	3.67	2.63	4.05	2.74	.85	.05
IN.	.09	.29	.96	2.76	3.46	3.05	4.09	3.03	4.53	3.16	.98	.06

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 1998, BY WATER YEAR (WY)

	MEAN	71.8	17.1	100	104	130	162	144	109	62.5	30.5	17.2	17.4
MAX	71.8	228	262	201	368	708	412	558	311	219	67.2	217	217
(WY)	1971	1980	1991	1974	1989	1997	1970	1983	1997	1979	1992	1979	1979
MIN	.76	3.16	6.01	2.64	24.8	40.4	22.4	16.3	1.56	4.59	2.11	.72	.72
(WY)	1988	1988	1977	1977	1992	1983	1986	1976	1988	1975	1987	1987	1987

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1970 - 1998
ANNUAL TOTAL	45598.3	26386.2	78.8
ANNUAL MEAN	125	72.3	150
HIGHEST ANNUAL MEAN			32.8
LOWEST ANNUAL MEAN			5610
HIGHEST DAILY MEAN	5610	1100	5610
LOWEST DAILY MEAN	1.4	1.2	.52
ANNUAL SEVEN-DAY MINIMUM	1.4	1.2	.57
INSTANTANEOUS PEAK FLOW		3370	20500
INSTANTANEOUS PEAK STAGE		8.11	17.26
ANNUAL RUNOFF (CFSM)	3.37	1.95	2.12
ANNUAL RUNOFF (INCHES)	45.72	26.46	28.87
10 PERCENT EXCEEDS	291	190	177
50 PERCENT EXCEEDS	23	26	28
90 PERCENT EXCEEDS	2.4	1.9	3.5

e Estimated

03302300 LITTLE INDIAN CREEK NEAR GALENA, IN

LOCATION.--Lat 38°19'19", long 85°55'53", in NE<sup>1</sup>/<sub>4</sub> SW<sup>1</sup>/<sub>4</sub> sec.23, T.2 S., R.5 E., Floyd County, Hydrologic Unit 05140104, on right bank at downstream side of county road bridge, 2.0 mi south of Galena, 3.6 mi upstream from mouth, and 7.0 mi northwest of New Albany.

DRAINAGE AREA.--16.1 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Datum of gage is 703.00 ft above sea level.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.04	e.50	21	e4.0	8.2	13	38	82	37	34	7.2	.39
2	e.03	1.7	4.9	e3.8	8.0	12	27	107	20	22	5.3	.33
3	e.03	.90	6.2	3.7	7.6	11	24	90	14	16	4.8	.29
4	e.02	.78	8.2	3.5	e7.8	11	29	51	13	15	4.4	.25
5	e.02	.63	4.4	5.0	e8.2	11	25	35	15	12	4.2	.18
6	e.01	.55	3.0	23	e9.0	10	23	27	12	10	9.0	.18
7	e.01	.47	2.3	127	e10	10	21	51	9.9	21	28	.16
8	e.01	.36	2.0	164	e11	134	19	39	9.3	23	49	e.14
9	e.01	.30	2.0	43	e14	256	26	32	26	15	105	e.13
10	.00	.30	20	26	e19	59	24	27	19	11	32	e.12
11	.00	.29	8.7	20	213	40	21	24	23	8.8	16	e.12
12	.00	.24	5.2	18	143	31	19	20	18	7.7	11	e.11
13	.00	.75	4.0	17	63	27	17	16	30	7.8	7.7	e.11
14	e.01	4.2	3.3	15	40	23	23	14	21	12	5.7	e.10
15	e.02	1.5	2.6	15	30	20	34	12	20	20	4.2	e.10
16	.04	.97	2.3	13	50	19	376	11	17	17	3.3	e.11
17	e.04	.77	2.1	12	53	18	104	9.0	14	13	2.6	e.14
18	e.03	.60	1.9	11	55	25	58	8.2	11	10	2.1	e.11
19	e.03	.52	1.7	11	37	27	56	7.5	17	8.2	1.7	e.10
20	e.03	.45	1.7	9.9	29	293	46	11	13	8.4	1.5	e.17
21	e.02	.75	1.6	9.5	24	111	39	8.0	13	7.7	1.2	e.13
22	e.02	3.0	10	9.7	21	61	36	36	53	6.1	1.0	e.12
23	e.01	1.7	7.6	15	19	45	32	251	84	5.8	.88	e.11
24	e.03	1.1	41	13	17	37	29	54	33	5.3	.80	e.10
25	e.10	1.0	34	12	15	35	26	32	22	4.8	.67	e.18
26	e.30	.75	16	11	15	31	24	24	17	4.4	.71	e.14
27	e.45	.64	11	10	16	27	33	22	13	3.9	.58	e.12
28	e.35	.55	7.7	9.9	14	24	25	18	11	3.4	.49	e.11
29	e.25	.55	6.4	9.4	---	22	42	15	36	3.1	.93	e.10
30	e.18	35	5.6	9.0	---	20	189	13	124	8.3	.62	e.10
31	e.15	---	e4.4	8.4	---	20	---	51	---	16	.49	---
TOTAL	2.24	61.82	252.8	661.8	956.8	1483	1485	1197.7	765.2	360.7	313.07	4.55
MEAN	.072	2.06	8.15	21.3	34.2	47.8	49.5	38.6	25.5	11.6	10.1	.15
MAX	.45	35	41	164	213	293	376	251	124	34	105	.39
MIN	.00	.24	1.6	3.5	7.6	10	17	7.5	9.3	3.1	.49	.10
CFSM	.00	.13	.51	1.33	2.12	2.97	3.07	2.40	1.58	.72	.63	.01
IN.	.01	.14	.58	1.53	2.21	3.43	3.43	2.77	1.77	.83	.72	.01

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1998, BY WATER YEAR (WY)

	MEAN	MAX	(WY)	MIN	(WY)
1969	4.32	42.2	1978	.000	1988
1970	14.6	70.6	1980	.25	1992
1971	30.1	103	1991	1.80	1981
1972	31.7	64.3	1969	.46	1977
1973	38.9	111	1990	2.91	1992
1974	48.7	185	1997	10.9	1976
1975	43.8	120	1970	7.78	1976
1976	28.9	116	1983	1.48	1988
1977	16.3	93.6	1997	.002	1988
1978	8.24	50.7	1979	.088	1991
1979	5.57	30.5	1978	.15	1987
1980	4.15	62.1	1979	.000	1987

SUMMARY STATISTICS FOR 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1969 - 1998

	12034.44	7544.68	22.9
ANNUAL TOTAL	12034.44	7544.68	22.9
ANNUAL MEAN	33.0	20.7	45.0
HIGHEST ANNUAL MEAN			8.23
LOWEST ANNUAL MEAN			2530
HIGHEST DAILY MEAN	2530	Mar 1	Mar 1 1997
LOWEST DAILY MEAN	.00	Aug 7	.00 Oct 10
ANNUAL SEVEN-DAY MINIMUM	.00	Sep 17	.00 Oct 7
INSTANTANEOUS PEAK FLOW			.00 Sep 24 1969
INSTANTANEOUS PEAK STAGE			6110 Mar 1 1997
ANNUAL RUNOFF (CFSM)	2.05	5.85	9.79
ANNUAL RUNOFF (INCHES)	27.81	17.43	1.42
10 PERCENT EXCEEDS	55	41	19.30
50 PERCENT EXCEEDS	6.4	10	45
90 PERCENT EXCEEDS	.07	.11	6.4
			.26

e Estimated

## 03302680 WEST FORK BLUE RIVER AT SALEM, IN

LOCATION.--Lat 38°36'19", long 86°05'40", in SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.17, T.2 N., R.4 E., Washington County, Hydrologic Unit 05140104, on left bank at downstream side of bridge on East Market Street, 0.35 mi east of County Court House in Salem, 6.0 mi upstream from Hoggatt Branch, and 6.9 mi upstream from mouth.

DRAINAGE AREA.--19.0 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1970 to current year. Prior to December 10, 1970, nonrecording gage at site 0.55 mi downstream at datum 5.04 ft lower.

REVISED RECORDS.--WDR IN-96-1: 1983(P), 1988(P), 1990(P), 1995(P).

GAGE.--Water-stage recorder. Datum of gage is 713.00 ft above sea level.

REMARKS.--Records fair except for discharges below 1.00 ft<sup>3</sup>/s and estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.12	e1.2	17	e3.1	3.6	13	30	110	14	21	1.6	e.27
2	e.07	e2.0	5.8	e3.4	3.6	12	20	61	12	15	1.1	e.24
3	e.06	e3.0	5.3	3.7	3.3	11	18	40	10	12	1.1	e.22
4	e.04	2.4	7.3	3.4	3.4	11	29	29	9.3	12	1.1	e.20
5	e.03	e2.1	4.9	5.8	e3.5	11	23	23	9.9	9.4	1.1	e.18
6	e.03	e1.9	3.6	12	e3.8	9.9	21	19	8.2	7.9	6.1	e.17
7	e.02	e2.0	e2.8	60	e4.1	9.5	19	29	7.3	33	77	e.15
8	e.01	e1.7	e2.2	77	e4.6	22	20	26	7.4	32	19	e.14
9	e.02	e1.3	e2.0	39	6.1	145	23	20	71	17	23	e.13
10	e.02	e1.1	12	24	9.5	61	23	18	36	12	12	e.12
11	e.02	e.86	9.2	17	186	42	20	15	25	9.3	6.7	e.12
12	e.02	e.70	5.9	15	159	33	18	13	20	7.9	4.2	e.11
13	e.06	e2.0	4.5	12	84	e26	17	11	29	6.8	3.0	e.10
14	e.60	e5.0	3.7	10	55	e22	17	9.1	20	6.5	2.3	e.09
15	e.48	e3.0	3.1	9.5	41	e19	36	7.9	18	7.4	1.5	e.08
16	e.36	e1.6	2.6	8.3	38	17	378	7.0	16	6.5	e1.2	e.08
17	e.23	e1.1	2.4	7.7	38	17	114	5.8	12	5.0	e.88	e.08
18	e.16	e.80	2.0	6.7	41	18	67	5.0	10	4.4	e.76	e.07
19	e.12	e.64	1.9	6.2	35	22	52	4.8	28	3.7	e.90	e.06
20	e.09	e.52	1.7	5.4	33	143	39	7.2	17	5.1	e.70	e.06
21	e.07	e.45	1.6	4.9	29	102	40	5.0	14	5.1	e.60	e.05
22	e.05	e1.2	4.4	5.0	25	62	41	7.3	53	3.5	e.54	e.13
23	e.04	e.97	4.7	6.4	24	45	37	305	71	2.9	e.50	e.08
24	e.62	e.72	11	5.7	21	35	32	87	38	2.7	e.48	e.06
25	e.47	e.54	23	5.6	18	29	27	53	26	2.4	e.40	e.07
26	e.40	e.40	13	5.3	16	26	25	39	19	1.8	e.37	e.05
27	e.50	e.32	9.7	5.3	16	22	26	31	15	1.7	e.33	e.03
28	e.40	e.25	7.6	4.9	14	21	21	24	12	1.9	e.31	e.03
29	e.26	e.20	6.0	4.9	---	18	42	20	24	1.7	e.32	e.03
30	e.20	16	e5.0	4.8	---	16	373	16	50	2.2	e.32	e.02
31	e.50	---	e3.8	4.1	---	18	---	15	---	2.5	e.30	---
TOTAL	6.07	55.97	189.7	386.1	918.5	1058.4	1648	1063.1	702.1	262.3	169.71	3.22
MEAN	.20	1.87	6.12	12.5	32.8	34.1	54.9	34.3	23.4	8.46	5.47	.11
MAX	.62	16	23	77	186	145	378	305	71	33	77	.27
MIN	.01	.20	1.6	3.1	3.3	9.5	17	4.8	7.3	1.7	.30	.02
CFSM	.01	.10	.32	.66	1.73	1.80	2.89	1.80	1.23	.45	.29	.01
IN.	.01	.11	.37	.76	1.80	2.07	3.23	2.08	1.37	.51	.33	.01

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 1998, BY WATER YEAR (WY)

	MEAN	7.02	23.1	32.5	32.7	38.9	45.5	46.4	32.2	15.3	13.2	7.60	6.53
MAX	45.7	89.9	98.2	103	106	104	164	140	80.3	65.7	30.5	40.0	
(WY)	1984	1986	1991	1982	1989	1989	1996	1983	1997	1988	1985	1982	
MIN	.14	.74	2.33	.97	5.41	9.65	4.21	1.91	.088	.29	.13	.10	
(WY)	1988	1972	1977	1977	1992	1976	1976	1988	1988	1991	1987	1995	

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

## WATER YEARS 1970 - 1998

ANNUAL TOTAL	9417.61	6463.17	25.1
ANNUAL MEAN	25.8	17.7	43.1
HIGHEST ANNUAL MEAN			10.7
LOWEST ANNUAL MEAN			10.7
HIGHEST DAILY MEAN	498	May 31	2130
LOWEST DAILY MEAN	.01	Oct 8	.01
ANNUAL SEVEN-DAY MINIMUM	.02	Oct 6	.02
INSTANTANEOUS PEAK FLOW			1410
INSTANTANEOUS PEAK STAGE			7.81
ANNUAL RUNOFF (CFSM)	1.36	.93	15.58
ANNUAL RUNOFF (INCHES)	18.44	12.65	1.32
10 PERCENT EXCEEDS	55	39	17.93
50 PERCENT EXCEEDS	8.7	6.2	54
90 PERCENT EXCEEDS	.17	.12	7.4
			.44

e Estimated



## BLUE RIVER BASIN

03302800 BLUE RIVER AT FREDERICKSBURG, IN

LOCATION.--Lat 38°26'02", long 86°11'31", in NE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.16, T.1 S., R.3 E., Washington County, Hydrologic Unit 05140104, on downstream side of bridge on U.S. Highway 150 at Fredericksburg, 0.5 mi downstream from South Fork Blue River, and at mile 57.1.

DRAINAGE AREA.--283 mi<sup>2</sup>, of which 76.9 mi<sup>2</sup> does not contribute directly to surface runoff.

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

GAGE.--Water-stage recorder. Datum of gage is 590.00 ft above sea level.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 21, 1959, reached a stage of 29.20 ft, from floodmark, on left upstream wingwall.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.8	e20	416	61	67	165	381	2360	173	329	40	15
2	5.7	e15	160	55	64	151	343	1150	146	197	30	15
3	e4.3	e11	85	53	61	144	266	786	123	146	27	14
4	e3.4	e9.0	84	51	60	136	285	589	107	122	27	13
5	e2.8	e8.0	81	52	72	135	304	459	105	108	26	13
6	e2.4	e6.8	61	115	77	128	260	371	102	92	27	13
7	e2.2	e6.2	48	336	82	124	235	663	88	99	520	12
8	e2.1	e5.8	38	1390	87	133	241	841	79	490	560	12
9	e3.0	e5.4	35	801	89	1860	300	582	308	219	411	9.4
10	e2.5	e5.0	75	459	114	998	320	469	411	140	272	9.0
11	e2.4	e4.9	133	331	823	589	289	386	227	108	161	9.2
12	e2.3	e4.7	95	268	2840	426	243	308	190	87	112	9.5
13	e2.2	e7.0	75	220	1340	363	218	254	421	76	85	9.3
14	e2.5	e30	61	180	847	319	210	212	293	73	70	8.6
15	e3.6	e25	52	161	602	256	531	181	278	79	60	8.3
16	e3.3	e19	46	149	522	218	4790	160	259	85	52	8.2
17	e3.1	e16	41	132	613	201	2350	134	204	74	46	8.2
18	e3.0	e14	37	117	803	206	1090	117	159	62	41	8.3
19	e2.9	13	33	106	631	280	800	107	163	53	38	8.3
20	e2.9	12	30	99	498	1310	610	114	202	47	36	8.2
21	e2.8	12	27	91	407	2330	521	121	150	46	34	7.8
22	e2.8	13	32	88	346	1030	641	141	197	48	30	8.5
23	e3.0	14	49	90	315	698	527	3620	1430	42	30	8.5
24	e8.0	15	71	100	272	519	437	2370	705	38	28	10
25	e5.6	12	347	98	226	404	364	900	409	34	26	9.5
26	e4.5	11	250	94	210	353	319	600	287	33	23	10
27	e4.0	9.8	155	84	208	300	339	447	215	31	19	7.4
28	e3.7	8.6	117	81	188	268	285	357	161	30	18	7.6
29	e3.5	7.2	95	79	---	234	294	287	134	29	21	7.3
30	e3.5	39	85	78	---	206	4760	235	683	33	19	6.9
31	e4.0	---	73	73	---	193	---	190	---	51	17	---
TOTAL	106.8	379.4	2987	6092	12464	14677	22553	19511	8409	3101	2906	295.0
MEAN	3.45	12.6	96.4	197	445	473	752	629	280	100	93.7	9.83
MAX	8.0	39	416	1390	2840	2330	4790	3620	1430	490	560	15
MIN	2.1	4.7	27	51	60	124	210	107	79	29	17	6.9
CFSM	.01	.04	.34	.69	1.57	1.67	2.66	2.22	.99	.35	.33	.03
IN.	.01	.05	.39	.80	1.64	1.93	2.96	2.56	1.11	.41	.38	.04

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1998, BY WATER YEAR (WY)

	MEAN	62.0	247	413	458	530	631	618	450	261	147	94.7	68.2
MAX	305	1135	1166	1341	1236	1372	1957	1808	1188	588	463	299	
(WY)	1984	1980	1991	1982	1990	1997	1996	1983	1997	1973	1977	1996	
MIN	3.45	12.5	29.4	11.6	56.1	142	86.8	35.2	8.36	13.1	14.5	8.38	
(WY)	1998	1988	1977	1977	1992	1969	1976	1988	1988	1991	1994	1987	

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

## WATER YEARS 1969 - 1998

ANNUAL TOTAL	143849.6	93481.2	
ANNUAL MEAN	394	256	331
HIGHEST ANNUAL MEAN			551
LOWEST ANNUAL MEAN			129
HIGHEST DAILY MEAN	8110	4790	22000
LOWEST DAILY MEAN	2.1	2.1	2.1
ANNUAL SEVEN-DAY MINIMUM	2.4	2.4	2.4
INSTANTANEOUS PEAK FLOW		6990	39000
INSTANTANEOUS PEAK STAGE		18.28	27.15
ANNUAL RUNOFF (CFSM)	1.39	.90	1.17
ANNUAL RUNOFF (INCHES)	18.91	12.29	15.87
10 PERCENT EXCEEDS	960	589	757
50 PERCENT EXCEEDS	131	92	117
90 PERCENT EXCEEDS	5.0	6.6	15

e Estimated

03302849 WHISKEY RUN AT MARENGO, IN

LOCATION.--Lat 38°22'32", long 86°20'41", in SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.6, T.2 S., R.2 E., Crawford County, Hydrologic Unit 05140104, on left (north) bank about 100 ft upstream from bridge and intersection of North Main Street and North Water Street in Marengo, known as Old Town.

DRAINAGE AREA.--7.02 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1986 to September 1993 (discharge), October 1993 to current year (gage height only).

GAGE.--Water-stage recorder. Datum of gage is 561.45 ft above sea level.

REMARKS.--Stage affected by inflow from small cave 50 ft below gage.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 26, 1979 reached a stage of 15.89 ft. Stage determined from levels to high-water mark in Old Town grocery store just downstream and across bridge from gage. Reports from local residents indicate this event as highest known flood.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 12.39 ft June 7, 1990; minimum gage height, undetermined below 0.80 ft.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 5.66 ft, July 7; minimum gage height, undetermined below 0.82 ft.

CORRECTIONS.--The date of the maximum gage height for the water-year 1997 is March 1; the previously published date was erroneously published.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	1.49	1.37	1.32	1.41	1.87	2.16	1.66	1.68	1.52	1.24
2	---	---	1.41	1.37	1.32	1.40	1.71	1.98	1.65	1.57	1.53	1.22
3	---	---	1.43	1.38	1.32	1.39	1.68	1.95	1.63	1.47	1.52	1.21
4	---	---	1.41	1.38	1.36	1.40	1.64	1.83	1.64	1.44	1.51	1.11
5	---	---	1.39	1.45	1.38	1.40	1.59	1.71	1.65	1.40	1.48	1.03
6	---	---	1.37	1.67	1.37	1.39	1.56	1.65	1.63	1.37	1.59	.97
7	---	---	1.36	2.40	1.37	1.40	1.53	2.41	1.60	3.05	2.46	.90
8	---	---	1.36	1.94	1.38	1.83	1.56	2.03	1.62	2.05	2.13	.83
9	---	---	1.44	1.72	1.48	1.94	1.61	1.85	1.84	1.79	2.05	---
10	---	---	1.55	1.60	1.66	1.75	1.58	1.74	1.70	1.64	1.75	---
11	---	---	1.47	1.54	2.84	1.65	1.54	1.63	1.66	1.53	1.90	---
12	---	---	1.43	1.50	2.17	1.60	1.51	1.56	1.73	1.46	1.65	---
13	---	---	1.40	1.45	1.87	1.57	1.51	1.49	1.72	1.48	1.52	---
14	---	1.26	1.39	1.43	1.71	1.51	1.49	1.43	1.76	1.44	1.43	---
15	---	1.08	1.37	1.41	1.62	1.48	2.38	1.40	1.75	1.73	1.38	---
16	---	.92	1.37	1.39	1.80	1.46	2.49	1.36	1.71	1.58	1.33	---
17	---	---	1.36	1.37	2.31	1.47	2.01	1.33	1.64	1.48	1.30	---
18	---	---	1.36	1.36	1.97	1.50	1.84	1.31	1.67	1.42	1.29	---
19	---	---	1.35	1.36	1.81	1.55	1.77	1.35	1.68	1.37	1.27	---
20	---	---	1.35	1.35	1.72	2.98	1.68	1.31	1.66	1.34	1.26	---
21	---	---	1.37	1.34	1.63	2.10	1.96	1.29	1.90	1.30	1.25	---
22	---	---	1.45	1.35	1.59	1.86	1.81	1.69	2.04	1.38	1.24	---
23	---	---	1.41	1.35	1.53	1.73	1.72	1.83	1.96	1.41	1.23	---
24	---	---	1.82	1.34	1.49	1.64	1.63	1.64	1.81	1.43	1.21	---
25	---	---	1.58	1.34	1.46	1.67	1.59	1.55	1.75	1.44	1.21	---
26	---	---	1.48	1.33	1.45	1.62	1.65	2.03	1.72	1.45	1.20	---
27	---	---	1.44	1.33	1.44	1.58	1.70	1.96	1.71	1.46	1.19	---
28	---	---	1.41	1.33	1.42	1.54	1.66	2.07	1.68	1.44	1.20	---
29	---	---	1.40	1.33	---	1.50	4.80	2.01	2.68	1.43	1.19	---
30	---	---	1.39	1.33	---	1.48	2.63	2.19	1.87	1.76	1.26	---
31	---	---	1.37	1.32	---	2.44	---	2.38	---	1.61	1.23	---
MEAN	---	---	1.43	1.46	1.64	1.65	1.86	1.75	1.76	1.56	1.46	---
MAX	---	---	1.82	2.40	2.84	2.98	4.80	2.41	2.68	3.05	2.46	---
MIN	---	---	1.35	1.32	1.32	1.39	1.49	1.29	1.60	1.30	1.19	---

## BLUE RIVER BASIN

03303000 BLUE RIVER NEAR WHITE CLOUD, IN

LOCATION.--Lat 38°14'15", long 86°13'42", in NW<sup>1</sup>/<sub>4</sub> SE<sup>1</sup>/<sub>4</sub> sec.19, T.3 S., R.3 E., Harrison County, Hydrologic Unit 05140104, on left bank 400 ft downstream from Spring Creek, 600 ft upstream from bridge on Interstate 64, 0.2 mi upstream from bridge on State Highway 62, 0.8 mi north of White Cloud, and at mile 14.7.

DRAINAGE AREA.--476 mi<sup>2</sup>, of which 192 mi<sup>2</sup> does not contribute directly to surface runoff. Also, part of flow from Indian Creek, downstream from Corydon, IN, enters Blue River via solution channel in Karst area through Harrison Spring.

PERIOD OF RECORD.--April 1931 to current year. Monthly figures only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 1335: 1921-32, 1933(M), 1935-38(M), 1944. WSP 1385: Drainage area. WSP 1555: 1953. WDR IN-75-1: 1973.

GAGE.--Water-stage recorder. Datum of gage is 434.26 ft above sea level, (levels by State of Indiana, Department of Natural Resources). Prior to Nov. 16, 1938, nonrecording gage at same site and datum.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	e35	566	217	210	444	768	7020	557	1150	234	67
2	27	e38	615	195	198	411	893	2850	457	658	193	65
3	e26	e50	338	178	188	389	711	2140	401	496	153	63
4	e24	66	290	171	183	373	640	1580	367	438	129	61
5	e22	86	237	167	198	358	638	1230	341	396	117	59
6	e21	65	221	228	216	348	608	1000	321	337	148	54
7	e20	60	191	548	218	338	560	1580	304	1080	638	54
8	e22	54	163	2120	227	346	531	2110	284	1650	1610	50
9	25	46	140	1880	259	1250	575	1500	337	982	1330	46
10	22	40	225	1080	307	2310	671	1180	743	607	1150	45
11	e21	36	279	771	979	1190	622	996	683	461	798	44
12	e19	34	305	631	4560	890	561	847	521	380	520	41
13	e19	36	255	544	2940	743	512	723	744	329	384	40
14	e23	70	215	469	1690	677	491	632	790	301	316	40
15	41	66	189	419	1210	608	637	557	609	417	272	37
16	38	94	166	388	1010	529	6430	501	559	422	241	38
17	33	107	144	363	1120	488	6950	454	503	337	208	38
18	31	79	129	331	1510	478	2570	408	433	296	180	39
19	e28	64	118	306	1400	497	1680	376	386	263	159	38
20	e27	57	107	285	1110	1750	1320	373	361	240	143	45
21	e27	56	98	271	938	5220	1140	358	553	221	131	40
22	e26	64	122	259	799	2440	1330	376	572	204	122	48
23	e26	60	157	256	722	1550	1200	2650	1850	193	113	47
24	e29	54	221	250	657	1160	1020	5860	1880	176	103	48
25	e34	51	567	257	580	949	881	1970	991	158	98	43
26	e38	55	706	252	519	834	772	1260	730	144	93	41
27	44	54	488	247	502	739	818	962	592	135	83	39
28	e39	50	369	236	480	665	804	793	496	128	78	38
29	e35	46	308	228	---	606	770	678	443	121	79	35
30	e33	173	271	223	---	546	6480	588	1130	182	79	34
31	e32	---	243	217	---	512	---	550	---	328	74	---
TOTAL	875	1846	8443	13987	24930	29638	43583	44102	18938	13230	9976	1377
MEAN	28.2	61.5	272	451	890	956	1453	1423	631	427	322	45.9
MAX	44	173	706	2120	4560	5220	6950	7020	1880	1650	1610	67
MIN	19	34	98	167	183	338	491	358	284	121	74	34
CFSM	.06	.13	.57	.95	1.87	2.01	3.05	2.99	1.33	.90	.68	.10
IN.	.07	.14	.66	1.09	1.95	2.32	3.41	3.45	1.48	1.03	.78	.11

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1932 - 1998, BY WATER YEAR (WY)

MEAN	128	373	666	1053	1126	1401	1181	878	511	289	181	138
MAX	515	2057	2417	6290	3404	4299	3243	4020	2785	1655	801	551
(WY)	1956	1980	1958	1937	1950	1945	1996	1983	1997	1979	1977	1996
MIN	14.3	20.0	17.6	40.3	78.0	70.8	263	91.2	41.0	44.8	29.8	18.8
(WY)	1965	1964	1964	1977	1934	1941	1934	1936	1936	1954	1964	1953

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1932 - 1998
ANNUAL TOTAL	340088	210925	
ANNUAL MEAN	932	578	658
HIGHEST ANNUAL MEAN			1199
LOWEST ANNUAL MEAN			140
HIGHEST DAILY MEAN	17500	7020	27300
LOWEST DAILY MEAN	19	19	9.6
ANNUAL SEVEN-DAY MINIMUM	21	21	11
INSTANTANEOUS PEAK FLOW		10000	29400
INSTANTANEOUS PEAK STAGE		12.64	23.30
ANNUAL RUNOFF (CFSM)	1.96	1.21	1.38
ANNUAL RUNOFF (INCHES)	26.58	16.48	18.79
10 PERCENT EXCEEDS	2320	1240	1480
50 PERCENT EXCEEDS	407	308	258
90 PERCENT EXCEEDS	34	38	37

e Estimated

## 03303300 MIDDLE FORK ANDERSON RIVER AT BRISTOW, IN

LOCATION.--Lat 38°08'19", long 86°43'16", in NW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.27, T.4 S., R.3 W., Perry County, Hydrologic Unit 05140201, on left bank at downstream side of bridge on State Highway 145 at Bristow, 2.0 mi downstream from Coon Branch, 5.8 mi upstream from Sulphur Fork Creek, and at mile 14.1.

DRAINAGE AREA.--39.8 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1961 to current year.

REVISED RECORDS.--WDR IN-72-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 395.00 ft above sea level.

REMARKS.--Records good except for daily discharges below 1 ft<sup>3</sup>/s and estimated daily discharges, which are poor. Flow regulated by Forest Service and Middle Fork Anderson River Conservancy District control structures beginning June 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 21, 1959, reached a stage of 20.0 ft, from floodmark, discharge 15,000 ft<sup>3</sup>/s, from rating curve extended above 7,000 ft<sup>3</sup>/s. This is the maximum flood since 1905, from information by local resident.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.20	.10	86	e8.0	4.3	19	96	418	3.0	8.5	7.5	1.2
2	.18	.18	44	8.1	3.8	16	84	354	3.7	5.6	5.3	.93
3	.18	.22	31	7.4	3.4	15	70	346	3.3	3.9	3.2	.82
4	.14	.18	36	6.6	3.2	14	60	331	6.8	3.1	2.3	.74
5	.06	.18	24	10	3.5	12	51	221	29	2.5	1.8	.72
6	.00	.59	17	22	4.3	11	43	148	9.9	1.9	3.2	.65
7	.00	.67	15	95	5.2	11	38	253	5.9	157	93	.59
8	.00	.57	12	233	8.2	14	36	232	4.5	329	173	.70
9	.00	.45	9.7	149	14	53	60	177	4.9	247	400	.73
10	.00	.39	50	97	45	66	57	138	12	132	336	.64
11	.00	.25	40	66	173	56	52	99	28	65	217	.69
12	.00	.18	26	48	268	48	46	70	17	34	137	.59
13	.03	.58	18	35	183	41	41	48	105	25	88	.47
14	.18	1.3	13	26	119	36	44	31	94	16	65	.35
15	.18	2.1	11	20	83	30	108	19	82	288	56	.17
16	.16	2.3	9.8	16	78	26	691	12	62	202	48	.05
17	.07	2.0	8.7	13	95	26	471	9.1	46	118	36	.05
18	.00	1.8	7.3	10	130	26	427	6.8	36	77	27	.04
19	.00	e1.3	5.5	9.2	125	26	372	5.4	29	56	21	.03
20	.00	e1.1	3.3	8.0	103	153	242	4.4	16	47	16	.00
21	.00	e1.0	2.4	7.5	87	323	148	4.7	11	33	13	.00
22	.00	e1.3	5.0	7.3	70	220	126	8.6	8.9	18	9.8	.00
23	.00	1.6	7.1	7.9	57	148	106	11	8.2	13	7.2	.00
24	.00	e1.3	26	7.5	46	104	88	11	6.2	9.1	5.5	.00
25	.00	e1.0	46	7.1	37	80	75	9.5	4.5	5.8	4.3	1.2
26	.00	e.80	35	6.7	30	63	65	8.1	3.3	4.1	3.7	.59
27	.00	e.62	26	6.5	27	52	56	7.5	2.6	3.2	2.9	.26
28	.00	e.52	18	6.0	22	43	48	6.1	1.9	2.6	2.5	.09
29	.00	e.42	14	5.8	---	36	87	4.7	2.2	2.1	2.6	.01
30	.00	47	11	5.2	---	30	435	3.6	12	19	1.9	.00
31	.00	---	9.2	4.7	---	32	---	3.0	---	14	1.3	---
TOTAL	1.38	72.00	667.0	959.5	1827.9	1830	4323	3000.5	658.8	1942.4	1791.0	12.31
MEAN	.045	2.40	21.5	31.0	65.3	59.0	144	96.8	22.0	62.7	57.8	.41
MAX	.20	47	86	233	268	323	691	418	105	329	400	1.2
MIN	.00	.10	2.4	4.7	3.2	11	36	3.0	1.9	1.9	1.3	.00
CFSM	.00	.06	.54	.78	1.64	1.48	3.62	2.43	.55	1.57	1.45	.01
IN.	.00	.07	.62	.90	1.71	1.71	4.04	2.80	.62	1.82	1.67	.01

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1998, BY WATER YEAR (WY)

	MEAN	9.04	38.9	73.9	78.7	95.4	126	114	77.1	32.9	17.5	12.2	10.7
MAX	63.7	194	210	223	245	393	312	405	190	141	162	78.8	
(WY)	1978	1980	1991	1982	1989	1964	1972	1983	1979	1979	1979	1982	
MIN	.000	.000	.000	2.78	5.66	33.4	19.6	6.36	.82	.38	.013	.000	
(WY)	1965	1964	1964	1964	1992	1990	1963	1988	1988	1968	1965	1964	

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

## WATER YEARS 1962 - 1998

ANNUAL TOTAL	24961.44	17085.79	57.0
ANNUAL MEAN	68.4	46.8	122
HIGHEST ANNUAL MEAN			15.2
LOWEST ANNUAL MEAN			1979
HIGHEST DAILY MEAN	928	691	4870
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
INSTANTANEOUS PEAK FLOW		964	6360
INSTANTANEOUS PEAK STAGE		14.45	19.33
ANNUAL RUNOFF (CFSM)	1.72	1.18	1.43
ANNUAL RUNOFF (INCHES)	23.33	15.97	19.45
10 PERCENT EXCEEDS	200	134	145
50 PERCENT EXCEEDS	20	10	15
90 PERCENT EXCEEDS	.13	.10	.18

e Estimated

03303400 CROOKED CREEK NEAR SANTA CLAUS, IN

LOCATION.--Lat 38°07'05", long 86°53'24", in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.31, T.4 S., R.4 W., Spencer County, Hydrologic Unit 05140201, on right bank at upstream side of bridge on county road, 1.3 mi east of Santa Claus Post Office, and 1.8 mi upstream from unnamed right-bank tributary.

DRAINAGE AREA.--7.86 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is 403.00 ft above sea level. Prior to Sept. 30, 1995 datum of gage was 404.34 ft above sea level.

REMARKS.--Records good except for daily discharges below 1 ft<sup>3</sup>/s, and estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.03	16	e1.9	1.7	2.0	16	49	3.4	1.0	4.5	e.56
2	.00	.83	3.7	2.1	1.6	1.9	4.6	29	3.4	.91	1.7	e.45
3	.00	.91	6.4	2.4	1.6	1.9	3.7	75	2.9	.86	2.0	e.35
4	.00	e.50	5.5	2.0	1.6	1.8	3.8	43	12	.90	1.3	e.28
5	.00	e.20	3.1	19	2.2	1.6	2.8	18	37	.75	.98	e.22
6	.00	1.1	2.3	16	2.9	1.5	2.4	11	11	.64	11	.18
7	.00	.88	2.0	90	4.0	1.5	2.2	99	5.2	54	35	.35
8	.00	.61	1.9	62	7.3	3.5	6.4	27	4.3	19	25	.20
9	.23	e.48	7.4	19	11	17	16	15	5.1	3.4	149	.00
10	.19	e.29	40	9.3	33	5.7	5.1	9.7	23	1.9	40	.00
11	.09	e.18	6.6	5.9	119	3.4	3.1	6.8	17	1.3	13	.00
12	.02	e.10	3.7	4.7	45	2.9	2.5	5.3	52	1.0	5.8	.00
13	.07	2.4	3.0	3.5	16	2.6	2.4	4.3	98	1.3	3.4	.00
14	.34	1.9	2.5	3.0	8.5	2.3	5.8	3.6	28	1.0	2.6	.00
15	.15	.69	2.2	2.9	5.6	1.9	40	3.2	12	298	2.0	.00
16	.09	.55	2.0	2.6	20	1.9	524	3.1	18	32	1.6	.00
17	.04	.43	1.9	2.4	25	2.6	41	3.3	6.6	8.0	e1.2	.00
18	.00	.33	1.7	2.3	27	2.6	20	2.3	3.8	3.4	e.90	.00
19	.00	.33	1.6	2.3	14	2.4	14	2.5	5.0	2.3	e.70	.00
20	.00	.45	1.6	2.1	11	101	8.7	8.1	2.6	1.8	e.52	.00
21	.00	.53	1.6	2.1	8.4	49	11	3.9	3.1	1.4	e.36	.00
22	.00	.67	3.2	2.3	6.0	15	11	62	1.9	1.2	e.52	.00
23	.00	e.50	2.3	3.8	4.5	8.0	7.4	25	10	1.1	1.1	.00
24	.00	e.38	37	2.8	3.3	5.0	5.4	16	2.4	.89	e.60	.00
25	.00	e.28	14	2.4	2.8	4.0	5.0	8.1	1.7	.71	e.33	.43
26	.00	e.20	5.6	2.2	2.5	3.3	4.7	14	1.3	.66	e.17	.31
27	.00	e.15	3.9	2.1	2.6	2.8	3.9	14	1.4	.66	e.09	.03
28	.00	e.11	3.2	2.0	2.2	2.4	3.5	6.7	1.3	1.2	e.25	.00
29	.00	e.08	3.4	2.0	---	2.1	46	4.7	1.1	.46	1.0	.00
30	.00	65	2.5	1.9	---	1.9	180	4.2	2.8	236	e.40	.00
31	.00	---	e1.9	1.8	---	11	---	4.0	---	21	.73	---
TOTAL	1.22	81.09	193.7	280.8	390.3	266.5	1002.4	580.8	377.3	698.74	307.75	3.36
MEAN	.039	2.70	6.25	9.06	13.9	8.60	33.4	18.7	12.6	22.5	9.93	.11
MAX	.34	65	40	90	119	101	524	99	98	298	149	.56
MIN	.00	.03	1.6	1.8	1.6	1.5	2.2	2.3	1.1	.46	.09	.00
CFSM	.01	.34	.79	1.15	1.77	1.09	4.25	2.38	1.60	2.87	1.26	.01
IN.	.01	.38	.92	1.33	1.85	1.26	4.74	2.75	1.79	3.31	1.46	.02

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 1998, BY WATER YEAR (WY)

	MEAN	2.41	9.86	15.0	14.1	20.2	22.2	21.6	12.3	7.06	5.18	2.63	2.54
MAX	10.3	33.5	49.1	43.7	51.7	63.1	65.7	62.0	37.5	47.5	19.4	16.7	
(WY)	1994	1994	1991	1982	1989	1997	1996	1995	1997	1979	1977	1996	
MIN	.000	.28	.51	.058	1.12	5.35	2.27	.17	.000	.001	.000	.000	
(WY)	1988	1992	1977	1977	1992	1990	1976	1988	1988	1974	1983	1970	

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1970 - 1998

ANNUAL TOTAL	5371.91	4183.96	
ANNUAL MEAN	14.7	11.5	11.2
HIGHEST ANNUAL MEAN			17.5
LOWEST ANNUAL MEAN			3.97
HIGHEST DAILY MEAN	574	524	1200
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
INSTANTANEOUS PEAK FLOW		2170	4100
INSTANTANEOUS PEAK STAGE		10.80	10.13
ANNUAL RUNOFF (CFSM)	1.87	1.46	1.43
ANNUAL RUNOFF (INCHES)	25.42	19.80	19.37
10 PERCENT EXCEEDS	30	25	22
50 PERCENT EXCEEDS	2.3	2.3	1.8
90 PERCENT EXCEEDS	.00	.00	.00

e Estimated



03322011 PIGEON CREEK NEAR FORT BRANCH, IN

LOCATION.--Lat 38°15'08", long 87°31'11", in NW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.15, T.3 S., R.10 W., Gibson County, Hydrologic Unit 05140202, on right bank 20 ft downstream from bridge on State Highway 168, 1.1 mi upstream from West Fork Pigeon Creek and 2.6 mi east of intersection of U.S. Highway 41 at Fort Branch.

DRAINAGE AREA.--35.4 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1986 to current year.

GAGE.--Water-stage recorder. Datum of gage is 400.00 ft above sea level.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.72	3.6	62	e3.0	6.9	12	57	186	7.2	8.2	7.4	2.5
2	e.71	3.0	8.0	e3.5	6.4	12	20	58	6.5	7.2	6.1	2.6
3	e.70	2.4	7.9	4.2	5.9	12	18	210	5.9	6.5	5.7	2.5
4	e.70	2.1	8.6	3.8	6.2	11	17	287	78	6.4	6.3	2.5
5	.72	1.8	5.4	13	e6.8	11	15	56	90	5.8	5.3	2.5
6	.83	3.3	4.2	52	e7.6	10	14	37	18	5.5	5.0	2.6
7	1.1	3.3	3.7	121	e8.6	10	13	1540	12	1010	793	2.4
8	1.3	2.4	3.6	159	e10	14	24	249	11	198	226	2.1
9	1.6	2.1	4.4	44	e12	32	16	71	11	24	28	1.9
10	1.9	1.8	39	23	58	17	15	47	9.6	15	17	1.8
11	1.4	1.4	8.7	16	417	14	13	32	8.8	11	12	1.8
12	1.3	1.3	5.8	14	132	e13	12	26	35	9.0	9.7	1.6
13	1.9	2.0	4.7	12	50	e12	12	21	105	361	8.3	1.6
14	3.2	5.2	4.0	e9.6	32	e11	13	17	42	375	7.4	1.5
15	1.8	2.9	3.6	e9.4	24	11	128	15	20	28	6.6	1.4
16	1.4	2.5	3.2	e9.2	85	11	1290	14	15	27	5.9	1.6
17	.96	2.1	2.8	9.0	112	17	109	12	11	25	5.4	2.1
18	.89	1.9	2.4	8.6	89	40	40	11	9.4	13	5.0	1.9
19	.89	1.8	2.3	8.2	41	22	29	10	11	10	4.5	2.1
20	.87	1.8	2.2	7.2	47	156	22	14	8.7	8.4	4.1	1.6
21	.83	2.0	2.3	7.1	33	114	19	e40	21	7.3	3.9	3.1
22	.84	2.0	6.0	8.8	26	38	18	e180	8.7	6.5	3.8	1.6
23	.89	1.8	4.9	41	23	27	16	49	963	16	3.6	1.1
24	1.5	1.6	30	16	18	20	14	24	90	7.4	3.4	1.1
25	1.7	e1.6	20	13	16	18	13	18	18	6.4	3.2	9.6
26	1.8	e1.5	9.2	11	15	16	12	17	13	5.9	3.0	2.3
27	1.8	e1.5	6.9	9.9	15	15	10	15	9.9	5.8	2.7	1.1
28	1.1	e1.4	5.6	9.0	13	19	10	12	8.5	5.4	2.8	.86
29	1.0	e1.7	5.2	8.5	---	14	19	10	8.0	5.8	2.8	.77
30	1.2	102	e4.2	7.4	---	13	866	9.2	12	75	2.7	.78
31	1.5	---	e3.5	7.0	---	33	---	8.4	---	17	2.5	---
TOTAL	39.05	165.8	284.3	668.4	1316.4	775	2874	3295.6	1667.2	2312.5	1203.1	62.91
MEAN	1.26	5.53	9.17	21.6	47.0	25.0	95.8	106	55.6	74.6	38.8	2.10
MAX	3.2	102	62	159	417	156	1290	1540	963	1010	793	9.6
MIN	.70	1.3	2.2	3.0	5.9	10	10	8.4	5.9	5.4	2.5	.77
CFSM	.04	.16	.26	.61	1.33	.71	2.71	3.00	1.57	2.11	1.10	.06
IN.	.04	.17	.30	.70	1.38	.81	3.02	3.46	1.75	2.43	1.26	.07

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1998, BY WATER YEAR (WY)

	7.40	31.0	37.0	48.2	60.8	60.6	61.6	64.3	35.6	29.0	19.4	7.51
MEAN	7.40	31.0	37.0	48.2	60.8	60.6	61.6	64.3	35.6	29.0	19.4	7.51
MAX	38.8	161	176	98.4	170	164	191	203	140	74.6	75.5	20.5
(WY)	1991	1994	1991	1991	1989	1989	1996	1990	1996	1998	1989	1989
MIN	.55	1.86	5.88	6.97	4.66	12.4	14.6	2.21	1.38	1.92	1.29	1.06
(WY)	1992	1996	1996	1987	1992	1994	1991	1988	1988	1994	1991	1987

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1987 - 1998
ANNUAL TOTAL	17487.05	14664.26	
ANNUAL MEAN	47.9	40.2	38.4
HIGHEST ANNUAL MEAN			62.3
LOWEST ANNUAL MEAN			12.7
HIGHEST DAILY MEAN	1840	May 31	2120
LOWEST DAILY MEAN	.70	Oct 3	.28
ANNUAL SEVEN-DAY MINIMUM	.73	Sep 30	.39
INSTANTANEOUS PEAK FLOW		2690	3430
INSTANTANEOUS PEAK STAGE		15.97	17.17
ANNUAL RUNOFF (CFSM)	1.35	1.13	1.09
ANNUAL RUNOFF (INCHES)	18.38	15.41	14.75
10 PERCENT EXCEEDS	80	57	52
50 PERCENT EXCEEDS	11	8.8	6.7
90 PERCENT EXCEEDS	1.2	1.6	1.2

e Estimated

## WABASH RIVER BASIN

03322900 WABASH RIVER AT LINN GROVE, IN

LOCATION.--Lat 40°39'22", long 85°01'58", in SE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.34, T.26 N., R.13 E., Adams County, Hydrologic Unit 05120101, on right bank 10 ft downstream from bridge on State Highway 218, 800 ft downstream from Shoemaker Ditch, 0.8 mi north of Linn Grove, and 2.2 mi upstream from Rice Ditch.

DRAINAGE AREA.--453 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1964 to current year.

REVISED RECORDS.--WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 808.00 ft above sea level.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Occasional regulation by Grand Lake, diversion from or into St. Marys River Basin, and into Miami and Erie Canal.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	11	38	e35	124	216	448	516	e190	2060	282	e68
2	10	14	48	34	112	196	390	683	170	1350	254	e61
3	10	16	34	34	100	181	302	616	107	501	219	e58
4	10	20	33	33	95	169	324	701	90	813	740	e56
5	8.8	15	39	38	110	163	287	599	85	1440	3080	53
6	9.1	12	38	143	97	153	222	411	101	864	5620	50
7	7.2	11	26	236	77	152	210	329	130	784	5880	49
8	8.4	10	23	1210	71	164	259	1010	91	1770	5280	45
9	7.0	9.6	22	1570	64	1320	1410	1200	80	1630	4170	43
10	6.8	9.3	37	1470	61	1780	2640	628	88	791	2920	38
11	8.5	9.1	112	716	63	1450	3550	386	313	398	1720	36
12	9.7	9.4	129	335	83	720	3040	281	1930	266	939	35
13	12	9.1	71	229	89	432	1870	235	2400	209	542	34
14	16	11	43	176	75	335	1040	215	e3500	178	358	34
15	e12	13	34	172	68	260	661	183	e4000	172	292	34
16	e10	18	31	154	69	230	619	167	e3300	185	247	33
17	e9.0	18	28	131	212	255	989	146	2500	146	222	32
18	e8.2	15	23	112	1830	1130	763	133	2050	123	188	32
19	e7.5	14	21	e90	2280	2030	511	122	1580	115	166	33
20	e7.0	14	19	e80	2390	2650	426	131	971	322	161	35
21	e6.9	14	18	e76	1740	3030	342	214	597	596	143	37
22	e6.8	24	20	e78	1060	3490	312	239	439	2430	125	48
23	e6.6	29	34	93	670	3320	307	193	344	4470	116	43
24	e6.4	34	50	152	451	2330	264	161	274	7960	105	37
25	e10	25	250	179	327	1330	227	194	241	6920	98	35
26	13	21	394	162	276	837	224	195	210	4920	93	34
27	16	16	189	157	280	575	474	142	187	3340	91	38
28	15	16	102	191	243	537	455	119	167	1930	e86	33
29	16	22	67	196	---	862	323	105	629	980	e85	31
30	13	28	52	176	---	666	288	e110	1710	516	e82	30
31	10	---	e38	146	---	495	---	e200	---	335	e76	---
TOTAL	307.9	487.5	2063	8604	13117	31458	23177	10564	28474	48514	34380	1225
MEAN	9.93	16.3	66.5	278	468	1015	773	341	949	1565	1109	40.8
MAX	16	34	394	1570	2390	3490	3550	1200	4000	7960	5880	68
MIN	6.4	9.1	18	33	61	152	210	105	80	115	76	30
CFSM	.02	.04	.15	.61	1.03	2.24	1.71	.75	2.10	3.45	2.45	.09
IN.	.03	.04	.17	.71	1.08	2.58	1.90	.87	2.34	3.98	2.82	.10

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1998, BY WATER YEAR (WY)

	MEAN	89.6	297	508	509	681	805	659	373	383	307	183	99.4
MAX	553	1853	1514	1563	1717	2397	2085	1584	1914	1877	1513	753	
(WY)	1991	1973	1991	1974	1976	1978	1972	1996	1981	1993	1995	1972	
MIN	6.84	7.52	9.25	6.19	86.0	80.5	68.2	25.9	8.92	11.7	8.20	7.64	
(WY)	1965	1966	1977	1977	1978	1981	1971	1988	1988	1965	1966	1967	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1965 - 1998
ANNUAL TOTAL	147932.4	202371.4	
ANNUAL MEAN	405	554	406
HIGHEST ANNUAL MEAN			710
LOWEST ANNUAL MEAN			76.8
HIGHEST DAILY MEAN	5500	7960	8460
LOWEST DAILY MEAN	6.4	6.4	4.3
ANNUAL SEVEN-DAY MINIMUM	7.1	7.1	5.1
INSTANTANEOUS PEAK FLOW		8500	9560
INSTANTANEOUS PEAK STAGE		13.61	13.87
ANNUAL RUNOFF (CFSM)	.89	1.22	.90
ANNUAL RUNOFF (INCHES)	12.15	16.62	12.18
10 PERCENT EXCEEDS	1150	1750	1190
50 PERCENT EXCEEDS	86	154	120
90 PERCENT EXCEEDS	12	13	12

e Estimated

## WABASH RIVER BASIN

67

03323500 WABASH RIVER AT HUNTINGTON, IN

LOCATION.--Lat 40°51'20", long 85°29'53", in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.27, T.28 N., R.9 E., Huntington County, Hydrologic Unit 05120101, on right bank at the Huntington Water and Light Plant, 2 mi south of Huntington, 2.4 mi downstream from Huntington Lake, 3.2 mi upstream from Little River, and at mile 409.0.

DRAINAGE AREA.--721 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1951 to current year.

REVISED RECORDS.--WSP 1909: 1959. WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 700.04 ft above sea level, (levels by State of Indiana, Department of Natural Resources). Prior to July 5, 1951, nonrecording gage at same site and datum.

REMARKS.--Flow regulated by Huntington Lake since January 1969. Daily discharge computed from relation between discharge, head, and gate openings for Huntington Lake beginning Oct. 1, 1974.

COOPERATION.--Records of daily discharge provided by U.S. Army Corps of Engineers beginning Oct. 1, 1976.

AVERAGE DISCHARGE.--47 years, 618 ft<sup>3</sup>/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,900 ft<sup>3</sup>/s Feb. 10, 1959; maximum gage height 23.20 ft, Feb. 10, 1959 (backwater from ice); minimum daily discharge, 0.00 ft<sup>3</sup>/s, Sept. 12, 1989.

EXTREMES FOR OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of 22.7 ft, from high-water mark by U.S. Army Corps. of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 4,520 ft<sup>3</sup>/s, Feb. 21; minimum daily discharge, 55 ft<sup>3</sup>/s, Dec. 10.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56	75	146	91	236	260	592	370	188	2210	3820	744
2	56	75	122	93	207	201	1930	584	188	1750	3910	514
3	56	75	107	101	184	205	2410	802	188	523	3420	168
4	56	74	84	105	134	202	1350	844	187	545	2050	72
5	88	74	81	120	136	193	215	842	152	583	865	61
6	103	74	74	366	138	175	220	758	100	1130	959	61
7	102	90	69	898	140	165	223	487	98	1660	1590	66
8	101	143	71	694	138	169	228	577	94	1770	2380	69
9	101	176	60	1520	123	217	262	1190	95	2150	3190	69
10	100	127	55	2930	102	1900	861	1760	95	2370	3680	69
11	91	81	96	3430	95	4020	2640	1010	115	2020	3960	73
12	76	81	193	2530	96	3360	3990	546	784	886	3160	76
13	73	80	229	895	107	1690	4480	406	1900	365	2810	76
14	72	80	171	354	134	665	4420	251	1410	240	2860	76
15	72	79	120	219	141	327	4260	240	1210	235	2880	76
16	72	78	84	197	140	340	1570	242	1560	172	2830	80
17	71	78	68	223	143	310	1550	252	2230	113	2780	83
18	71	77	69	195	1230	374	2700	222	3380	122	2720	89
19	71	84	67	179	2760	1190	2940	176	3670	137	2650	94
20	70	81	68	141	3880	2670	2260	153	3600	143	1840	106
21	70	74	66	118	4520	3230	999	175	3500	338	1470	119
22	70	89	65	126	3160	3940	578	202	3380	296	752	140
23	70	112	82	145	1120	4300	508	218	3220	685	684	149
24	69	128	123	143	578	4400	469	243	1940	1820	1020	148
25	69	130	222	167	571	4330	342	253	841	2510	1000	156
26	74	127	545	228	382	3680	273	252	727	3560	982	133
27	77	119	688	222	310	1850	303	242	319	4010	960	118
28	77	110	649	299	291	719	437	143	196	4010	936	110
29	76	132	422	367	---	561	509	107	207	4050	911	94
30	76	148	230	369	---	254	432	122	616	4040	880	88
31	76	---	183	248	---	272	---	168	---	3940	842	---
TOTAL	2362	2951	5309	17713	21196	46169	43951	13837	36190	48383	64791	3977
MEAN	76.2	98.4	171	571	757	1489	1465	446	1206	1561	2090	133
MAX	103	176	688	3430	4520	4400	4480	1760	3670	4050	3960	744
MIN	56	74	55	91	95	165	215	107	94	113	684	61

CAL YR 1997 TOTAL 243615 MEAN 667 MAX 5820 MIN 20  
WTR YR 1998 TOTAL 306829 MEAN 841 MAX 4520 MIN 55

## WABASH RIVER BASIN

03324000 LITTLE RIVER NEAR HUNTINGTON, IN

LOCATION.--Lat 40°54'14", long 85°24'22", in NE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.9, T.28 N., R.10 E., Huntington County, Hydrologic Unit 05120101, on right bank on upstream side of former highway bridge, 5 mi east of Huntington, and at mile 7.5.

DRAINAGE AREA.--263 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1943 to current year. Prior to January 1944 monthly discharge only, published in WSP 1305. Published as Little River at Huntington, January 1944 to September 1948, Little River near Huntington, October 1948 to September 1956, and Little Wabash River near Huntington, October 1956 to September 1961.

REVISED RECORDS.--WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 728.10 ft above sea level. Prior to Oct. 1, 1948, nonrecording gage 4 mi downstream at datum 8.79 ft lower, and Oct. 1, 1948, to Sept. 5, 1950, nonrecording gage at present site and datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. During periods of extreme high water in the St. Marys River, some water leaves the St. Marys River Basin through Junk Ditch and flows into Little River Basin via Graham McCulloch Ditch.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	58	42	510	e120	222	120	649	143	48	92	62	34
2	53	102	295	e110	191	113	472	291	51	55	56	34
3	52	92	215	133	160	108	285	214	45	46	53	33
4	49	71	225	1960	140	104	216	832	42	914	471	33
5	46	61	197	2370	129	94	172	439	40	684	2130	32
6	44	53	151	2470	116	86	150	230	40	209	2080	31
7	42	49	125	1900	104	85	132	177	40	123	1660	33
8	40	49	108	2830	98	97	233	308	37	114	873	34
9	39	54	100	2790	92	2280	2360	337	38	90	481	30
10	43	50	169	1900	89	2610	4120	196	44	67	260	29
11	43	47	465	880	93	1490	3560	151	120	55	163	28
12	42	43	339	544	214	602	2240	127	895	49	112	29
13	41	42	229	394	179	359	993	114	1650	43	90	28
14	50	46	169	274	135	281	593	104	682	39	73	27
15	59	49	138	236	116	215	424	91	275	36	66	26
16	46	57	137	200	111	174	2670	85	253	37	111	27
17	42	54	170	167	227	161	2090	78	236	33	91	29
18	41	51	161	147	1720	946	784	74	143	32	65	30
19	40	46	139	129	1250	2210	422	67	211	32	56	29
20	40	51	139	121	677	1630	287	66	159	39	50	30
21	37	129	118	111	470	2000	221	64	107	42	47	39
22	37	531	239	105	299	1220	192	59	86	3300	45	43
23	36	336	962	138	233	623	167	56	72	3410	46	32
24	36	182	596	166	193	393	146	59	64	2630	47	30
25	36	129	1710	165	164	279	133	68	58	1370	46	29
26	37	115	1050	154	143	230	131	60	53	523	44	29
27	51	98	505	258	146	193	124	53	76	265	39	27
28	62	1110	319	497	139	825	115	49	63	162	38	27
29	48	1480	238	482	---	1460	109	48	52	113	40	27
30	43	925	204	393	---	683	127	58	141	86	39	27
31	40	---	157	278	---	376	---	54	---	71	36	---
TOTAL	1373	6144	10279	22422	7850	22047	24317	4752	5821	14761	9470	916
MEAN	44.3	205	332	723	280	711	811	153	194	476	305	30.5
MAX	62	1480	1710	2830	1720	2610	4120	832	1650	3410	2130	43
MIN	36	42	100	105	89	85	109	48	37	32	36	26
CFSM	.17	.78	1.26	2.75	1.07	2.70	3.08	.58	.74	1.81	1.16	.12
IN.	.19	.87	1.45	3.17	1.11	3.12	3.44	.67	.82	2.09	1.34	.13

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 1998, BY WATER YEAR (WY)

	MEAN	83.6	164	280	325	395	489	421	242	229	120	65.5	58.6
MAX	701	1137	1010	1693	1164	1765	1396	748	809	661	501	414	
(WY)	1955	1993	1967	1950	1959	1982	1957	1996	1958	1996	1958	1992	
MIN	5.72	10.2	8.93	6.25	17.5	90.7	40.3	35.2	22.3	15.9	7.76	4.22	
(WY)	1963	1965	1964	1977	1964	1981	1946	1963	1988	1962	1963	1962	

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

## WATER YEARS 1945 - 1998

ANNUAL TOTAL	129460	130152	
ANNUAL MEAN	355	357	
HIGHEST ANNUAL MEAN			238
LOWEST ANNUAL MEAN			450
HIGHEST DAILY MEAN	4070	Feb 28	5610
LOWEST DAILY MEAN	31	Sep 7	67.0
ANNUAL SEVEN-DAY MINIMUM	37	Sep 2	1.1
INSTANTANEOUS PEAK FLOW			1.8
INSTANTANEOUS PEAK STAGE			19.50
ANNUAL RUNOFF (CFSM)	1.35		.91
ANNUAL RUNOFF (INCHES)	18.31		12.32
10 PERCENT EXCEEDS	941	974	596
50 PERCENT EXCEEDS	130	115	68
90 PERCENT EXCEEDS	45	37	14

e Estimated

03324300 SALAMONIE RIVER NEAR WARREN, IN

LOCATION.--Lat 40°42'45", long 85°27'13", in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.12, T.26 N., R.9 E., Huntington County, Hydrologic Unit 05120102, on right bank at downstream side of bridge on County Road 800 South, 0.4 mi downstream from Detamore Ditch, 0.4 mi downstream from Interstate 69, 0.8 mi upstream from concrete and stone dam, 2.4 mi northwest of Warren, and at mile 30.0.

DRAINAGE AREA.--425 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1957 to current year.

REVISED RECORDS.--WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 784.65 ft above sea level, (levels by State of Indiana, Department of Natural Resources). Prior to July 28, 1960, nonrecording gage at same site and datum.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	e31	e96	e44	130	137	727	567	216	1060	116	e49
2	17	e58	e42	e48	115	127	593	899	203	277	97	e47
3	e16	e43	e25	52	100	119	345	436	109	147	85	e45
4	e16	e32	e29	70	89	113	257	648	77	1810	1050	73
5	e15	e25	e44	107	85	103	202	466	64	3320	10800	75
6	e14	e21	e34	340	78	98	169	258	59	1110	10200	53
7	e13	e20	e28	393	71	93	151	275	96	1770	6790	45
8	e12	e19	e25	2220	68	108	455	3370	74	5080	4810	41
9	e14	e19	e30	2230	65	3060	2840	2840	61	1940	3510	40
10	e30	e18	e45	767	62	3760	5690	825	59	615	1330	38
11	e19	e18	146	343	65	1510	4490	433	733	347	898	34
12	e14	e17	90	213	101	578	1890	288	5820	234	460	34
13	e13	e17	63	188	119	383	623	216	5690	174	320	e33
14	e15	e19	50	157	105	329	485	169	4260	137	249	e33
15	e45	e45	41	152	91	289	417	138	2520	116	201	e32
16	e31	e50	35	128	86	228	474	121	2540	126	164	e31
17	e25	e32	33	109	143	255	901	107	2660	96	138	e30
18	e21	e28	31	94	2690	2340	567	92	940	82	118	e29
19	e18	e20	27	79	3220	3950	313	86	929	72	104	e29
20	e17	e21	27	76	1890	3730	241	102	772	476	91	e28
21	e16	e23	26	67	1220	3930	200	186	360	526	86	e30
22	e16	e76	28	68	649	3500	178	172	235	4220	79	67
23	e15	e84	43	85	415	1620	172	103	178	6670	72	48
24	e15	e45	76	117	305	740	159	86	144	6360	70	35
25	e17	e32	410	125	237	469	145	83	123	5520	68	34
26	e20	e23	317	115	197	362	145	86	106	2070	e64	36
27	e54	e22	176	116	180	290	482	77	94	544	e62	39
28	e27	e25	113	187	157	967	388	65	84	333	e58	39
29	e20	e35	85	233	---	1580	229	66	79	239	e56	35
30	e17	e54	72	206	---	742	224	205	1180	182	e54	35
31	e16	---	e54	158	---	414	---	238	---	146	e52	---
TOTAL	615	972	2341	9287	12733	35924	24152	13703	30465	45799	42252	1217
MEAN	19.8	32.4	75.5	300	455	1159	805	442	1016	1477	1363	40.6
MAX	54	84	410	2230	3220	3950	5690	3370	5820	6670	10800	75
MIN	12	17	25	44	62	93	145	65	59	72	52	28
CFSM	.05	.08	.18	.70	1.07	2.73	1.89	1.04	2.39	3.48	3.21	.10
IN.	.05	.09	.20	.81	1.11	3.14	2.11	1.20	2.67	4.01	3.70	.11

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1958 - 1998, BY WATER YEAR (WY)

	MEAN	83.9	317	487	487	636	866	705	371	375	251	147	94.0
MAX	489	1794	1685	1724	1906	2616	2214	1371	2312	1477	1363	894	
(WY)	1991	1993	1991	1974	1976	1978	1964	1996	1958	1998	1998	1972	
MIN	8.13	13.7	11.4	6.12	19.2	103	74.5	32.8	16.7	23.8	11.8	9.22	
(WY)	1964	1964	1977	1977	1964	1981	1976	1988	1988	1967	1965	1963	

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1958 - 1998

ANNUAL TOTAL	142857	219460	400	
ANNUAL MEAN	391	601	665	1993
HIGHEST ANNUAL MEAN			109	1966
LOWEST ANNUAL MEAN			10800	Aug 5 1998
HIGHEST DAILY MEAN	7630	Feb 28	10800	Aug 5 1998
LOWEST DAILY MEAN	12	Oct 8	12	Oct 3
ANNUAL SEVEN-DAY MINIMUM	14	Oct 3	14	Oct 3
INSTANTANEOUS PEAK FLOW			13500	Aug 5
INSTANTANEOUS PEAK STAGE			16.82	Aug 5
ANNUAL RUNOFF (CFSM)	.92	1.41	17.05	Feb 10 1959
ANNUAL RUNOFF (INCHES)	12.50	19.21	.94	
10 PERCENT EXCEEDS	816	1890	12.79	
50 PERCENT EXCEEDS	95	107	985	
90 PERCENT EXCEEDS	20	22	94	
			17	

e Estimated



## WABASH RIVER BASIN

03324500 SALAMONIE RIVER AT DORA, IN

LOCATION.--Lat 40°48'42", long 85°41'02", in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.12, T.27 N., R.7 E., Wabash County, Hydrologic Unit 05120102, on right bank, 0.4 mi downstream from Salamonie Lake, 1.5 mi northwest of Dora, and 3.0 mi upstream from mouth.

DRAINAGE AREA.--557 mi<sup>2</sup>.

PERIOD OF RECORD.--November 1923 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 1275: 1931(M), 1932, 1933(M), 1935-36(M), 1938-40(M), 1941-42, 1945, 1952. WSP 1335: 1934(M). WSP 1555: 1952, 1955-56(M), 1957. WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 673.96 ft above sea level, (levels by State of Indiana, Department of Natural Resources). Prior to Oct. 1, 1951, non-recording gage at site 1.5 mi upstream at datum 688.59 ft above sea level, (levels by U.S. Army Corps of Engineers) and Oct. 1, 1951, to Oct. 8, 1961, water-stage recorder located on left bank 2,000 ft upstream at datum 679.77 ft above sea level, (levels by U.S. Army Corps of Engineers). Oct. 9, 1961, to Sept. 30, 1974, water-stage recorder at site described in "LOCATION" paragraph.

REMARKS.--Flow regulated by Salamonie Lake since April 1967.

COOPERATION.--Records of daily discharge provided by U.S. Army Corps of Engineers beginning Oct. 1, 1976.

AVERAGE DISCHARGE.--74 years, 520 ft<sup>3</sup>/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,500 ft<sup>3</sup>/s May 18, 1943, gage height, 14.75 ft, from graph based on gage readings, site and datum then in use; minimum daily, 0.70 ft<sup>3</sup>/s Oct. 30, 1968, result of abnormal regulation.

EXTREMES FOR CURRENT YEAR.-- Maximum daily discharge, 4,480 ft<sup>3</sup>/s Aug. 28; minimum daily, 23 ft<sup>3</sup>/s, Nov. 26 to Dec. 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	189	312	23	405	355	98	119	508	207	3000	353	4400
2	312	311	23	401	248	99	119	1120	250	878	352	4310
3	336	310	23	396	150	99	120	1170	207	98	487	4210
4	335	309	232	393	131	99	120	889	154	98	747	1810
5	334	308	387	394	143	99	120	889	86	100	135	66
6	334	307	385	401	143	844	120	560	70	1240	136	49
7	333	306	382	407	142	704	120	302	70	1290	264	49
8	332	305	380	248	125	96	120	463	70	1390	452	2560
9	331	304	377	108	116	100	121	1690	87	2060	457	4020
10	331	304	375	712	116	108	125	2470	95	2060	459	3380
11	330	302	373	1470	116	579	127	2580	95	2230	460	1040
12	329	301	371	2030	116	1580	129	2230	97	2920	978	70
13	328	300	369	2180	149	2820	129	1380	99	3660	2360	87
14	327	300	367	1800	169	3250	680	540	101	4140	2460	113
15	327	299	365	1430	152	3060	1710	247	102	4180	2440	120
16	326	298	362	1080	143	1190	686	226	103	3750	2430	120
17	325	297	359	718	143	99	130	218	104	1790	2420	120
18	324	296	356	401	439	102	130	179	104	339	2480	120
19	323	294	353	225	1050	108	1290	133	104	339	2630	120
20	323	293	350	224	1680	269	2070	120	105	195	3120	120
21	322	292	347	222	1890	527	2510	120	105	454	3850	120
22	321	292	344	139	1850	546	3270	261	762	332	4070	120
23	320	291	341	123	1040	1700	3830	262	1290	127	4300	120
24	319	290	338	143	99	2470	4470	150	1590	130	4260	120
25	318	180	339	160	100	2430	4230	106	2850	132	4200	120
26	317	23	395	171	101	2390	3630	95	3570	133	4250	120
27	317	23	424	175	762	2790	1570	95	3950	133	4440	120
28	316	23	421	207	713	1610	413	95	4300	133	4480	120
29	315	23	418	308	---	117	508	79	4350	133	4400	120
30	314	23	414	360	---	118	508	70	4030	133	4330	120
31	313	---	410	358	---	118	---	198	---	278	4390	---
TOTAL	9921	7516	10403	17789	12381	30219	33224	19445	29107	37875	72590	28084
MEAN	320	251	336	574	442	975	1107	627	970	1222	2342	936
MAX	336	312	424	2180	1890	3250	4470	2580	4350	4180	4480	4400
MIN	189	23	23	108	99	96	119	70	70	98	135	49

CAL YR 1997 TOTAL 199632 MEAN 547 MAX 3960 MIN 23  
WTR YR 1998 TOTAL 308554 MEAN 845 MAX 4480 MIN 23

## 03325000 WABASH RIVER AT WABASH, IN

LOCATION.--Lat 40°47'25", long 85°49'13", in SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.14, T.27 N., R.6 E., Wabash County, Hydrologic Unit 05120101, on right bank on upstream side of Wabash Street bridge in Wabash, 7.1 mi downstream from Salamonie River, and at mile 387.2.

DRAINAGE AREA.--1,768 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1923 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 1275: 1931-37(M), 1938-39, 1940(M). WSP 1385: 1942. WSP 1505: 1955. WSP 2109: Drainage area. WDR IN-84-1: 1983.

GAGE.--Water-stage recorder. Datum of gage is 642.66 ft above sea level. Prior to Sept. 30, 1954, nonrecording gage at same site and datum.

REMARKS.--Records fair. Flow regulated by Salamonie Lake beginning April 1967 and by Huntington Lake beginning October 1976.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 28.7 ft Mar. 26, 1913, from floodmark, determined by U.S. Army Corps of Engineers, discharge, 90,000 ft<sup>3</sup>/s, from rating curve extended above 49,000 ft<sup>3</sup>/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	298	490	1150	882	1100	715	1590	1380	520	4840	4600	4990
2	466	518	808	756	1040	663	2340	1970	555	3810	4660	4780
3	487	593	591	818	768	580	2950	2270	501	890	4510	4370
4	483	544	668	3850	649	626	2490	2840	456	4310	4770	2690
5	477	518	881	5080	585	543	766	2470	377	2430	6120	285
6	519	500	818	5520	608	1090	664	1880	310	2350	4490	214
7	527	490	719	4460	549	1390	646	1470	258	4410	4200	205
8	520	520	718	6900	550	534	784	2380	267	3550	4400	1730
9	522	602	701	5630	479	5110	5300	2960	271	4240	4540	3830
10	520	628	695	5800	456	5520	7850	4090	283	4560	4950	3460
11	515	518	1110	5960	457	6200	6460	4070	435	4540	5080	1620
12	504	479	1200	5750	586	5930	6470	2930	1760	4120	4680	229
13	498	474	1200	4330	677	5160	6000	2170	3900	4110	5030	219
14	504	479	1070	3140	644	4910	5640	1150	2900	4350	5100	235
15	503	482	880	2480	616	4020	5960	739	1830	4500	5180	247
16	505	483	777	1980	581	2550	8160	672	3520	3960	5140	251
17	488	484	770	1590	618	998	4560	682	3110	2410	5080	255
18	480	478	750	1210	3200	2390	3920	607	3580	613	5010	263
19	475	473	752	786	5290	5380	4470	520	4500	621	5060	285
20	474	504	703	749	5740	5350	4940	491	4150	556	4930	271
21	470	514	713	655	6500	6830	3930	447	3940	574	5050	307
22	465	936	682	587	5810	6020	3770	524	4150	15100	4840	321
23	463	1060	1760	588	3500	6230	4200	619	4550	8860	4370	330
24	461	807	1500	744	1230	6670	4690	535	4300	5910	4880	334
25	459	675	3190	766	1160	6530	4650	555	3200	5070	4910	330
26	465	410	2790	785	1050	6210	3860	516	4140	4600	4880	339
27	493	390	2150	971	1320	5460	2540	512	4240	5080	5030	339
28	502	1520	1820	1300	1700	4040	957	473	4230	4920	5080	370
29	502	2780	1620	1640	---	3590	1250	323	4330	4810	5020	306
30	488	1890	1170	1620	---	1730	1270	323	4320	4790	4960	277
31	480	---	1090	1420	---	1150	---	433	---	4720	4960	---
TOTAL	15013	21239	35446	78747	47463	114119	113077	43001	74883	129604	151510	33682
MEAN	484	708	1143	2540	1695	3681	3769	1387	2496	4181	4887	1123
MAX	527	2780	3190	6900	6500	6830	8160	4090	4550	15100	6120	4990
MIN	298	390	591	587	456	534	646	323	258	556	4200	205
CFSM	.27	.40	.65	1.44	.96	2.08	2.13	.78	1.41	2.36	2.76	.64
IN.	.32	.45	.75	1.66	1.00	2.40	2.38	.90	1.58	2.73	3.19	.71

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 1998, BY WATER YEAR (WY)

	MEAN	593	968	1750	2243	2399	3107	2704	1611	1390	857	531	509
MAX	3200	5044	5829	13260	7764	8144	11060	10410	8260	4776	4887	5676	
(WY)	1927	1993	1968	1950	1959	1982	1957	1943	1958	1993	1998	1926	
MIN	32.3	61.7	56.0	72.8	114	177	264	135	78.3	55.4	43.4	29.9	
(WY)	1964	1965	1964	1977	1964	1971	1941	1941	1988	1934	1941	1941	

## SUMMARY STATISTICS FOR 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1924 - 1998

	ANNUAL TOTAL	699925	857784	1552	
ANNUAL MEAN	1918	2350	2994	1950	
HIGHEST ANNUAL MEAN			276	1931	
LOWEST ANNUAL MEAN			47800	May 18 1943	
HIGHEST DAILY MEAN	11700	Feb 27	15100	Jul 22	
LOWEST DAILY MEAN	133	Aug 9	205	Sep 7	
ANNUAL SEVEN-DAY MINIMUM	150	Sep 3	243	Sep 12	
INSTANTANEOUS PEAK FLOW			20000	Jul 22	
INSTANTANEOUS PEAK STAGE			18.98	Jul 22	
ANNUAL RUNOFF (CFSM)	1.08		1.33		
ANNUAL RUNOFF (INCHES)	14.73		18.05		
10 PERCENT EXCEEDS	5030		5150		
50 PERCENT EXCEEDS	763		1200		
90 PERCENT EXCEEDS	239		452		

## WABASH RIVER BASIN

03325500 MISSISSINAWA RIVER NEAR RIDGEVILLE, IN

LOCATION.--Lat 40°16'48", long 84°59'33", in NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.17, T.21 N., R.14 E., Randolph County, Hydrologic Unit 05120103, on left bank 800 ft upstream from county road bridge, 0.6 mi downstream from Mud Creek, 2 mi east of Ridgeville, and at mile 99.7.

DRAINAGE AREA.--133 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1946 to current year.

REVISED RECORDS.--WSP 1235: 1948. WSP 1335: 1953. WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 965.28 ft above sea level (levels by State of Indiana, Department of Natural Resources). Prior to Oct. 5, 1950, nonrecording gage at same site and datum. Prior to Oct. 15, 1994, at site 800 ft downstream, at same datum.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e1.7	2.3	22	e9.8	20	37	87	461	71	140	22	6.6
2	e1.7	4.0	9.8	8.3	19	34	72	181	41	70	20	6.8
3	e1.7	6.1	5.5	8.8	16	33	60	112	29	48	19	6.7
4	e1.7	4.8	8.0	8.9	16	32	63	90	26	2640	18	7.8
5	e1.7	4.3	8.8	8.8	17	29	52	71	36	552	33	8.5
6	e1.7	3.4	4.7	13	15	27	49	61	46	193	130	6.6
7	e1.6	3.1	3.3	323	14	27	46	226	30	162	111	5.9
8	e1.6	3.6	2.8	1140	13	56	51	904	25	181	146	5.9
9	e1.6	4.7	2.6	415	12	1100	2850	263	27	88	61	5.3
10	e1.6	5.2	16	176	12	389	2010	142	27	62	49	4.2
11	e2.6	5.6	30	98	13	176	468	97	1420	48	27	3.6
12	e2.4	6.3	20	66	19	114	249	76	3680	40	18	3.2
13	e2.2	6.4	12	58	16	94	171	62	2010	34	15	2.4
14	e1.9	8.9	10	42	14	85	136	52	455	30	14	2.7
15	e8.0	9.9	11	40	12	67	106	47	1590	28	13	3.3
16	e7.2	10	7.3	31	13	59	655	43	1270	25	11	3.9
17	e6.2	9.7	6.7	26	100	203	412	36	590	23	10	e4.0
18	e5.8	8.4	6.2	22	984	1050	184	33	252	21	9.4	e4.1
19	e5.2	8.1	6.1	20	382	863	132	31	391	20	9.2	e4.1
20	e4.6	8.2	5.2	19	249	1010	100	107	172	133	8.8	e6.0
21	e4.2	9.6	5.3	18	194	1220	84	82	109	35	8.2	e10
22	e3.8	17	6.1	16	122	512	76	50	78	2190	7.8	5.0
23	3.4	15	7.9	26	95	283	83	48	77	1530	7.2	2.8
24	3.2	8.2	8.9	32	75	205	71	83	62	280	6.8	2.3
25	3.8	5.0	78	27	61	145	61	76	51	103	7.2	2.2
26	5.9	3.7	41	24	54	116	67	47	45	62	8.7	2.4
27	11	3.0	21	24	53	93	84	38	40	47	8.1	2.8
28	5.4	3.4	15	28	41	121	60	33	35	38	7.9	3.2
29	3.0	10	13	29	---	162	58	30	63	32	7.8	2.8
30	2.0	12	12	25	---	103	74	29	766	27	7.9	2.8
31	1.6	---	e11	21	---	84	---	35	---	25	7.0	---
TOTAL	110.0	209.9	417.2	2803.6	2651	8529	8671	3646	13514	8907	829.0	137.9
MEAN	3.55	7.00	13.5	90.4	94.7	275	289	118	450	287	26.7	4.60
MAX	11	17	78	1140	984	1220	2850	904	3680	2640	146	10
MIN	1.6	2.3	2.6	8.3	12	27	46	29	25	20	6.8	2.2
CFSM	.03	.05	.10	.68	.71	2.07	2.17	.88	3.39	2.16	.20	.03
IN.	.03	.06	.12	.78	.74	2.39	2.43	1.02	3.78	2.49	.23	.04

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 1998, BY WATER YEAR (WY)

	MEAN	29.7	96.0	150	182	205	253	223	124	152	101	39.4	30.1
MAX	272	729	872	865	548	714	810	354	1417	709	454	337	
(WY)	1987	1994	1991	1950	1950	1978	1964	1996	1958	1979	1979	1972	
MIN	1.25	1.82	2.62	3.25	5.00	46.1	25.8	15.3	6.52	2.37	2.13	.99	
(WY)	1947	1954	1964	1977	1964	1957	1976	1988	1988	1952	1983	1954	

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1947 - 1998

ANNUAL TOTAL	45163.4	50425.6	
ANNUAL MEAN	124	138	
HIGHEST ANNUAL MEAN			132
LOWEST ANNUAL MEAN			223
HIGHEST DAILY MEAN	4020	Jun 1	29.8
LOWEST DAILY MEAN	1.6	Oct 7	11300
ANNUAL SEVEN-DAY MINIMUM	1.6	Oct 4	.10
INSTANTANEOUS PEAK FLOW			.23
INSTANTANEOUS PEAK STAGE			13900
ANNUAL RUNOFF (CFSM)	.93		16.25
ANNUAL RUNOFF (INCHES)	12.63		.99
10 PERCENT EXCEEDS	248		13.44
50 PERCENT EXCEEDS	25		279
90 PERCENT EXCEEDS	2.6		29
			3.9

e Estimated

03326070 BIG LICK CREEK NEAR HARTFORD CITY, IN

LOCATION.--Lat 40°25'20", long 85°21'04", in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.23, T.23 N., R.10 E., Blackford County, Hydrologic Unit 05120103, on right bank 6 ft downstream from bridge on County Road 100 East, and 2.0 mi southeast of Hartford City.

DRAINAGE AREA.--29.2 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Datum of gage is 865.00 ft above sea level.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.44	.64	5.6	.62	3.2	9.0	50	77	62	13	5.4	1.8
2	e.42	1.3	2.1	.75	2.8	8.4	23	44	22	7.0	5.0	1.8
3	e.41	1.3	1.8	1.0	2.3	7.9	17	21	13	5.3	4.8	1.6
4	e.40	.79	2.5	1.6	2.3	8.2	13	16	10	1080	169	3.3
5	e.39	.72	2.2	3.0	2.2	9.0	11	12	11	186	1390	2.1
6	e.38	.56	1.5	22	2.0	8.3	9.7	10	12	45	171	1.7
7	e.37	.55	e1.2	20	1.7	7.7	9.0	77	7.2	64	229	1.8
8	e.36	.54	e1.1	154	1.7	37	9.8	193	5.8	64	310	2.0
9	e.35	.59	e1.0	51	1.6	505	481	46	6.6	22	172	1.5
10	e.64	.56	e2.0	17	1.5	98	328	21	6.5	14	60	1.5
11	e.50	.53	5.2	8.2	1.9	42	66	15	529	11	25	1.5
12	e.40	e.52	2.2	5.8	3.6	26	33	12	654	8.8	13	1.4
13	e.36	e.50	1.6	7.5	2.8	22	23	9.6	209	7.3	8.4	1.4
14	e.50	e.60	1.2	e5.2	2.2	23	24	8.3	59	8.6	6.6	1.4
15	e1.4	.81	1.0	e4.8	2.0	18	20	7.7	186	8.8	5.4	1.4
16	e.60	.95	.96	e4.0	2.1	14	60	6.8	452	6.0	4.1	1.5
17	e.44	.88	.91	e3.4	42	63	34	5.8	216	5.2	3.3	1.6
18	e.42	e.66	.84	2.9	387	313	19	5.6	43	4.8	3.1	1.5
19	e.40	e.62	.84	2.5	101	239	15	5.3	61	4.6	2.8	1.6
20	e.38	e.58	.80	2.2	75	210	12	25	26	5.8	2.6	1.3
21	e.37	e.66	.76	2.0	45	225	11	104	16	4.6	2.5	3.5
22	e.36	2.5	.97	2.0	27	97	10	21	12	628	2.3	1.8
23	e.35	1.8	2.5	6.1	20	44	9.9	13	10	628	2.2	1.2
24	e.34	.61	3.3	6.3	16	28	8.8	17	8.2	78	2.1	1.2
25	e.40	.49	26	5.1	14	23	8.3	13	6.8	33	2.3	1.2
26	e.54	.44	8.2	4.2	12	19	15	9.0	5.7	18	2.0	1.2
27	.63	.47	3.2	4.8	11	16	18	7.4	5.1	13	1.9	1.2
28	1.0	.57	1.8	6.7	8.8	88	11	6.5	4.3	10	1.9	1.1
29	.66	1.3	1.3	6.2	---	62	12	193	9.9	8.4	2.0	1.1
30	e.62	1.6	1.1	4.7	---	26	41	394	67	7.2	1.8	1.1
31	.63	---	.71	3.7	---	19	---	82	---	6.1	1.7	---
TOTAL	15.46	24.64	86.39	369.27	794.7	2315.5	1402.5	1478.0	2736.1	3005.5	2613.2	48.3
MEAN	.50	.82	2.79	11.9	28.4	74.7	46.8	47.7	91.2	97.0	84.3	1.61
MAX	1.4	2.5	26	154	387	505	481	394	654	1080	1390	3.5
MIN	.34	.44	.71	.62	1.5	7.7	8.3	5.3	4.3	4.6	1.7	1.1
CFSM	.02	.03	.10	.41	.97	2.56	1.60	1.63	3.12	3.32	2.89	.06
IN.	.02	.03	.11	.47	1.01	2.95	1.79	1.88	3.49	3.83	3.33	.06

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 1998, BY WATER YEAR (WY)

	MEAN	6.87	27.2	37.0	32.9	43.2	57.6	41.7	27.0	30.1	20.8	10.7	7.35
MAX	53.4	135	157	92.7	124	152	112	114	148	99.4	84.3	55.0	
(WY)	1991	1986	1991	1974	1990	1978	1972	1981	1981	1992	1998	1972	
MIN	.50	.82	1.13	.76	3.41	9.38	4.85	2.37	1.21	1.11	.95	.61	
(WY)	1998	1998	1996	1977	1978	1983	1976	1988	1988	1977	1988	1983	

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1972 - 1998

ANNUAL TOTAL	8370.54	14889.56	
ANNUAL MEAN	22.9	40.8	28.4
HIGHEST ANNUAL MEAN			43.3
LOWEST ANNUAL MEAN			9.21
HIGHEST DAILY MEAN	986	1390	1580
LOWEST DAILY MEAN	.34	.34	.19
ANNUAL SEVEN-DAY MINIMUM	.37	.37	.32
INSTANTANEOUS PEAK FLOW		1870	1940
INSTANTANEOUS PEAK STAGE		15.85	16.14
ANNUAL RUNOFF (CFSM)	.79	1.40	.97
ANNUAL RUNOFF (INCHES)	10.66	18.97	13.24
10 PERCENT EXCEEDS	50	77	66
50 PERCENT EXCEEDS	4.5	5.6	5.7
90 PERCENT EXCEEDS	.59	.60	1.1

e Estimated

## WABASH RIVER BASIN

03326500 MISSISSINewa RIVER AT MARION, IN

LOCATION.--Lat 40°34'34", long 85°39'34", in SE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.31, T.25 N., R.8 E., Grant County, Hydrologic Unit 05120103, on left bank 12 ft downstream from Highland Avenue bridge in Marion, 0.1 mi downstream from old mill dam, 1.0 mi upstream from Hummel Creek, 4.6 mi downstream from Lugar Creek, and at mile 35.8.

DRAINAGE AREA.--682 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1923 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 1335: 1927(M). WSP 1385: 1948. WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 774.56 ft above sea level. Prior to Dec. 9, 1933, nonrecording gage at same site and datum.

REMARKS.--Records good except for estimated daily discharges, which are poor. Flow periodically regulated by dam 0.1 mile above station. 1930 water year not used in summary statistics.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of 19.20 ft from information by State of Indiana, Department of Natural Resources.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	68	72	e62	159	257	1130	1270	770	955	238	110
2	39	72	80	e68	142	234	1000	1830	648	546	210	109
3	39	64	72	79	130	218	687	1070	384	335	189	105
4	38	55	81	84	120	210	539	1190	276	8270	2150	300
5	37	49	87	122	116	199	448	839	234	7770	19100	183
6	34	48	74	181	112	186	396	613	229	4610	9480	138
7	31	47	66	244	105	178	355	600	295	2140	2880	127
8	29	46	60	1190	102	213	522	3740	242	3000	3430	114
9	37	46	64	2340	97	3620	3050	2920	215	1590	2180	105
10	39	47	88	1320	94	4280	7940	1370	201	842	1290	99
11	42	45	103	586	102	2220	8430	828	2830	578	1140	97
12	38	42	112	374	115	1060	2600	600	11900	437	700	94
13	54	43	109	302	125	749	1290	470	8610	353	508	93
14	52	50	122	244	116	656	994	387	6580	298	413	88
15	48	52	100	238	112	583	831	331	4380	268	351	76
16	52	51	86	212	104	480	786	302	5050	244	305	75
17	49	50	79	190	134	551	1760	271	6330	222	288	77
18	50	49	73	166	1930	3010	1430	244	2760	204	265	79
19	53	49	70	146	3290	5650	776	230	1560	220	228	77
20	54	51	67	131	2060	4800	595	247	2040	369	203	79
21	52	56	65	119	1430	4820	495	594	1020	233	188	414
22	50	63	74	119	944	4200	443	579	684	6000	179	245
23	50	68	72	148	662	2230	464	376	536	10900	167	132
24	49	69	97	182	519	1360	420	332	445	6400	162	104
25	50	59	159	179	421	1020	394	379	391	2120	159	94
26	59	57	203	181	350	793	407	337	330	977	146	93
27	64	68	190	170	318	645	496	282	287	655	135	85
28	61	79	161	187	285	1110	439	232	257	484	129	79
29	62	69	118	204	---	1760	392	206	269	380	127	69
30	59	74	100	198	---	1190	509	1520	617	314	121	68
31	57	---	e78	176	---	787	---	709	---	271	116	---
TOTAL	1468	1686	2982	10142	14194	49269	40018	24898	60370	61985	47177	3608
MEAN	47.4	56.2	96.2	327	507	1589	1334	803	2012	2000	1522	120
MAX	64	79	203	2340	3290	5650	8430	3740	11900	10900	19100	414
MIN	29	42	60	62	94	178	355	206	201	204	116	68
CFSM	.07	.08	.14	.48	.74	2.33	1.96	1.18	2.95	2.93	2.23	.18
IN.	.08	.09	.16	.55	.77	2.69	2.18	1.36	3.29	3.38	2.57	.20

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 1998, BY WATER YEAR (WY)

	MEAN	171	412	696	901	943	1257	1141	715	647	407	207	226
MAX	1073	2626	2947	5129	2707	3181	3699	3776	4765	2831	1522	4225	
(WY)	1927	1993	1991	1930	1990	1982	1964	1933	1958	1992	1998	1926	
MIN	22.8	28.0	36.9	36.1	52.5	65.3	123	40.5	49.3	32.6	25.4	24.1	
(WY)	1929	1929	1964	1945	1964	1941	1941	1941	1988	1936	1940	1940	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1924 - 1998
ANNUAL TOTAL	223022	317797	
ANNUAL MEAN	611	871	642
HIGHEST ANNUAL MEAN			1897
LOWEST ANNUAL MEAN			106
HIGHEST DAILY MEAN	12900	Feb 28	23400
LOWEST DAILY MEAN	29	Oct 8	3.4
ANNUAL SEVEN-DAY MINIMUM	35	Oct 3	8.4
INSTANTANEOUS PEAK FLOW			25000
INSTANTANEOUS PEAK STAGE			17.40
ANNUAL RUNOFF (CFSM)	.90		.94
ANNUAL RUNOFF (INCHES)	12.16		12.79
10 PERCENT EXCEEDS	1340		1500
50 PERCENT EXCEEDS	180		200
90 PERCENT EXCEEDS	49		48

e Estimated



## 03327000 MISSISSINewa RIVER AT PEORIA, IN

LOCATION.--Lat 40°43'24", long 85°57'27", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.3, T.26 N., R.5 E., Miami County, Hydrologic Unit 05120103, on right bank at Peoria, 0.6 mi downstream from Mississinewa Lake, 6.5 mi southeast of Peru, and 6.7 mi upstream from mouth.

DRAINAGE AREA.--808 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1952 to current year.

REVISED RECORDS.--WSP 1335: 1953. WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 660.00 ft above sea level. Oct. 1, 1962, to Sept. 30, 1974, water-stage recorder site described in "LOCATION" paragraph. Prior to Oct. 7, 1954, nonrecording gage and crest-stage gage on highway bridge 2,500 ft upstream, and Oct. 7, 1954, to Sept. 30, 1962, water-stage recorder on right bank at site 2,500 ft upstream at same datum.

REMARKS.--Flow regulated by Mississinewa Lake since April 1968.

COOPERATION.--Records of daily discharge provided by U.S. Army Corps of Engineers beginning Oct. 1, 1976.

AVERAGE DISCHARGE.--46 years, 742 ft<sup>3</sup>/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,000 ft<sup>3</sup>/s June 11, 1958, gage height 19.26 ft, site then in use; zero flow, Sept. 11 to Oct. 2, 1985, Nov 14, 1991.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 5,380 ft<sup>3</sup>/s June 26; minimum daily, 31 ft<sup>3</sup>/s Nov. 26 to Dec. 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	209	31	247	203	317	695	599	726	3240	4780	185
2	55	209	31	106	203	203	1400	1390	794	1890	3710	181
3	55	209	31	106	203	203	2890	2140	792	450	2750	199
4	292	208	174	106	203	203	3710	1830	601	93	1510	359
5	177	208	373	107	203	204	1930	1600	312	98	380	468
6	55	208	372	107	139	204	777	997	144	866	1030	467
7	55	208	371	108	42	204	775	467	110	1160	2270	467
8	55	208	370	109	42	204	773	473	110	498	2310	322
9	55	207	370	113	43	207	780	1440	210	1540	3480	174
10	55	207	369	116	43	218	315	2660	288	2660	4520	110
11	55	207	368	117	43	224	122	3490	428	3600	5010	110
12	55	246	368	777	135	867	126	3340	653	4020	4970	110
13	55	275	367	1790	205	1870	1000	1570	681	4540	5180	177
14	55	275	366	2410	205	2490	2270	466	696	4890	5320	188
15	214	274	366	2680	204	3700	3230	466	705	4830	5240	146
16	538	274	461	1570	204	1960	1170	465	712	4770	5170	146
17	673	274	532	203	204	115	692	362	721	4690	4040	129
18	670	194	531	203	205	117	2130	288	1350	2360	1650	110
19	443	136	529	98	879	122	2790	288	2970	656	394	110
20	213	136	527	42	1790	599	3410	250	3740	466	276	110
21	213	136	459	43	2050	964	4200	217	3730	233	217	110
22	213	136	376	137	2040	1760	4630	246	3710	90	217	197
23	513	136	375	382	2330	2290	4700	398	4290	122	217	288
24	662	136	375	508	2150	2290	3110	569	4890	558	156	288
25	660	75	445	308	825	2280	991	629	5270	750	184	199
26	397	31	519	161	365	2300	596	432	5380	1880	110	110
27	210	31	517	203	436	3230	560	288	5320	3470	110	110
28	210	31	515	203	508	4530	466	288	5250	4010	110	110
29	210	31	513	203	---	2120	466	288	4770	3970	110	110
30	272	31	511	203	---	112	466	510	3270	3940	111	93
31	209	---	508	203	---	113	---	631	---	4520	185	---
TOTAL	7649	5146	12020	13669	16102	36220	51170	29077	62623	70860	65717	5883
MEAN	247	172	388	441	575	1168	1706	938	2087	2286	2120	196
MAX	673	275	532	2680	2330	4530	4700	3490	5380	4890	5320	468
MIN	55	31	31	42	42	112	122	217	110	90	110	93

CAL YR 1997 TOTAL 285283 MEAN 782 MAX 5250 MIN 31  
WTR YR 1998 TOTAL 376136 MEAN 1031 MAX 5380 MIN 31



## 03327520 PIPE CREEK NEAR BUNKER HILL, IN

LOCATION.--Lat 40°40'06", long 86°05'44", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.29, T.26 N., R.4 E., Miami County, Hydrologic Unit 05120101, on right bank 150 ft downstream from bridge on County Road 125 West, 0.5 mi northeast of Bunker Hill, and at mile 11.4.

DRAINAGE AREA.--159 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1968 to current year. Occasional low-flow measurements, water years 1960-67.

GAGE.--Water-stage recorder. Datum of gage is 736.00 ft above sea level.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e6.0	8.5	12	e5.8	50	66	422	291	44	219	88	41
2	e5.8	11	10	e6.4	47	61	366	428	41	118	78	41
3	e5.6	12	13	7.3	42	58	266	307	38	83	71	40
4	e5.4	10	14	9.7	39	56	216	282	37	817	160	764
5	e5.8	9.5	13	32	39	50	171	252	35	2070	979	315
6	e5.6	8.2	12	49	37	44	149	189	35	1300	1670	129
7	e5.4	7.4	10	51	35	42	135	197	32	762	2150	110
8	e5.2	6.8	9.1	377	33	72	182	810	30	2390	1910	120
9	e5.0	6.8	8.8	365	32	723	571	736	32	1170	672	69
10	e7.0	7.2	12	178	30	1060	1490	416	34	458	373	51
11	e5.6	7.9	16	107	32	588	1290	277	220	292	278	43
12	e5.2	6.9	13	82	40	359	592	204	1300	205	204	39
13	e6.2	6.8	11	68	37	266	395	160	2430	153	148	35
14	e16	7.9	10	e50	34	237	334	130	1570	119	121	32
15	12	8.9	9.8	e48	32	217	304	113	876	100	102	29
16	6.8	12	9.9	e46	32	182	366	102	778	87	101	28
17	5.9	9.3	9.6	45	40	202	240	88	850	75	83	27
18	5.7	8.4	9.1	41	132	546	175	79	476	66	74	27
19	5.7	8.2	8.7	38	187	1000	152	75	538	59	67	26
20	5.5	8.2	8.5	35	151	1030	131	74	397	54	61	25
21	5.9	15	10	32	197	1230	118	77	257	53	57	24
22	5.8	11	9.0	31	150	858	111	86	194	2240	55	24
23	6.1	13	12	44	122	531	103	72	151	3670	52	27
24	6.2	9.7	14	44	104	369	95	67	124	3310	51	25
25	6.2	8.3	21	41	89	283	90	72	104	1290	55	25
26	6.9	8.9	19	39	82	238	95	68	89	450	52	24
27	8.6	7.7	14	39	83	196	114	57	79	297	49	22
28	10	11	11	51	74	340	99	53	70	209	46	22
29	8.1	13	9.6	65	---	776	97	50	78	157	46	21
30	7.2	14	8.8	63	---	562	125	48	185	125	44	21
31	7.1	---	7.9	55	---	356	---	46	---	104	42	---
TOTAL	209.5	283.5	355.8	2145.2	2002	12598	8994	5906	11124	22502	9939	2226
MEAN	6.76	9.45	11.5	69.2	71.5	406	300	191	371	726	321	74.2
MAX	16	15	21	377	197	1230	1490	810	2430	3670	2150	764
MIN	5.0	6.8	7.9	5.8	30	42	90	46	30	53	42	21
CFSM	.04	.06	.07	.44	.45	2.56	1.89	1.20	2.33	4.57	2.02	.47
IN.	.05	.07	.08	.50	.47	2.95	2.10	1.38	2.60	5.26	2.33	.52

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1998, BY WATER YEAR (WY)

	MEAN	48.2	138	177	167	219	300	245	172	150	110	56.2	41.9
MAX	238	797	563	731	648	902	637	525	429	726	321	226	
(WY)	1991	1993	1991	1974	1990	1982	1972	1996	1980	1998	1998	1972	
MIN	6.66	8.79	6.57	3.70	25.1	49.7	45.6	28.5	12.4	8.17	7.63	5.16	
(WY)	1989	1981	1977	1977	1978	1981	1971	1976	1988	1988	1971	1991	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1968 - 1998
ANNUAL TOTAL	47992.6	78285.0	
ANNUAL MEAN	131	214	152
HIGHEST ANNUAL MEAN			266
LOWEST ANNUAL MEAN			67.6
HIGHEST DAILY MEAN	3430	Feb 28	4210
LOWEST DAILY MEAN	5.0	Oct 9	3.3
ANNUAL SEVEN-DAY MINIMUM	5.4	Oct 3	3.5
INSTANTANEOUS PEAK FLOW			5140
INSTANTANEOUS PEAK STAGE			17.91
ANNUAL RUNOFF (CFSM)	.83		.96
ANNUAL RUNOFF (INCHES)	11.23		13.02
10 PERCENT EXCEEDS	317	566	367
50 PERCENT EXCEEDS	43	55	55
90 PERCENT EXCEEDS	7.2	7.8	11

e Estimated

## WABASH RIVER BASIN

03328000 EEL RIVER AT NORTH MANCHESTER, IN

LOCATION.--Lat 40°59'55", long 85°45'50", in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.5, T.29 N., R.7 E., Wabash County, Hydrologic Unit 05120104, on right bank 200 ft downstream from Main Street bridge in North Manchester, 1.3 mi upstream from Pony Creek, and at mile 52.7.

DRAINAGE AREA.--417 mi<sup>2</sup>, includes that of Pony Creek.

PERIOD OF RECORD.--October 1929 to current year. Prior to April 1930, monthly discharge only, published in WSP 1305. Gage-height records since November 20, 1923 are available from the district office.

REVISED RECORDS.--WSP 1275: 1930-37, 1939, 1940(M), 1942, 1948. WSP 1909: 1957. WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 738.00 ft above sea level. Prior to July 24, 1953, nonrecording gage on downstream side of Second Street bridge, 700 ft upstream at same datum.

REMARKS.--Records fair. Records include flow of Pony Creek.

EXTREMES FOR PERIOD OF RECORD.--Maximum instantaneous gage height occurred Dec. 30, 1990 during period of no gage height record.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	186	155	901	290	483	296	1210	414	122	255	203	101
2	175	308	560	290	457	274	1110	497	120	178	186	100
3	169	281	432	306	409	262	789	528	119	150	176	97
4	162	225	426	2590	364	256	633	1190	117	874	209	97
5	155	196	382	3730	331	250	533	765	112	691	316	94
6	148	179	324	4640	299	235	471	509	112	370	350	93
7	144	169	288	3880	278	227	428	417	110	310	542	96
8	141	162	263	4460	263	246	456	674	105	510	582	100
9	140	158	251	4710	252	2260	1990	552	108	332	391	94
10	142	156	263	3520	244	3370	4700	404	111	245	298	92
11	139	151	346	2410	256	2530	3620	340	321	192	240	91
12	137	146	335	1560	441	1420	2430	298	997	162	201	88
13	138	142	299	1220	433	926	1440	265	1950	148	178	87
14	156	147	268	975	347	750	1130	244	886	136	165	86
15	150	153	247	826	305	625	952	226	511	127	159	86
16	142	155	247	700	285	527	1290	212	643	122	161	87
17	139	147	303	595	306	486	1060	196	907	115	148	88
18	137	141	304	531	960	1290	737	184	463	110	137	87
19	135	142	289	474	922	2710	591	175	498	105	129	85
20	133	144	289	429	671	2450	506	169	400	132	123	85
21	130	210	269	391	529	2630	450	162	300	122	121	86
22	128	483	271	364	430	2170	417	157	260	5270	118	92
23	129	417	730	364	376	1370	385	154	241	3370	126	86
24	129	299	638	354	340	940	354	158	219	1330	118	84
25	129	245	1660	338	314	741	328	161	188	779	118	85
26	134	225	1380	320	292	637	320	150	176	541	116	83
27	185	208	790	365	310	554	306	141	190	429	114	81
28	184	961	556	603	322	1320	285	136	167	357	112	80
29	163	1690	444	681	---	2570	317	132	156	296	112	79
30	152	1530	387	631	---	1680	342	130	237	259	109	79
31	144	---	338	528	---	997	---	127	---	230	102	---
TOTAL	4575	9725	14480	43075	11219	36999	29580	9867	10846	18247	6160	2669
MEAN	148	324	467	1390	401	1194	986	318	362	589	199	89.0
MAX	186	1690	1660	4710	960	3370	4700	1190	1950	5270	582	101
MIN	128	141	247	290	244	227	285	127	105	105	102	79
CFSM	.35	.78	1.12	3.33	.96	2.86	2.36	.76	.87	1.41	.48	.21
IN.	.41	.87	1.29	3.84	1.00	3.30	2.64	.88	.97	1.63	.55	.24

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 1998, BY WATER YEAR (WY)

	MEAN	168	277	403	482	574	722	670	428	337	221	158	134
MAX	1165	1416	1717	2258	1772	2425	1768	2021	1376	767	1031	566	
(WY)	1955	1993	1967	1950	1959	1982	1957	1943	1981	1951	1990	1992	
MIN	46.2	53.4	49.4	43.2	62.0	200	141	86.1	68.1	44.2	30.7	27.6	
(WY)	1947	1940	1964	1977	1964	1941	1946	1931	1934	1941	1941	1941	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1930 - 1998
ANNUAL TOTAL	218464	197442	
ANNUAL MEAN	599	541	381
HIGHEST ANNUAL MEAN			783
LOWEST ANNUAL MEAN			103
HIGHEST DAILY MEAN	6170	Jul 24	7770
LOWEST DAILY MEAN	126	Sep 8	16
ANNUAL SEVEN-DAY MINIMUM	130	Oct 20	82
INSTANTANEOUS PEAK FLOW			6710
INSTANTANEOUS PEAK STAGE			12.65
ANNUAL RUNOFF (CFSM)	1.44		1.30
ANNUAL RUNOFF (INCHES)	19.49		17.61
10 PERCENT EXCEEDS	1390		1250
50 PERCENT EXCEEDS	304		278
90 PERCENT EXCEEDS	149		110

e Estimated

03328430 WEESAU CREEK NEAR DEEDSVILLE, IN

LOCATION.--Lat 40°54'34", long 86°07'36", in NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.6, T.28 N., R.4 E., Miami County, Hydrologic Unit 05120104, on left bank 100 ft downstream from bridge on County Road 1000 North, and 1.5 mi west of Deedsville.

DRAINAGE AREA.--8.87 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1970 to current year.

GAGE.--Water-stage recorder. Datum of gage is 785.00 ft above sea level.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	2.7	32	e12	11	4.2	49	14	3.4	3.9	6.2	2.3
2	1.8	4.2	26	e11	9.9	3.1	31	11	2.4	2.3	4.7	2.2
3	1.7	3.9	22	15	8.0	2.9	18	9.7	2.0	2.0	4.0	2.3
4	1.5	3.6	22	122	7.3	2.7	12	14	1.7	219	131	3.2
5	1.5	3.2	18	105	5.5	2.2	8.6	11	1.5	83	75	2.5
6	1.5	3.1	15	101	5.1	2.1	6.7	8.5	1.2	49	52	2.2
7	1.4	2.7	12	101	4.2	1.9	6.1	15	1.1	37	53	2.7
8	1.5	e2.5	11	132	3.8	15	19	53	.96	31	52	2.4
9	1.6	e2.3	9.3	91	3.8	89	85	26	1.2	25	31	2.0
10	1.7	e2.1	23	66	3.6	54	90	16	1.0	17	23	1.8
11	1.6	e2.0	35	51	7.4	27	55	11	43	12	17	1.6
12	1.7	e1.9	29	40	18	e11	38	9.4	99	9.0	12	1.3
13	2.2	e1.8	22	34	12	e8.2	27	7.8	46	7.3	10	1.3
14	2.8	2.6	16	26	9.2	e7.0	26	6.4	22	6.2	8.6	1.5
15	2.1	2.7	14	21	7.5	e6.4	22	5.6	16	5.0	6.9	1.8
16	e1.7	2.6	13	16	6.7	e6.0	33	5.1	26	4.1	5.7	2.1
17	e1.4	2.4	13	13	12	14	22	4.3	20	3.5	5.5	1.8
18	e1.2	e2.1	12	11	30	66	17	3.7	10	2.5	4.7	e1.5
19	e1.1	e1.9	12	9.0	21	54	15	3.6	38	2.7	4.1	e1.3
20	e1.0	e1.8	10	8.5	15	54	12	18	16	3.0	3.5	e1.4
21	e.94	7.2	9.3	8.0	12	62	11	8.3	9.8	2.9	3.1	2.0
22	e.90	10	15	6.2	10	30	11	5.0	7.6	182	2.9	1.8
23	e.88	6.3	32	e10	8.6	15	9.5	3.7	5.9	97	2.8	1.6
24	e1.2	4.9	32	e8.6	7.6	8.9	8.6	3.8	4.3	52	3.0	.88
25	1.3	3.5	61	e7.6	6.1	7.0	8.0	3.5	3.3	37	3.2	.81
26	1.8	3.4	42	e7.0	5.6	5.9	8.9	2.8	2.4	29	2.9	1.0
27	3.6	3.1	32	9.6	5.3	5.1	7.6	2.4	2.0	20	2.6	1.5
28	3.0	52	26	13	4.6	66	6.1	2.1	1.6	14	2.7	1.4
29	2.5	58	21	15	---	63	8.7	14	5.4	11	2.6	e1.3
30	2.2	44	17	15	---	35	12	24	8.6	9.2	2.5	e1.4
31	2.2	---	14	13	---	21	---	6.2	---	7.4	2.4	---
TOTAL	53.72	244.5	667.6	1098.5	260.8	749.6	683.8	328.9	403.36	986.0	540.6	52.89
MEAN	1.73	8.15	21.5	35.4	9.31	24.2	22.8	10.6	13.4	31.8	17.4	1.76
MAX	3.6	58	61	132	30	89	90	53	99	219	131	3.2
MIN	.88	1.8	9.3	6.2	3.6	1.9	6.1	2.1	.96	2.0	2.4	.81
CFSM	.20	.92	2.43	3.99	1.05	2.73	2.57	1.20	1.52	3.59	1.97	.20
IN.	.23	1.03	2.80	4.61	1.09	3.14	2.87	1.38	1.69	4.14	2.27	.22

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 1998, BY WATER YEAR (WY)

	MEAN	4.79	9.49	13.5	12.5	16.2	20.8	16.1	10.9	9.23	7.23	4.73	4.23
MAX	28.5	34.5	35.9	55.6	47.6	53.7	34.5	24.6	31.6	31.8	47.0	21.6	
(WY)	1991	1993	1991	1993	1985	1982	1983	1983	1986	1998	1990	1989	
MIN	.79	.95	.61	.30	2.50	3.50	3.74	3.30	1.17	.80	.66	.45	
(WY)	1975	1977	1977	1977	1996	1981	1996	1977	1988	1988	1988	1988	

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1971 - 1998

ANNUAL TOTAL	5196.20	6070.27	10.8
ANNUAL MEAN	14.2	16.6	19.1
HIGHEST ANNUAL MEAN			5.07
LOWEST ANNUAL MEAN			
HIGHEST DAILY MEAN	170	219	436
LOWEST DAILY MEAN	.31	.81	.26
ANNUAL SEVEN-DAY MINIMUM	.67	1.0	.27
INSTANTANEOUS PEAK FLOW		281	518
INSTANTANEOUS PEAK STAGE		7.17	7.39
ANNUAL RUNOFF (CFSM)	1.60	1.87	1.22
ANNUAL RUNOFF (INCHES)	21.79	25.46	16.52
10 PERCENT EXCEEDS	34	47	25
50 PERCENT EXCEEDS	7.6	7.5	4.5
90 PERCENT EXCEEDS	1.6	1.6	1.1

e Estimated



## WABASH RIVER BASIN

03328500 EEL RIVER NEAR LOGANSPOET, IN

LOCATION.--Lat 40°46'55", long 86°15'50", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.14, T.27 N., R.2 E., Cass County, Hydrologic Unit 05120104, on right bank at downstream side of bridge on Adamsboro Road, 5.5 mi northeast of Logansport, and 7.4 mi upstream from mouth.

DRAINAGE AREA.--789 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1943 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 621.50 ft above sea level. Prior to Aug. 16, 1956, nonrecording gage at same site and datum.

REMARKS.--Records fair.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 18, 1943, reached a stage of 13.2 ft, from floodmark, discharge, 17,000 ft<sup>3</sup>/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	341	318	1720	585	913	611	2210	907	435	532	633	300
2	331	339	1120	551	849	579	2300	960	404	491	571	294
3	325	489	844	545	805	556	1720	982	391	409	528	292
4	318	447	737	2590	738	544	1360	1730	387	6930	3230	678
5	306	386	711	5960	690	527	1150	1860	378	3890	3760	366
6	295	345	636	7180	643	514	1020	1300	374	1940	1920	312
7	287	322	561	7170	600	497	939	1110	366	1470	2110	324
8	283	309	512	7520	574	552	1140	2620	358	1440	2210	308
9	284	300	484	8460	555	2450	2280	2050	372	1200	1670	293
10	277	293	503	6770	540	5310	7160	1360	369	869	1230	281
11	275	284	667	4380	556	4090	7050	1070	514	695	996	277
12	274	277	738	2870	702	2680	4540	921	2450	590	806	271
13	276	271	658	2110	850	1720	2850	815	2880	522	693	265
14	283	276	579	1710	757	1400	2070	738	2340	476	618	260
15	295	280	518	1470	672	1260	1780	691	1470	441	567	257
16	295	283	486	1280	625	1090	2970	653	1240	412	533	252
17	288	280	479	1130	626	1030	2570	611	2820	387	503	254
18	282	274	528	1020	971	2160	1680	579	1570	369	474	253
19	279	268	520	921	1590	4140	1320	562	1220	358	447	251
20	277	270	504	844	1240	4130	1130	775	1230	360	426	250
21	276	284	498	784	1020	4780	1040	701	889	363	409	264
22	271	384	488	737	862	3770	971	578	732	6970	397	254
23	271	669	687	753	766	2650	912	531	630	13400	386	245
24	271	573	1110	767	707	1830	832	515	573	9970	382	244
25	270	461	1640	735	661	1440	792	549	520	2790	375	244
26	278	408	2410	702	624	1240	789	530	471	1880	360	242
27	308	381	1570	700	607	1100	747	480	446	1420	346	236
28	367	546	1090	862	621	1820	709	456	439	1150	333	242
29	363	2510	865	1090	---	4220	717	456	499	964	333	235
30	335	2270	750	1150	---	3510	804	651	688	818	323	235
31	318	---	670	1020	---	2160	---	500	---	716	309	---
TOTAL	9199	14797	25283	74366	21364	64360	57552	28241	27455	64222	27878	8479
MEAN	297	493	816	2399	763	2076	1918	911	915	2072	899	283
MAX	367	2510	2410	8460	1590	5310	7160	2620	2880	13400	3760	678
MIN	270	268	479	545	540	497	709	456	358	358	309	235
CFSM	.38	.63	1.03	3.04	.97	2.63	2.43	1.15	1.16	2.63	1.14	.36
IN.	.43	.70	1.19	3.51	1.01	3.03	2.71	1.33	1.29	3.03	1.31	.40

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 1998, BY WATER YEAR (WY)

	MEAN	354	531	833	965	1125	1382	1310	873	776	506	370	311
MAX	1806	2384	2898	4507	3090	4612	3285	1827	2208	2072	2115	1052	
(WY)	1991	1993	1967	1950	1959	1982	1950	1983	1975	1998	1990	1972	
MIN	95.1	110	98.2	101	184	353	366	245	176	140	128	101	
(WY)	1964	1964	1964	1977	1964	1966	1958	1958	1988	1988	1966	1963	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1944 - 1998
ANNUAL TOTAL	406244	423196	
ANNUAL MEAN	1113	1159	776
HIGHEST ANNUAL MEAN			1573
LOWEST ANNUAL MEAN			324
HIGHEST DAILY MEAN	9210	Jul 25	16600
LOWEST DAILY MEAN	264	Sep 8	70
ANNUAL SEVEN-DAY MINIMUM	273	Oct 20	76
INSTANTANEOUS PEAK FLOW			14800
INSTANTANEOUS PEAK STAGE			11.77
ANNUAL RUNOFF (CFSM)	1.41		1.47
ANNUAL RUNOFF (INCHES)	19.15		19.95
10 PERCENT EXCEEDS	2280		2530
50 PERCENT EXCEEDS	669		626
90 PERCENT EXCEEDS	294		278

## 03329000 WABASH RIVER AT LOGANSPOET, IN

LOCATION.--Lat 40°44'47", long 86°22'39", in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.35, T.27 N., R.1 E., Cass County, Hydrologic Unit 05120105, on left bank, 150 ft downstream from Cicott Street bridge in Logansport, 1,000 ft downstream from Eel River, and at mile 353.7.

DRAINAGE AREA.--3,779 mi<sup>2</sup>.

PERIOD OF RECORD.--April to September, November and December 1903, March to November 1904, March 1905 to July 1906, May 1923 to current year. January, February, and December 1904, January and February 1905 (gage heights only). Gage-height records collected at same site December 1910 to December 1916, and since January 1926 are contained in reports of National Weather Service.

REVISED RECORDS.--WSP 783: 1934. WSP 1335: 1904, 1925(M), 1926-30, 1931(M), 1932-35, 1937-39, 1948. WSP 1385: 1903, 1905-6, 1923-25. WSP 1505: 1906(M). WSP 2109: Drainage area. WDR IN-81-1: 1979.

GAGE.--Water-stage recorder. Datum of gage is 573.28 ft above sea level (levels by U.S. Army Corps of Engineers). See WSP 1705 for history of changes prior to Oct. 1, 1927.

REMARKS.--Records good. Flow partially regulated by Huntington Lake, Salamonie Lake, and Mississinewa Lake.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 25.3 ft March 26, 1913, from floodmarks, discharge, 140,000 ft<sup>3</sup>/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	737	1150	3590	2310	2760	2700	5100	3440	1860	9810	10700	5750
2	782	1170	2360	1660	2530	1800	6980	4550	2010	8450	10300	5620
3	963	1300	1760	1550	2240	1690	8050	6550	2020	3890	8480	5300
4	971	1370	1490	4470	1950	1620	9050	7460	1940	16600	11800	7990
5	1300	1260	1880	12100	1790	1600	6740	7500	1500	11500	16000	3030
6	990	1190	2030	14600	1690	1520	3340	5930	1170	6840	11500	1680
7	968	1150	1870	13000	1530	2480	3130	4030	993	10300	12000	1740
8	959	1130	1740	16500	1380	2110	3460	7890	900	10600	12600	1560
9	963	1160	1720	16800	1340	7850	7450	7330	953	9000	11500	4260
10	957	1240	1760	14000	1250	14600	22000	9100	1100	9220	11700	4590
11	944	1220	1990	12000	1270	12500	16800	10000	1540	9600	12100	3570
12	932	1110	2520	10400	1440	11100	13600	8890	6520	9890	11600	1490
13	934	1140	2440	9720	1870	10300	11700	6830	10300	9580	11200	919
14	956	1170	2290	8470	1870	10200	11200	3530	9690	10200	11600	983
15	934	1180	2050	7710	1740	9840	12400	2550	6250	10200	11500	943
16	1210	1190	1860	6840	1660	9210	17300	2270	6090	10000	11300	896
17	1580	1190	1940	3660	1650	3220	10400	2120	9760	9130	10700	885
18	1590	1170	2000	3070	2760	5610	8790	1860	7480	5840	8810	857
19	1580	1060	1970	2500	7930	12500	9430	1750	9460	2210	6300	847
20	1160	1020	1940	1960	9410	12500	10400	1830	10800	1810	6200	882
21	1080	1090	1880	1810	10900	16700	10300	1710	9840	1590	5780	913
22	1070	1170	1760	1670	10500	14300	9920	1510	9400	25400	5870	916
23	1090	1980	2180	1820	8360	13200	10400	1660	9970	32500	5320	1040
24	1520	1810	3620	2330	5680	13100	10000	1890	10500	22400	5580	1120
25	1530	1510	4470	2350	3820	12400	8310	1990	9390	12300	5740	1120
26	1550	1220	6860	1950	2510	11700	6080	2010	10400	9460	5590	953
27	1170	963	5060	1950	2260	11000	5950	1560	10400	10900	5660	897
28	1160	1060	3980	2430	3460	12800	2920	1480	10200	11300	5810	869
29	1180	5240	3470	3200	---	14600	2890	1490	10500	10800	5770	847
30	1160	4990	2970	3520	---	7960	3140	1660	9440	10500	5680	831
31	1160	---	2570	3240	---	5010	---	1820	---	10500	5660	---
TOTAL	35080	44603	80020	189590	97550	267720	267230	124190	192376	332320	280350	63298
MEAN	1132	1487	2581	6116	3484	8636	8908	4006	6413	10720	9044	2110
MAX	1590	5240	6860	16800	10900	16700	22000	10000	10800	32500	16000	7990
MIN	737	963	1490	1550	1250	1520	2890	1480	900	1590	5320	831
CFSM	.30	.39	.68	1.62	.92	2.29	2.36	1.06	1.70	2.84	2.39	.56
IN.	.35	.44	.79	1.87	.96	2.64	2.63	1.22	1.89	3.27	2.76	.62

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 1998, BY WATER YEAR (WY)

	MEAN	1413	2228	3710	4704	5119	6527	5906	3802	3214	2090	1352	1230
MAX	6547	10940	12340	25590	15880	18180	17520	21310	16440	10720	9044	10710	
(WY)	1991	1973	1968	1950	1959	1982	1957	1943	1958	1998	1998	1926	
MIN	197	296	252	290	417	638	929	600	388	269	203	176	
(WY)	1964	1964	1964	1945	1964	1941	1971	1941	1988	1936	1941	1941	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1924 - 1998
ANNUAL TOTAL	1680625	1974327	
ANNUAL MEAN	4604	5409	3432
HIGHEST ANNUAL MEAN			6614
LOWEST ANNUAL MEAN			796
HIGHEST DAILY MEAN	25400	Feb 27	84700
LOWEST DAILY MEAN	529	Sep 8	135
ANNUAL SEVEN-DAY MINIMUM	594	Sep 3	142
INSTANTANEOUS PEAK FLOW			89800
INSTANTANEOUS PEAK STAGE			21.32
ANNUAL RUNOFF (CFSM)	1.22		.91
ANNUAL RUNOFF (INCHES)	16.54		12.34
10 PERCENT EXCEEDS	12000		9300
50 PERCENT EXCEEDS	1970		1460
90 PERCENT EXCEEDS	943		419

## WABASH RIVER BASIN

03329700 DEER CREEK NEAR DELPHI, IN

LOCATION.--Lat 40°35'25", long 86°37'15", in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.27, T.25 N., R.2 W., Carroll County, Hydrologic Unit 05120105, on downstream side of left wingwall of county road bridge, 2.6 mi northeast of Delphi Post Office, and 4.8 mi upstream from mouth.

DRAINAGE AREA.--274 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1943 to current year. Prior to March 1944 monthly discharge only, published in WSP 1305.

REVISED RECORDS.--WSP 1275: 1944, 1947-48. WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 553.81 ft above sea level, (U.S. Army Corps of Engineers bench mark, levels by State of Indiana, Department of Natural Resources).

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1943 reached a stage of 19.8 ft. from floodmarks, discharge, 18,000 ft<sup>3</sup>/s from rating curve extended above 8,000 ft<sup>3</sup>/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	e28	e56	e64	160	126	752	342	147	503	175	51
2	e30	e33	e52	e60	151	118	677	385	131	302	152	50
3	e29	e41	e50	59	134	116	506	357	119	232	136	48
4	e28	42	e45	64	124	114	420	410	114	1530	150	46
5	e27	42	e42	82	121	105	346	367	110	1350	940	107
6	e25	41	e41	238	115	99	309	300	105	584	835	79
7	e24	39	e40	348	108	94	288	561	100	1730	555	68
8	e26	e37	e39	778	101	120	322	1710	95	3290	393	111
9	e31	e35	e41	1020	96	1110	557	1260	111	2030	508	95
10	e29	e33	e49	564	93	1450	1970	753	109	783	436	71
11	e25	e31	e58	365	99	802	1140	532	1040	502	290	60
12	e24	e30	e66	282	112	519	689	412	2970	368	215	53
13	e29	e28	e62	235	111	404	510	341	3180	294	173	49
14	e39	e34	e56	e190	103	368	462	289	1550	248	149	47
15	e34	41	e50	e180	98	342	438	259	1290	215	133	45
16	e28	45	e47	167	95	324	415	239	2160	195	123	43
17	e26	e40	e46	147	107	361	369	213	1920	176	109	43
18	e25	e37	e45	132	152	1080	299	195	1040	160	100	42
19	e24	e30	e44	119	254	1590	277	187	1400	157	92	41
20	e23	e31	e43	110	223	1760	258	200	1130	159	86	39
21	e23	e33	e41	103	209	2590	242	235	673	134	79	39
22	e22	45	e44	103	197	1510	234	184	515	2350	75	39
23	e21	57	e47	124	185	926	221	185	407	8570	71	37
24	e23	46	53	151	175	666	207	192	336	4260	67	39
25	e26	e42	78	134	158	515	200	205	285	1140	68	45
26	e33	e39	107	119	147	440	208	172	251	666	68	42
27	e42	e37	99	114	147	378	206	154	222	471	67	39
28	e36	e44	87	144	140	1200	190	142	197	355	61	37
29	e30	e50	78	194	---	1970	193	192	234	287	61	36
30	e27	59	74	195	---	1010	218	285	804	241	57	35
31	e25	---	e67	175	---	681	---	181	---	206	53	---
TOTAL	865	1170	1747	6760	3915	22888	13123	11439	22745	33488	6477	1576
MEAN	27.9	39.0	56.4	218	140	738	437	369	758	1080	209	52.5
MAX	42	59	107	1020	254	2590	1970	1710	3180	8570	940	111
MIN	21	28	39	59	93	94	190	142	95	134	53	35
CFSM	.10	.14	.21	.80	.51	2.69	1.60	1.35	2.77	3.94	.76	.19
IN.	.12	.16	.24	.92	.53	3.11	1.78	1.55	3.09	4.55	.88	.21

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 1998, BY WATER YEAR (WY)

	MEAN	94.5	166	253	316	371	453	428	304	269	186	102	81.3
MAX	575	1249	983	1882	1039	1311	1109	793	1799	1080	537	568	
(WY)	1991	1993	1991	1950	1959	1982	1959	1983	1958	1998	1958	1989	
MIN	15.0	22.7	22.2	17.6	36.1	46.8	83.0	62.2	30.7	22.5	12.5	10.6	
(WY)	1965	1954	1945	1977	1954	1954	1971	1976	1977	1944	1966	1954	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1944 - 1998
ANNUAL TOTAL	110055	126193	
ANNUAL MEAN	302	346	251
HIGHEST ANNUAL MEAN			510
LOWEST ANNUAL MEAN			62.7
HIGHEST DAILY MEAN	6000	Feb 28	12600
LOWEST DAILY MEAN	21	Oct 23	6.2
ANNUAL SEVEN-DAY MINIMUM	23	Oct 18	6.3
INSTANTANEOUS PEAK FLOW			14400
INSTANTANEOUS PEAK STAGE			18.26
ANNUAL RUNOFF (CFSM)	1.10		.92
ANNUAL RUNOFF (INCHES)	14.94		12.46
10 PERCENT EXCEEDS	645	871	563
50 PERCENT EXCEEDS	124	133	105
90 PERCENT EXCEEDS	33	34	27

e Estimated

03330241 TIPPECANOE RIVER AT NORTH WEBSTER, IN

LOCATION.--Lat 41°18'58", long 85°41'32", in SE 1/4 NE 1/4 sec.15, T.33 N., R.7 E., Kosciusko County, Hydrologic Unit 05120106, on right upstream corner of State Road 13 bridge, at the intersection of State Road 13 and County Road 550 North, and 0.4 mi southeast of North Webster.

DRAINAGE AREA.--49.3 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1986 to current year.

GAGE.--Water-stage recorder. Datum of gage is 840.00 ft above sea level.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Flow regulated by dams at Webster Lake, 0.25 mi upstream.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	3.3	55	45	46	53	181	70	5.2	40	11	3.6
2	15	6.3	53	44	46	50	180	68	5.3	12	11	3.8
3	14	6.8	e50	52	47	48	177	59	5.5	14	11	e4.0
4	14	6.7	e64	116	50	44	163	56	6.1	31	33	e4.1
5	10	6.9	e63	175	50	43	120	46	6.1	41	97	e4.1
6	2.2	7.4	61	213	49	43	112	48	5.9	40	89	e3.9
7	2.7	7.6	59	250	49	36	78	55	6.1	40	86	e4.2
8	2.9	21	57	284	49	28	83	74	6.6	40	89	e4.1
9	3.2	41	55	303	48	73	154	54	7.7	34	99	e4.0
10	3.4	38	55	308	48	104	216	30	8.7	8.1	101	e3.4
11	3.2	36	54	308	48	124	218	4.9	31	7.6	96	e3.4
12	3.0	34	53	302	49	130	217	7.8	43	8.1	76	e3.3
13	3.5	32	51	286	49	134	217	28	47	8.6	5.3	e3.2
14	4.3	32	27	263	46	135	219	97	22	9.2	7.5	e3.4
15	4.2	32	3.6	233	42	135	212	58	5.8	9.5	9.3	e3.5
16	4.5	21	3.6	187	41	161	199	6.6	20	9.8	9.3	e3.5
17	4.8	7.4	3.6	177	46	166	155	7.3	61	10	11	e3.5
18	5.1	7.2	3.6	164	63	152	130	7.3	54	9.9	12	e3.6
19	5.4	7.1	3.6	158	65	126	121	8.5	55	10	11	e3.7
20	5.6	7.0	5.5	129	72	139	97	9.7	41	11	11	e3.7
21	7.8	7.1	11	48	72	174	53	10	37	21	11	e3.8
22	18	12	11	53	72	165	54	11	29	144	12	e3.7
23	17	17	11	55	71	157	50	10	6.2	120	22	e3.5
24	17	16	19	58	69	155	29	58	7.1	88	43	e3.4
25	28	17	45	65	65	e150	29	81	7.8	79	39	e3.3
26	44	17	46	70	64	e130	30	42	12	56	31	e3.4
27	43	17	46	71	60	e100	28	3.2	22	56	12	e3.5
28	40	18	47	70	55	63	23	3.8	45	55	12	e3.4
29	32	20	47	68	---	107	28	4.1	44	47	12	e3.3
30	.99	42	47	63	---	177	57	4.5	52	9.5	10	e3.4
31	1.0	---	46	56	---	182	---	5.0	---	11	3.9	---
TOTAL	375.79	543.8	1156.5	4674	1531	3484	3630	1027.7	705.1	1080.3	1083.3	108.7
MEAN	12.1	18.1	37.3	151	54.7	112	121	33.2	23.5	34.8	34.9	3.62
MAX	44	42	64	308	72	182	219	97	61	144	101	4.2
MIN	.99	3.3	3.6	44	41	28	23	3.2	5.2	7.6	3.9	3.2
CFSM	.25	.37	.76	3.06	1.11	2.28	2.45	.67	.48	.71	.71	.07
IN.	.28	.41	.87	3.53	1.16	2.63	2.74	.78	.53	.82	.82	.08

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1998, BY WATER YEAR (WY)

	MEAN	MAX	(WY)	MIN	(WY)
1987	36.2	142	1991	2.68	1995
1988	46.3	133	1993	6.61	1995
1989	50.7	98.8	1987	12.3	1996
1990	81.9	209	1993	26.5	1996
1991	57.7	119	1990	31.5	1989
1992	69.1	137	1997	24.1	1996
1993	77.1	121	1998	46.8	1992
1994	50.7	112	1996	15.4	1988
1995	51.9	138	1996	3.08	1988
1996	26.8	72.0	1996	4.36	1988
1997	23.2	80.1	1990	2.00	1988
1998	18.7	87.7	1990	2.74	1994

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1987 - 1998
ANNUAL TOTAL	20412.49	19400.19	
ANNUAL MEAN	55.9	53.2	49.1
HIGHEST ANNUAL MEAN			70.5
LOWEST ANNUAL MEAN			29.6
HIGHEST DAILY MEAN	300	308	420
LOWEST DAILY MEAN	.99	.99	.06
ANNUAL SEVEN-DAY MINIMUM	2.9	2.9	.36
INSTANTANEOUS PEAK FLOW		313	430
INSTANTANEOUS PEAK STAGE		5.81	6.49
ANNUAL RUNOFF (CFSM)	1.13	1.08	1.00
ANNUAL RUNOFF (INCHES)	15.40	14.64	13.54
10 PERCENT EXCEEDS	126	153	116
50 PERCENT EXCEEDS	44	39	32
90 PERCENT EXCEEDS	4.5	3.7	5.5

e Estimated

03330500 TIPPECANOE RIVER AT OSWEGO, IN

LOCATION.--Lat 41°19'14", long 85°47'21", in NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.14, T.33 N., R.6 E., Kosciusko County, Hydrologic Unit 05120106, on left bank 50 ft downstream from dam at Tippecanoe Lake Outlet in Oswego, 3 mi east of Leesburg, and at mile 158.9.

DRAINAGE AREA.--113 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1949 to current year.

REVISED RECORDS.--WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 830.00 ft above sea level. Prior to Aug. 12, 1953, nonrecording gage at same site and datum.

REMARKS.--Records good except for estimated daily discharges, which are poor. Regulation by gates at lake outlet.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	77	83	e120	e175	145	343	185	13	114	63	43
2	46	74	88	e124	e170	143	352	187	13	87	62	42
3	45	71	e94	e130	e165	141	353	187	17	78	61	41
4	45	68	e95	e138	e162	138	345	191	37	84	73	40
5	45	66	e98	e150	e158	134	327	195	36	87	95	35
6	45	65	e100	e190	e153	130	314	200	34	90	111	26
7	45	63	e101	e280	e150	127	301	206	29	109	130	26
8	45	61	e101	e420	e148	126	293	212	9.3	139	183	26
9	45	60	e101	e480	e145	143	301	213	11	134	197	25
10	44	59	e101	e520	e144	156	348	206	12	109	200	25
11	34	59	e100	e540	e144	172	381	191	39	75	201	24
12	19	59	e98	e550	143	194	413	175	89	63	199	24
13	21	60	e95	e540	141	214	431	165	97	62	185	25
14	24	60	e92	e520	139	227	441	165	98	61	167	24
15	26	61	e88	e500	136	237	439	168	92	55	144	24
16	29	61	e86	e460	135	243	426	144	90	38	131	24
17	51	60	e84	e430	137	250	409	75	85	39	98	24
18	57	58	e82	e380	139	259	387	55	79	56	83	23
19	55	57	e81	e350	142	267	367	54	124	51	75	22
20	53	56	e80	e320	144	273	345	52	131	56	61	22
21	52	56	e79	e290	145	289	320	52	129	48	61	22
22	23	55	e80	e270	147	300	304	51	127	108	58	22
23	16	55	e81	e260	148	306	281	49	111	153	56	21
24	18	55	e84	e240	148	308	257	55	85	153	56	20
25	20	55	e88	e230	148	305	238	83	58	151	80	20
26	40	55	e95	e220	148	297	225	89	39	148	76	20
27	104	55	e101	e210	148	288	209	89	78	142	61	20
28	108	57	e106	e200	147	285	194	61	88	135	60	20
29	99	67	e110	e195	---	288	184	28	92	123	55	20
30	90	78	e115	e190	---	302	182	16	112	107	45	19
31	81	---	e117	e180	---	323	---	12	---	87	44	---
TOTAL	1471	1843	2904	9627	4149	7010	9710	3811	2054.3	2942	3171	769
MEAN	47.5	61.4	93.7	311	148	226	324	123	68.5	94.9	102	25.6
MAX	108	78	117	550	175	323	441	213	131	153	201	43
MIN	16	55	79	120	135	126	182	12	9.3	38	44	19
CFSM	.42	.54	.83	2.75	1.31	2.00	2.86	1.09	.61	.84	.91	.23
IN.	.48	.61	.96	3.17	1.37	2.31	3.20	1.25	.68	.97	1.04	.25

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 1998, BY WATER YEAR (WY)

	MEAN	59.4	75.7	111	133	140	185	194	131	103	65.9	46.9	44.1
MAX	369	230	298	443	373	498	498	493	340	363	198	188	237
(WY)	1955	1993	1967	1950	1950	1982	1950	1956	1981	1968	1990	1958	1958
MIN	4.73	7.25	16.0	7.51	11.0	44.0	58.6	30.8	18.6	11.4	1.13	.40	.40
(WY)	1954	1954	1963	1963	1963	1964	1966	1958	1988	1988	1967	1967	1967

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1950 - 1998
ANNUAL TOTAL	60434	49461.3	
ANNUAL MEAN	166	136	107
HIGHEST ANNUAL MEAN			196
LOWEST ANNUAL MEAN			30.8
HIGHEST DAILY MEAN	732	550	944
LOWEST DAILY MEAN	16	9.3	.08
ANNUAL SEVEN-DAY MINIMUM	28	19	.28
INSTANTANEOUS PEAK FLOW		550	950
INSTANTANEOUS PEAK STAGE		8.35	9.25
ANNUAL RUNOFF (CFSM)	1.47	1.20	.95
ANNUAL RUNOFF (INCHES)	19.90	16.28	12.89
10 PERCENT EXCEEDS	315	303	240
50 PERCENT EXCEEDS	132	98	77
90 PERCENT EXCEEDS	46	25	16

e Estimated



## 03331110 WALNUT CREEK NEAR WARSAW, IN

LOCATION.--Lat 41°12'17", long 85°52'11", in NW¼NE¼ sec.30, T.32 N., R.6 E., Kosciusko County, Hydrologic Unit 05120106, on left bank 10 ft upstream from bridge on County Road 200 South, 0.3 mi downstream from small right-bank tributary, and 2.5 mi south of court house in Warsaw.

DRAINAGE AREA.--19.6 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is 823.00 ft above sea level.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Flow occasionally regulated by lakes upstream.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	8.7	62	e20	e22	19	61	e45	7.3	e6.8	7.5	4.2
2	15	10	38	e20	e21	19	61	e48	e9.1	e7.7	6.9	4.3
3	14	11	24	e26	e20	17	51	e70	e8.2	7.4	6.3	4.5
4	13	11	e22	e60	e19	17	41	e90	e7.8	26	11	3.9
5	12	11	e20	e90	e18	16	37	e40	e7.6	28	19	3.7
6	11	11	e20	e120	e18	16	33	e38	e7.4	22	17	3.4
7	10	11	e19	e98	e17	15	29	e70	e7.2	20	18	3.5
8	9.3	10	e18	e160	e17	15	52	e60	e7.0	18	21	3.4
9	8.6	9.8	e18	e110	e17	59	133	38	e7.0	14	17	3.2
10	8.2	9.5	e19	e76	e17	78	179	28	e7.0	12	14	3.1
11	7.9	9.0	e21	e56	e20	67	134	23	e12	10	13	3.1
12	7.6	8.8	e20	e42	e22	50	96	22	e20	8.7	11	3.2
13	7.2	8.7	e20	e34	e25	40	73	21	e60	7.7	9.1	3.2
14	7.1	8.7	e19	e30	25	38	65	20	e25	6.9	7.8	2.7
15	7.4	8.9	e18	e27	25	38	58	18	e27	6.5	6.7	2.2
16	8.2	9.2	e18	e25	24	34	54	16	e32	6.2	6.0	2.8
17	8.2	9.5	e19	e24	24	31	46	15	e45	5.9	5.7	6.2
18	8.0	9.7	e18	e22	29	40	40	14	e22	5.6	5.6	3.3
19	7.9	9.9	e19	e22	31	55	39	13	e14	5.7	5.0	2.4
20	7.5	10	e20	e21	33	56	37	12	e11	6.4	4.7	2.0
21	7.1	11	e19	e20	32	68	35	11	e8.3	8.0	4.9	1.9
22	6.9	13	e20	e20	30	63	33	10	e7.6	38	4.9	1.8
23	6.7	14	e30	e21	28	51	33	9.7	e7.2	52	4.6	1.7
24	6.6	14	e34	e20	25	40	32	9.0	e6.8	44	4.3	1.8
25	6.8	13	e66	e19	24	37	30	9.0	e6.2	35	4.8	1.7
26	6.7	13	e50	e19	22	33	29	8.7	e7.0	24	5.2	1.6
27	7.5	13	e35	e19	20	29	27	8.4	e6.8	19	4.3	1.4
28	8.9	39	e30	e20	19	60	26	8.2	e7.0	15	3.7	1.3
29	8.4	105	e24	e22	---	85	33	7.9	e7.0	12	3.7	1.3
30	8.0	88	e22	e24	---	74	38	7.5	e7.0	10	3.6	1.3
31	8.1	---	e21	e22	---	57	---	7.3	---	8.7	3.7	---
TOTAL	275.8	518.4	803	1309	644	1317	1635	797.7	414.5	497.2	260.0	84.1
MEAN	8.90	17.3	25.9	42.2	23.0	42.5	54.5	25.7	13.8	16.0	8.39	2.80
MAX	16	105	66	160	33	85	179	90	60	52	21	6.2
MIN	6.6	8.7	18	19	17	15	26	7.3	6.2	5.6	3.6	1.3
CFSM	.45	.88	1.32	2.15	1.17	2.17	2.78	1.31	.70	.82	.43	.14
IN.	.52	.98	1.52	2.48	1.22	2.50	3.10	1.51	.79	.94	.49	.16

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 1998, BY WATER YEAR (WY)

	MEAN	8.24	15.0	21.1	20.4	24.0	34.7	34.8	21.4	19.5	11.0	7.04	7.08
MAX	54.6	44.9	48.3	77.7	60.6	110	66.5	60.8	80.3	49.3	53.7	27.0	
(WY)	1991	1993	1991	1993	1985	1982	1981	1981	1981	1997	1990	1980	
MIN	1.04	2.18	1.43	.91	2.87	10.5	14.3	6.35	2.34	1.73	1.07	.80	
(WY)	1977	1979	1977	1977	1979	1996	1976	1988	1988	1988	1971	1976	

## SUMMARY STATISTICS FOR 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1970 - 1998

ANNUAL TOTAL	11056.9	8555.7	18.6	
ANNUAL MEAN	30.3	23.4	31.9	1997
HIGHEST ANNUAL MEAN			10.0	1977
LOWEST ANNUAL MEAN			389	Jun 14 1981
HIGHEST DAILY MEAN	234	Jul 24	179	Apr 10
LOWEST DAILY MEAN	6.6	Oct 24	1.3	Sep 28
ANNUAL SEVEN-DAY MINIMUM	6.9	Oct 20	1.5	Sep 24
INSTANTANEOUS PEAK FLOW			231	Apr 9
INSTANTANEOUS PEAK STAGE			3.82	Apr 9
ANNUAL RUNOFF (CFSM)	1.55		1.20	
ANNUAL RUNOFF (INCHES)	20.99		16.24	
10 PERCENT EXCEEDS	62		55	
50 PERCENT EXCEEDS	20		17	
90 PERCENT EXCEEDS	9.2		4.7	

e Estimated

## WABASH RIVER BASIN

03331500 TIPPECANOE RIVER NEAR ORA, IN

LOCATION.--Lat 41°09'26", long 86°33'49", in SE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.6, T.31 N., R.1 W., Pulaski County, Hydrologic Unit 05120106, on right bank at downstream side of bridge on County Road 700 East, 1.0 mi upstream from Bartee Ditch, 1.3 mi southwest of Ora, and at mile 78.5.

DRAINAGE AREA.--856 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1943 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 1335: 1944(M). WSP 1505: 1949-50(P). WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 692.91 ft above sea level (levels by U.S. Army Corps of Engineers). Prior to July 30, 1956, nonrecording gage on upstream side of old highway bridge, 120 ft downstream. July 30, 1956, to Dec. 20, 1964, water-stage recorder on right bank at downstream side of old highway bridge, and Dec. 21, 1964, to Aug. 19, 1965, nonrecording gage on right bank 500 ft downstream. All gages at same datum.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	615	640	1240	905	1600	1050	2820	1720	745	1100	1080	554
2	597	691	1130	872	1570	1030	2980	1790	696	981	974	530
3	583	720	1080	860	1520	1010	3100	1920	654	926	888	508
4	572	732	1040	1330	1450	1010	2900	2240	637	1740	968	507
5	549	726	983	2370	1390	987	2650	2700	627	2990	1650	500
6	532	697	904	3070	1330	966	2430	2750	622	3790	2030	476
7	525	673	830	3670	1270	949	2250	2470	621	3190	2060	475
8	511	650	778	4450	1210	982	2180	2470	619	2690	2050	480
9	505	654	751	5580	1170	1450	2310	2650	617	2570	2210	456
10	502	664	755	6100	1130	2140	2840	2630	636	2310	2270	437
11	494	656	785	5690	1140	2320	4300	2400	681	2020	2220	422
12	488	635	793	4980	1310	2170	4700	2140	1390	1740	2200	407
13	487	620	785	e4300	1380	2050	4280	1920	1880	1470	2030	394
14	499	602	764	e3700	1310	2000	3920	1740	2010	1240	1740	385
15	496	598	736	e3300	1260	1950	3530	1580	1830	1080	1500	377
16	488	601	711	e2900	1220	1890	3220	1460	1730	980	1320	372
17	485	595	711	2730	1210	1840	3020	1360	2020	904	1190	369
18	474	588	719	2590	1280	1980	2820	1270	2210	843	1070	363
19	470	586	722	2420	1380	2230	2620	1200	2030	795	977	356
20	468	581	735	2250	1370	2460	2440	1220	1940	816	893	352
21	480	594	736	2100	1340	2650	2320	1180	1860	814	818	350
22	480	669	733	1980	1290	2920	2210	1070	1700	1170	768	342
23	481	712	799	1880	1240	2990	2090	992	1570	2400	761	333
24	476	703	880	1810	1200	2810	1970	943	1440	3430	728	326
25	470	684	1050	1740	1150	2580	1860	984	1290	3290	719	322
26	463	665	1260	1660	1110	2360	1790	938	1160	2680	689	320
27	501	652	1200	1610	1090	2170	1720	906	1040	2310	651	313
28	539	747	1120	1610	1070	2100	1620	881	928	2010	636	311
29	556	1290	1060	1640	---	2520	1570	860	887	1690	628	307
30	576	1410	1020	1650	---	3040	1620	839	1080	1410	601	307
31	594	---	959	1630	---	2980	---	805	---	1220	576	---
TOTAL	15956	21035	27769	83377	35990	61584	80080	50028	37150	56599	38895	11951
MEAN	515	701	896	2690	1285	1987	2669	1614	1238	1826	1255	398
MAX	615	1410	1260	6100	1600	3040	4700	2750	2210	3790	2270	554
MIN	463	581	711	860	1070	949	1570	805	617	795	576	307
CFSM	.60	.82	1.05	3.14	1.50	2.32	3.12	1.89	1.45	2.13	1.47	.47
IN.	.69	.91	1.21	3.62	1.56	2.68	3.48	2.17	1.61	2.46	1.69	.52

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 1998, BY WATER YEAR (WY)

MEAN	466	606	816	1018	1175	1475	1564	1140	924	625	445	369
MAX	2112	1933	2478	3552	3020	4239	4116	2869	3468	1943	2699	1224
(WY)	1991	1973	1967	1950	1959	1982	1950	1981	1981	1996	1990	1958
MIN	134	155	177	183	192	451	525	337	243	180	155	107
(WY)	1954	1954	1964	1963	1963	1957	1958	1958	1988	1988	1988	1966

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1944 - 1998
ANNUAL TOTAL	495085	520414	
ANNUAL MEAN	1356	1426	883
HIGHEST ANNUAL MEAN			1580
LOWEST ANNUAL MEAN			354
HIGHEST DAILY MEAN	5240	Mar 1	8450
LOWEST DAILY MEAN	463	Oct 26	87
ANNUAL SEVEN-DAY MINIMUM	474	Oct 20	93
INSTANTANEOUS PEAK FLOW			8660
INSTANTANEOUS PEAK STAGE			15.22
ANNUAL RUNOFF (CFSM)	1.58	1.67	1.03
ANNUAL RUNOFF (INCHES)	21.52	22.62	14.02
10 PERCENT EXCEEDS	2430	2710	1860
50 PERCENT EXCEEDS	1060	1120	620
90 PERCENT EXCEEDS	582	488	216

e Estimated

## 03333050 TIPPECANOE RIVER NEAR DELPHI, IN

LOCATION.--Lat 40°35'38", long 86°46'12", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.21, T.25 N., R.3 W., Carroll County, Hydrologic Unit 05120106, on left bank 20 ft upstream from bridge on State Highway 18, 1,400 ft east of Springboro, 5 mi west of Delphi, 8.1 mi downstream from Big Creek, and at mile 8.7.

DRAINAGE AREA.--1,869 mi<sup>2</sup>.

PERIOD OF RECORD.--March to December 1903, March to December 1904, March 1905 to July 1906, November and December 1908, July 1939 to September 1987, October 1987 to current year. Published as "at Springboro" 1903-08. Published as "03333000 Tippecanoe River near Delphi:" July 1939 to September 1987.

REVISED RECORDS.--WSP 973: 1942. WSP 1335: 1905-6. WSP 2109: Drainage area. WDR IN-92-1: 1988-1991 (above 5900 ft<sup>3</sup>/s). WDR-IN-94-1: 1991 (maximum discharge).

GAGE.--Water-stage recorder. Datum of gage is 535.00 ft above sea level. Mar. 14, 1903, to July 20, 1906, and Nov. 2 to Dec. 31, 1908, nonrecording gage at present site at different datum. July 1939 to Sept. 30, 1987, at site 6.4 mi upstream at datum 17.01 ft higher.

REMARKS.--Records good. Flow regulated by upstream reservoirs.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	797	1110	2190	1720	2850	1950	6680	3560	1420	4980	1790	843
2	885	932	2290	1660	2880	1900	6870	3680	1600	3280	1460	850
3	792	877	2110	1860	2600	1820	5860	3390	1140	2510	1530	797
4	843	1170	1760	3960	2600	1660	5410	5340	1370	6590	3430	773
5	681	994	1790	6430	2340	1720	5050	5320	1260	7410	6670	908
6	1040	1200	1600	7920	2270	1790	4440	4890	1130	5850	5670	838
7	651	933	1560	7800	2240	1680	4270	6230	1290	6760	4540	849
8	810	1140	1670	9380	1870	1920	5010	11200	1210	8310	4470	814
9	820	895	1270	10800	2060	7430	5090	8810	1310	5480	4220	758
10	545	690	1700	9070	1850	8960	6240	6770	1510	4420	4000	808
11	944	1120	1680	8110	1930	6850	5710	5500	2970	3620	3780	726
12	522	914	1580	7610	2810	5600	5780	4720	7950	3250	3200	602
13	876	815	1620	6590	2580	4650	6280	4190	7480	2830	3150	754
14	661	865	1440	5880	2620	4680	6310	3480	5370	2230	2800	492
15	686	862	1600	5260	2250	4370	6010	3300	4650	1860	2460	797
16	723	981	1450	4750	2310	4290	6210	2960	6390	1810	2130	471
17	912	927	1390	4300	2490	4970	5630	2580	7440	1660	1800	795
18	414	677	1410	3960	2850	8210	4950	2490	5490	1440	1830	490
19	893	845	1520	3750	2860	7130	4560	2320	5740	1480	1380	588
20	410	859	1490	3560	2900	6620	4220	2750	5250	1330	1430	745
21	957	923	1410	3050	2600	8960	4140	2490	4180	1290	1230	646
22	409	971	1600	3000	2560	8170	4330	2170	3470	5030	1320	628
23	893	987	1720	2970	2390	6590	4060	2210	3070	7470	1120	524
24	438	993	1840	2840	2260	5850	3690	2280	2940	5560	1240	501
25	910	1170	2490	2490	2140	5230	3170	2160	2600	4900	1120	590
26	767	932	2620	2590	2130	4760	3470	1870	2200	4730	1010	642
27	544	932	2760	2660	1960	4270	3070	1760	2010	4170	858	647
28	881	1290	2140	2690	2010	6820	2950	1890	1980	3320	1080	444
29	830	2150	2330	2920	---	9160	3000	1690	3600	2930	894	632
30	814	2480	2190	3190	---	6700	3060	1850	7160	2490	979	552
31	797	---	2000	3020	---	5980	---	1660	---	1950	855	---
TOTAL	23145	31634	56220	145790	67210	160690	145520	115510	105180	120940	73446	20504
MEAN	747	1054	1814	4703	2400	5184	4851	3726	3506	3901	2369	683
MAX	1040	2480	2760	10800	2900	9160	6870	11200	7950	8310	6670	908
MIN	409	677	1270	1660	1850	1660	2950	1660	1130	1290	855	444
CFSM	.40	.56	.97	2.52	1.28	2.77	2.60	1.99	1.88	2.09	1.27	.37
IN.	.46	.63	1.12	2.90	1.34	3.20	2.90	2.30	2.09	2.41	1.46	.41

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1998, BY WATER YEAR (WY)

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
MEAN	1292	1740	2121	2933	2472	3176	3177	2471	2404	1880	1348
MAX	4185	4120	3819	6854	4774	5184	4958	3726	4324	3901	4849
(WY)	1991	1993	1991	1993	1997	1998	1994	1998	1997	1998	1990
MIN	369	831	572	943	762	811	1287	983	493	360	308
(WY)	1996	1996	1996	1996	1996	1996	1996	1988	1988	1988	1988

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1988 - 1998
ANNUAL TOTAL	920868	1065789	2181
ANNUAL MEAN	2523	2920	3046
HIGHEST ANNUAL MEAN			1512
LOWEST ANNUAL MEAN			18400
HIGHEST DAILY MEAN	12900	Feb 27	11200
LOWEST DAILY MEAN	409	Oct 22	409
ANNUAL SEVEN-DAY MINIMUM	631	Oct 18	568
INSTANTANEOUS PEAK FLOW			12600
INSTANTANEOUS PEAK STAGE			10.09
ANNUAL RUNOFF (CFSM)	1.35		1.56
ANNUAL RUNOFF (INCHES)	18.33		21.21
10 PERCENT EXCEEDS	5150		6410
50 PERCENT EXCEEDS	1930		2200
90 PERCENT EXCEEDS	864		794

## WABASH RIVER BASIN

03333450 WILDCAT CREEK NEAR JEROME, IN

LOCATION.--Lat 40°26'29", long 85°55'08", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.14, T.23 N., R.5 E., Howard County, Hydrologic Unit 05120107, on right bank at downstream side of bridge on County Road 1100 East, 0.5 mi downstream from Mud Creek, 1.5 mi southeast of Jerome, and at mile 79.9.

DRAINAGE AREA.--146 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1961 to current year.

REVISED RECORDS.--WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 820.04 ft above sea level.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of about 18 ft, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	5.5	6.6	5.2	47	58	413	441	75	370	53	8.8
2	e4.6	5.5	6.7	5.4	45	53	342	655	54	181	41	8.8
3	e3.5	4.5	4.7	6.4	37	51	256	425	45	121	35	8.2
4	e2.8	7.0	4.8	8.2	35	46	207	686	41	645	367	9.0
5	e2.3	6.8	4.6	12	36	39	159	438	40	546	5050	8.2
6	e2.0	7.6	4.4	65	33	35	140	290	37	253	2610	7.4
7	e1.8	6.7	4.5	78	29	34	129	371	32	779	1080	8.5
8	e1.7	5.2	3.6	376	26	56	226	1120	30	2580	1070	9.3
9	e1.8	e5.0	3.8	457	25	708	1360	706	34	1010	605	8.2
10	e2.1	e5.4	6.0	222	23	710	2200	441	37	489	397	7.2
11	e2.8	e6.3	8.1	135	25	388	1020	305	1850	288	282	6.9
12	e3.7	e5.8	13	101	32	253	598	228	6300	183	173	6.7
13	e5.1	e5.4	6.4	79	25	195	406	176	3640	131	121	6.5
14	8.7	e9.0	5.0	53	22	181	349	141	1650	100	93	6.2
15	11	e13	6.7	61	20	150	312	122	1310	81	71	5.9
16	4.7	e17	4.7	49	21	127	268	111	1250	68	53	6.4
17	e1.9	e10	4.4	42	27	141	206	92	1080	55	57	6.8
18	e1.9	e6.0	4.5	35	117	625	161	82	664	46	47	6.5
19	1.8	e5.8	4.2	29	156	1100	147	78	684	41	32	6.3
20	1.8	e5.7	3.4	27	190	969	126	75	560	50	25	6.7
21	1.9	e5.6	3.4	24	223	1380	118	126	377	39	21	23
22	2.2	8.8	4.6	25	155	818	119	97	304	2520	19	14
23	2.2	10	5.0	36	129	524	139	82	227	4550	17	8.1
24	2.6	9.2	5.8	48	107	401	130	90	178	1680	15	7.0
25	4.0	e6.6	11	45	87	316	116	95	145	765	19	7.4
26	3.2	e5.5	18	40	80	264	116	70	123	445	16	6.9
27	3.2	e5.4	14	38	81	216	95	58	105	279	13	6.4
28	3.8	8.6	10	52	66	457	82	53	89	177	11	5.9
29	7.5	8.3	8.2	69	---	827	90	50	83	123	11	6.1
30	5.4	12	8.5	62	---	468	179	48	563	91	10	6.4
31	4.4	---	6.7	50	---	321	---	50	---	70	9.1	---
TOTAL	110.7	223.2	205.3	2335.2	1899	11911	10209	7802	21607	18756	12423.1	239.7
MEAN	3.57	7.44	6.62	75.3	67.8	384	340	252	720	605	401	7.99
MAX	11	17	18	457	223	1380	2200	1120	6300	4550	5050	23
MIN	1.7	4.5	3.4	5.2	20	34	82	48	30	39	9.1	5.9
CFSM	.02	.05	.05	.52	.46	2.63	2.33	1.72	4.93	4.14	2.74	.05
IN.	.03	.06	.05	.59	.48	3.03	2.60	1.99	5.51	4.78	3.17	.06

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1998, BY WATER YEAR (WY)

MEAN	41.6	117	164	153	201	287	229	155	141	104	45.0	45.0
MAX	252	834	622	687	649	793	689	460	720	692	401	589
(WY)	1970	1993	1991	1974	1976	1982	1964	1996	1998	1992	1998	1989
MIN	1.72	2.95	2.49	1.02	11.2	52.6	38.7	17.9	8.20	7.00	3.80	2.09
(WY)	1967	1977	1977	1977	1963	1981	1971	1976	1988	1994	1966	1991

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1962 - 1998	
ANNUAL TOTAL	53149.2		87721.2		140	
ANNUAL MEAN	146		240		253	
HIGHEST ANNUAL MEAN					50.2	
LOWEST ANNUAL MEAN					1993	
HIGHEST DAILY MEAN	4460	Feb 27	6300	Jun 12	6300	Jun 12 1998
LOWEST DAILY MEAN	1.7	Oct 8	1.7	Oct 8	.89	Jan 24 1977
ANNUAL SEVEN-DAY MINIMUM	2.0	Oct 17	2.0	Oct 17	.90	Jan 20 1977
INSTANTANEOUS PEAK FLOW			6940	Jun 12	7120	Jul 14 1992
INSTANTANEOUS PEAK STAGE			13.43	Jun 12	13.71	Dec 30 1990
ANNUAL RUNOFF (CFSM)	1.00		1.65		.96	
ANNUAL RUNOFF (INCHES)	13.54		22.35		13.01	
10 PERCENT EXCEEDS	375		613		342	
50 PERCENT EXCEEDS	41		46		46	
90 PERCENT EXCEEDS	3.6		4.6		4.9	

e Estimated

03333600 KOKOMO CREEK NEAR KOKOMO, IN

LOCATION.--Lat 40°26'28", long 86°05'20", in NW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.16, T.23 N., R.4 E., Howard County, Hydrologic Unit 05120107, on left bank at upstream side of bridge on County Road 200 East, 2.6 mi southeast of intersection of U.S. Highways 31 and 35 in Kokomo, and 4.2 mi upstream from mouth.

DRAINAGE AREA.--24.7 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1959 to current year.

REVISED RECORDS.--WSP 2109: Drainage area. WDR IN-72-1: 1970-71(P).

GAGE.--Water-stage recorder. Datum of gage is 807.68 ft above sea level.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.50	.91	3.2	1.2	6.6	8.3	74	39	8.6	34	13	3.3
2	.60	1.2	2.8	1.3	6.3	7.7	50	74	8.0	24	11	3.3
3	.48	1.0	2.7	1.5	5.7	7.3	36	64	7.4	19	9.5	2.9
4	.37	.97	3.0	1.7	5.6	6.8	28	122	7.3	45	56	2.8
5	.33	.85	2.5	3.1	5.9	6.1	23	66	7.2	33	597	2.5
6	.32	.79	2.2	5.2	5.6	5.6	20	44	6.9	23	313	2.2
7	.34	.74	2.1	6.9	4.7	5.4	18	71	6.3	218	188	3.1
8	.34	.73	1.7	44	4.5	8.5	36	149	5.9	291	169	2.9
9	.35	.68	1.6	49	4.3	117	280	90	6.7	117	102	2.5
10	.42	.70	5.2	22	4.2	100	348	56	6.7	63	71	2.3
11	.41	.64	3.3	15	4.6	40	159	40	270	42	50	2.0
12	.39	.61	2.4	12	5.0	27	98	32	650	31	41	2.0
13	.71	.63	2.3	10	4.6	23	66	27	471	24	32	1.9
14	2.2	.83	1.9	7.9	3.9	20	56	23	190	19	25	1.6
15	1.3	.81	1.6	8.3	3.7	17	48	21	154	16	20	1.8
16	e.90	.75	1.5	7.3	3.8	15	40	20	155	14	16	1.8
17	e.70	.65	1.5	6.5	4.8	18	32	17	143	13	13	1.7
18	e.60	.64	1.5	5.8	10	104	26	15	91	11	11	1.9
19	e.54	.59	1.4	5.1	13	207	24	14	133	11	9.3	1.8
20	e.52	.66	1.4	4.7	22	222	21	14	85	11	8.0	2.0
21	e.49	.93	1.4	4.4	23	234	21	13	88	9.4	7.0	5.5
22	e.47	2.7	2.6	4.6	17	129	21	12	66	519	6.3	3.0
23	e.45	1.6	2.5	6.8	15	75	21	12	47	486	5.7	2.1
24	e.44	1.3	3.7	7.2	14	50	20	14	39	164	6.3	1.9
25	e.43	e1.2	4.2	6.6	11	38	19	13	31	98	6.5	2.1
26	e.45	e1.1	2.8	6.3	11	31	19	12	26	61	5.4	2.2
27	1.3	e1.0	2.2	6.1	10	26	16	11	23	42	4.7	2.3
28	2.0	3.9	1.7	7.1	8.9	148	14	9.9	20	31	4.3	2.1
29	.87	4.3	1.6	8.3	---	191	16	9.2	21	25	4.2	2.0
30	e.80	3.6	1.5	8.0	---	89	19	8.9	65	19	4.1	1.9
31	.72	---	1.3	6.9	---	51	---	8.9	---	16	3.6	---
TOTAL	20.74	37.01	71.3	290.8	238.7	2027.7	1669	1121.9	2839.0	2529.4	1812.9	71.4
MEAN	.67	1.23	2.30	9.38	8.52	65.4	55.6	36.2	94.6	81.6	58.5	2.38
MAX	2.2	4.3	5.2	49	23	234	348	149	650	519	597	5.5
MIN	.32	.59	1.3	1.2	3.7	5.4	14	8.9	5.9	9.4	3.6	1.6
CFSM	.03	.05	.09	.38	.35	2.65	2.25	1.47	3.83	3.30	2.37	.10
IN.	.03	.06	.11	.44	.36	3.05	2.51	1.69	4.28	3.81	2.73	.11

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1998, BY WATER YEAR (WY)

	MEAN	9.10	20.0	25.9	24.6	34.0	49.6	41.4	25.7	19.5	15.4	7.77	6.60
MAX	68.1	144	102	114	129	150	117	87.2	99.7	90.2	58.5	66.7	
(WY)	1970	1993	1991	1974	1990	1982	1964	1996	1980	1992	1998	1989	
MIN	.55	.57	.44	.33	1.98	7.87	6.91	2.52	1.20	1.07	.50	.16	
(WY)	1965	1977	1977	1977	1964	1981	1976	1976	1988	1988	1988	1991	

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1960 - 1998

ANNUAL TOTAL	7823.61	12729.85	23.2
ANNUAL MEAN	21.4	34.9	45.2
HIGHEST ANNUAL MEAN			8.76
LOWEST ANNUAL MEAN			
HIGHEST DAILY MEAN	695	Feb 27	757
LOWEST DAILY MEAN	.32	Oct 6	.07
ANNUAL SEVEN-DAY MINIMUM	.35	Oct 4	.11
INSTANTANEOUS PEAK FLOW			1040
INSTANTANEOUS PEAK STAGE			9.88
ANNUAL RUNOFF (CFSM)	.87		.94
ANNUAL RUNOFF (INCHES)	11.78		12.78
10 PERCENT EXCEEDS	48		54
50 PERCENT EXCEEDS	5.4		7.6
90 PERCENT EXCEEDS	.63		.90

e Estimated



## WABASH RIVER BASIN

03333700 WILDCAT CREEK AT KOKOMO, IN

LOCATION.--Lat 40°28'15", long 86°09'11", in SW 1/4 NE 1/4 sec.2, T.23 N., R.3 E., Howard County, Hydrologic Unit 05120107, on right bank on property of Kokomo Sewage Treatment Plant in Kokomo, 250 ft downstream from Kokomo Creek, 1.0 mi upstream from Dixon Road bridge, and at mile 62.9.

DRAINAGE AREA.--242 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1955 to current year.

REVISED RECORDS.--WSP 2109: Drainage area. WDR-IN-83: 1980, 1981(P), 1982. WDR-IN-88: 1986(P), 1987 (M).

GAGE.--Water-stage recorder. Datum of gage is 775.62 ft above sea level (levels by State of Indiana, Department of Natural Resources). Prior to May 9, 1986, recording gage at site 0.4 mi downstream at present datum.

REMARKS.--Records good. Some regulation by Kokomo Reservoirs Nos. 1 and 2, (combined capacity 4,170 acre-ft, used for municipal water supply) and by Kokomo Sewage Treatment Plant.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	41	27	20	78	98	754	569	88	709	148	44
2	23	28	25	21	71	89	686	1070	84	388	122	48
3	23	29	25	23	72	82	489	886	78	279	105	40
4	23	25	26	27	70	84	373	1150	70	809	307	40
5	22	23	25	69	60	77	285	918	72	1090	4200	34
6	22	23	23	49	56	67	246	568	58	527	4930	31
7	24	23	22	79	53	64	227	707	53	1580	2300	52
8	23	22	23	408	50	128	356	1640	51	3200	1660	30
9	27	22	23	759	48	839	1710	1430	76	2230	1190	26
10	24	22	52	439	47	1410	3510	882	62	1030	759	24
11	22	23	30	242	61	863	2170	580	1870	599	551	23
12	21	23	26	168	56	500	1220	420	6580	400	383	23
13	38	22	24	130	52	357	821	328	6330	303	293	22
14	32	26	23	102	48	296	684	256	3210	226	234	23
15	23	29	23	99	43	267	584	211	2010	186	189	24
16	22	25	23	86	45	202	477	187	2260	156	186	20
17	22	24	22	74	73	124	375	166	1950	129	138	23
18	21	23	22	66	91	518	290	138	1330	111	118	23
19	21	23	22	59	200	1820	253	127	1580	120	104	22
20	20	23	21	54	266	1900	216	127	1170	93	88	25
21	22	32	20	49	342	2280	218	138	882	85	78	59
22	21	33	31	56	276	1660	204	161	678	3590	71	28
23	22	25	25	89	210	1040	189	143	512	5790	65	25
24	21	24	45	73	179	744	205	193	413	3770	105	29
25	20	24	40	75	151	560	219	149	334	1590	75	30
26	25	23	29	71	128	448	208	128	274	910	55	27
27	29	21	27	68	118	372	171	103	229	576	50	26
28	24	39	23	71	113	882	134	90	192	387	47	25
29	23	31	24	86	---	1540	177	87	217	291	43	26
30	22	29	24	99	---	1010	216	81	385	228	42	23
31	23	---	22	88	---	696	---	73	---	191	41	---
TOTAL	729	780	817	3799	3057	21017	17667	13706	33098	31573	18677	895
MEAN	23.5	26.0	26.4	123	109	678	589	442	1103	1018	602	29.8
MAX	38	41	52	759	342	2280	3510	1640	6580	5790	4930	59
MIN	20	21	20	20	43	64	134	73	51	85	41	20
CFSM	.10	.11	.11	.51	.45	2.80	2.43	1.83	4.56	4.21	2.49	.12
IN.	.11	.12	.13	.58	.47	3.23	2.72	2.11	5.09	4.85	2.87	.14

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1956 - 1998, BY WATER YEAR (WY)

	MEAN	83.0	198	264	253	337	452	424	271	258	189	97.8	85.3
MAX	469	1387	968	1375	1097	1376	1117	835	1432	1018	602	879	
(WY)	1970	1993	1991	1974	1990	1982	1957	1996	1958	1998	1998	1989	
MIN	11.2	15.5	13.8	16.5	25.8	67.4	71.7	53.6	28.2	28.6	25.2	12.8	
(WY)	1957	1957	1964	1961	1964	1981	1966	1988	1988	1988	1966	1956	

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1956 - 1998

ANNUAL TOTAL	89855	145815	
ANNUAL MEAN	246	399	
HIGHEST ANNUAL MEAN			242
LOWEST ANNUAL MEAN			444
HIGHEST DAILY MEAN	5400	Feb 28	6970
LOWEST DAILY MEAN	20	Oct 20	7.2
ANNUAL SEVEN-DAY MINIMUM	21	Oct 19	8.3
INSTANTANEOUS PEAK FLOW			7500
INSTANTANEOUS PEAK STAGE			16.21
ANNUAL RUNOFF (CFSM)	1.02		1.65
ANNUAL RUNOFF (INCHES)	13.81		22.41
10 PERCENT EXCEEDS	661		572
50 PERCENT EXCEEDS	70		88
90 PERCENT EXCEEDS	23		25

## 03334000 WILDCAT CREEK AT OWASCO, IN

LOCATION.--Lat 40°27'50", long 86°38'15", in SE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.4, T.23 N., R.2 W., Carroll County, on left bank 200 ft downstream from bridge on State Highway 39, 0.5 mi northwest of Owasco, and 15 mi upstream from South Fork Wildcat Creek.

DRAINAGE AREA.--396 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1943 to September 1973. Annual maximum, water years 1975-81. October 1988 to current year. Prior to March 1944 monthly discharge only, published in WSP 1305.

REVISED RECORDS.--WSP 1625: 1958. WSP 2109: Drainage area. WDR 94-1: 1988-1993 (Peak of record).

GAGE.--Water-stage recorder. Datum of gage is 624.63 ft above sea level. Prior to Oct. 1, 1950, nonrecording gage at site 500 ft upstream at same datum.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Some regulation at low stages for municipal water supply by Kokomo Water Company since 1955.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 18, 1943, reached a stage of 14.00 ft, from floodmarks.

REVISIONS.--Water Resources Data 1988-1993: The instantaneous peak flow for the period of record has been published erroneously as 10,200 ft<sup>3</sup>/s on Jan. 5, 1950. The correct peak flow is 10,800 ft<sup>3</sup>/s on Jan. 4, 1980.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	44	73	e45	157	179	1060	381	164	577	283	93
2	35	48	67	e47	145	163	1030	783	168	615	243	97
3	37	84	62	e50	135	155	840	1010	166	422	214	97
4	34	59	58	54	130	149	658	951	157	1020	221	93
5	32	55	58	66	130	146	524	1100	152	1120	1330	90
6	32	51	56	125	122	138	443	809	150	928	3430	84
7	31	48	55	160	114	128	403	780	140	837	5290	79
8	29	48	52	315	109	135	440	1750	126	3010	2550	97
9	33	48	52	836	105	768	681	1950	139	3470	1720	85
10	36	46	60	786	102	1610	2570	1400	163	2210	1110	73
11	37	43	85	480	103	1430	3430	947	1190	1020	767	67
12	35	40	87	328	116	933	2180	699	4350	689	576	65
13	35	43	68	262	122	655	1200	544	9090	518	441	63
14	35	47	e56	213	107	539	983	449	8680	413	368	57
15	69	49	50	190	102	488	861	377	5050	341	315	55
16	52	53	48	177	97	440	748	336	2960	300	274	53
17	42	64	49	160	99	404	614	302	3150	261	333	53
18	39	60	48	145	137	797	497	275	2300	235	251	52
19	39	55	46	132	190	1670	427	248	2110	214	209	52
20	38	54	44	123	282	2370	388	237	1950	235	188	54
21	37	57	44	116	366	3050	355	235	1280	195	170	61
22	35	59	47	111	396	2830	352	237	1090	623	157	100
23	37	89	49	123	332	1780	334	271	844	3500	145	67
24	38	69	67	172	279	1200	317	376	682	6200	136	57
25	42	60	67	148	248	944	318	406	564	4840	165	54
26	39	56	108	142	218	766	335	293	475	1520	154	64
27	44	55	81	138	200	634	311	248	409	919	124	54
28	57	59	68	137	188	1180	270	217	358	643	116	50
29	53	60	63	149	---	2040	258	197	331	479	113	51
30	47	93	58	161	---	1710	309	190	449	388	105	46
31	42	---	e52	167	---	1120	---	179	---	328	95	---
TOTAL	1229	1696	1878	6258	4831	30551	23136	18177	48837	38070	21593	2063
MEAN	39.6	56.5	60.6	202	173	986	771	586	1628	1228	697	68.8
MAX	69	93	108	836	396	3050	3430	1950	9090	6200	5290	100
MIN	29	40	44	45	97	128	258	179	126	195	95	46
CFSM	.10	.14	.15	.51	.44	2.49	1.95	1.48	4.11	3.10	1.76	.17
IN.	.12	.16	.18	.59	.45	2.87	2.17	1.71	4.59	3.58	2.03	.19

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 1998, BY WATER YEAR (WY)

	MEAN	146	268	340	540	514	646	699	458	408	316	149	138
MAX	670	2024	1325	3083	1725	1301	1857	1108	2536	1589	707	1339	
(WY)	1970	1993	1958	1950	1959	1997	1957	1996	1958	1992	1958	1989	
MIN	20.0	30.3	25.9	24.6	50.0	154	137	120	84.8	41.5	37.1	20.6	
(WY)	1945	1945	1945	1945	1963	1954	1971	1954	1949	1954	1954	1954	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1945 - 1998
ANNUAL TOTAL	137843	198319	
ANNUAL MEAN	378	543	385
HIGHEST ANNUAL MEAN			733
LOWEST ANNUAL MEAN			104
HIGHEST DAILY MEAN	6960	Feb 28	9850
LOWEST DAILY MEAN	29	Oct 8	12
ANNUAL SEVEN-DAY MINIMUM	32	Oct 4	15
INSTANTANEOUS PEAK FLOW			10800
INSTANTANEOUS PEAK STAGE			12.05
ANNUAL RUNOFF (CFSM)	.95	1.37	13.30
ANNUAL RUNOFF (INCHES)	12.95	18.63	.97
10 PERCENT EXCEEDS	932	1300	906
50 PERCENT EXCEEDS	156	163	166
90 PERCENT EXCEEDS	46	47	41

e Estimated

LOCATION.--Lat 40°25'04", long 86°46'05", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.21, T.23 N., R.3 W., Tippecanoe County, Hydrologic Unit 05120107, on right bank 40 ft upstream from bridge on State Highway 26, 0.5 mi upstream from Middle Fork, 4.4 mi upstream from mouth, and 5 mi east of Lafayette.

PERIOD OF RECORD.--October 1943 to current year. Prior to March 1944 monthly discharge only, published in WSP 1305.

GAGE.--Water-stage recorder. Datum of gage is 566.60 ft above sea level (Indiana Department of Highways bench mark). Prior to July 29, 1954, nonrecording gage at site 40 ft downstream at same datum.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1943 reached a stage of 16.8 ft, from floodmarks, discharge, 17,900 ft<sup>3</sup>/s by contracted-opening measurement.

ANNUAL TOTAL	87137		114839				
ANNUAL MEAN	239		315			245	
HIGHEST ANNUAL MEAN						473	1950
LOWEST ANNUAL MEAN						79.2	1954
HIGHEST DAILY MEAN	6120	Feb 27	9640	Jun 12	11000		May 2 1983
LOWEST DAILY MEAN	26	Sep 30	26	Oct 1	15		Sep 19 1944
ANNUAL SEVEN-DAY MINIMUM	27	Sep 30	27	Oct 1	16		Sep 17 1944
INSTANTANEOUS PEAK FLOW			10500	Jun 12	15100		May 2 1983
INSTANTANEOUS PEAK STAGE			14.42	Jun 12	15.68		May 2 1983
ANNUAL RUNOFF (CFSM)	.98		1.29		1.01		
ANNUAL RUNOFF (INCHES)	13.34		17.58		13.71		
10 PERCENT EXCEEDS	484		634		536		
50 PERCENT EXCEEDS	98		77		111		
90 PERCENT EXCEEDS	32		35		34		

e Estimated

## 03335000 WILDCAT CREEK NEAR LAFAYETTE, IN

LOCATION.--Lat 40°26'26", long 86°49'45", in SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.13, T.23 N., R.4 W., Tippecanoe County, Hydrologic Unit 05120107, on right bank about 200 ft downstream of bridge on County Road 2A East, 2.8 mi downstream from South Fork Wildcat Creek, 3.7 mi northeast of courthouse in Lafayette, and 4.8 mi upstream from mouth.

DRAINAGE AREA.--794 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1954 to current year.

REVISED RECORDS.--WSP 1555: 1955, 1957(M). WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 527.66 ft above sea level (Indiana Flood Control and Water Resources Commission bench mark). Nonrecording gage prior to June 13, 1957, and August 31, 1974, to May 20, 1976, at present site and datum.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of March 1913 reached a stage of about 25.4 ft, from profile by State of Indiana, Department of Natural Resources.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e86	115	156	e100	272	314	2420	891	485	1130	474	187
2	e84	113	145	e93	251	290	2340	1300	436	1030	418	185
3	e80	130	136	e97	237	278	1930	1790	426	778	373	185
4	e78	140	130	112	222	267	1580	1910	401	1470	360	182
5	e76	e122	123	135	217	259	1300	1980	385	1740	1120	174
6	e74	e120	121	187	212	245	1120	1620	368	1390	3390	168
7	72	e117	115	367	199	230	1010	2060	352	1070	5040	167
8	70	111	113	548	188	266	1040	5500	322	3210	3870	163
9	70	110	113	1340	179	1950	1490	4340	420	4420	2240	180
10	76	109	142	1260	174	3450	4480	3280	777	3230	1790	157
11	76	106	137	891	181	2860	4960	2350	4630	1540	1210	150
12	79	102	169	611	189	1990	3970	1810	15400	1050	912	143
13	80	102	144	465	210	1470	2460	1450	16600	822	720	137
14	90	108	129	413	186	1260	2080	1210	12800	690	605	131
15	102	116	122	352	175	1150	1950	1020	12000	591	531	126
16	121	113	120	312	169	1060	1700	901	7840	530	504	124
17	102	113	119	279	179	1130	1450	784	6630	478	475	126
18	94	124	114	255	213	2740	1210	691	4460	438	455	125
19	92	119	113	233	318	3580	1060	636	4210	412	369	122
20	91	115	110	215	418	4860	966	883	3790	414	334	119
21	88	121	108	202	564	6620	882	708	2560	390	308	127
22	87	123	116	195	655	5320	853	602	2010	522	287	143
23	90	130	116	212	586	3740	803	1590	1640	4640	266	152
24	93	150	133	274	501	2710	734	2520	1340	6320	252	136
25	95	125	145	266	439	2180	724	2210	1120	6370	273	134
26	105	120	176	246	385	1820	731	1370	954	2570	307	130
27	109	116	169	239	354	1530	692	1020	835	1360	242	130
28	107	128	145	e240	316	3520	615	824	739	984	223	118
29	122	133	132	e250	---	5000	593	688	681	762	215	113
30	110	155	124	271	---	3720	739	598	889	628	206	115
31	107	---	e110	282	---	2610	---	539	---	540	193	---
TOTAL	2806	3606	4045	10942	8209	68419	47882	49075	105500	51519	27962	4349
MEAN	90.5	120	130	353	293	2207	1596	1583	3517	1662	902	145
MAX	122	155	176	1340	655	6620	4960	5500	16600	6370	5040	187
MIN	70	102	108	93	169	230	593	539	322	390	193	113
CFSM	.11	.15	.16	.44	.37	2.78	2.01	1.99	4.43	2.09	1.14	.18
IN.	.13	.17	.19	.51	.38	3.21	2.24	2.30	4.94	2.41	1.31	.20

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1955 - 1998, BY WATER YEAR (WY)

	MEAN	302	595	830	815	1069	1426	1317	953	890	624	353	302
MAX	1298	3963	2474	3711	3227	3991	3657	2614	5210	2968	1511	2546	
(WY)	1970	1993	1991	1974	1976	1982	1964	1983	1958	1992	1958	1989	
MIN	67.9	85.6	67.0	61.6	104	290	310	231	130	84.4	79.8	68.8	
(WY)	1964	1964	1964	1977	1963	1981	1971	1976	1977	1977	1966	1956	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1955 - 1998	
ANNUAL TOTAL	311318		384314		788	
ANNUAL MEAN	853		1053		1460	
HIGHEST ANNUAL MEAN					310	
LOWEST ANNUAL MEAN					22100	
HIGHEST DAILY MEAN	12800	Feb 28	16600	Jun 13	47	Jun 10 1958
LOWEST DAILY MEAN	70	Oct 8	70	Oct 8	51	Sep 6 1964
ANNUAL SEVEN-DAY MINIMUM	73	Oct 5	73	Oct 5	25000	Dec 20 1963
INSTANTANEOUS PEAK FLOW			17300	Jun 13	21.52	Jun 10 1958
INSTANTANEOUS PEAK STAGE			19.06	Jun 13	.99	Jun 10 1958
ANNUAL RUNOFF (CFSM)	1.07		1.33		13.48	
ANNUAL RUNOFF (INCHES)	14.59		18.01		1790	
10 PERCENT EXCEEDS	2050		2720		365	
50 PERCENT EXCEEDS	351		322		114	
90 PERCENT EXCEEDS	102		109			

e Estimated



## WABASH RIVER BASIN

03335500 WABASH RIVER AT LAFAYETTE, IN

LOCATION.--Lat 40°25'19", long 86°53'49", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.20, T.23 N., R.4 W., Tippecanoe County, Hydrologic Unit 05120108, on right bank 20 ft downstream from Brown St. in Lafayette, 0.2 mi upstream from Main St. bridge, 0.3 mi downstream from Harrison Memorial Bridge, 5.1 mi downstream from Wildcat Creek, and at mile 311.9.

DRAINAGE AREA.--7,267 mi<sup>2</sup>.

PERIOD OF RECORD.--February 1901 to January 1902, March to December 1902, January to May 1903 (gage height only), October 1923 to current year. Monthly discharge only for some periods, published in WSP 1305. Gage-height records collected at present site since October 1913 are contained in reports of National Weather Service.

REVISED RECORDS.--WSP 1335: 1929, 1932-33, 1936. WSP 1505: 1950. WSP 1555: 1928(M). WSP 2109: Drainage area. WDR IN-81-1: 1979.

GAGE.--Water-stage recorder. Datum of gage is 504.14 ft above sea level. Prior to May 2, 1903, nonrecording gage 0.5 mi upstream at different datum. Oct. 7, 1923, to Nov. 20, 1933, nonrecording gage at same site and datum.

REMARKS.--Records good except for estimated daily discharges, which are poor. Flow partially regulated by upstream reservoirs and power development.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 26, 1913, reached a stage of 32.9 ft, from floodmark determined by National Weather Service, discharge, 190,000 ft<sup>3</sup>/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2030	2560	6420	4270	6330	5560	15500	8270	4530	19000	13200	6770
2	1980	2530	5110	4020	5920	4810	17600	10300	4360	15400	12800	6820
3	1820	2410	4310	3580	5520	4170	16600	11500	4300	11500	11500	6650
4	2120	2710	3790	4370	5230	4030	16800	15000	4290	15200	11900	7180
5	2240	2790	3380	13400	4830	3810	15800	16700	3970	30200	21600	7790
6	2380	2580	3880	19900	4490	3980	11600	14500	3580	21500	24800	4000
7	1930	2660	3600	22600	4350	3790	9180	13400	3310	18000	22700	3340
8	2220	2390	3650	23700	4130	4740	9870	25300	2970	28500	22900	3380
9	1870	2380	3400	30400	4040	10900	11400	27500	3320	26700	19900	3570
10	2020	2440	3510	29500	3720	26700	24800	22400	3580	20500	18800	5570
11	2010	2380	3800	25100	3700	26400	32300	19700	7970	16700	18100	5440
12	1960	2470	3980	21100	4310	21600	28500	17800	29900	15400	16900	4300
13	1980	2380	4260	18500	4670	17700	23600	14800	38900	14200	15600	2620
14	2110	2350	4010	15900	4800	16200	21300	11100	37500	13500	15300	2300
15	1940	2410	3870	14100	4720	15700	20900	8280	32400	13200	14900	2170
16	2010	2530	3800	12700	4420	15400	22400	7090	27500	12800	14400	2230
17	2240	2340	3370	10400	4390	12900	24200	6370	29300	12000	13700	2260
18	2600	2430	3660	7880	4840	15500	16800	5950	24900	10400	12500	2030
19	2570	2190	3700	7200	7700	22200	15400	5510	22000	6820	9730	2060
20	2490	2400	3590	6390	11400	26100	15500	5700	24100	4860	8470	2180
21	2190	2170	3540	5580	12500	32300	15900	5780	20400	4380	7890	2090
22	2010	2330	3530	5410	13300	33900	15600	5250	17200	e12000	7690	2010
23	2080	2600	3610	5280	12200	29100	15400	5570	15700	e50000	7440	2180
24	2050	3250	4480	5450	9830	24600	15200	6510	15600	e54000	6970	2110
25	2620	3100	5480	5490	7490	21900	13600	6860	14700	42700	7370	2220
26	2450	2670	7880	5260	5850	20100	11700	5830	13400	26300	7310	2400
27	2640	2620	7980	5120	5170	18300	10300	5270	13700	18200	7090	2000
28	2340	2470	6540	5230	5080	21000	8880	4660	13400	17000	7090	2120
29	2180	3770	5750	5950	---	31900	6920	4470	13800	15800	7100	1970
30	2510	7120	5370	6840	---	28500	7350	4750	20900	e14100	7050	2100
31	2110	---	4620	6890	---	19000	---	4640	---	e13800	6880	---
TOTAL	67700	81430	137870	357510	174930	542790	490900	326760	471480	594660	399580	103860
MEAN	2184	2714	4447	11530	6248	17510	16360	10540	15720	19180	12890	3462
MAX	2640	7120	7980	30400	13300	33900	32300	27500	38900	54000	24800	7790
MIN	1820	2170	3370	3580	3700	3790	6920	4470	2970	4380	6880	1970
CFSM	.30	.37	.61	1.59	.86	2.41	2.25	1.45	2.16	2.64	1.77	.48
IN.	.35	.42	.71	1.83	.90	2.78	2.51	1.67	2.41	3.04	2.05	.53

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 1998, BY WATER YEAR (WY)

	MEAN	2985	4334	6777	8557	9499	11920	11640	8300	6661	4369	2855	2675
MAX	14750	19910	25250	42040	28000	33560	28000	37290	31830	19180	12890	20120	
(WY)	1927	1993	1928	1950	1959	1982	1957	1943	1958	1998	1998	1926	
MIN	652	828	747	735	1232	1663	3135	1460	1029	655	484	435	
(WY)	1964	1965	1964	1977	1964	1941	1941	1934	1934	1936	1941	1941	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1924 - 1998
ANNUAL TOTAL	3072350	3749470	
ANNUAL MEAN	8417	10270	6698
HIGHEST ANNUAL MEAN			12340
LOWEST ANNUAL MEAN			1631
HIGHEST DAILY MEAN	53000	54000	129000
LOWEST DAILY MEAN	1760	1820	399
ANNUAL SEVEN-DAY MINIMUM	1930	1980	404
INSTANTANEOUS PEAK FLOW		54500	131000
INSTANTANEOUS PEAK STAGE		20.69	28.47
ANNUAL RUNOFF (CFSM)	1.16	1.41	.92
ANNUAL RUNOFF (INCHES)	15.73	19.19	12.52
10 PERCENT EXCEEDS	19600	23200	16000
50 PERCENT EXCEEDS	4620	6540	3650
90 PERCENT EXCEEDS	2250	2240	1150

e Estimated



03335690 MUD PINE CREEK NEAR OXFORD, IN

LOCATION.--Lat 40°31'24", long 87°20'30", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.17, T.24 N., R.8 W., Benton County, Hydrologic Unit 05120108, on right bank 5 ft downstream from county road bridge, 0.3 mi north of Chase, 2.0 mi east of Boswell, and 5.0 mi west of Oxford.

DRAINAGE AREA.--39.4 mi<sup>2</sup>.

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

REVISED RECORDS.--WDR IN-80-1: 1971-79 (P).

GAGE.--Water-stage recorder. Datum of gage is 718.00 ft above sea level.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.77	1.2	2.3	e5.6	33	25	174	143	38	63	4.5	1.4
2	e.76	1.6	1.6	e5.4	28	24	126	105	37	54	3.8	1.4
3	e.74	1.1	1.7	6.5	24	23	101	173	32	42	3.5	1.3
4	e.72	.96	1.6	42	24	21	83	256	31	71	3.8	1.2
5	e.70	.83	1.4	78	21	19	71	140	29	46	4.7	1.1
6	e.66	.78	1.2	131	19	19	64	100	25	41	4.4	1.1
7	e.64	.67	1.2	87	17	19	60	598	24	282	112	1.7
8	e.62	e.64	1.2	324	16	73	256	1150	23	208	70	1.6
9	e.60	e.62	1.3	218	15	460	817	227	98	101	56	1.2
10	e.76	e.60	5.0	113	15	221	327	144	77	67	84	1.1
11	1.1	e.56	7.1	71	21	146	162	108	2320	48	26	1.1
12	.80	e.54	5.1	52	32	103	118	88	1130	37	15	1.1
13	.97	e.56	8.2	38	28	81	96	77	685	31	11	1.0
14	1.4	.84	3.4	33	24	74	123	65	219	26	8.9	e.98
15	1.3	.99	2.8	e29	23	72	99	58	215	23	7.3	e.94
16	.86	.92	2.6	26	24	81	106	52	711	20	6.0	e.90
17	.78	.71	2.5	23	40	499	81	45	404	17	5.1	e.89
18	e.75	.65	2.2	20	90	1040	68	41	172	15	4.5	e.88
19	e.70	e.60	2.2	18	65	254	62	70	154	13	4.0	e.86
20	e.66	e.56	2.1	17	54	341	54	125	114	12	3.4	e.82
21	e.62	.86	1.9	16	45	332	68	110	90	11	3.2	e.81
22	e.58	.87	3.1	15	41	208	64	71	81	18	2.9	e.80
23	.60	.80	9.5	15	38	139	56	126	70	35	2.6	e.76
24	e.62	.64	11	14	35	110	51	219	61	15	2.4	1.2
25	e.72	.59	34	13	31	92	47	129	53	11	2.3	2.0
26	1.2	.62	18	12	32	80	46	88	48	9.3	1.9	1.4
27	2.5	.65	14	15	31	68	38	68	44	8.2	1.8	1.1
28	1.3	4.8	11	29	26	1090	37	57	39	7.3	1.9	e.90
29	.77	6.4	10	45	---	353	43	51	58	6.5	1.9	e.80
30	.65	3.2	9.2	39	---	177	147	50	116	5.8	1.6	e.68
31	.68	---	6.0	35	---	131	---	45	---	5.3	1.4	---
TOTAL	26.53	35.36	184.4	1585.5	892	6375	3645	4779	7198	1349.4	461.8	33.02
MEAN	.86	1.18	5.95	51.1	31.9	206	122	154	240	43.5	14.9	1.10
MAX	2.5	6.4	34	324	90	1090	817	1150	2320	282	112	2.0
MIN	.58	.54	1.2	5.4	15	19	37	41	23	5.3	1.4	.68
CFSM	.02	.03	.15	1.30	.81	5.22	3.08	3.91	6.09	1.10	.38	.03
IN.	.03	.03	.17	1.50	.84	6.02	3.44	4.51	6.80	1.27	.44	.03

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 1998, BY WATER YEAR (WY)

	MEAN	16.2	30.9	46.2	41.2	57.3	78.5	71.4	64.0	63.4	25.4	15.0	16.7
MAX	113	169	154	164	158	237	267	159	240	147	122	134	134
(WY)	1994	1986	1991	1993	1990	1979	1994	1981	1998	1993	1981	1993	1993
MIN	.86	.79	.98	.47	3.41	6.54	17.2	8.49	2.85	.65	.79	.40	.40
(WY)	1998	1981	1977	1977	1977	1981	1977	1976	1988	1988	1988	1983	1983

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1972 - 1998
ANNUAL TOTAL	14966.79	26565.01	
ANNUAL MEAN	41.0	72.8	43.7
HIGHEST ANNUAL MEAN			93.0
LOWEST ANNUAL MEAN			16.2
HIGHEST DAILY MEAN	1180	2320	4550
LOWEST DAILY MEAN	.54	.54	.10
ANNUAL SEVEN-DAY MINIMUM	.60	.60	.24
INSTANTANEOUS PEAK FLOW		4720	12100
INSTANTANEOUS PEAK STAGE		13.16	16.98
ANNUAL RUNOFF (CFSM)		1.85	1.11
ANNUAL RUNOFF (INCHES)	1.04	25.08	15.08
10 PERCENT EXCEEDS	100	146	100
50 PERCENT EXCEEDS	14	20	16
90 PERCENT EXCEEDS	.73	.77	.96

e Estimated

## WABASH RIVER BASIN

03336000 WABASH RIVER AT COVINGTON, IN

LOCATION.--Lat 40°08'24", long 87°24'24", in NE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.35, T.20 N., R.9 W., Warren County, Hydrologic Unit 05120108, on right approach to old U.S. Highway 136 bridge at Covington, 2.9 mi downstream from Oppossum Run, 3.6 mi upstream from Spring Creek, and at mile 271.1.

DRAINAGE AREA.--8,218 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1939 to current year. Gage-height records collected at site 0.4 mi downstream January 1927 to December 1930, and at present site since January 1931 are contained in reports of National Weather Service.

REVISED RECORDS.--WDR IN-73-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 473.97 ft above sea level. Prior to Oct. 1, 1979, nonrecording gage on old bridge.

REMARKS.--Records good except for estimated daily discharges, which are poor. Flow partially regulated by upstream reservoirs.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of 35.1 ft. from floodmark determined by National Weather Service, discharge, 200,000 ft<sup>3</sup>/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2500	2410	6940	5030	7300	5860	26400	10500	5680	21700	13600	6990
2	2270	2680	6240	4680	6800	6040	22000	12100	5360	20300	13400	6940
3	2230	2660	5220	4280	6440	5160	20800	15400	5300	16100	12800	6880
4	2120	2600	4470	3970	6040	4690	19200	19400	5080	12700	12300	6640
5	2290	2870	3920	6730	5680	4460	18600	21600	5060	20500	15600	8040
6	2360	2880	3720	15500	5320	4340	16300	21200	4710	26500	21700	6600
7	2500	2770	4050	19900	5050	4350	12100	18900	4260	24900	23600	4170
8	2190	2740	3900	21600	4890	4560	11400	23400	3990	24100	23700	3650
9	2310	2610	3890	23500	4540	7170	14200	28300	3980	27400	23500	3610
10	2140	2570	3690	26800	4460	e18400	18900	29900	4620	27900	21700	4210
11	2180	2550	3890	28300	4250	e24000	25100	27900	11600	24300	20100	5580
12	2210	2600	4050	26800	4280	e25000	29500	e24200	27800	19300	18700	5270
13	2170	2640	4330	e23000	4970	23700	29700	e20500	36300	16600	17100	4160
14	2180	2550	4490	19100	5200	19500	27200	16600	43100	14900	15900	2990
15	2250	2540	4280	16000	5360	17400	24600	12100	48200	14300	15600	2620
16	2140	2590	4170	14100	5090	16500	23300	9670	44600	13800	15000	2580
17	2200	2680	3970	12500	4930	16700	23800	8440	40200	13200	14500	2520
18	2460	2580	3720	9880	5090	19200	23800	7670	36800	12300	13700	2570
19	2650	2580	3850	8270	6060	22500	19000	7170	33500	10000	12100	2390
20	2700	2450	3900	7540	9670	25800	16900	7570	30500	6770	9440	2400
21	2560	2550	3840	6810	12100	29600	16800	7660	28800	5450	8710	2500
22	2380	2430	3790	6230	13300	32600	16800	7100	25700	5160	8090	2400
23	2230	2540	3820	6040	13400	34600	16500	7100	21700	18500	7980	2310
24	2280	2820	3930	5980	11800	32300	16300	8340	19100	29300	7490	2450
25	2290	3320	5170	6160	9590	28900	15700	10400	17800	40700	7420	2460
26	2740	3210	6320	6080	7620	25700	14000	8890	15900	41100	7560	2570
27	2740	2890	8400	5860	6300	22900	12000	7370	15100	32500	7390	2610
28	2720	2770	7840	5720	5690	22500	11000	6460	14800	24500	7190	2300
29	2530	2740	6620	6020	---	27400	9390	5900	14600	19200	7320	2310
30	2460	4850	6070	6840	---	31600	9210	5690	18000	16300	7210	2190
31	2620	---	5630	7470	---	31400	---	6040	---	14700	7120	---
TOTAL	73600	82670	148120	366690	191220	594830	560500	423470	592140	614980	417520	114910
MEAN	2374	2756	4778	11830	6829	19190	18680	13660	19740	19840	13470	3830
MAX	2740	4850	8400	28300	13400	34600	29700	29900	48200	41100	23700	8040
MIN	2120	2410	3690	3970	4250	4340	9210	5690	3980	5160	7120	2190
CFSM	.29	.34	.58	1.44	.83	2.33	2.27	1.66	2.40	2.41	1.64	.47
IN.	.33	.37	.67	1.66	.87	2.69	2.54	1.92	2.68	2.78	1.89	.52

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 1998, BY WATER YEAR (WY)

MEAN	3388	4931	7332	9204	10750	13400	13230	9977	8410	5524	3568	2967
MAX	14370	23930	22080	49700	34450	34840	28470	43540	36010	19840	13470	11960
(WY)	1991	1993	1968	1950	1959	1982	1957	1943	1958	1998	1998	1989
MIN	738	919	810	896	1357	1915	3536	1814	1542	1212	640	545
(WY)	1965	1965	1964	1977	1963	1941	1941	1941	1988	1988	1941	1941

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1940 - 1998
ANNUAL TOTAL	3396050	4180650	
ANNUAL MEAN	9304	11450	7704
HIGHEST ANNUAL MEAN			14980
LOWEST ANNUAL MEAN			1862
HIGHEST DAILY MEAN	54200	Mar 1	143000
LOWEST DAILY MEAN	1940	Sep 8	487
ANNUAL SEVEN-DAY MINIMUM	2090	Sep 4	497
INSTANTANEOUS PEAK FLOW			147000
INSTANTANEOUS PEAK STAGE			32.44
ANNUAL RUNOFF (CFSM)	1.13		.94
ANNUAL RUNOFF (INCHES)	15.37		12.74
10 PERCENT EXCEEDS	22300		18600
50 PERCENT EXCEEDS	5200		4480
90 PERCENT EXCEEDS	2460		1450

e Estimated

03339280 PRAIRIE CREEK NEAR LEBANON, IN

LOCATION.--Lat 40°06'16", long 86°31'32", in NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.10, T.19 N., R.1 W., Boone County, Hydrologic Unit 05120110, on right bank 50 ft upstream from bridge on County Road 450 North, 4.0 mi upstream from Deer Creek, 4.9 mi northwest of Lebanon, and 7.7 mi upstream from mouth.

DRAINAGE AREA.--33.2 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1987 to current year.

GAGE.--Water-stage recorder. Datum of gage is 860.00 ft above sea level.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.90	e2.8	6.3	2.7	6.0	7.1	97	208	23	58	10	e3.1
2	e.61	4.6	4.1	2.8	5.6	6.9	64	122	21	37	8.4	e2.9
3	e.46	3.2	3.7	3.0	5.0	6.8	51	85	17	26	8.3	2.7
4	e.47	e1.6	4.0	3.1	5.3	6.8	43	106	16	63	9.5	e2.6
5	e.36	e1.1	3.4	13	4.8	7.2	33	70	22	39	15	e2.5
6	e.28	e.80	3.4	16	5.0	6.4	31	55	15	26	14	2.3
7	e.23	e.66	3.3	13	4.6	6.4	29	386	13	35	12	3.1
8	e.58	e.54	3.3	79	4.8	17	64	416	13	29	13	e2.6
9	1.9	e.48	3.5	31	4.9	151	249	185	68	20	45	e2.3
10	2.2	e.41	8.4	14	4.7	76	226	106	61	16	22	e2.0
11	3.0	e.36	5.0	10	6.0	46	106	73	872	14	14	1.8
12	1.4	e.33	3.9	9.1	6.9	32	72	56	984	12	11	e1.7
13	5.7	e.30	3.6	8.8	5.1	27	61	43	461	12	9.7	e1.6
14	11	e.80	3.2	8.0	4.6	e24	71	32	222	10	9.0	e1.5
15	2.2	e2.1	3.2	e7.4	4.7	22	60	27	549	9.5	7.9	e2.8
16	e1.0	3.9	3.0	e6.8	5.0	20	79	24	266	9.0	7.7	3.7
17	e.60	e2.4	2.9	e6.1	13	63	61	19	147	8.2	7.3	2.9
18	e.40	e1.6	2.8	e5.8	11	201	47	17	95	7.3	6.2	e2.0
19	e.31	e.90	2.8	e5.6	8.8	157	41	41	212	38	e5.6	e1.2
20	e.29	e.56	2.8	e5.4	14	368	33	153	96	63	5.3	e1.6
21	e.27	e2.1	2.8	e5.2	12	292	30	63	66	20	4.7	2.6
22	e.26	8.9	5.2	e5.0	10	137	31	42	53	179	e4.6	1.5
23	e.24	3.4	4.5	19	9.8	89	26	241	53	160	4.6	e1.2
24	e1.3	e1.8	5.6	9.6	8.9	66	23	351	43	52	5.4	1.0
25	e1.0	e1.1	6.7	7.8	7.9	54	23	175	33	26	8.4	e.94
26	e1.8	e.80	3.2	7.3	7.6	46	24	91	27	18	4.9	e.92
27	e3.3	e.84	3.0	6.7	7.8	39	24	61	23	15	e4.4	e.90
28	e2.2	e2.7	2.9	6.9	7.3	165	18	45	20	13	e4.2	e.86
29	e1.6	e2.9	2.9	6.9	---	148	37	38	144	11	3.8	e.84
30	e1.3	17	3.0	6.0	---	81	66	41	111	18	e3.5	e.83
31	e2.0	---	2.7	5.5	---	66	---	29	---	12	e3.3	---
TOTAL	49.16	70.98	119.1	336.5	201.1	2434.6	1820	3401	4746	1056.0	292.7	58.49
MEAN	1.59	2.37	3.84	10.9	7.18	78.5	60.7	110	158	34.1	9.44	1.95
MAX	11	17	8.4	79	14	368	249	416	984	179	45	3.7
MIN	.23	.30	2.7	2.7	4.6	6.4	18	17	13	7.3	3.3	.83
CFSM	.05	.07	.12	.33	.22	2.37	1.83	3.30	4.77	1.03	.28	.06
IN.	.06	.08	.13	.38	.23	2.73	2.04	3.81	5.32	1.18	.33	.07

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1998, BY WATER YEAR (WY)

	MEAN	9.74	43.2	30.5	39.5	41.8	59.2	60.3	67.7	43.3	32.9	8.77	22.4
MAX	25.8	205	158	129	139	109	96.7	248	158	95.6	34.8	139	
(WY)	1993	1993	1991	1993	1990	1990	1989	1996	1998	1989	1989	1989	1989
MIN	1.59	2.37	3.84	10.9	7.18	19.2	21.9	6.45	4.34	3.08	2.45	1.95	
(WY)	1998	1998	1998	1998	1998	1994	1997	1988	1988	1991	1988	1998	

SUMMARY STATISTICS FOR 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1988 - 1998

	ANNUAL TOTAL	10463.64	14585.63	
ANNUAL MEAN		28.7	40.0	38.2
HIGHEST ANNUAL MEAN				63.0
LOWEST ANNUAL MEAN				19.3
HIGHEST DAILY MEAN	1480	Feb 27	984	Jun 12
LOWEST DAILY MEAN	.23	Oct 7	.23	Oct 7
ANNUAL SEVEN-DAY MINIMUM	.34	Oct 17	.34	Oct 17
INSTANTANEOUS PEAK FLOW			2190	Jun 11
INSTANTANEOUS PEAK STAGE			12.48	Jun 11
ANNUAL RUNOFF (CFSM)	.86		1.20	
ANNUAL RUNOFF (INCHES)	11.72		16.34	
10 PERCENT EXCEEDS	60		95	75
50 PERCENT EXCEEDS	12		8.2	14
90 PERCENT EXCEEDS	1.3		1.0	2.8

e Estimated

## WABASH RIVER BASIN

03339500 SUGAR CREEK AT CRAWFORDSVILLE, IN

LOCATION.--Lat 40°02'56", long 86°53'58", in SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.32, T.19 N., R.4 W., Montgomery County, Hydrologic Unit 05120110, on left bank 327 ft upstream from Crawfordsville Electric Light and Power Co.'s dam at Crawfordsville, 700 ft upstream from bridge on U.S. Highway 231, 1.0 mi downstream from Walnut Fork Sugar Creek, and at mile 40.4.

DRAINAGE AREA.--509 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1938 to current year.

REVISED RECORDS.--WSP 973: 1939(M). WSP 1275: Drainage area. WSP 1335: 1949.

GAGE.--Water-stage recorder. Datum of gage is 657.77 ft above sea level.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of 17.3 ft from information by local resident, discharge, about 36,000 ft<sup>3</sup>/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	18	74	27	68	83	1180	1950	384	818	115	31
2	11	19	55	34	64	78	1100	1910	313	547	98	31
3	11	22	40	33	59	74	807	1380	274	412	86	30
4	11	23	35	33	57	72	650	1440	242	662	136	29
5	11	22	32	44	55	71	493	1180	e230	850	330	28
6	10	21	31	84	53	66	419	887	e220	543	740	27
7	10	20	29	104	50	65	417	1800	e200	442	441	28
8	10	18	29	280	50	80	1470	5830	e190	594	370	31
9	12	18	29	418	49	845	3890	3650	e400	444	564	29
10	12	18	34	248	47	1430	4980	2110	1100	330	634	26
11	12	20	37	163	50	853	2630	1420	5310	267	405	26
12	10	18	41	127	55	520	1590	1040	16600	226	252	25
13	11	19	34	106	54	410	1170	780	12000	198	181	24
14	14	20	31	74	50	387	1310	578	4730	180	146	22
15	18	20	30	99	48	394	1200	464	7330	160	126	23
16	19	21	31	82	47	356	1090	404	6140	147	112	24
17	15	21	29	72	52	531	960	336	3490	134	105	24
18	14	23	29	64	74	2180	711	282	2030	122	94	23
19	14	22	29	56	89	2430	595	244	2690	112	79	22
20	14	21	29	54	99	3440	504	587	1950	200	70	22
21	14	24	29	53	109	5100	436	573	1300	173	63	23
22	14	28	32	52	110	2790	405	406	1020	185	58	23
23	14	31	34	68	114	1700	368	1130	927	1870	52	22
24	15	30	38	90	107	1210	331	2830	757	963	48	22
25	15	24	45	82	97	932	308	3280	603	478	60	23
26	17	23	51	74	89	777	308	1600	504	294	54	23
27	19	23	43	72	87	625	479	1050	434	214	45	21
28	19	27	36	72	85	1350	407	738	373	174	41	20
29	20	32	36	74	---	2700	425	500	1790	146	40	20
30	19	58	34	73	---	1560	784	663	1420	126	37	19
31	18	---	29	73	---	1070	---	484	---	130	33	---
TOTAL	436	704	1115	2985	1968	34179	31417	41526	74951	12141	5615	741
MEAN	14.1	23.5	36.0	96.3	70.3	1103	1047	1340	2498	392	181	24.7
MAX	20	58	74	418	114	5100	4980	5830	16600	1870	740	31
MIN	10	18	29	27	47	65	308	244	190	112	33	19
CFSM	.03	.05	.07	.19	.14	2.17	2.06	2.63	4.91	.77	.36	.05
IN.	.03	.05	.08	.22	.14	2.50	2.30	3.03	5.48	.89	.41	.05

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1998, BY WATER YEAR (WY)

	148	350	489	617	712	899	873	682	589	319	167	160
MEAN	148	350	489	617	712	899	873	682	589	319	167	160
MAX	1098	3060	2084	4163	2229	2390	2593	3297	2648	1325	1801	1991
(WY)	1978	1993	1991	1950	1985	1978	1964	1943	1957	1993	1958	1989
MIN	13.1	23.5	17.0	17.1	68.4	79.2	148	74.9	32.5	16.6	8.42	4.80
(WY)	1964	1998	1964	1977	1964	1941	1976	1941	1988	1988	1941	1941

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1939 - 1998
ANNUAL TOTAL	151776	207778	
ANNUAL MEAN	416	569	499
HIGHEST ANNUAL MEAN			1086
LOWEST ANNUAL MEAN			65.0
HIGHEST DAILY MEAN	12000	Feb 27	20100
LOWEST DAILY MEAN	10	Oct 6	2.4
ANNUAL SEVEN-DAY MINIMUM	11	Oct 2	2.7
INSTANTANEOUS PEAK FLOW			18800
INSTANTANEOUS PEAK STAGE			12.40
ANNUAL RUNOFF (CFSM)	.82		1.12
ANNUAL RUNOFF (INCHES)	11.09		15.19
10 PERCENT EXCEEDS	1090		1420
50 PERCENT EXCEEDS	110		84
90 PERCENT EXCEEDS	15		19

e Estimated

03340500 WABASH RIVER AT MONTEZUMA, IN

LOCATION.--Lat 39°47'33", long 87°22'26", in SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.35, T.16 N., R.9 W., Parke County, Hydrologic Unit 05120108, on left bank 20 ft upstream from bridge on U.S. Highway 36 at Montezuma, 2.0 mi upstream from Big Raccoon Creek, 4.9 mi downstream from Sugar Creek, and at mile 240.0.

DRAINAGE AREA.--11,118 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1927 to current year. July 1924 to September 1927 (gage height only) in reports of State of Indiana, Department of Natural Resources.

REVISED RECORDS.--WSP 1335: 1929, 1931(M). WSP 1505: 1954. WSP 1915: 1954(m). WSP 2109: Drainage area. WDR IN-74-1: 1973.

GAGE.--Water-stage recorder. Datum of gage is 457.75 ft above sea level (levels by U.S. Army Corps of Engineers). Oct. 1, 1927, to July 12, 1950, nonrecording gage on downstream side of bridge and at same datum. July 12, 1950, to July 27, 1988, recording gage in downstream side of first pier from left bank at same datum.

REMARKS.--Records good. Flow partially regulated by upstream reservoirs.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of March 27, 1913, reached a stage of 34.0 ft. from floodmarks, discharge, 230,000 ft<sup>3</sup>/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2940	2880	6930	5750	8730	6940	40900	20800	9760	25100	17100	8510
2	2790	2880	7440	5380	8230	7220	34900	22000	8640	25000	16300	8530
3	2500	3090	6500	5050	7740	6790	29800	23400	7920	22800	15800	8470
4	2450	3000	5540	4570	7270	5950	27500	30400	7700	20000	17800	8290
5	2440	3030	4820	4970	6850	5650	25800	34800	7370	21900	20700	8220
6	2570	3360	4220	11900	6430	5300	23900	34600	7080	26400	23700	8780
7	2620	3180	4330	18400	6040	5280	20100	31000	6490	31400	25600	6190
8	2720	3140	4340	21800	5790	5250	19900	32800	5910	33900	26600	4800
9	2440	2990	4270	24100	5560	7740	22400	37100	6330	32200	27300	4480
10	2490	2980	4210	25800	5250	18200	27200	39800	8270	31700	27200	4440
11	2420	2890	4100	27500	5060	24900	28500	39800	12500	30800	25100	5730
12	2330	2790	4490	28100	5020	26300	29800	34900	40200	27400	22700	6240
13	2480	2970	4630	26700	5430	26700	32200	29700	57900	22900	20800	5590
14	2330	2930	4920	23300	6150	24600	33100	25100	62000	19900	19300	4320
15	2430	2810	4820	19500	6220	21500	31400	19900	74000	18300	18500	3510
16	2360	2840	4610	16900	6170	19900	29200	15700	81900	17400	18000	3150
17	2340	2890	4510	15200	5880	19600	27600	13200	80800	16900	17100	3230
18	2410	2910	4150	13100	6010	25700	27100	11600	72900	16100	16300	3040
19	2860	2880	4130	10600	7160	30300	25400	11000	67800	14700	15300	3060
20	2860	2760	4180	9410	9790	33900	22000	17800	61200	11700	13100	2880
21	3020	2800	4160	8550	13000	45000	20800	21200	51100	8970	11200	3550
22	2680	2750	4160	7690	14200	47100	20400	15900	42800	8150	10300	3260
23	2650	2770	4070	7350	14900	47800	20200	14600	36500	15200	9780	2960
24	2390	2880	4220	7140	14200	46600	19800	19200	31500	25400	9670	2900
25	2580	3430	4930	7140	12300	41900	19300	22600	27500	29200	9230	2950
26	2670	3650	6400	7170	10200	36300	18200	20100	24700	35200	9290	3050
27	3130	3420	8540	6930	8450	31200	16500	15700	22400	39100	9210	3070
28	3160	3170	9250	6760	7370	30100	14800	12900	21000	35400	8960	2920
29	2940	3010	8090	6810	---	38700	13700	10900	20900	28100	8800	2640
30	2880	3620	7060	7540	---	43900	13700	10600	23400	22000	8820	2480
31	2880	---	6520	8490	---	44000	---	10900	---	18900	8730	---
TOTAL	81760	90700	164540	399600	225400	780320	736100	700000	988470	732120	508290	141240
MEAN	2637	3023	5308	12890	8050	25170	24540	22580	32950	23620	16400	4708
MAX	3160	3650	9250	28100	14900	47800	40900	39800	81900	39100	27300	8780
MIN	2330	2750	4070	4570	5020	5250	13700	10600	5910	8150	8730	2480
CFSM	.24	.27	.48	1.16	.72	2.26	2.21	2.03	2.96	2.12	1.47	.42
IN.	.27	.30	.55	1.34	.75	2.61	2.46	2.34	3.31	2.45	1.70	.47

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 1998, BY WATER YEAR (WY)

	MEAN	4182	6227	9501	12670	14090	17420	17590	13950	10810	7425	4515	3637
MAX	16990	36840	40350	66690	40610	49690	37650	58400	42730	25110	18840	17800	
(WY)	1991	1993	1928	1950	1959	1982	1938	1943	1958	1993	1958	1989	
MIN	973	1202	1041	1107	1789	2370	4941	2082	1357	1210	815	710	
(WY)	1964	1965	1964	1977	1931	1941	1931	1934	1934	1934	1941	1941	

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1928 - 1998

ANNUAL TOTAL	4345260	5548540	
ANNUAL MEAN	11900	15200	10150
HIGHEST ANNUAL MEAN			20290
LOWEST ANNUAL MEAN			2506
HIGHEST DAILY MEAN	69300	Mar 2	182000
LOWEST DAILY MEAN	2330	Oct 12	571
ANNUAL SEVEN-DAY MINIMUM	2380	Oct 12	600
INSTANTANEOUS PEAK FLOW			84400
INSTANTANEOUS PEAK STAGE			27.80
ANNUAL RUNOFF (CFSM)	1.07		1.37
ANNUAL RUNOFF (INCHES)	14.54		18.57
10 PERCENT EXCEEDS	26900	32400	25000
50 PERCENT EXCEEDS	6630	9210	5730
90 PERCENT EXCEEDS	2860	2880	1720



## WABASH RIVER BASIN

03340800 BIG RACCOON CREEK NEAR FINCASTLE, IN

LOCATION.--Lat 39°48'45", long 86°57'14", in NW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.22, T.16 N., R.5 W., Putnam County, Hydrologic Unit 05120108, on left bank at downstream side of county road bridge, 1.6 mi upstream from Ramp Creek, 3.1 mi west of Fincastle, and at mile 48.8.

DRAINAGE AREA.--139 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1957 to current year. Prior to October 1963, published as Raccoon Creek near Fincastle.

REVISED RECORDS.--WSP 1909: 1958. WSP 2109: Drainage area. WDR IN-79-1: 1978.

GAGE.--Water-stage recorder. Datum of gage is 686.03 ft above sea level.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 28, 1957, reached a stage of 19.10 ft discharge, 39,900 ft<sup>3</sup>/s, from slope-area measurement.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.3	e1.7	e5.4	e3.8	16	18	265	840	140	279	50	16
2	3.2	e2.4	e5.0	3.8	14	18	226	474	109	173	46	15
3	e3.0	e2.8	e4.9	4.2	14	17	174	289	90	127	43	14
4	e2.9	e2.6	e4.0	3.9	13	17	161	240	83	555	41	14
5	e2.7	e2.5	e3.2	5.9	13	16	135	203	79	274	52	13
6	e2.6	e2.4	e2.9	14	13	14	123	166	75	175	67	12
7	e2.4	e2.4	e2.7	14	12	13	115	322	66	1140	52	12
8	e2.3	e2.3	e2.6	43	12	16	151	801	62	789	72	11
9	e2.5	e2.1	e2.8	65	11	128	658	453	109	325	95	11
10	e3.5	e2.0	e4.0	48	11	259	775	300	213	215	82	10
11	e2.0	e1.9	e4.2	31	12	138	394	217	539	156	63	10
12	e1.9	e1.8	e4.0	24	13	e84	262	169	2430	124	55	9.8
13	e2.3	e1.7	e3.7	21	12	e74	210	182	1390	106	47	9.2
14	e4.5	e1.9	e3.6	20	11	e66	318	153	801	92	42	8.9
15	e2.3	e2.3	e3.5	18	11	e63	266	126	3780	83	39	7.7
16	e1.6	e3.0	e3.4	16	10	e60	412	111	1720	78	37	7.9
17	e1.5	e2.5	e3.3	15	10	e100	315	96	592	71	34	7.2
18	e1.4	e2.1	e3.2	14	13	690	212	86	383	65	34	7.2
19	e1.4	e1.9	e3.2	e13	14	597	175	83	1130	62	32	7.6
20	e1.3	e2.5	e3.1	e12	19	1210	146	109	530	68	29	7.9
21	e1.3	e3.1	e3.1	e11	20	1500	130	95	317	64	27	10
22	e1.2	e4.2	e3.2	e11	21	583	124	85	232	231	25	7.3
23	e1.2	e3.4	e4.0	16	22	364	118	122	1290	359	24	6.1
24	e1.3	e2.8	e5.4	17	21	263	109	482	481	148	23	5.6
25	e1.5	e2.5	e6.0	18	21	212	101	348	279	94	24	5.5
26	e1.9	e2.3	e5.2	18	20	183	99	215	199	75	23	5.4
27	e2.6	e2.1	e4.8	17	18	154	89	156	154	66	22	5.8
28	e2.1	e2.5	e4.5	17	18	480	78	124	125	62	20	5.6
29	e1.7	e4.0	e4.2	16	---	649	95	105	337	58	20	5.3
30	e1.5	e5.6	e4.1	16	---	337	188	267	681	54	18	4.6
31	e1.4	---	e3.9	16	---	237	---	216	---	52	17	---
TOTAL	66.3	77.3	121.1	562.6	415	8560	6624	7635	18416	6220	1255	272.6
MEAN	2.14	2.58	3.91	18.1	14.8	276	221	246	614	201	40.5	9.09
MAX	4.5	5.6	6.0	65	22	1500	775	840	3780	1140	95	16
MIN	1.2	1.7	2.6	3.8	10	13	78	83	62	52	17	4.6
CFSM	.02	.02	.03	.13	.11	1.99	1.59	1.77	4.42	1.44	.29	.07
IN.	.02	.02	.03	.15	.11	2.29	1.77	2.04	4.93	1.66	.34	.07

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1958 - 1998, BY WATER YEAR (WY)

	MEAN	49.0	132	188	165	200	263	226	184	127	95.3	48.4	41.5
MAX	312	844	913	616	694	683	730	811	614	430	268	545	
(WY)	1970	1993	1991	1974	1985	1978	1964	1996	1998	1979	1979	1989	
MIN	2.14	2.58	3.91	4.69	14.8	28.6	43.5	19.5	11.1	4.83	2.75	1.72	
(WY)	1998	1998	1998	1977	1998	1981	1976	1976	1988	1991	1991	1991	

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

## WATER YEARS 1958 - 1998

ANNUAL TOTAL	37829.6	50224.9	
ANNUAL MEAN	104	138	143
HIGHEST ANNUAL MEAN			292
LOWEST ANNUAL MEAN			38.5
HIGHEST DAILY MEAN	5270	Feb 27	12200
LOWEST DAILY MEAN	1.2	Oct 22	1.0
ANNUAL SEVEN-DAY MINIMUM	1.3	Oct 18	1.1
INSTANTANEOUS PEAK FLOW			4740
INSTANTANEOUS PEAK STAGE			12.01
ANNUAL RUNOFF (CFSM)	.75		.99
ANNUAL RUNOFF (INCHES)	10.12		13.44
10 PERCENT EXCEEDS	219		337
50 PERCENT EXCEEDS	39		20
90 PERCENT EXCEEDS	2.1		2.4

e Estimated

## 03340900 BIG RACCOON CREEK AT FERNDAL, IN

LOCATION.--Lat 39°42'40", long 87°04'15", in SE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.28, T.15 N., R.6 W., Parke County, Hydrologic Unit 05120108, on right bank at upstream side of bridge on New Discovery Road, 0.5 mi downstream from Cecil M. Harden Lake, 3.7 mi upstream from Rocky Fork Creek, and at mile 33.3.

DRAINAGE AREA.--222 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1956 to current year. Prior to October 1963, published as Raccoon Creek at Ferndale.

REVISED RECORDS.--WSP 2109: Drainage area. WDR IN-94-1: 1992; 1993: Average discharge.

GAGE.--Water-stage recorder. Datum of gage is 590.00 ft above sea level (U.S. Army Corps of Engineers bench mark). Prior to Oct. 1, 1974, water-stage recorder at site 1.7 mi downstream and at datum 7.64 ft lower.

REMARKS.--Flow regulated by Cecil M. Harden Lake since December 1960.

COOPERATION.--Records of daily discharge provided by U.S. Army Corps of Engineers beginning Oct. 1, 1976.

AVERAGE DISCHARGE.--42 years, 230 ft<sup>3</sup>/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,500 ft<sup>3</sup>/s June 28, 1957, gage height 19.87 ft, from rating curve extended above 5,000 ft<sup>3</sup>/s on basis of records for station at Big Raccoon Creek at Mansfield; minimum daily, 2.7 ft<sup>3</sup>/s Oct. 11, 1956; no flow, Aug. 23, 24, 1977, July 26, 1986, Mar. 11, 12, 18, 19, 1987, due to regulation.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 1,330 ft<sup>3</sup>/s, July 18; minimum daily 17.0 ft<sup>3</sup>/s, Oct. 1-10, 12-17, Dec. 12 to Jan. 26, & Aug. 23 to Sept. 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	522	167	17	18	18	27	161	242	322	805	17
2	17	519	227	17	18	18	27	162	129	457	935	17
3	17	515	225	17	18	18	27	163	82	694	1090	17
4	17	512	223	17	18	18	28	164	82	999	1160	17
5	17	508	222	17	18	18	28	260	82	1260	962	17
6	17	504	222	17	18	18	28	328	82	805	416	17
7	17	500	142	17	18	18	28	177	82	97	163	17
8	17	420	77	17	18	18	28	87	82	98	163	17
9	17	341	51	17	18	19	28	88	83	99	164	17
10	17	339	51	17	18	19	28	88	83	99	163	17
11	178	337	28	17	18	19	29	89	83	99	163	17
12	17	334	17	17	18	19	29	89	85	99	387	17
13	17	332	17	17	18	20	29	89	87	260	692	17
14	17	330	17	17	18	20	29	89	88	601	880	17
15	17	327	17	17	18	20	29	438	92	883	1000	17
16	17	325	17	17	18	20	30	756	94	1160	616	17
17	17	323	17	17	18	20	30	753	95	1320	85	17
18	284	320	17	17	18	21	30	901	96	1330	58	17
19	236	317	17	17	18	22	30	992	97	1320	58	17
20	370	314	17	17	18	22	432	415	97	1310	53	17
21	559	312	17	17	18	24	651	415	98	1300	49	17
22	555	309	17	17	18	25	649	414	98	1210	33	17
23	610	307	17	17	18	25	646	413	98	1130	17	17
24	634	242	17	17	18	26	644	414	99	445	17	17
25	563	180	17	17	18	26	641	414	419	145	17	17
26	492	179	17	17	18	26	639	631	774	145	17	17
27	490	143	17	18	18	26	444	898	1040	145	17	17
28	518	107	17	18	18	26	159	988	1130	145	17	17
29	533	107	17	18	---	27	159	981	957	144	17	17
30	529	106	17	18	---	27	160	918	416	144	17	17
31	526	---	17	18	---	27	---	578	---	458	17	---
TOTAL	7349	9931	1975	532	504	670	5766	13353	7072	18723	10248	510
MEAN	237	331	63.7	17.2	18.0	21.6	192	431	236	604	331	17.0
MAX	634	522	227	18	18	27	651	992	1130	1330	1160	17
MIN	17	106	17	17	18	18	27	87	82	97	17	17

CAL YR 1997 TOTAL 65745.0 MEAN 180 MAX 1300 MIN 9.0  
WTR YR 1998 TOTAL 76633 MEAN 210 MAX 1330 MIN 17

## WABASH RIVER BASIN

03341300 BIG RACCOON CREEK AT COXVILLE, IN

LOCATION.--Lat 39°39'09", long 87°17'37", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.15, T.14 N., R.8 W., Parke County, Hydrologic Unit 05120108, on right bank at downstream side of covered bridge on county road at Coxville, 0.8 mi upstream from Rock Run, 1.5 mi downstream from Little Raccoon Creek, 2.1 mi northwest of Rosedale, and at mile 13.1.

DRAINAGE AREA.--448 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1956 to September 1988 (discharge). October 1988 to September 1992 (gage height only). October 1992 to current year (discharge). Prior to October 1963, published as Raccoon Creek at Coxville.

REVISED RECORDS.--WSP 2109: Drainage area. WDR IN-74-1: 1973.

GAGE.--Water-stage recorder. Datum of gage is 494.00 ft above sea level (Indiana Flood Control and Water Resources Commission bench mark).

REMARKS.--Records good except for estimated daily discharges, which are poor. Flow regulated by Cecil M. Harden Lake.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41	472	174	e52	75	76	527	1600	521	546	562	66
2	41	473	228	56	72	74	392	999	414	621	906	64
3	41	469	247	54	72	73	337	866	289	661	986	62
4	43	466	245	53	70	72	399	806	263	1250	1190	60
5	43	464	245	62	71	71	e330	664	257	1450	1230	58
6	41	462	242	111	72	68	e272	688	244	1800	1330	56
7	41	462	236	102	70	66	e320	864	226	1300	555	55
8	41	461	165	233	66	82	377	946	217	1460	465	54
9	42	378	126	235	64	290	600	648	458	880	435	54
10	42	357	121	150	63	319	582	514	369	695	441	53
11	73	353	116	122	66	220	429	434	348	549	368	52
12	116	349	93	116	68	179	344	380	1130	463	359	50
13	49	349	79	113	65	166	300	342	929	431	576	50
14	49	349	74	103	62	166	392	319	660	585	775	48
15	45	347	70	108	61	158	351	329	5460	823	1000	48
16	41	343	67	103	61	147	507	728	3400	1130	975	48
17	45	337	65	98	67	201	424	758	1590	1380	311	48
18	82	335	63	89	87	677	330	782	1090	1440	203	47
19	352	334	61	81	84	521	287	998	2690	1450	171	46
20	178	337	59	78	85	920	315	1680	1160	1460	145	52
21	447	338	58	75	88	1370	711	770	799	1470	132	58
22	470	336	59	75	85	723	769	677	613	1450	122	55
23	487	328	59	106	82	512	756	866	703	1320	107	50
24	547	318	63	117	81	408	744	1020	610	1100	94	48
25	554	242	75	103	77	347	737	869	571	453	87	48
26	466	228	69	94	72	314	736	789	872	377	82	47
27	453	219	63	90	75	287	712	926	1110	340	78	45
28	450	177	60	87	77	503	384	1050	1310	317	75	45
29	473	164	58	85	---	774	409	1030	1440	301	72	44
30	470	175	56	81	---	533	661	1010	1160	292	70	44
31	469	---	55	77	---	422	---	907	---	311	67	---
TOTAL	6732	10422	3451	3109	2038	10739	14434	25259	30903	28105	13969	1555
MEAN	217	347	111	100	72.8	346	481	815	1030	907	451	51.8
MAX	554	473	247	235	88	1370	769	1680	5460	1800	1330	66
MIN	41	164	55	52	61	66	272	319	217	292	67	44
CFSM	.48	.78	.25	.22	.16	.77	1.07	1.82	2.30	2.02	1.01	.12
IN.	.56	.87	.29	.26	.17	.89	1.20	2.10	2.57	2.33	1.16	.13

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 1998, BY WATER YEAR (WY)

	MEAN	321	561	653	568	618	663	670	608	529	357	240	219
MAX	994	1684	2070	1572	1648	1493	1648	2370	3613	1001	1062	1542	
(WY)	1990	1994	1968	1974	1969	1985	1957	1996	1957	1981	1958	1989	
MIN	17.5	44.3	48.2	25.9	72.8	145	137	107	64.2	59.4	34.4	34.6	
(WY)	1957	1957	1964	1977	1998	1981	1995	1976	1988	1988	1966	1966	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1957 - 1998
ANNUAL TOTAL	126881	150716	
ANNUAL MEAN	348	413	498
HIGHEST ANNUAL MEAN			914
LOWEST ANNUAL MEAN			160
HIGHEST DAILY MEAN	3690	5460	51400
LOWEST DAILY MEAN	39	41	6.5
ANNUAL SEVEN-DAY MINIMUM	42	42	8.8
INSTANTANEOUS PEAK FLOW		6970	108000
INSTANTANEOUS PEAK STAGE		14.44	21.23
ANNUAL RUNOFF (CFSM)	.78	.92	1.11
ANNUAL RUNOFF (INCHES)	10.54	12.51	15.10
10 PERCENT EXCEEDS	808	999	1180
50 PERCENT EXCEEDS	223	289	268
90 PERCENT EXCEEDS	46	54	68

e Estimated

## 03341500 WABASH RIVER AT TERRE HAUTE, IN

LOCATION.--Lat 39°28'33", long 87°25'07", in NE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.21, T.12 N., R.9 W., Vigo County, Hydrologic Unit 05120111, on left bank at Indiana America Water Company, Inc., 1st and Elm Streets in Terre Haute, 3.0 mi upstream from Sugar Creek, and 3.6 mi downstream from Lost Creek and at mile 215.

DRAINAGE AREA.--12,263 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1902 to December 1903 (gage height only), February 1905 to July 1906, October 1927 to current year. Gage-height records collected at site 100 ft downstream June 1891 to June 1897 and since December 1904 are contained in reports of National Weather Service.

REVISED RECORDS.--WSP 205: 1905. WSP 1335: 1944. WDR IN-73-1: Drainage area. WDR IN-84-1: 1983. WDR IN-86 1: 1913 (Gage height).

GAGE.--Water-stage recorder. Datum of gage is 445.78 ft above sea level. Prior to Oct. 17, 1984, water-stage recorder at Wabash Avenue bridge 3,400 ft downstream at datum 2.88 ft lower. See WSP 1725 for history of changes prior to Oct. 27, 1928.

REMARKS.--Records good except for estimated daily discharges, which are poor. Flow partially regulated by upstream reservoirs.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of March 27, 1913, reached a stage of about 31.2 ft, present site and datum, discharge, 245,000 ft<sup>3</sup>/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3010	3300	5300	6290	9150	7640	45000	21800	12200	e24000	19300	8810
2	2830	3180	7370	5720	8940	7630	41800	25000	10700	e23000	17600	8630
3	2640	3370	7000	5410	8400	7620	36300	25600	9770	e22500	17000	8570
4	2480	3390	6130	5030	7950	6850	32900	30200	9290	e22000	17300	8460
5	2400	3320	5370	4850	7490	6310	30700	33700	9070	e21000	21800	8250
6	2450	3520	4760	8390	7080	5960	28400	36000	8870	e20000	24400	9360
7	2530	3610	4450	16700	6670	5720	24900	35200	8250	e30000	26600	8140
8	2630	3490	4620	22000	6330	5760	e23000	34000	7550	33600	27500	5890
9	2510	3450	4470	24800	6100	7270	e25000	36000	8880	34500	28800	5080
10	2470	3270	4470	26300	5740	14800	27400	38600	10700	33800	29900	4890
11	2370	3210	4300	27500	5580	e22000	29100	40800	11500	33300	28400	5420
12	2410	3150	4450	28500	5440	e26500	29900	39800	27600	31800	25800	6710
13	2440	3130	4700	e28600	5520	27400	31300	35400	43500	28200	23200	6500
14	2470	3270	4890	e26200	6220	26900	32900	31100	58000	24000	21200	5500
15	2360	3200	5010	22500	6520	24100	33300	25800	66600	21300	19800	4310
16	2440	3120	4820	19000	6560	21600	32700	20200	76500	19900	19200	3780
17	2350	3170	4710	16900	6370	20700	31000	16600	83300	19200	18300	3590
18	2400	3230	4500	14900	6450	24900	29600	14300	79600	18300	17300	3550
19	2630	3170	4250	12300	7110	29500	28500	13000	74700	17100	16300	3470
20	3110	3170	4330	10600	8970	32300	25700	19300	71100	14800	14500	3360
21	3050	3090	4360	9570	12200	39600	23300	26200	61200	11900	12200	3550
22	3190	3160	4350	8690	14200	46900	22600	21400	52300	10300	11200	3900
23	2990	3030	4280	8140	15200	48300	22200	19900	45100	12800	10400	3390
24	2930	3110	4330	7920	15200	48300	21600	23900	39100	23800	10100	3220
25	2900	3340	4690	7750	13700	46500	21000	25100	33700	27700	9680	3270
26	3010	3760	5930	7770	11700	42100	20200	24100	30300	30700	9480	3220
27	3300	3720	7560	7600	9780	37000	18600	19700	27200	34500	9500	3270
28	3440	3460	9300	7370	8370	33400	16700	16200	25000	36800	9290	3300
29	3410	3320	8780	7280	---	36200	15400	13800	25200	34000	9080	3050
30	3260	3330	7620	7680	---	41900	15900	12800	e24600	28400	9070	2970
31	3180	---	6930	8570	---	44800	---	12900	---	22500	8960	---
TOTAL	85590	99040	168030	420830	238940	796460	816900	788400	1051380	765700	543160	155410
MEAN	2761	3301	5420	13580	8534	25690	27230	25430	35050	24700	17520	5180
MAX	3440	3760	9300	28600	15200	48300	45000	40800	83300	36800	29900	9360
MIN	2350	3030	4250	4850	5440	5720	15400	12800	7550	10300	8960	2970
CFSM	.23	.27	.44	1.11	.70	2.10	2.22	2.07	2.86	2.01	1.43	.42
IN.	.26	.30	.51	1.28	.72	2.42	2.48	2.39	3.19	2.32	1.65	.47

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 1998, BY WATER YEAR (WY)

	MEAN	MAX	(WY)	MIN	(WY)
1928	4639	18880	1991	1103	1957
1929	6789	40220	1993	1405	1954
1930	10380	44490	1928	1145	1964
1931	13920	77540	1950	1216	1977
1932	15450	47990	1950	1998	1963
1933	18930	51250	1982	2645	1941
1934	19280	41940	1938	5250	1931
1935	15640	64810	1943	2405	1934
1936	12030	44130	1958	1492	1934
1937	8267	27840	1957	1292	1936
1938	5091	21330	1958	1002	1941
1939	4073	21440	1989	966	1941

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1928 - 1998
ANNUAL TOTAL	4646510	5929840	
ANNUAL MEAN	12730	16250	11180
HIGHEST ANNUAL MEAN			22800
LOWEST ANNUAL MEAN			2864
HIGHEST DAILY MEAN	65800	83300	186000
LOWEST DAILY MEAN	2350	2350	701
ANNUAL SEVEN-DAY MINIMUM	2410	2410	732
INSTANTANEOUS PEAK FLOW		84600	189000
INSTANTANEOUS PEAK STAGE		23.89	30.50
ANNUAL RUNOFF (CFSM)	1.04	1.32	.91
ANNUAL RUNOFF (INCHES)	14.10	17.99	12.39
10 PERCENT EXCEEDS	29300	34000	27600
50 PERCENT EXCEEDS	7310	9770	6470
90 PERCENT EXCEEDS	3020	3170	1990

e Estimated



## WABASH RIVER BASIN

03342000 WABASH RIVER AT RIVERTON, IN

LOCATION.--Lat 39°01'13", long 87°34'07", in NE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.30, T.7 N., R.10 W., Sullivan County, Hydrologic Unit 05120111, on left bank at downstream side of Illinois Central Railroad bridge at Riverton, 0.5 mi downstream from Turtle Creek, and at mile 162.0.

DRAINAGE AREA.--13,161 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1938 to current year. Prior to April 1939 monthly discharge only, published in WSP 1305. June 1911 to December 1914 (gage heights only) available in the U.S. Army Corps of Engineers office, Louisville, Ky.

REVISED RECORDS.--WSP 1335: 1939, 1950. WDR IN-73-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 414.65 ft above sea level. Prior to July 17, 1951, nonrecording gage at same site and datum.

REMARKS.--Records good. Flow partially regulated by upstream reservoirs.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of March 28, 1913, reached a stage of 26.4 ft, from graph based on once-daily readings by Illinois Central Railroad Co., discharge, 250,000 ft<sup>3</sup>/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3710	3390	3590	6580	8520	8430	45400	26400	13400	31900	28400	9690
2	3440	3460	5470	5970	8960	7770	47600	27300	12000	30800	23100	9520
3	3250	3370	6940	5550	8740	7730	48800	28500	10600	29700	19900	9350
4	3070	3490	6590	5250	8250	7560	48700	31100	9660	28300	18300	9280
5	2910	3530	5850	5020	7800	6890	46700	32400	9290	26300	23100	9150
6	2830	3530	5200	5260	7360	6400	43300	33700	9100	25700	27800	9110
7	2860	3690	4680	10000	6950	6060	39200	37100	8660	27700	27800	9860
8	2930	3740	4460	17900	6560	5980	34400	42900	8050	31500	28300	8500
9	3000	3650	4550	22400	6260	6650	30500	43800	8880	33600	29200	6840
10	2930	3580	4470	24100	6030	9260	29000	43200	11300	34900	30400	6160
11	2850	3430	4410	25200	5770	17300	28900	42900	11500	36000	31000	5950
12	2780	3360	4290	26200	5610	23400	29300	43600	17200	36500	30600	6520
13	2800	3320	4410	27100	5480	25500	30200	44600	27300	36200	28400	7390
14	2830	3320	4610	27400	5580	26400	31600	44600	31500	34000	26000	7150
15	2820	3380	4790	26600	6140	26400	33200	42700	39200	29200	23400	6250
16	2730	3320	4850	23500	6410	24700	38400	37600	49500	25300	21500	5290
17	2780	3260	4690	19700	6820	22600	40800	28500	60900	22700	20300	4810
18	2710	3270	4590	17000	7550	24000	39600	21700	75600	21000	19100	4620
19	2710	3320	4390	14800	7060	27000	37400	16700	87000	19600	18000	4500
20	2890	3300	4200	12300	7630	29100	34700	15300	90100	18000	16800	4430
21	3280	3310	4220	10700	9680	31900	31400	22100	88400	17000	14900	4310
22	3300	3240	4280	9630	12600	35000	28000	25400	83200	13700	13000	4500
23	3390	3260	4240	9100	14300	39200	26000	24200	75700	14700	12000	4710
24	3260	3170	4250	8570	15100	44100	24600	25500	66600	18100	11400	4270
25	3190	3220	4410	8150	14800	48000	23500	26500	58100	24200	11000	4090
26	3180	3400	4750	7900	13300	49900	22600	26500	51100	26300	10500	4090
27	3250	3750	5810	7840	11400	49300	21800	25300	45100	27600	10400	4030
28	3450	3760	7480	7650	9640	48900	19900	21200	39000	29400	10300	4060
29	3580	3550	8660	7420	---	46700	18200	17000	33300	32100	10100	4090
30	3560	3500	8110	7340	---	44300	21800	14400	32000	34600	9870	3870
31	3440	---	7170	7750	---	43700	---	13700	---	34000	9820	---
TOTAL	95710	102870	160410	419880	240300	800130	995500	926400	1163240	850600	614690	186390
MEAN	3087	3429	5175	13540	8582	25810	33180	29880	38770	27440	19830	6213
MAX	3710	3760	8660	27400	15100	49900	48800	44600	90100	36500	31000	9860
MIN	2710	3170	3590	5020	5480	5980	18200	13700	8050	13700	9820	3870
CFSM	.23	.26	.39	1.03	.65	1.96	2.52	2.27	2.95	2.08	1.51	.47
IN.	.27	.29	.45	1.19	.68	2.26	2.81	2.62	3.29	2.40	1.74	.53

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 1998, BY WATER YEAR (WY)

	MEAN	4898	7390	11010	13980	16860	21150	21390	17480	13980	9303	5914	4627
MAX	18350	39340	39250	80210	54530	60520	41840	68010	45640	36240	23680	25370	
(WY)	1991	1993	1986	1950	1950	1982	1957	1943	1958	1957	1958	1989	
MIN	1382	1437	1213	1318	2058	2763	6363	3435	2601	1968	1215	1261	
(WY)	1957	1954	1964	1977	1963	1941	1941	1941	1977	1988	1941	1940	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1940 - 1998
ANNUAL TOTAL	5069820	6556120	
ANNUAL MEAN	13890	17960	12300
HIGHEST ANNUAL MEAN			24340
LOWEST ANNUAL MEAN			3206
HIGHEST DAILY MEAN	72200	Mar 5	200000
LOWEST DAILY MEAN	2710	Oct 18	858
ANNUAL SEVEN-DAY MINIMUM	2770	Oct 13	870
INSTANTANEOUS PEAK FLOW			201000
INSTANTANEOUS PEAK STAGE			29.36
ANNUAL RUNOFF (CFSM)	1.06		.93
ANNUAL RUNOFF (INCHES)	14.33		12.70
10 PERCENT EXCEEDS	30700		29900
50 PERCENT EXCEEDS	7910		7250
90 PERCENT EXCEEDS	3310		2200



## 03342100 BUSSEYON CREEK NEAR HYMERA, IN

LOCATION.--Lat 39°12'54", long 87°18'41", in NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.21, T.9 N., R.8 W., Sullivan County, Hydrologic Unit 05120111, on right bank at downstream side of bridge on County Road 900 North, 1.3 mi upstream from East Fork Busseron Creek, 1.9 mi northwest of Hymera, 4.1 mi upstream from West Fork Busseron Creek, and at mile 30.3.

DRAINAGE AREA.--16.7 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1966 to current year.

REVISED RECORDS.--WDR IN-72-1: 1971. WDR IN-87-1: 1982-86.

GAGE.--Water-stage recorder. Datum of gage is 480.00 ft above sea level (U.S. Soil Conservation Service bench mark).

REMARKS.--Records poor. Flow affected by U.S. Soil Conservation Service floodwater-retarding structures.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.15	.08	.29	e.12	1.6	1.9	19	161	e9.6	25	4.2	1.8
2	.13	.11	.21	.15	1.5	1.7	8.6	52	e6.0	18	4.0	1.7
3	e.13	.11	.20	.13	1.4	1.6	15	52	e4.7	16	3.9	1.3
4	e.13	.08	.26	.13	1.4	1.6	38	46	e3.5	15	27	1.3
5	e.13	.07	.25	.35	e1.4	1.8	16	34	e9.4	14	107	1.1
6	.13	.13	.26	1.1	1.3	1.8	9.2	28	e6.2	14	101	.94
7	.13	.16	.19	2.3	1.3	1.3	7.7	132	e4.5	204	57	.86
8	.11	.13	.17	8.6	1.2	3.1	62	82	e3.6	87	40	.83
9	.17	.10	.16	e11	1.1	23	87	40	44	29	23	.96
10	.20	e.09	.21	e6.0	1.1	13	38	32	15	27	30	.53
11	.10	e.08	.23	e4.5	1.4	7.6	25	26	43	20	20	3.0
12	.14	e.07	.18	e3.5	1.9	e5.2	19	21	44	17	14	e5.0
13	.31	e.07	e.16	e3.0	1.5	e4.0	24	18	56	15	13	e2.7
14	.36	.26	e.14	e2.6	1.3	e3.0	37	16	27	14	13	e1.7
15	.18	.22	e.13	e2.6	1.3	e2.5	38	14	21	13	12	e1.1
16	e.13	.17	e.12	e2.5	1.3	2.9	298	13	18	13	11	e.84
17	e.10	e.14	e.11	e2.4	4.7	16	63	e11	25	e13	10	e.64
18	e.08	e.12	e.11	e2.3	10	80	44	e10	32	e12	10	e.52
19	e.07	.10	e.11	e2.2	6.7	44	36	e9.0	446	e11	8.8	e.43
20	e.06	.08	e.10	e2.1	11	107	30	e8.0	72	9.6	7.7	e.60
21	e.05	.14	e.10	e2.0	8.5	72	28	e7.2	47	11	7.6	.92
22	e.04	.17	e.12	e1.9	6.5	33	24	e27	40	11	6.7	.76
23	.04	.14	e.17	e1.9	4.6	23	21	e120	32	8.9	6.1	e.50
24	.05	.12	.26	e4.2	3.6	17	17	e40	21	6.9	5.6	e.36
25	.08	.10	.49	e4.0	2.9	13	16	e19	18	6.2	4.9	e.35
26	.09	e.09	.23	e3.1	2.7	11	15	e13	16	5.7	4.4	e.34
27	.08	e.08	.21	e2.6	2.5	9.0	14	e9.5	15	5.1	3.7	e.33
28	.08	e.09	e.18	e2.2	2.2	13	13	e7.2	14	4.9	3.4	e.32
29	.06	.11	e.16	2.0	---	9.1	13	e5.7	63	4.7	2.9	e.31
30	.05	.29	e.13	1.8	---	6.8	219	e4.4	134	4.8	2.5	e.31
31	.05	---	e.12	1.7	---	9.7	---	e16	---	4.4	2.1	---
TOTAL	3.61	3.70	5.76	84.98	87.9	539.6	1294.5	1074.0	1290.5	660.2	566.5	32.35
MEAN	.12	.12	.19	2.74	3.14	17.4	43.2	34.6	43.0	21.3	18.3	1.08
MAX	.36	.29	.49	11	11	107	298	161	446	204	107	5.0
MIN	.04	.07	.10	.12	1.1	1.3	7.7	4.4	3.5	4.4	2.1	.31
CFSM	.01	.01	.01	.16	.19	1.04	2.58	2.07	2.58	1.28	1.09	.06
IN.	.01	.01	.01	.19	.20	1.20	2.88	2.39	2.87	1.47	1.26	.07

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1998, BY WATER YEAR (WY)

	MEAN	2.88	16.3	24.1	23.6	26.6	34.8	34.5	24.0	11.1	12.2	5.18	7.27
MAX	18.8	79.0	96.8	105	67.4	112	74.9	86.2	43.0	79.3	25.4	60.9	
(WY)	1994	1994	1983	1969	1971	1973	1992	1981	1998	1973	1979	1989	
MIN	.020	.058	.026	.006	1.63	7.23	1.48	1.23	.22	.17	.065	.018	
(WY)	1988	1972	1977	1977	1978	1969	1971	1976	1977	1972	1983	1976	

## SUMMARY STATISTICS FOR 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1967 - 1998

	ANNUAL TOTAL	5339.86	5643.60	
ANNUAL MEAN	14.6	15.5	18.5	
HIGHEST ANNUAL MEAN			36.1	1973
LOWEST ANNUAL MEAN			6.93	1977
HIGHEST DAILY MEAN	475	Feb 27	848	Nov 14 1993
LOWEST DAILY MEAN	.04	Oct 22	.00	Oct 12 1966
ANNUAL SEVEN-DAY MINIMUM	.06	Oct 18	.00	Oct 23 1966
INSTANTANEOUS PEAK FLOW			1890	Sep 12 1974
INSTANTANEOUS PEAK STAGE			17.42	Jul 8 1982
ANNUAL RUNOFF (CFSM)	.88		.93	
ANNUAL RUNOFF (INCHES)	11.89		12.57	
10 PERCENT EXCEEDS	36		38	
50 PERCENT EXCEEDS	1.6		3.6	
90 PERCENT EXCEEDS	.11		.11	

e Estimated

## WABASH RIVER BASIN

03342500 BUSSEYON CREEK NEAR CARLISLE, IN

LOCATION.--Lat 38°58'27", long 87°25'33", in NW<sup>1</sup>/<sub>4</sub> survey 17, Vincennes Tract, Sullivan County, Hydrologic Unit 05120111, on left bank 10 ft downstream from bridge on State Highway 58, 1.5 mi northwest of Carlisle, and 6.7 mi upstream from mouth.

DRAINAGE AREA.--228 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1943 to current year.

REVISED RECORDS.--WSP 1335: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 425.36 ft above sea level (Indiana Department of Highways bench mark). Prior to Nov. 8, 1950, nonrecording gage at same site and datum. Nov. 8, 1950, to Oct. 31, 1969, at site 200 ft upstream at same datum.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Flow affected by U.S. Soil Conservation Service floodwater-retarding structures and surface-mined areas.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e6.0	e6.7	17	10	49	67	396	2280	200	552	47	e16
2	e5.9	e9.0	17	13	51	64	321	e1700	98	246	38	e15
3	e5.9	12	17	12	46	60	272	e1170	74	163	33	e15
4	e5.9	e7.8	16	12	43	60	490	e850	66	138	31	e14
5	e5.8	e6.8	17	23	45	69	418	e730	118	110	150	e14
6	e5.8	e5.6	e13	77	47	69	280	e660	101	90	872	e14
7	e5.7	e9.0	e12	173	50	69	205	1300	76	581	651	e13
8	e5.7	e13	e11	458	60	106	202	1720	69	1150	730	e13
9	5.5	e10	e10	307	55	356	447	e1050	881	739	458	e14
10	6.6	e8.1	e13	164	51	344	501	e700	830	332	304	e14
11	9.1	e7.1	17	110	59	195	301	e500	429	248	252	e13
12	e7.9	e6.7	16	87	104	131	224	427	572	168	168	e13
13	e7.1	e6.1	15	79	79	e120	192	335	754	125	121	e12
14	e10	e8.6	14	68	67	e110	672	273	521	98	95	e12
15	14	e11	13	77	59	e102	575	216	371	85	79	e12
16	9.6	e15	e12	75	59	94	1780	172	370	80	65	e11
17	e7.4	e10	e11	69	205	138	e1300	137	411	72	58	e11
18	e6.7	e8.3	e11	63	321	810	e1000	114	571	66	52	62
19	e6.2	e7.3	11	61	226	942	e730	97	1390	64	50	64
20	e5.8	e6.6	e10	56	228	924	e540	100	e1200	63	e41	22
21	e5.5	e9.2	11	55	215	1050	460	97	e1100	e62	e36	21
22	e5.2	e12	13	55	159	780	426	108	e1350	e60	e33	22
23	e4.8	15	14	125	128	465	329	1540	e810	e58	e30	e21
24	e5.8	e11	20	116	106	356	263	567	e640	69	e27	e20
25	7.7	e9.6	33	86	89	306	210	303	518	e58	e25	21
26	11	e8.6	24	72	80	287	186	219	350	e53	e23	19
27	8.0	e7.8	19	66	76	258	230	165	225	e50	e21	e18
28	e7.3	e7.6	17	61	71	282	185	128	143	e48	19	e17
29	e6.5	e7.5	e14	61	---	290	221	104	145	46	18	e16
30	e5.7	e12	e12	57	---	219	1800	88	595	47	17	e16
31	e5.2	---	e11	52	---	192	---	201	---	77	e17	---
TOTAL	215.3	275.0	461	2800	2828	9315	15156	18051	14978	5798	4561	565
MEAN	6.95	9.17	14.9	90.3	101	300	505	582	499	187	147	18.8
MAX	14	15	33	458	321	1050	1800	2280	1390	1150	872	64
MIN	4.8	5.6	10	10	43	60	185	88	66	46	17	11
CFSM	.03	.04	.07	.40	.44	1.32	2.22	2.55	2.19	.82	.65	.08
IN.	.04	.04	.08	.46	.46	1.52	2.47	2.95	2.44	.95	.74	.09

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 1998, BY WATER YEAR (WY)

	MEAN	45.7	172	256	316	358	454	437	337	181	109	56.2	70.3
MAX	263	1250	1421	2380	1317	1284	1102	1268	988	1101	633	701	
(WY)	1950	1994	1983	1950	1950	1978	1945	1996	1945	1979	1979	1989	
MIN	1.39	.94	2.87	3.64	11.3	12.8	35.6	31.6	8.88	.035	1.89	.88	
(WY)	1944	1955	1954	1977	1954	1954	1954	1954	1954	1954	1954	1953	1953

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

## WATER YEARS 1944 - 1998

ANNUAL TOTAL	82760.2	75003.3	232
ANNUAL MEAN	227	205	548
HIGHEST ANNUAL MEAN			10.8
LOWEST ANNUAL MEAN			8500
HIGHEST DAILY MEAN	1990	May 2	Jan 5 1950
LOWEST DAILY MEAN	4.8	Oct 23	Jul 12 1954
ANNUAL SEVEN-DAY MINIMUM	5.7	Oct 18	Jul 12 1954
INSTANTANEOUS PEAK FLOW		2400	8800
INSTANTANEOUS PEAK STAGE		12.53	20.30
ANNUAL RUNOFF (CFSM)	.99	.90	1.02
ANNUAL RUNOFF (INCHES)	13.50	12.24	13.81
10 PERCENT EXCEEDS	673	613	643
50 PERCENT EXCEEDS	66	65	55
90 PERCENT EXCEEDS	7.6	7.9	5.5

e Estimated

## WABASH RIVER BASIN

107

03343000 WABASH RIVER AT VINCENNES, IN

LOCATION.--Lat 38°42'19", long 87°31'14", T.3 N., R.10 W., Lawrence County, IL, Hydrologic Unit 05120111, on right bank 30 ft east of Illinois State Highway 33, 300 ft upstream from Kelso Creek, 570 ft downstream from U.S. Highway 50 bridge, 5.1 mi downstream from Maria Creek, 7.5 mi upstream from Embarras River and at mile 129.6.

DRAINAGE AREA.--13,706 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1929 to September 1994 (discharge), October 1994 to current year (stage only). Prior to December 1929 monthly discharge only, published in WSP 1305. Gage-height records for flood peaks in 1867 and 1883, intermittent records 1887-1904, and continuous since November 1904, collected at site 1.8 mi downstream, are contained in reports of National Weather Service.

REVISED RECORDS.--WSP 1173: 1943 (maximum gage height only). WSP 1335: 1930-31, 1933, 1936. WSP 1909: 1955. WDR IN-73-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 394.43 ft above sea level. Oct. 1, 1968, to June 19, 1979, recording gage at site 570 ft upstream at same datum. Oct. 1, 1960, to September 30, 1968, nonrecording gage at site 1.8 mi downstream at same datum. Oct. 1, 1960, to Sept. 30, 1968, auxiliary water-stage recorder at site 2.8 mi upstream from base gage at datum 0.80 ft lower. See WSP 1725 for history of changes prior to Oct. 1, 1960.

REMARKS.--Flow partially regulated by upstream reservoirs.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 29, 1913, reached a stage of 26.3 ft, at former site 1.8 mi downstream and at present datum, from floodmarks, determined by U.S. Army Corps of Engineers, discharge, 255,000 ft<sup>3</sup>/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 29.33 ft., May 22, 1943; minimum gage height, unknown.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 25.25 ft., June 21; minimum gage height, unknown.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.91	4.94	5.03	6.50	7.45	7.52	18.80	15.94	10.23	16.24	15.33	8.16
2	4.78	4.96	5.88	6.23	7.63	7.23	19.09	16.14	9.54	15.91	13.42	8.08
3	4.75	4.92	6.63	6.05	7.52	7.21	19.47	16.50	8.98	15.58	12.01	8.04
4	4.66	4.96	6.49	5.91	7.34	7.15	19.65	17.04	8.54	15.45	11.35	---
5	---	5.00	6.17	5.85	7.14	6.84	19.48	17.21	8.52	14.66	12.91	---
6	---	5.01	5.87	6.03	6.95	6.63	19.02	17.39	8.31	14.14	15.42	---
7	---	5.06	5.62	8.32	6.78	6.47	18.35	18.68	8.07	16.72	16.34	---
8	---	5.11	5.50	11.43	6.63	6.53	17.45	19.75	7.82	17.35	16.23	---
9	---	5.06	5.56	12.63	6.50	7.05	16.63	20.14	9.63	17.29	16.09	---
10	---	5.04	5.52	13.10	6.39	8.15	15.93	19.95	9.77	17.16	15.89	---
11	---	4.96	5.49	13.43	6.39	11.16	15.46	19.62	9.55	16.96	16.03	---
12	---	4.93	5.43	13.74	6.27	12.81	15.40	19.31	11.81	16.84	15.85	---
13	---	4.94	5.47	13.97	6.17	13.46	15.56	19.14	14.49	16.73	15.40	---
14	---	4.91	5.56	14.06	6.18	13.78	16.05	18.80	15.47	16.45	14.59	---
15	---	4.95	5.65	13.87	6.42	13.83	17.17	18.38	16.50	15.70	13.59	---
16	4.60	4.92	5.70	12.92	6.59	13.37	18.43	17.75	17.75	14.40	12.79	---
17	4.62	4.88	5.61	11.66	7.18	12.80	18.58	16.22	19.34	13.28	12.40	---
18	4.60	4.89	5.56	10.73	7.60	13.96	18.59	13.49	21.88	12.51	11.78	---
19	4.59	4.92	5.47	9.96	7.26	14.74	18.30	11.51	24.00	11.98	11.43	---
20	4.64	4.91	5.37	8.98	7.42	15.57	17.45	10.86	24.90	11.40	10.99	---
21	4.85	4.93	5.38	8.34	8.18	16.09	16.56	12.84	25.22	10.96	10.28	---
22	4.84	4.89	5.43	7.97	9.25	16.50	15.58	14.17	25.13	9.69	9.62	---
23	4.91	4.90	5.40	7.91	9.82	17.04	14.71	14.91	24.39	10.29	9.16	---
24	4.86	4.86	5.45	7.59	10.07	17.76	14.00	14.74	23.28	11.48	8.82	5.20
25	4.83	4.88	5.53	7.37	9.94	18.62	13.44	14.85	22.05	13.39	8.74	5.12
26	4.82	4.94	5.64	7.23	9.40	19.12	13.04	14.81	20.83	13.90	8.55	5.13
27	4.83	5.12	6.12	7.20	8.70	19.24	12.70	14.49	19.64	14.28	8.38	5.11
28	4.93	5.14	6.89	7.11	8.02	19.20	12.02	13.21	18.46	14.70	8.21	5.08
29	5.00	5.04	7.40	7.00	---	19.10	11.47	11.73	17.25	15.24	8.16	5.10
30	5.01	5.06	7.16	6.96	---	18.83	14.96	10.88	16.44	16.01	8.24	4.98
31	4.95	---	6.76	7.12	---	18.69	---	10.70	---	16.12	8.19	---
MEAN	---	4.97	5.83	9.26	7.54	13.11	16.44	15.84	15.93	14.61	12.14	---
MAX	---	5.14	7.40	14.06	10.07	19.24	19.65	20.14	25.22	17.35	16.34	---
MIN	---	4.86	5.03	5.85	6.17	6.47	11.47	10.70	7.82	9.69	8.16	---

## WABASH RIVER BASIN

03347000 WHITE RIVER AT MUNCIE, IN

LOCATION.--Lat 40°12'15", long 85°23'14", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ , Delaware County, Hydrologic Unit 05120201, on right bank 200 ft downstream from Walnut Street bridge in Muncie, 6 mi upstream from Bell Creek, and at mile 315.8.

DRAINAGE AREA.--241 mi<sup>2</sup>.

PERIOD OF RECORD.--November 1930 to current year. Prior to October 1948, published as West Fork White River at Muncie. Daily gage heights from July 1923 to December 1929 are available in the district office.

REVISED RECORDS.--WSP 1335: 1931-32(M), 1936(M), 1938, 1948. WSP 1435: 1955. WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 917.10 ft above sea level (City of Muncie bench mark). See WSP 1705 for history of changes prior to Jan. 28, 1942. Jan. 28, 1942, to Apr. 27, 1964, water-stage recorder at present site at datum 3.00 ft higher.

REMARKS.--Records good except for estimated daily discharges, which are poor. Natural flow affected by regulation of Prairie Creek Reservoir and by diversion of municipal water supply by Muncie Water Works Co. above gage. Records of diversion available since October 1937.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 22.6 ft in March 1913, present datum, discharge, 20,000 ft<sup>3</sup>/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	23	73	e29	69	121	317	386	88	273	91	20
2	16	23	73	e33	66	110	273	357	82	197	76	27
3	16	24	57	36	59	104	226	287	55	151	69	29
4	16	23	41	36	51	102	211	285	50	771	65	31
5	14	21	43	41	51	92	192	233	61	1200	86	43
6	13	20	39	50	51	83	173	206	57	503	265	29
7	11	20	33	439	49	79	164	274	49	683	255	26
8	16	21	29	1800	45	99	181	960	40	1860	213	24
9	16	21	27	1340	45	881	1370	582	51	779	156	22
10	17	22	33	610	43	901	4570	370	66	426	200	21
11	24	20	49	369	48	471	1950	282	345	302	193	22
12	19	20	59	264	58	324	763	232	2700	237	104	20
13	23	23	46	223	69	269	528	200	3140	202	74	22
14	25	26	38	188	63	245	422	172	1190	177	60	20
15	30	28	33	165	59	216	346	147	2140	155	53	18
16	28	28	30	141	54	190	718	125	1990	139	54	22
17	23	26	28	118	75	244	923	106	1400	120	48	25
18	22	23	29	101	1040	1170	577	92	736	104	44	25
19	23	22	28	84	1030	1810	387	80	800	100	38	24
20	20	22	28	76	583	1100	313	80	569	108	35	18
21	19	25	27	68	465	1470	269	82	402	96	32	22
22	19	32	31	64	333	986	252	74	324	1490	29	23
23	21	41	33	83	265	647	245	85	296	1880	29	23
24	21	26	51	134	227	551	234	99	272	699	35	23
25	20	23	109	119	194	428	213	135	229	391	39	20
26	21	21	165	99	172	356	215	91	198	277	36	26
27	23	23	100	88	162	303	243	73	172	217	31	23
28	24	32	73	87	141	310	210	64	169	168	32	22
29	22	43	58	88	---	417	207	53	159	142	34	21
30	22	59	51	87	---	305	242	56	301	120	29	19
31	24	---	e40	77	---	269	---	69	---	109	22	---
TOTAL	621	781	1554	7137	5567	14653	16934	6337	18131	14076	2527	710
MEAN	20.0	26.0	50.1	230	199	473	564	204	604	454	81.5	23.7
MAX	30	59	165	1800	1040	1810	4570	960	3140	1880	265	43
MIN	11	20	27	29	43	79	164	53	40	96	22	18
CFSM	.08	.11	.21	.96	.82	1.96	2.34	.85	2.51	1.88	.34	.10
IN.	.10	.12	.24	1.10	.86	2.26	2.61	.98	2.80	2.17	.39	.11

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1932 - 1998, BY WATER YEAR (WY)

	MEAN	55.2	147	224	300	338	415	404	264	222	121	69.3	56.6
MAX	409	1068	1119	1654	1122	963	1476	1239	1492	750	816	825	
(WY)	1987	1994	1991	1950	1950	1978	1964	1933	1958	1992	1979	1989	
MIN	2.30	7.33	6.57	6.38	21.2	39.0	46.4	16.4	13.6	9.55	4.80	1.96	
(WY)	1957	1957	1961	1977	1935	1941	1941	1941	1988	1944	1940	1954	

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

## WATER YEARS 1932 - 1998

ANNUAL TOTAL	82677		89028										
ANNUAL MEAN	227		244										
HIGHEST ANNUAL MEAN										217			
LOWEST ANNUAL MEAN										421		1950	
HIGHEST DAILY MEAN	5420	Jun 2								42.1		1941	
LOWEST DAILY MEAN	11	Sep 30								11600		Apr 21 1964	
ANNUAL SEVEN-DAY MINIMUM	14	Aug 5								1.1		Sep 16 1954	
INSTANTANEOUS PEAK FLOW										1.2		Sep 21 1954	
INSTANTANEOUS PEAK STAGE										14300		Apr 21 1964	
ANNUAL RUNOFF (CFSM)	.94									21.07		Jan 15 1937	
ANNUAL RUNOFF (INCHES)	12.76									1.01			
10 PERCENT EXCEEDS	502									13.74			
50 PERCENT EXCEEDS	90									485			
90 PERCENT EXCEEDS	18									75			
										12			

e Estimated

03347500 BUCK CREEK NEAR MUNCIE, IN

LOCATION.--Lat 40°08'05", long 85°22'25", in SW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.34, T.20 N., R.10 E., Delaware County, Hydrologic Unit 05120201, on left bank at downstream side of bridge on County Road 400 South, 1.0 mi upstream from Muncie Water Works Co. pumping station, 4.2 mi southeast of court house in Muncie, and at mile 10.6.

DRAINAGE AREA.--35.5 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1954 to current year.

REVISED RECORDS.--WSP 1909: 1955, 1957. WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 944.67 ft above sea level. Prior to May 5, 1955, nonrecording gage at same site and datum.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, about 15 ft, from information by local residents. Date unknown.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	18	24	e16	12	15	69	82	38	47	26	16
2	15	18	21	e16	12	15	53	55	23	43	25	16
3	15	18	20	e16	11	14	45	83	21	41	24	16
4	15	17	22	17	11	14	43	97	20	47	23	17
5	15	17	20	18	11	13	38	52	22	40	25	16
6	15	17	19	26	11	13	36	41	20	37	26	16
7	15	17	18	85	11	13	35	137	19	141	30	16
8	15	17	18	188	10	15	37	163	18	140	30	17
9	15	17	18	72	10	203	255	82	27	71	28	16
10	16	17	21	39	10	86	251	54	27	53	63	15
11	15	17	21	28	11	49	103	42	224	45	28	15
12	15	16	20	23	12	35	67	36	555	41	23	15
13	16	17	19	23	11	31	51	32	330	38	19	15
14	18	18	18	20	11	31	47	32	166	36	18	15
15	16	18	17	19	10	27	41	27	576	35	17	15
16	16	17	17	18	11	24	128	25	381	34	16	16
17	16	17	17	17	15	59	75	24	259	32	16	16
18	16	17	17	15	147	237	51	23	168	31	15	15
19	16	17	17	15	70	355	44	22	186	30	15	15
20	15	18	17	14	49	177	39	22	138	41	14	15
21	15	19	16	13	38	163	37	21	118	33	14	16
22	16	21	18	13	29	112	37	20	98	247	13	16
23	16	19	19	17	25	81	36	24	110	114	13	15
24	17	18	21	16	22	65	33	63	88	57	15	15
25	17	17	31	15	19	54	31	43	75	42	18	15
26	17	17	24	14	18	49	34	29	65	36	17	15
27	18	16	22	14	17	44	41	24	57	33	17	14
28	17	19	20	13	16	67	34	22	52	31	17	13
29	17	19	19	13	---	82	33	21	52	29	18	13
30	17	24	18	13	---	56	57	20	61	28	17	13
31	17	---	e17	12	---	48	---	22	---	27	16	---
TOTAL	494	534	606	838	640	2247	1881	1440	3994	1700	656	458
MEAN	15.9	17.8	19.5	27.0	22.9	72.5	62.7	46.5	133	54.8	21.2	15.3
MAX	18	24	31	188	147	355	255	163	576	247	63	17
MIN	15	16	16	12	10	13	31	20	18	27	13	13
CFSM	.45	.50	.55	.76	.64	2.04	1.77	1.31	3.75	1.54	.60	.43
IN.	.52	.56	.64	.88	.67	2.35	1.97	1.51	4.19	1.78	.69	.48

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1955 - 1998, BY WATER YEAR (WY)

	MEAN	20.5	32.1	38.0	41.1	50.0	57.5	56.8	44.6	43.2	30.3	23.2	18.5
MAX	58.6	146	109	96.2	123	117	166	101	153	97.9	108	76.4	
(WY)	1991	1994	1991	1959	1971	1982	1964	1996	1958	1992	1979	1989	
MIN	8.73	9.30	8.77	6.36	11.2	16.4	16.7	17.2	11.3	8.64	9.00	8.13	
(WY)	1964	1964	1965	1977	1964	1966	1966	1988	1988	1966	1965	1963	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1955 - 1998
ANNUAL TOTAL	14858	15488	
ANNUAL MEAN	40.7	42.4	37.9
HIGHEST ANNUAL MEAN			57.3
LOWEST ANNUAL MEAN			15.4
HIGHEST DAILY MEAN	584	576	1260
LOWEST DAILY MEAN	14	10	4.7
ANNUAL SEVEN-DAY MINIMUM	14	11	5.5
INSTANTANEOUS PEAK FLOW		767	1780
INSTANTANEOUS PEAK STAGE		9.39	13.96
ANNUAL RUNOFF (CFSM)		1.20	1.07
ANNUAL RUNOFF (INCHES)	15.57	16.23	14.50
10 PERCENT EXCEEDS	67	82	66
50 PERCENT EXCEEDS	27	20	24
90 PERCENT EXCEEDS	16	14	12

e Estimated



## 03348350 PIPE CREEK AT FRANKTON, IN

LOCATION.--Lat 40°13'38", long 85°45'58", in SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.31, T.21 N., R.7 E., Madison County, Hydrologic Unit 05120201, on right bank 20 ft downstream from bridge on County Road 500 West, at northeast edge of Frankton.

DRAINAGE AREA.--113 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Datum of gage is 810.00 ft above sea level.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 10, 1958, reached a stage of 15.5 ft, from floodmark determined by State of Indiana, Department of Natural Resources, discharge, 4,900 ft<sup>3</sup>/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.3	5.6	e9.0	10	27	40	268	302	39	105	41	21
2	e7.0	8.7	e7.1	9.1	25	37	226	467	35	70	38	21
3	e6.4	8.4	e6.2	9.2	24	35	150	262	30	56	35	19
4	e6.0	9.3	e8.0	9.3	21	33	121	350	30	155	42	19
5	e5.7	e7.6	e10	11	22	30	96	221	33	140	1470	18
6	e5.6	e6.2	e9.6	24	22	28	83	150	35	81	1730	17
7	e5.5	e5.2	e8.6	31	20	26	76	201	30	311	1090	17
8	e5.4	e4.8	e7.2	172	19	34	78	839	27	769	1260	17
9	6.9	e4.5	8.9	191	19	616	527	660	35	312	570	16
10	10	e4.2	13	97	19	803	1410	298	38	158	298	15
11	11	e4.5	15	62	19	320	769	187	456	102	201	14
12	8.2	e5.0	14	48	22	192	361	135	1880	76	140	13
13	6.5	e4.8	12	43	21	143	237	106	1420	63	105	13
14	12	e5.4	11	e37	19	129	190	86	814	54	86	12
15	8.2	e6.5	10	e34	18	116	158	75	1350	48	72	12
16	6.8	e8.2	8.8	e32	18	97	208	67	1240	44	62	12
17	e5.6	e8.0	9.7	e30	22	137	181	57	1220	39	55	12
18	e5.0	e6.4	9.0	28	152	701	127	51	636	36	48	12
19	e4.5	e5.4	9.9	24	189	913	108	48	554	34	43	11
20	e4.1	e5.0	8.7	23	145	630	92	47	390	32	39	11
21	e3.9	e11	8.8	22	157	743	81	64	240	30	36	11
22	e3.8	e8.0	9.1	20	108	451	88	62	179	868	34	12
23	e3.8	e8.8	11	30	86	278	146	57	147	1600	31	11
24	e6.0	e6.8	11	39	71	231	115	67	117	727	30	11
25	8.8	e6.0	25	37	59	179	91	76	97	234	36	11
26	10	e5.6	26	33	52	148	88	56	84	142	30	11
27	9.0	e5.6	20	31	50	124	76	47	74	98	27	10
28	6.8	e5.6	15	35	44	200	64	41	65	77	26	10
29	5.5	e8.1	13	36	---	390	67	38	59	63	25	9.9
30	e4.3	e12	12	33	---	215	153	40	211	53	24	9.8
31	3.4	---	11	30	---	152	---	39	---	47	22	---
TOTAL	203.0	201.2	357.6	1270.6	1470	8171	6435	5196	11565	6624	7746	408.7
MEAN	6.55	6.71	11.5	41.0	52.5	264	215	168	386	214	250	13.6
MAX	12	12	26	191	189	913	1410	839	1880	1600	1730	21
MIN	3.4	4.2	6.2	9.1	18	26	64	38	27	30	22	9.8
CFSM	.06	.06	.10	.36	.46	2.33	1.90	1.48	3.41	1.89	2.21	.12
IN.	.07	.07	.12	.42	.48	2.69	2.12	1.71	3.81	2.18	2.55	.13

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1998, BY WATER YEAR (WY)

	MEAN	31.3	96.1	132	127	159	202	169	101	129	75.6	49.2	42.1
MAX	176	519	482	409	416	544	467	276	409	526	250	529	
(WY)	1991	1993	1991	1974	1990	1982	1972	1996	1980	1992	1998	1989	
MIN	5.70	6.71	7.31	5.29	16.5	42.4	33.3	19.1	10.3	7.94	4.97	4.76	
(WY)	1989	1998	1977	1977	1995	1981	1971	1976	1988	1977	1988	1983	

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

## WATER YEARS 1969 - 1998

ANNUAL TOTAL	43631.2	49648.1	109
ANNUAL MEAN	120	136	180
HIGHEST ANNUAL MEAN			32.7
LOWEST ANNUAL MEAN			1977
HIGHEST DAILY MEAN	2360	1880	3840
LOWEST DAILY MEAN	3.4	3.4	3.0
ANNUAL SEVEN-DAY MINIMUM	4.4	4.4	3.2
INSTANTANEOUS PEAK FLOW		2150	5630
INSTANTANEOUS PEAK STAGE		10.61	15.00
ANNUAL RUNOFF (CFSM)	1.06	1.20	.96
ANNUAL RUNOFF (INCHES)	14.36	16.34	13.10
10 PERCENT EXCEEDS	288	315	254
50 PERCENT EXCEEDS	36	35	40
90 PERCENT EXCEEDS	6.5	6.5	9.1

e Estimated

## 03349000 WHITE RIVER AT NOBLESVILLE, IN

LOCATION.--Lat 40°02'50". long 86°01'00". in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.36, T.19 N., R.4 E., Hamilton County, Hydrologic Unit 05120201, on right bank at downstream side of Logan Street bridge in Noblesville, 1.5 mi upstream from Cicero Creek, 5.1 mi downstream from dam at Clare, and at mile 263.5.

DRAINAGE AREA.--858 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1946 to current year. Gage-height records collected at present site from December 1913 to December 1935, and at site 400 ft downstream January 1936 to May 1951, are contained in reports of National Weather Service. Prior to October 1948, published as West Fork White River at Noblesville.

REVISED RECORDS.--WSP 1335: 1949. WSP 2109: Drainage area. WDR IN-94-1: 1993 (M).

GAGE.--Water-stage recorder. Datum of gage is 738.16 ft above sea level.

REMARKS.--Records good except for estimated daily discharges, which are poor. Flow partially regulated by powerplant above station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	118	163	285	e178	301	418	e1390	2040	525	1240	520	224
2	109	172	257	e179	288	386	1550	2410	538	895	469	221
3	109	175	255	180	277	368	1180	1870	479	704	438	216
4	113	171	242	179	265	361	987	2110	429	1060	481	221
5	117	170	226	183	254	347	853	1810	425	2090	2330	221
6	107	164	202	233	246	328	755	1300	486	1750	4400	215
7	104	162	196	307	246	313	705	1840	429	1110	3430	218
8	106	160	184	1220	237	323	748	4870	387	3830	3830	215
9	105	152	175	2820	231	1430	2320	4670	584	3990	2690	206
10	114	147	181	1800	228	3900	7210	2660	820	1900	1540	197
11	121	144	196	1020	228	2480	8270	1760	2670	1240	1200	191
12	120	147	198	732	249	1450	4560	1340	9790	925	901	184
13	133	157	212	603	255	1070	2340	1090	13100	750	695	181
14	174	172	208	517	251	918	1830	909	10500	650	589	175
15	182	177	197	484	246	821	1530	796	8930	577	518	174
16	156	180	185	446	238	723	1610	718	10300	529	465	169
17	143	171	177	408	243	715	2330	647	9410	497	453	170
18	141	167	165	369	389	2400	1900	586	6460	457	409	169
19	136	161	161	338	2060	5280	1400	558	4640	448	368	168
20	132	163	160	314	1540	5710	1140	541	4020	766	341	164
21	126	167	152	295	1230	5260	983	555	2630	538	322	162
22	125	179	158	285	997	4370	945	573	1990	2750	309	163
23	125	211	173	296	779	2780	1180	870	1720	8350	294	162
24	128	200	184	347	663	2060	1080	1790	1500	6530	282	158
25	135	204	233	375	573	1700	921	1770	1250	2560	311	162
26	141	185	312	370	504	1400	870	1040	1060	1600	322	160
27	146	177	342	347	470	1200	879	729	926	1170	280	158
28	154	178	288	332	448	1150	840	598	812	915	263	156
29	155	238	244	331	---	1970	783	533	734	753	252	156
30	149	248	224	330	---	1680	1060	499	1120	650	248	154
31	152	---	e198	321	---	1250	---	484	---	583	232	---
TOTAL	4076	5262	6570	16139	13936	54561	54149	43966	98664	51807	29182	5490
MEAN	131	175	212	521	498	1760	1805	1418	3289	1671	941	183
MAX	182	248	342	2820	2060	5710	8270	4870	13100	8350	4400	224
MIN	104	144	152	178	228	313	705	484	387	448	232	154
CFSM	.15	.20	.25	.61	.58	2.05	2.10	1.65	3.83	1.95	1.10	.21
IN.	.18	.23	.28	.70	.60	2.37	2.35	1.91	4.28	2.25	1.27	.24

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 1998, BY WATER YEAR (WY)

MEAN	278	610	881	1145	1267	1582	1501	968	923	586	369	300
MAX	1264	3359	3472	6494	3485	3732	4281	2951	4432	2778	2264	3143
(WY)	1991	1994	1991	1950	1950	1978	1964	1996	1958	1992	1979	1989
MIN	88.4	109	107	102	141	368	322	249	143	138	93.8	69.3
(WY)	1964	1964	1964	1977	1964	1981	1971	1988	1988	1966	1988	1954

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1947 - 1998
ANNUAL TOTAL	324456	383802	
ANNUAL MEAN	889	1052	865
HIGHEST ANNUAL MEAN			1455
LOWEST ANNUAL MEAN			266
HIGHEST DAILY MEAN	14500	Feb 28	13100
LOWEST DAILY MEAN	104	Oct 7	104
ANNUAL SEVEN-DAY MINIMUM	109	Oct 3	109
INSTANTANEOUS PEAK FLOW			13600
INSTANTANEOUS PEAK STAGE			17.39
ANNUAL RUNOFF (CFSM)	1.04		1.23
ANNUAL RUNOFF (INCHES)	14.07		16.64
10 PERCENT EXCEEDS	2120		2400
50 PERCENT EXCEEDS	410		408
90 PERCENT EXCEEDS	143		156

e Estimated

## WABASH RIVER BASIN

03350700 STONY CREEK NEAR NOBLESVILLE, IN

LOCATION.--Lat 40°01'44", long 85°59'44", in NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.7, T.18 N., R.5 E., Hamilton County, Hydrologic Unit 05120201, on right bank, between dual bridges on State Highway 37, 1.4 mi upstream from mouth, and 1.4 mi southeast of Noblesville.

DRAINAGE AREA.--50.8 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1967 to current year.

REVISED RECORDS.--WDR IN-82-1: 1981.

GAGE.--Water-stage recorder. Datum of gage is 749.00 ft above sea level (Indiana Department of Highways bench mark). Prior to Oct. 1, 1988, water-stage recorder at county road bridge 200 ft upstream at same datum.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	e3.5	e11	e3.8	4.3	5.9	48	348	47	53	23	6.6
2	4.2	5.4	e7.8	e3.6	4.0	5.3	42	195	43	48	21	6.9
3	4.2	5.7	e6.0	e3.4	4.0	5.3	32	118	37	46	20	6.5
4	3.4	5.0	e6.2	e3.3	3.8	5.2	29	131	36	64	23	6.2
5	2.4	4.1	e5.0	e3.7	4.2	4.7	24	90	37	57	25	5.9
6	e2.4	3.5	e4.0	e5.8	4.0	4.6	22	68	35	49	24	5.9
7	e2.3	3.4	e3.5	e15	3.5	4.4	22	323	33	45	24	6.0
8	e2.4	3.2	e3.1	e42	3.4	6.3	43	672	31	44	79	6.0
9	e3.3	3.3	e3.3	e36	3.4	126	387	286	79	40	37	5.9
10	e2.6	3.3	e7.4	19	3.7	106	564	169	110	37	28	5.3
11	e2.5	3.8	e5.8	12	3.8	59	205	124	503	34	22	5.2
12	e2.4	4.6	e4.7	9.4	4.2	39	133	94	1170	32	19	5.0
13	e2.6	5.2	e4.2	8.4	3.8	31	98	72	789	31	17	5.0
14	e5.0	7.8	e3.8	e7.0	3.5	29	80	58	371	30	16	4.8
15	e4.4	7.8	e3.5	e6.9	3.3	22	63	50	1070	29	15	4.8
16	e3.7	e6.6	e3.3	e6.6	3.3	19	89	42	699	29	14	5.1
17	e3.3	e4.7	e3.1	5.9	4.2	30	77	36	332	27	13	5.5
18	e3.1	e3.6	e3.0	5.1	9.9	190	55	35	187	26	12	5.5
19	e3.0	e3.2	2.9	4.6	16	184	47	45	434	28	11	5.3
20	e2.9	e3.0	2.8	4.5	13	219	38	98	207	68	11	5.0
21	e2.8	e4.0	2.8	4.2	13	259	35	54	151	44	10	5.0
22	e2.7	e7.0	3.6	4.3	12	147	37	42	131	116	9.8	4.9
23	e2.6	e5.2	4.7	6.0	10	102	68	382	150	170	9.3	4.6
24	e2.8	e4.3	5.8	7.6	9.1	75	53	605	115	89	8.7	4.7
25	e3.1	e3.8	e10	7.2	7.9	59	42	421	97	60	9.8	4.7
26	e3.6	e3.4	e8.0	6.2	6.9	50	39	177	84	46	8.6	4.7
27	4.4	e3.1	e6.4	6.0	6.6	41	43	128	73	39	7.8	5.3
28	4.5	e3.0	e5.5	5.3	6.5	40	34	94	65	34	7.7	4.7
29	4.1	e4.0	e5.0	5.1	---	34	50	74	59	31	7.7	4.7
30	e3.3	e6.6	e4.5	4.9	---	30	150	60	59	28	7.5	4.5
31	e2.7	---	e4.1	4.6	---	29	---	54	---	26	6.7	---
TOTAL	101.0	135.1	154.8	267.4	175.3	1961.7	2649	5145	7234	1500	547.6	160.2
MEAN	3.26	4.50	4.99	8.63	6.26	63.3	88.3	166	241	48.4	17.7	5.34
MAX	5.0	7.8	11	42	16	259	564	672	1170	170	79	6.9
MIN	2.3	3.0	2.8	3.3	3.3	4.4	22	35	31	26	6.7	4.5
CFSM	.06	.09	.10	.17	.12	1.25	1.74	3.27	4.75	.95	.35	.11
IN.	.07	.10	.11	.20	.13	1.44	1.94	3.77	5.30	1.10	.40	.12

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1998, BY WATER YEAR (WY)

	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
MEAN	16.3	48.6	58.8	57.2	77.7	87.4	81.4	63.7	51.5	31.7	21.9	17.5																			
MAX	68.0	287	235	145	190	203	161	229	241	128	80.5	210																			
(WY)	1991	1993	1991	1974	1990	1978	1972	1996	1998	1979	1979	1989																			
MIN	2.41	4.50	4.99	3.87	6.26	17.6	16.9	16.1	6.50	3.25	3.84	3.38																			
(WY)	1996	1998	1998	1977	1998	1981	1971	1988	1988	1977	1988	1995																			

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1968 - 1998

ANNUAL TOTAL	16449.0	20031.1	
ANNUAL MEAN	45.1	54.9	51.0
HIGHEST ANNUAL MEAN			83.0
LOWEST ANNUAL MEAN			19.5
HIGHEST DAILY MEAN	1100	Feb 27	1760
LOWEST DAILY MEAN	2.3	Oct 7	.88
ANNUAL SEVEN-DAY MINIMUM	2.6	Oct 5	.96
INSTANTANEOUS PEAK FLOW			1290
INSTANTANEOUS PEAK STAGE			7.10
ANNUAL RUNOFF (CFSM)	.89		1.08
ANNUAL RUNOFF (INCHES)	12.05		14.67
10 PERCENT EXCEEDS	103		127
50 PERCENT EXCEEDS	24		9.3
90 PERCENT EXCEEDS	3.4		3.3
			5.7

e Estimated

## 03351000 WHITE RIVER NEAR NORA, IN

LOCATION.--Lat 39°54'35", long 86°06'20", in NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.20, T.17 N., R.4 E., Marion County, Hydrologic Unit 05120201, on downstream side of center bridge pier on 82nd Street, 2 mi east of Nora, 14 mi upstream from Fall Creek, and at mile 247.9.

DRAINAGE AREA.--1,219 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1929 to current year. Prior to April 1930, monthly discharge only, published in WSP 1305. Prior to October 1948, published as West Fork White River near Nora.

REVISED RECORDS.--WSP 1335: 1930-31, 1934(m), 1936, 1941, 1943, 1945, 1947-48. WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 710.94 ft above sea level (levels by U.S. Army Corps of Engineers). Oct. 26, 1929 to July 29, 1942, at site 200 ft downstream at same datum. Supplemental water-stage recorder 4.5 mi downstream.

REMARKS.--Records good except for estimated daily discharges, which are poor. Flow partially regulated by Morse Reservoir.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 26, 1913, reached a stage of 22.4 ft, from floodmark, determined by Indiana Department of Highways, discharge, 58,500 ft<sup>3</sup>/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	176	212	341	258	386	574	2000	3030	863	1780	605	264
2	189	218	345	247	368	535	2260	3600	815	1290	515	255
3	200	206	321	234	352	504	1830	2960	764	975	461	242
4	195	202	315	238	355	489	1520	2770	684	1140	523	230
5	191	191	299	254	349	477	1280	2780	675	2490	2020	269
6	189	186	263	330	309	444	1130	2040	711	2520	5550	273
7	186	187	247	412	279	421	1040	2800	671	1520	5370	279
8	181	183	234	1230	271	500	1210	6880	592	3640	5490	276
9	191	180	221	3190	268	1620	3030	7280	820	5300	4360	254
10	192	174	258	2500	264	4540	8500	4530	1550	2740	2600	242
11	195	170	258	1450	279	3740	10500	2940	3180	1650	1910	231
12	207	170	259	997	325	2170	7710	2210	11700	1170	1450	218
13	226	184	255	816	323	1610	3520	1780	15800	919	1090	216
14	258	225	260	652	304	1360	2680	1500	15300	769	891	214
15	241	236	248	627	294	1210	2250	1280	14400	661	755	218
16	212	237	233	584	280	1070	2270	1150	14200	591	729	210
17	190	234	223	519	319	1120	2830	1030	13400	531	654	201
18	183	221	213	474	463	2780	2580	904	10100	507	570	196
19	163	201	204	434	1740	6130	1970	e800	7340	516	500	194
20	166	192	201	400	2050	7770	1620	e1200	6320	881	446	190
21	163	199	194	369	1550	7400	1410	921	4250	743	417	201
22	167	216	223	354	1350	6400	1360	882	3090	1760	391	211
23	168	226	229	408	1080	4220	1670	2120	2780	9010	376	209
24	167	235	249	452	923	3020	1630	3210	2270	9750	356	206
25	170	228	326	487	800	2490	1400	3980	1870	4330	380	187
26	178	224	361	482	698	2070	1280	2360	1550	2340	399	174
27	192	208	399	446	648	1780	1340	1620	1340	1600	359	162
28	187	215	380	419	618	1660	1250	1260	1140	1200	327	159
29	196	259	324	420	---	2530	1210	1050	1010	951	314	175
30	184	355	293	431	---	2620	1620	927	1200	802	309	188
31	180	---	277	410	---	1960	---	867	---	702	286	---
TOTAL	5883	6374	8453	20524	17245	75214	75900	72661	140385	64778	40403	6544
MEAN	190	212	273	662	616	2426	2530	2344	4680	2090	1303	218
MAX	258	355	399	3190	2050	7770	10500	7280	15800	9750	5550	279
MIN	163	170	194	234	264	421	1040	800	592	507	286	159
CFSM	.16	.17	.22	.54	.51	1.99	2.08	1.92	3.84	1.71	1.07	.18
IN.	.18	.19	.26	.63	.53	2.30	2.32	2.22	4.28	1.98	1.23	.20

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 1998, BY WATER YEAR (WY)

	MEAN	361	749	1105	1584	1661	2103	2061	1425	1179	733	460	375
MAX	1699	5115	4366	9015	4805	5113	5879	6815	6093	3672	2612	4397	
(WY)	1991	1993	1991	1950	1950	1978	1964	1943	1958	1992	1979	1989	
MIN	108	110	119	119	182	194	280	141	200	102	82.5	72.3	
(WY)	1941	1935	1935	1945	1964	1941	1941	1941	1931	1936	1941	1941	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1930 - 1998	
ANNUAL TOTAL	462324		534364		1146	
ANNUAL MEAN	1267		1464		2052	
HIGHEST ANNUAL MEAN					235	
LOWEST ANNUAL MEAN					31500	
HIGHEST DAILY MEAN	15400	Mar 1	15800	Jun 13	May 19	1943
LOWEST DAILY MEAN	163	Oct 19	159	Sep 28	Sep 17	1941
ANNUAL SEVEN-DAY MINIMUM	166	Oct 19	166	Oct 19	Sep 17	1941
INSTANTANEOUS PEAK FLOW			16300	Jun 13	May 19	1943
INSTANTANEOUS PEAK STAGE			14.19	Jun 13	Jan 1	1991
ANNUAL RUNOFF (CFSM)	1.04		1.20			
ANNUAL RUNOFF (INCHES)	14.11		16.31			
10 PERCENT EXCEEDS	3160		3200		2610	
50 PERCENT EXCEEDS	610		515		522	
90 PERCENT EXCEEDS	192		192		161	

e Estimated

## WABASH RIVER BASIN

03351060 WHITE RIVER AT BROAD RIPPLE, IN

LOCATION.--Lat 39°52'17", long 86°08'16", in SW<sup>1</sup>/<sub>4</sub> sec.36, T.17 N., R.3 E., Marion County, Hydrologic Unit 05120201, on left bank at Indianapolis Water Company, 75 ft downstream from diversion canal, and 500 ft upstream from Broad Ripple dam.

DRAINAGE AREA.--1,238 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1989 to current year. Fragmentary record November 1927 to Jan. 24, 1947 and continuous record, Jan. 24, 1947 to Sept. 30, 1989, available in District office.

REVISED RECORDS.--WDR IN-93-1: 1992.

GAGE.--Water-stage recorder. Datum of gage is 709.91 ft above sea level.

REMARKS.--Stage affected by diversion through canal for water supply.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 10.16 ft, Jan. 1, 1991; minimum, 2.51 ft, Sept. 11, 1991.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 7.52 ft, June 13; minimum 2.73 ft, Oct. 21.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.75	2.85	2.95	2.82	3.00	3.12	3.99	4.69	3.36	3.78	3.22	2.89
2	2.78	2.80	2.94	2.84	2.99	3.08	3.99	4.67	3.34	3.56	3.16	2.88
3	2.79	2.80	2.94	2.82	2.98	3.07	3.78	4.30	3.28	3.42	3.12	2.86
4	2.78	2.80	2.92	2.82	3.00	3.06	3.66	4.50	3.25	3.85	3.22	2.84
5	2.76	2.77	2.91	2.90	2.97	3.05	3.54	4.22	3.28	4.33	4.70	2.89
6	2.76	2.78	2.87	2.94	2.93	3.02	3.48	3.95	3.30	3.93	5.34	2.90
7	2.75	2.78	2.88	3.12	2.90	3.01	3.46	5.12	3.23	3.62	5.03	2.92
8	2.75	2.78	2.83	3.91	2.90	3.18	3.55	5.93	3.18	5.08	5.14	2.91
9	2.78	2.78	2.84	4.42	2.90	4.33	5.26	5.51	3.51	4.74	4.51	2.88
10	2.78	2.77	2.90	3.89	2.90	4.99	6.26	4.64	3.78	3.98	4.02	2.86
11	2.79	2.76	2.88	3.53	2.92	4.25	6.38	4.25	5.58	3.68	3.78	2.84
12	2.80	2.76	2.86	3.36	2.97	3.85	4.96	3.98	7.17	3.50	3.58	2.83
13	2.86	2.80	2.88	3.27	2.94	3.63	4.42	3.81	7.52	3.39	3.44	2.85
14	2.85	2.81	2.87	3.19	2.94	3.58	4.22	3.67	7.34	3.30	3.34	2.84
15	2.84	2.82	2.86	3.18	2.92	3.49	4.03	3.56	7.11	3.25	3.27	2.86
16	2.82	2.82	2.85	3.12	2.91	3.42	4.15	3.52	7.11	3.19	3.36	2.82
17	2.80	2.82	2.85	3.08	3.01	3.66	4.42	3.43	6.77	3.15	3.19	2.82
18	2.79	2.80	2.82	3.05	3.12	4.92	4.12	3.36	5.75	3.13	3.14	2.80
19	2.74	2.78	2.82	3.02	4.15	5.54	3.90	3.42	5.60	3.22	3.08	2.80
20	2.74	2.78	2.82	3.01	3.77	5.73	3.73	3.47	5.12	3.51	3.05	2.82
21	2.73	2.79	2.82	2.98	3.67	5.54	3.66	3.38	4.55	3.23	3.01	2.86
22	2.75	2.81	2.87	2.98	3.54	5.06	3.70	3.38	4.29	4.97	3.00	2.85
23	2.75	2.82	2.85	3.02	3.39	4.51	3.86	4.24	4.17	6.33	2.98	2.85
24	2.76	2.82	2.91	3.06	3.33	4.23	3.74	5.11	3.99	5.74	2.98	2.84
25	2.77	2.82	2.95	3.10	3.25	4.02	3.66	4.56	3.83	4.37	3.00	2.80
26	2.77	2.81	2.97	3.06	3.19	3.86	3.62	3.99	3.71	3.94	2.99	2.78
27	2.78	2.80	3.00	3.06	3.16	3.76	3.63	3.71	3.60	3.69	2.95	2.77
28	2.79	2.83	2.95	3.02	3.14	3.78	3.58	3.54	3.51	3.52	2.94	2.77
29	2.80	2.90	2.90	3.03	---	4.30	3.61	3.45	3.48	3.40	2.93	2.82
30	2.77	2.98	2.88	3.04	---	4.02	4.13	3.39	3.80	3.36	2.91	2.81
31	2.77	---	2.87	3.02	---	3.87	---	3.43	---	3.28	2.88	---
MEAN	2.78	2.81	2.89	3.15	3.14	3.97	4.08	4.07	4.58	3.85	3.46	2.84
MAX	2.86	2.98	3.00	4.42	4.15	5.73	6.38	5.93	7.52	6.33	5.34	2.92
MIN	2.73	2.76	2.82	2.82	2.90	3.01	3.46	3.36	3.18	3.13	2.88	2.77

WTR YR 1998 MEAN 3.47 MAX 7.52 MIN 2.73



03351310 CROOKED CREEK AT INDIANAPOLIS, IN

LOCATION.--Lat 39°49'47", long 86°12'22", in NW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.16, T.16 N., R.3 E., Marion County, Hydrologic Unit 05120201, on left bank 150 ft downstream from 42nd Street bridge in Indianapolis, and at mile 1.6.

DRAINAGE AREA.--17.9 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is 711.00 ft above sea level (Indiana Department of Highways bench mark).

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.60	9.4	9.3	1.7	3.9	4.7	30	34	51	6.2	3.3	e.38
2	e.31	6.3	4.2	1.8	3.8	4.6	11	18	44	4.7	2.9	e.29
3	e.20	1.1	3.4	2.0	3.6	4.3	8.3	18	29	4.5	2.8	e.20
4	e.24	.49	4.6	2.0	3.8	4.2	8.2	18	28	27	3.3	e.17
5	e.18	.37	3.1	6.5	4.2	4.5	7.0	11	34	7.6	9.0	e.15
6	e.15	.64	3.2	24	3.4	4.1	6.3	8.7	27	5.1	14	e.35
7	e.13	.75	2.4	33	3.1	3.7	6.7	297	22	17	62	e1.1
8	e.17	.33	2.0	111	3.0	23	38	142	21	10	19	e.80
9	e1.5	.31	1.9	22	3.0	89	328	48	64	5.0	6.1	e.60
10	e.60	.31	8.4	11	3.2	26	87	29	38	4.1	4.0	e.43
11	e.25	.34	6.4	8.1	4.3	e13	26	22	497	3.3	2.9	e.35
12	e.18	.33	3.8	7.1	7.6	e10	15	18	470	2.9	2.4	e.29
13	e2.5	.54	3.2	e8.4	4.7	e8.4	12	16	229	2.5	2.1	e.26
14	9.8	.94	2.7	e6.0	3.8	e7.4	17	15	139	2.5	1.9	e.25
15	2.2	2.2	2.2	10	3.3	e6.6	12	13	490	2.7	1.7	e.44
16	.68	3.0	2.0	7.7	3.4	6.2	55	12	130	2.6	1.7	e1.2
17	.35	2.3	1.8	6.4	16	54	17	11	39	2.2	2.3	e1.0
18	.25	1.6	1.7	5.8	17	168	12	10	19	1.9	3.2	e.50
19	.18	1.5	1.6	e5.2	11	68	9.8	12	92	3.7	e2.3	e.30
20	.16	1.4	1.5	e4.8	11	181	8.1	38	23	13	e1.6	e3.5
21	e.15	2.0	1.4	e4.6	9.1	76	9.8	14	15	3.5	e1.2	e12
22	e.14	3.8	8.0	4.4	7.2	25	19	12	27	9.4	e.96	e15
23	.48	2.2	7.4	14	6.3	17	23	109	119	12	e.78	3.1
24	.80	1.3	9.5	9.7	6.6	13	11	77	19	4.7	e2.0	2.2
25	.80	.75	17	7.1	5.8	11	8.7	43	12	3.6	e3.5	e1.4
26	.85	.54	6.1	6.0	4.8	10	8.5	33	9.4	4.1	e1.3	e.84
27	2.2	.51	4.7	5.5	5.0	8.8	7.6	29	8.1	3.9	e.78	e.54
28	1.5	.81	3.5	5.0	4.9	16	6.4	26	7.6	3.8	e1.8	e.40
29	1.1	1.4	2.5	4.8	---	11	10	24	6.6	3.6	e1.5	e.29
30	1.3	27	2.1	4.5	---	9.2	36	23	14	3.9	e.84	e.23
31	3.0	---	1.9	4.2	---	12	---	43	---	4.7	e.54	---
TOTAL	32.95	74.46	133.5	354.3	166.8	899.7	854.4	1223.7	2723.7	185.7	163.70	48.56
MEAN	1.06	2.48	4.31	11.4	5.96	29.0	28.5	39.5	90.8	5.99	5.28	1.62
MAX	9.8	27	17	111	17	181	328	297	497	27	62	15
MIN	.13	.31	1.4	1.7	3.0	3.7	6.3	8.7	6.6	1.9	.54	.15
CFSM	.06	.14	.24	.64	.33	1.62	1.59	2.21	5.07	.33	.30	.09
IN.	.07	.15	.28	.74	.35	1.87	1.78	2.54	5.66	.39	.34	.10

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 1998, BY WATER YEAR (WY)

	MEAN	8.54	21.6	22.3	18.6	24.7	31.7	30.2	27.9	18.5	12.8	8.08	8.55
MAX	60.9	88.2	95.4	54.8	79.4	63.7	58.2	110	90.8	57.7	30.8	69.9	
(WY)	1987	1994	1991	1974	1975	1991	1972	1996	1998	1979	1978	1989	
MIN	1.06	.88	1.23	.94	4.17	5.65	5.63	4.31	1.59	1.59	1.94	1.07	
(WY)	1998	1972	1977	1977	1978	1981	1971	1988	1988	1997	1991	1991	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1970 - 1998
ANNUAL TOTAL	6100.34	6861.47	
ANNUAL MEAN	16.7	18.8	19.4
HIGHEST ANNUAL MEAN			29.6
LOWEST ANNUAL MEAN			8.30
HIGHEST DAILY MEAN	809 Feb 27	497 Jun 11	1570 Jun 26 1978
LOWEST DAILY MEAN	.13 Oct 7	.13 Oct 7	.00 Oct 7 1991
ANNUAL SEVEN-DAY MINIMUM	.20 Oct 2	.20 Oct 2	.00 Oct 12 1991
INSTANTANEOUS PEAK FLOW		1290 Jun 12	5500 Jun 26 1978
INSTANTANEOUS PEAK STAGE		7.95 Jun 12	13.31 Jun 26 1978
ANNUAL RUNOFF (CFSM)	.93	1.05	1.08
ANNUAL RUNOFF (INCHES)	12.68	14.26	14.74
10 PERCENT EXCEEDS	35	33	38
50 PERCENT EXCEEDS	6.0	4.7	7.5
90 PERCENT EXCEEDS	.31	.44	1.6

e Estimated

## WABASH RIVER BASIN

03351500 FALL CREEK NEAR FORTVILLE, IN

LOCATION.--Lat 39°57'15", long 85°52'05", in NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.5, T.17 N., R.6 E., Hamilton County, Hydrologic Unit 05120201, on right bank 100 ft downstream from bridge on State Highway 238, 0.2 mi downstream from Lick Creek, 2 mi northwest of Fortville, and at mile 26.1.

DRAINAGE AREA.--169 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1941 to current year.

REVISED RECORDS.--WSP 1435: 1949(P). WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 787.43 ft above sea level (levels by Indianapolis Water Co.). Prior to June 27, 1942, nonrecording gage at same site and datum.

REMARKS.--Records good.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage, about 12 ft March 1913 (information by local resident).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	39	83	45	55	75	333	480	314	189	99	47
2	24	44	62	48	54	72	290	459	237	171	91	48
3	24	43	55	44	53	69	220	334	188	157	88	46
4	22	41	54	44	50	69	193	285	170	262	87	44
5	22	42	53	45	49	67	164	235	166	254	87	42
6	22	39	49	67	48	64	151	203	163	187	93	42
7	22	39	46	92	47	61	143	448	142	173	103	44
8	21	39	45	284	47	69	167	1150	130	164	125	46
9	23	38	45	304	45	463	703	682	250	144	99	42
10	26	38	50	182	44	565	1830	442	394	136	100	40
11	25	39	54	130	47	314	896	330	1160	125	120	39
12	25	37	52	107	55	220	474	267	3370	117	94	38
13	29	37	49	98	53	180	351	224	3810	112	84	38
14	47	41	47	88	48	165	309	193	1750	109	80	38
15	44	43	44	87	46	148	258	173	2600	106	76	35
16	37	44	42	83	46	131	372	159	3240	103	79	35
17	35	42	41	76	51	150	392	141	2170	97	85	37
18	35	41	40	68	113	606	273	130	910	94	72	34
19	36	41	39	64	204	1620	231	127	1050	99	65	37
20	35	47	39	62	155	1210	202	167	883	397	63	38
21	34	48	39	61	149	826	187	134	550	241	61	38
22	34	55	43	59	126	545	192	120	440	429	59	40
23	34	55	51	65	111	391	211	455	500	743	57	41
24	36	49	52	77	101	308	185	919	439	325	56	42
25	37	45	79	73	91	261	167	1580	344	218	58	42
26	38	43	82	66	83	249	168	579	296	165	56	44
27	39	42	66	66	82	200	229	370	260	141	53	41
28	38	44	57	61	79	208	199	279	233	127	53	42
29	38	56	53	60	---	357	187	231	211	115	53	43
30	37	66	50	58	---	273	292	448	212	113	51	45
31	37	---	47	56	---	223	---	283	---	111	48	---
TOTAL	977	1317	1608	2720	2132	10159	9969	12027	26582	5924	2395	1228
MEAN	31.5	43.9	51.9	87.7	76.1	328	332	388	886	191	77.3	40.9
MAX	47	66	83	304	204	1620	1830	1580	3810	743	125	48
MIN	21	37	39	44	44	61	143	120	130	94	48	34
CFSM	.19	.26	.31	.52	.45	1.94	1.97	2.30	5.24	1.13	.46	.24
IN.	.22	.29	.35	.60	.47	2.24	2.19	2.65	5.85	1.30	.53	.27

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 1998, BY WATER YEAR (WY)

	MEAN	64.2	121	171	212	250	303	293	228	190	116	76.3	57.2
MAX	353	788	727	1210	720	674	829	753	888	416	467	498	
(WY)	1987	1994	1991	1950	1950	1978	1964	1996	1958	1992	1979	1989	
MIN	20.1	30.1	24.2	24.4	42.1	71.2	70.3	71.4	39.2	24.7	16.0	15.6	
(WY)	1964	1945	1964	1977	1964	1981	1971	1955	1988	1966	1988	1954	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR			FOR 1998 WATER YEAR			WATER YEARS 1942 - 1998		
ANNUAL TOTAL	63962			77038					
ANNUAL MEAN	175			211			173		
HIGHEST ANNUAL MEAN							298		
LOWEST ANNUAL MEAN							61.4		
HIGHEST DAILY MEAN	2010			3810			6950		
LOWEST DAILY MEAN	21			21			7.0		
ANNUAL SEVEN-DAY MINIMUM	22			22			9.7		
INSTANTANEOUS PEAK FLOW				4520			8750		
INSTANTANEOUS PEAK STAGE				8.57			9.88		
ANNUAL RUNOFF (CFSM)	1.04			1.25			1.02		
ANNUAL RUNOFF (INCHES)	14.08			16.96			13.90		
10 PERCENT EXCEEDS	355			439			351		
50 PERCENT EXCEEDS	104			79			90		
90 PERCENT EXCEEDS	30			38			31		

## 03351700 GEIST RESERVOIR AT INDIANAPOLIS, IN

LOCATION.--Lat 39°54'28", long 85°59'09", in NW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.20, T.17 N., R.5 E., Marion County, Hydrologic Unit 05120201, on right end inside of Geist Reservoir dam on Fall Creek, 1500 ft southeast of Fall Creek Road, 0.75 mi north of 82nd St., and 4.3 mi east of the intersection of Interstate Highway 69 and 82nd St. in Indianapolis.

DRAINAGE AREA.--215 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1998 to September, 1998.

GAGE.--Water-stage recorder. Datum of gage is 787.43 ft above sea level (levels by Indianapolis Water Co.). Prior to June 27, 1942, nonrecording gage at same site and datum.

REMARKS.--

EXTREMES FOR PERIOD OF RECORD.--

EXTREMES FOR CURRENT YEAR.--For the periods of: April 3 - May 1, and June 17 to September 30: maximum stage 31.60 ft, June 17; minimum stage 28.33 ft, Sept. 30.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	30.27	30.18	29.10
2	---	---	---	---	---	---	---	---	---	30.25	30.17	29.09
3	---	---	---	---	---	---	30.34	---	---	30.24	30.16	29.33
4	---	---	---	---	---	---	30.29	---	---	30.35	30.19	28.62
5	---	---	---	---	---	---	30.28	---	---	30.32	30.19	28.98
6	---	---	---	---	---	---	30.27	---	---	30.27	30.21	28.92
7	---	---	---	---	---	---	30.27	---	---	30.27	30.24	28.90
8	---	---	---	---	---	---	30.30	---	---	30.26	30.23	29.30
9	---	---	---	---	---	---	31.06	---	---	30.23	30.20	29.20
10	---	---	---	---	---	---	31.19	---	---	30.22	30.19	29.17
11	---	---	---	---	---	---	30.80	---	---	30.19	30.18	28.92
12	---	---	---	---	---	---	30.59	---	---	30.19	30.16	28.89
13	---	---	---	---	---	---	30.51	---	---	30.19	30.16	28.75
14	---	---	---	---	---	---	30.45	---	---	30.18	30.15	28.75
15	---	---	---	---	---	---	30.43	---	---	30.18	30.15	28.70
16	---	---	---	---	---	---	30.53	---	---	30.18	30.15	28.65
17	---	---	---	---	---	---	30.48	---	---	30.19	30.15	28.59
18	---	---	---	---	---	---	30.41	---	30.82	30.18	30.14	28.57
19	---	---	---	---	---	---	30.36	---	30.94	30.25	30.11	28.54
20	---	---	---	---	---	---	30.33	---	30.79	30.40	30.11	28.48
21	---	---	---	---	---	---	30.33	---	30.62	30.31	30.03	28.68
22	---	---	---	---	---	---	30.33	---	30.54	30.50	30.02	28.67
23	---	---	---	---	---	---	30.33	---	30.59	30.58	30.00	28.70
24	---	---	---	---	---	---	30.31	---	30.52	30.40	30.02	28.75
25	---	---	---	---	---	---	30.31	---	30.44	30.31	29.22	28.75
26	---	---	---	---	---	---	30.30	---	30.39	30.26	29.17	28.67
27	---	---	---	---	---	---	30.30	---	30.35	30.24	29.10	28.65
28	---	---	---	---	---	---	30.29	---	30.28	30.22	29.75	28.46
29	---	---	---	---	---	---	30.34	---	30.32	30.20	29.61	28.38
30	---	---	---	---	---	---	30.54	---	30.29	30.22	29.93	28.35
31	---	---	---	---	---	---	---	---	---	30.20	29.25	---
MEAN	---	---	---	---	---	---	---	---	---	30.27	29.98	28.78
MAX	---	---	---	---	---	---	---	---	---	30.58	30.24	29.33
MIN	---	---	---	---	---	---	---	---	---	30.18	29.10	28.35

## WABASH RIVER BASIN

03352500 FALL CREEK AT MILLERSVILLE, IN

LOCATION.--Lat 39°51'07", long 86°05'15", in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.9, T.16 N., R.4 E., Marion County, Hydrologic Unit 05120201, on right bank at downstream side of Emerson Way bridge at Millersville, and 9.2 mi upstream from mouth.

DRAINAGE AREA.--298 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1929 to current year. Monthly discharge only for October 1929, published in WSP 1305. Twice-daily chain gage readings at former site from July 1925 to September 1926 are available in the district office.

REVISED RECORDS.--WSP 1335: 1930-31, 1933, 1936-38, 1942-43. WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 722.16 ft above sea level. Prior to Oct. 21, 1961, water-stage recorder at site 500 ft downstream at same datum.

REMARKS.--Records good except for estimated daily discharges, which are poor. Flow regulated by Geist Reservoir.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 16.3 ft Mar. 26, 1913, from floodmarks, discharge, 22,000 ft<sup>3</sup>/s by slope-area measurement.

REVISIONS.--The peaks for water years 1991 and 1994 have been revised to 12,000 ft<sup>3</sup>/s, Dec. 31, 1990, gage height, 13.36 ft, and 8,970 ft<sup>3</sup>/s, Nov. 15, 1993, gage height, 12.40 ft, superseding figures published in reports for 1991 and 1994.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	78	73	e44	55	95	567	1310	578	287	130	71
2	45	52	50	46	51	90	564	1290	463	246	116	75
3	44	52	62	46	61	83	467	869	380	215	94	71
4	43	41	64	45	114	86	388	660	304	371	90	66
5	43	38	55	49	64	90	286	511	311	414	112	87
6	42	38	56	79	45	75	257	418	272	305	127	71
7	43	39	55	92	51	81	237	1100	234	255	155	71
8	45	40	54	215	47	127	271	2570	208	245	207	69
9	52	39	55	100	44	792	1340	2160	429	209	163	46
10	53	40	63	65	39	1060	2760	1230	689	183	129	47
11	51	39	63	48	43	751	2300	788	2010	162	122	48
12	51	38	59	43	47	485	1230	580	4780	140	118	59
13	55	70	57	42	32	361	772	460	6060	125	99	60
14	63	144	56	41	36	294	630	383	3990	115	87	63
15	59	53	55	37	38	264	516	315	4610	112	84	62
16	55	50	54	59	46	228	653	279	5730	111	88	63
17	53	48	55	50	69	299	706	255	4190	108	82	63
18	52	48	55	56	115	1010	553	210	2470	117	80	62
19	52	46	54	61	189	1970	447	188	2100	139	79	63
20	54	41	53	52	248	2570	359	350	1940	249	58	63
21	52	43	52	50	235	2160	327	316	1490	368	55	67
22	46	48	61	51	207	1350	337	229	1030	347	68	77
23	46	48	64	82	188	904	370	834	1160	794	63	60
24	48	43	67	86	141	683	335	1300	951	694	53	50
25	48	41	90	81	132	527	304	2000	710	409	63	44
26	47	41	71	76	119	441	296	1610	553	273	110	42
27	47	40	50	73	106	398	319	867	457	204	91	44
28	39	42	45	69	102	432	282	587	395	165	76	46
29	37	45	44	64	---	562	317	456	331	147	51	55
30	66	64	43	62	---	518	620	555	315	141	58	56
31	76	---	e44	60	---	441	---	592	---	145	36	---
TOTAL	1551	1489	1779	2024	2664	19227	18810	25272	49140	7795	2944	1821
MEAN	50.0	49.6	57.4	65.3	95.1	620	627	815	1638	251	95.0	60.7
MAX	76	144	90	215	248	2570	2760	2570	6060	794	207	87
MIN	37	38	43	37	32	75	237	188	208	108	36	42
CFSM	.17	.17	.19	.22	.32	2.08	2.10	2.74	5.50	.84	.32	.20
IN.	.19	.19	.22	.25	.33	2.40	2.35	3.15	6.13	.97	.37	.23

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 1998, BY WATER YEAR (WY)

	MEAN	190	281	400	424	522	515	393	299	190	118	93.8
MAX	713	1283	1059	2390	1278	1399	1503	1524	1638	796	739	966
(WY)	1987	1994	1991	1950	1950	1963	1964	1943	1998	1979	1979	1989
MIN	23.4	32.1	38.2	37.1	50.4	47.5	59.7	33.6	42.2	29.1	15.5	11.5
(WY)	1941	1935	1935	1945	1935	1941	1941	1941	1934	1936	1941	1941

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1930 - 1998
ANNUAL TOTAL	109241	134516	
ANNUAL MEAN	299	369	293
HIGHEST ANNUAL MEAN			539
LOWEST ANNUAL MEAN			44.0
HIGHEST DAILY MEAN	3570	6060	10600
LOWEST DAILY MEAN	37	32	7.8
ANNUAL SEVEN-DAY MINIMUM	39	39	9.0
INSTANTANEOUS PEAK FLOW		6540	12900
INSTANTANEOUS PEAK STAGE		11.44	13.53
ANNUAL RUNOFF (CFSM)	1.00	1.24	.98
ANNUAL RUNOFF (INCHES)	13.64	16.79	13.35
10 PERCENT EXCEEDS	711	847	658
50 PERCENT EXCEEDS	140	87	128
90 PERCENT EXCEEDS	45	44	47

e Estimated

## 03353000 WHITE RIVER AT INDIANAPOLIS, IN

LOCATION.--Lat 39°45'05", long 86°10'30", in NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.14, T.15 N., R.3 E., Marion County, Hydrologic Unit 05120201, on downstream side of second pier from right bank of Morris Street bridge in Indianapolis, 2.6 mi downstream from Fall Creek, 3.4 mi upstream from Eagle Creek, 4.0 mi upstream from Indianapolis Power and Light Company dam, and at mile 230.3.

DRAINAGE AREA.--1,635 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1904 to July 1906 and April 1930 to current year. Gage-height record published in reports of National Weather Service for site 1.1 mi upstream Feb. 8, 1911, to Mar. 25, 1913, and at site 2.3 mi upstream since Oct. 16, 1913. Prior to October 1948, published as West Fork White River at Indianapolis.

REVISED RECORDS.--WSP 1335: 1932-33, 1937, 1939-41. WSP 1505: 1938. WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 662.26 ft above sea level. March 1904 to July 1906, nonrecording gage at railroad bridge 0.8 mi upstream at datum approximately 2.9 ft higher. April 1930 to July 20, 1931, nonrecording gage at Indianapolis sanitation plant, 2.5 mi downstream at datum 2.26 ft lower. July 21, 1931 to Mar. 2, 1932, nonrecording gage and March 3, 1932, to September 30, 1960, water-stage recorder at present site at datum 2.26 ft lower.

REMARKS.--Records poor. Natural flow affected by regulation of Morse Reservoir and Geist Reservoir, and by diversion of municipal water supply by the Indianapolis Water Company. Stage-discharge relation affected at times by large releases from Eagle Creek and by variable leakage at Indianapolis Power and Light Company dam.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 26, 1913, reached a stage of 30.0 ft, from floodmarks determined by Indianapolis Water Company, discharge, 70,000 ft<sup>3</sup>/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e125	e240	481	e171	e414	e578	2340	4390	1210	e1730	e640	e210
2	e123	e320	412	e156	e380	e528	2530	4970	1170	e1470	e540	e214
3	e132	e208	404	e154	e365	e474	2150	4220	869	e1140	e470	e216
4	e140	e162	394	e146	e384	e456	1730	3350	737	e1600	e450	196
5	e135	e148	361	e190	e428	e454	1350	3380	902	e2130	e890	175
6	e126	e128	e332	416	e344	e428	1150	2610	750	e2540	e4510	218
7	e125	e120	e278	511	e304	e358	e994	4520	672	e1860	e5340	e226
8	e128	e118	e274	1260	e282	e604	1330	e9270	590	e2290	e5030	e230
9	e158	e120	e232	2760	e265	2390	4820	9310	1180	e4650	e4360	e226
10	e196	e110	353	2570	e256	4530	e10100	5710	1710	e2930	e2660	192
11	e160	e108	342	1520	e284	4560	11600	3370	5930	e1690	e1800	173
12	e154	e104	317	1030	e359	2590	9370	2440	e13900	e1200	e1370	153
13	e224	e108	e266	866	e344	1810	4560	1950	e19700	e940	e1040	142
14	e490	e232	e260	734	e300	1430	3470	1550	e17600	e770	e830	150
15	e290	e286	e260	697	e298	1270	2780	1230	e20800	e660	e700	160
16	e250	e224	e240	647	e290	1120	3300	1050	e18600	e580	e710	180
17	e212	e204	e202	e582	e484	1420	3420	983	e15300	e500	e780	177
18	e185	e180	e192	e525	688	3610	3220	847	e11200	e470	e540	167
19	e162	e168	e172	e479	1140	7230	2510	739	e8330	e540	e460	155
20	e140	e157	e160	e437	2140	10000	2020	1320	e7020	e1210	e380	150
21	e136	e144	e152	e398	1540	e9650	1700	1040	e5050	e1110	e310	e210
22	e120	e236	e248	e378	1360	7740	1680	833	e3470	e1060	e280	e270
23	e110	e200	e268	e546	1110	5320	2000	2990	e4660	e6830	e270	e238
24	e116	e192	e260	e544	942	3680	2010	3930	e3090	e9440	e240	211
25	e130	e186	391	e540	829	2770	1700	5580	e2390	e5150	e304	192
26	e128	e182	345	e530	730	2280	1550	3680	e1920	e2520	e302	171
27	e160	e154	338	e499	e680	1920	1540	2150	e1610	e1720	e300	147
28	e130	e164	e330	e467	e618	2000	1430	1550	e1410	e1260	e248	130
29	e126	e222	e290	e438	---	2530	e1540	1210	e1250	e990	e244	129
30	e127	526	e224	e448	---	2970	2540	1060	e1280	e860	e240	154
31	e134	---	e189	e447	---	2340	---	1110	---	e780	e226	---
TOTAL	5072	5651	8967	21086	17558	89040	92434	92342	174300	62620	36464	5562
MEAN	164	188	289	680	627	2872	3081	2979	5810	2020	1176	185
MAX	490	526	481	2760	2140	10000	11600	9310	20800	9440	5340	270
MIN	110	104	152	146	256	358	994	739	590	470	226	129
CFSM	.10	.12	.18	.42	.38	1.76	1.88	1.82	3.55	1.24	.72	.11
IN.	.12	.13	.20	.48	.40	2.03	2.10	2.10	3.97	1.42	.83	.13

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 1998, BY WATER YEAR (WY)

	MEAN	420	929	1387	1921	2124	2731	2696	1920	1489	904	541	417
MAX	2081	6425	5826	12120	6452	6610	7777	8594	7910	4259	3399	5063	
(WY)	1991	1994	1991	1950	1950	1963	1964	1943	1958	1992	1979	1989	
MIN	70.1	110	77.3	78.4	178	207	274	113	126	90.3	42.5	31.5	
(WY)	1941	1935	1964	1977	1964	1941	1941	1941	1988	1936	1941	1941	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1931 - 1998
ANNUAL TOTAL	533953	611096	1452
ANNUAL MEAN	1463	1674	2698
HIGHEST ANNUAL MEAN			233
LOWEST ANNUAL MEAN			1950
HIGHEST DAILY MEAN	18000	Feb 28	20800
LOWEST DAILY MEAN	78	Jul 26	104
ANNUAL SEVEN-DAY MINIMUM	113	Nov 7	113
INSTANTANEOUS PEAK FLOW			24200
INSTANTANEOUS PEAK STAGE			16.43
ANNUAL RUNOFF (CFSM)	.89		1.02
ANNUAL RUNOFF (INCHES)	12.15		13.90
10 PERCENT EXCEEDS	3840		4510
50 PERCENT EXCEEDS	580		540
90 PERCENT EXCEEDS	135		151

e Estimated



## 03353120 PLEASANT RUN AT ARLINGTON AVENUE AT INDIANAPOLIS, IN

LOCATION.--Lat 39°46'33", long 86°03'50", in SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.2, T.15 N., R.4 E., Marion County, Hydrologic Unit 05120201, on right bank 46 ft upstream from Arlington Avenue bridge in Indianapolis, 0.5 mi downstream from small left-bank tributary, and at mile 7.9.

DRAINAGE AREA.--7.58 mi<sup>2</sup>.

PERIOD OF RECORD.--December 1959 to current year.

REVISED RECORDS.--WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 780.00 ft above sea level (levels by State of Indiana, Department of Natural Resources).

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1956 reached a stage of 16.0 ft, from information by local resident.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.16	14	2.6	e.28	1.3	1.2	19	67	4.3	1.2	.44	e.10
2	.08	4.2	1.0	e.33	1.1	1.1	7.0	18	44	.65	.29	e.09
3	.05	3.1	2.1	.41	1.0	1.1	8.4	30	7.9	.52	.60	e.08
4	.05	1.3	1.3	.34	1.1	2.8	8.6	13	3.0	37	.41	e.07
5	.07	e.66	.57	17	1.5	2.2	4.2	6.2	21	4.1	3.7	e.07
6	.04	e.39	.42	16	e1.3	1.3	3.3	4.1	4.1	2.0	31	e.10
7	.05	e.27	.31	34	e1.1	1.1	2.9	140	1.9	6.7	22	e.44
8	.10	e.20	.36	44	e1.0	35	8.1	38	1.6	2.6	6.1	e.28
9	3.6	e.16	.58	9.7	e.96	107	174	14	50	1.6	2.2	e.20
10	.58	e.13	8.0	4.9	e1.0	15	27	7.8	13	1.1	1.5	e.15
11	.13	e.11	1.8	3.1	8.1	7.5	9.1	4.3	361	.88	1.1	e.13
12	.07	e.09	.50	3.3	4.4	5.3	5.1	3.0	128	.77	.66	e.12
13	14	1.1	.35	5.8	1.7	3.7	6.4	3.5	40	.69	.52	e.11
14	4.6	5.9	.29	2.4	1.3	3.2	8.9	1.8	222	.75	.48	e.11
15	.37	8.3	e.21	6.7	1.1	2.3	5.3	1.4	315	.67	.41	e.15
16	.19	4.3	e.18	3.1	1.3	2.0	47	1.1	60	1.1	.39	e.48
17	e.13	e1.7	e.17	2.4	23	44	7.2	.97	18	.46	.44	e.40
18	e.10	e.80	e.16	2.1	17	93	4.4	.83	8.3	.42	.60	e.20
19	e.08	e.45	e.15	1.8	7.0	31	3.2	2.8	66	7.1	.38	e.14
20	e.07	e.28	e.14	1.5	9.7	84	2.2	5.3	20	31	.31	1.2
21	e.06	e1.0	e.16	1.4	4.2	24	5.4	.92	8.4	2.7	.30	5.0
22	e.05	8.0	12	3.6	2.8	11	5.1	1.6	6.7	13	.33	6.8
23	e.05	2.1	1.7	15	2.3	9.1	2.5	95	50	10	.35	.47
24	e1.0	e.45	14	3.6	2.6	7.0	1.6	22	6.2	1.8	4.4	.12
25	5.7	e.28	6.2	2.5	1.7	5.1	2.9	6.0	3.3	.98	5.5	.07
26	1.4	e.17	1.5	2.1	1.4	4.3	1.9	3.1	2.2	.69	.42	.05
27	.92	e.12	.80	e1.9	1.7	3.4	1.1	1.9	1.6	.61	.24	.04
28	.28	e.30	.55	e1.7	1.4	37	.90	1.3	1.2	.54	.22	.03
29	e.12	e1.3	.44	e1.6	---	15	19	.98	2.6	2.4	.32	.02
30	e.07	28	e.35	e1.5	---	8.9	49	9.0	3.6	1.1	.17	.00
31	e.50	---	e.30	1.4	---	25	---	11	---	.79	e.13	---
TOTAL	34.67	89.16	59.19	195.46	104.06	593.6	450.70	515.90	1474.9	135.92	85.91	17.22
MEAN	1.12	2.97	1.91	6.31	3.72	19.1	15.0	16.6	49.2	4.38	2.77	.57
MAX	14	28	14	44	23	107	174	140	361	37	31	6.8
MIN	.04	.09	.14	.28	.96	1.1	.90	.83	1.2	.42	.13	.00
CFSM	.15	.39	.25	.83	.49	2.53	1.98	2.20	6.49	.58	.37	.08
IN.	.17	.44	.29	.96	.51	2.91	2.21	2.53	7.24	.67	.42	.08

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1998, BY WATER YEAR (WY)

	MEAN	4.17	9.07	8.75	7.80	8.67	13.3	11.5	10.5	7.80	8.52	5.14	4.15
MAX	27.5	36.9	33.3	25.0	25.7	42.3	28.5	37.8	49.2	33.8	21.3	23.2	
(WY)	1987	1994	1991	1969	1971	1963	1961	1996	1998	1979	1979	1989	
MIN	.38	1.28	.72	.45	1.11	1.94	1.61	1.12	.69	.61	.67	.49	
(WY)	1964	1964	1964	1977	1978	1994	1971	1964	1967	1967	1967	1967	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1960 - 1998
ANNUAL TOTAL	2336.35	3756.69	
ANNUAL MEAN	6.40	10.3	8.30
HIGHEST ANNUAL MEAN			11.6
LOWEST ANNUAL MEAN			3.25
HIGHEST DAILY MEAN	150	361	574
LOWEST DAILY MEAN	.04	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.06	.05	.00
INSTANTANEOUS PEAK FLOW		1750	2600
INSTANTANEOUS PEAK STAGE		10.76	13.86
ANNUAL RUNOFF (CFSM)	.84	1.36	1.10
ANNUAL RUNOFF (INCHES)	11.47	18.44	14.88
10 PERCENT EXCEEDS	15	22	17
50 PERCENT EXCEEDS	1.7	1.6	1.9
90 PERCENT EXCEEDS	.13	.13	.50

e Estimated

03353200 EAGLE CREEK AT ZIONSVILLE, IN

LOCATION.--Lat 39°56'56", long 86°15'22", in SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.1, T.17 N., R.2 E., Boone County, Hydrologic Unit 05120201, on downstream side of second pier from right bank of bridge on State Highway 334 at Zionsville, 200 ft upstream from Long Branch, and at mile 24.7.

DRAINAGE AREA.--103 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1957 to current year.

REVISED RECORDS.--WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 816.85 ft above sea level. Prior to Oct. 9, 1957, nonrecording gage at same site and datum.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Prior to 1989, low flow affected by the Zionsville well field located on the right bank downstream of the gage.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 28, 1957, reached a stage of 19.20 ft. from floodmark.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.15	1.4	4.8	e2.1	10	19	274	474	94	59	11	e.48
2	.13	2.2	3.6	e2.3	10	17	192	446	78	45	8.0	e.41
3	.12	1.6	3.0	2.7	9.5	17	142	259	66	37	6.3	e.36
4	.13	e.84	3.3	2.6	9.4	17	121	266	62	83	9.1	e.32
5	.10	e.70	2.5	7.3	9.1	16	96	188	62	77	29	e.28
6	.06	e.62	e2.2	16	9.3	14	87	143	59	50	43	e.25
7	.03	e.56	e1.9	19	8.9	13	78	863	49	50	81	.47
8	e.08	e.54	e1.8	109	9.1	30	162	1120	43	75	253	.45
9	e.15	e.52	e1.7	58	8.3	378	1210	544	145	50	122	.38
10	.43	e.50	5.8	31	8.4	274	904	313	208	36	80	.32
11	.23	e.49	5.2	21	10	e170	402	209	1180	28	45	.28
12	.14	e.47	3.9	17	13	e130	244	155	2560	23	25	.25
13	.22	e.46	3.3	17	11	e94	178	122	1160	20	16	.20
14	.59	e1.1	2.9	e13	11	81	189	101	761	18	11	.19
15	.36	e2.1	2.6	e12	9.9	67	162	87	1890	16	7.8	.20
16	.25	e2.5	2.5	e11	10	60	285	78	824	15	14	.24
17	e.20	e1.2	2.4	e10	17	157	196	66	425	13	17	.30
18	e.17	e1.0	2.3	e9.0	32	730	139	59	267	11	5.8	e.38
19	e.16	e.90	2.3	e8.4	33	682	119	71	927	13	3.6	e.50
20	e.15	e.80	2.1	e8.0	43	998	100	253	361	41	2.7	e.62
21	e.15	e1.5	2.2	e7.4	45	863	105	142	217	28	2.1	e.80
22	e.14	e5.0	4.3	e8.0	40	439	125	103	162	35	1.8	e.70
23	e.13	e2.0	4.0	25	34	272	181	767	178	424	1.6	e.62
24	e.25	e.80	5.5	24	30	194	136	1120	129	134	1.6	e.54
25	.59	e.66	8.5	18	25	154	112	631	105	65	2.5	e.49
26	.71	e.56	5.4	16	24	134	103	325	88	39	1.6	e.44
27	1.4	e.62	4.3	15	23	120	131	216	75	27	1.0	e.38
28	1.0	e1.4	3.7	14	22	235	102	163	61	21	.88	e.34
29	e.66	e3.0	3.5	13	---	322	147	133	63	16	e.76	e.30
30	e.50	14	e2.9	13	---	189	335	115	82	15	e.66	e.27
31	e.64	---	e2.5	11	---	148	---	116	---	14	e.56	---
TOTAL	10.02	50.04	106.9	540.8	524.9	7034	6757	9648	12381	1578	805.36	11.76
MEAN	.32	1.67	3.45	17.4	18.7	227	225	311	413	50.9	26.0	.39
MAX	1.4	14	8.5	109	45	998	1210	1120	2560	424	253	.80
MIN	.03	.46	1.7	2.1	8.3	13	78	59	43	11	.56	.19
CFSM	.00	.02	.03	.17	.18	2.20	2.19	3.02	4.01	.49	.25	.00
IN.	.00	.02	.04	.20	.19	2.54	2.44	3.48	4.47	.57	.29	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1958 - 1998, BY WATER YEAR (WY)

	MEAN	21.2	88.1	127	116	148	199	179	108	94.3	62.1	36.8	21.3
MAX	131	542	530	452	423	459	532	456	523	520	444	332	
(WY)	1970	1993	1991	1974	1976	1963	1964	1996	1958	1979	1958	1989	
MIN	.000	1.16	1.65	1.23	9.05	28.7	30.0	12.0	1.55	1.52	.000	.000	
(WY)	1967	1965	1977	1977	1964	1966	1971	1988	1988	1966	1966	1966	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1958 - 1998
ANNUAL TOTAL	26336.26	39447.78	
ANNUAL MEAN	72.2	108	99.6
HIGHEST ANNUAL MEAN			188
LOWEST ANNUAL MEAN			22.2
HIGHEST DAILY MEAN	3650	2560	6840
LOWEST DAILY MEAN	.03	.03	.00
ANNUAL SEVEN-DAY MINIMUM	.09	.09	.00
INSTANTANEOUS PEAK FLOW		3100	12400
INSTANTANEOUS PEAK STAGE		9.28	14.64
ANNUAL RUNOFF (CFSM)	.70	1.05	.97
ANNUAL RUNOFF (INCHES)	9.51	14.25	13.14
10 PERCENT EXCEEDS	172	266	216
50 PERCENT EXCEEDS	24	14	30
90 PERCENT EXCEEDS	.35	.36	1.3

e Estimated

## WABASH RIVER BASIN

03353450 EAGLE CREEK RESERVOIR NEAR INDIANAPOLIS, IN

LOCATION.--Lat 39°49'20", long 86°18'11", in NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec. 22, T.16 N., R.2 E., Marion County, Hydrologic Unit 05120201, in outlet structure of reservoir on Eagle Creek, 800 ft upstream from Interstate Highway 74, 0.5 mi downstream from School Branch, 1.0 mi northeast of Clermont, and 2 mi west of Indianapolis.

DRAINAGE AREA.--162 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1970 to current year.

GAGE.--Water-stage recorder. Datum of gage is sea level. (Prior to 1993 water year, erroneously published as 780.00 ft above sea level).

REMARKS.--Reservoir is formed by earth-fill dam. Low flow is controlled through a 48-inch diameter conduit. Spillway elevation, 783 ft is an ogee section with 6 taintor gates, each 40 ft wide and 25 ft high. Permanent pool capacity is 24,000 acre-ft, elevation, 790.00 ft. Reservoir is used for flood control, low-flow maintenance, water supply, and recreation. Reservoir put into operation Nov. 27, 1969.

COOPERATION.--Water-stage elevations and capacity tables furnished by Indianapolis Flood Control District.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 30,580 acre-ft Dec. 30, 1990, elevation, 794.61 ft; minimum, 11,390 acre-ft Nov. 17-18, 1991, elevation, 778.70 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 26,760 acre-ft June 15, elevation, 791.97 ft; minimum, 15,580 acre-ft Jan. 4, 5, elevation, 783.07 ft.

## MONTHEND ELEVATION AND CONTENTS, AT 2400, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30 .....	786.10	19,020	
Oct. 31 .....	784.73	17,403	-1617
Nov. 30 .....	783.81	16,391	-1012
Dec. 31 .....	783.18	15,698	-693
CAL YR 1997 .....	-	-	-3322
Jan. 31 .....	784.09	16,699	+1001
Feb. 28 .....	784.38	17,018	+319
Mar. 31 .....	789.84	23,792	+6774
Apr. 30 .....	791.29	25,806	+2014
May 31 .....	790.98	25,372	-434
June 30 .....	791.15	25,610	+238
July 31 .....	790.94	25,316	-294
Aug. 31 .....	790.16	24,224	-1092
Sept. 30 .....	788.24	21,712	-2512
WYR YR 1998 .....	-	-	+2692

## 03353451 EAGLE CREEK BELOW RESERVOIR AT INDIANAPOLIS, IN

LOCATION.--Lat 39°49'20", long 86°18'11", in NW¼NW¼ sec. 22, T.16 N., R.2 E., Marion County, Hydrologic Unit 05120201, in outlet structure of reservoir on Eagle Creek, 800 ft upstream from Interstate Highway 74, 0.5 mi downstream from School Branch, 1.0 mi northeast of Clermont, and 2 mi west of Indianapolis.

DRAINAGE AREA.--162 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1992 to current year. Published as "03353450 Eagle Creek Reservoir near Indianapolis" October 1992 to September 1994.

GAGE.--Water stage recorder located 100 ft downstream of outlet structure. Datum of gage is 741.15 ft above sea level.

REMARKS.--Mean daily discharges below 50 ft<sup>3</sup>/s published. Unit discharges below 50 ft<sup>3</sup>/s available in district office. For a complete record of Eagle Creek in this vicinity use records of Eagle Creek at Indianapolis, IN (station 03353500) about 4.9 mile downstream. Prior to this year this station was published under Eagle Creek Reservoir at Indianapolis (station 03353450).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.8	11	9.3	8.4	9.5	9.8	---	---	---	---	11	11
2	9.2	11	9.4	9.4	9.6	9.4	---	---	---	---	11	11
3	8.8	9.4	9.4	9.2	9.6	9.4	---	---	16	10	10	11
4	9.0	8.9	9.4	9.4	9.3	9.9	---	---	15	---	10	9.9
5	10	8.5	9.5	9.5	9.3	9.8	12	---	---	---	11	9.7
6	10	8.9	9.5	9.5	9.6	9.7	11	---	18	---	11	9.0
7	10	9.2	9.5	9.6	9.5	9.6	12	---	14	---	11	11
8	9.6	9.6	9.5	9.6	9.5	9.1	11	---	11	---	---	12
9	8.4	9.4	9.4	9.6	9.7	9.3	---	---	---	---	---	11
10	8.7	9.7	9.4	9.6	10	10	---	---	---	10	---	8.0
11	9.4	10	9.3	9.7	9.9	10	---	---	---	11	11	8.1
12	9.1	9.9	9.4	9.6	9.9	10	---	---	---	11	11	8.8
13	9.8	9.9	9.4	9.7	10	9.6	---	---	---	11	11	9.3
14	10	10	9.4	9.7	9.6	9.5	---	---	---	11	11	9.4
15	10	10	9.4	9.6	9.3	9.6	---	17	---	12	10	9.2
16	9.3	9.9	9.6	9.7	9.3	9.5	---	---	---	11	9.8	9.4
17	9.2	10	e9.6	9.6	9.5	9.5	---	---	---	11	9.5	9.6
18	9.5	10	e9.5	9.6	9.6	9.6	---	---	---	11	11	9.4
19	9.1	10	e9.4	9.6	9.6	---	---	13	---	10	13	10
20	9.5	9.9	e9.4	9.7	9.6	---	---	---	---	11	13	10
21	10	10	e9.4	9.6	9.6	---	---	---	---	9.2	11	10
22	10	9.9	e9.4	9.5	9.6	---	---	---	---	11	9.7	11
23	10	9.7	9.3	9.6	9.8	---	---	---	---	---	9.3	11
24	9.4	9.2	9.3	9.6	10	---	---	---	---	---	9.3	10
25	9.0	9.4	9.2	9.5	10	---	---	---	---	---	8.8	9.4
26	9.6	9.5	9.2	9.6	9.9	---	---	---	---	12	10	9.1
27	9.3	9.6	9.2	9.6	9.8	---	---	---	---	12	11	9.4
28	9.7	9.5	9.2	9.6	9.8	---	28	---	---	11	11	10
29	9.7	9.6	9.3	9.6	---	---	---	---	11	10	10	9.8
30	9.8	9.5	9.2	9.7	---	---	---	---	---	12	10	10
31	11	---	9.6	9.6	---	---	---	---	---	11	11	---
TOTAL	295.9	291.1	291.0	295.8	270.4	---	---	---	---	---	---	296.5
MEAN	9.55	9.70	9.39	9.54	9.66	---	---	---	---	---	---	9.88
MAX	11	11	9.6	9.7	10	---	---	---	---	---	---	12
MIN	8.4	8.5	9.2	8.4	9.3	---	---	---	---	---	---	8.0
CFSM	.06	.06	.06	.06	.06	---	---	---	---	---	---	.06
IN.	.07	.07	.07	.07	.06	---	---	---	---	---	---	.07

e Estimated

## WABASH RIVER BASIN

03353500 EAGLE CREEK AT INDIANAPOLIS, IN

LOCATION.--Lat 39°46'33", long 86°15'01", in NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.6, T.15 N., R.3 E., Marion County, Hydrologic Unit 05120201, on right bank at downstream side of bridge on Lynhurst Drive, approximately 600 ft south of intersection of West 10th Street and Lynhurst Drive, 0.5 mi downstream from West 10th Street bridge, 1.0 mi upstream from Vermont Street bridge, 3.0 mi upstream from Little Eagle Creek, and 7.1 mi upstream from mouth.

DRAINAGE AREA.--174 mi<sup>2</sup>.

PERIOD OF RECORD.--November 1938 to current year.

REVISED RECORDS.--WSP 953: 1939. WSP 1625: 1958. WSP 2109: Drainage area. WDR IN-93-1: 1992.

GAGE.--Water-stage recorder. Datum of gage is 697.00 ft above sea level. Aug. 8, 1957 to June 30, 1958, temporary site during reconstruction of bridge on Lynhurst Drive, a nonrecording gage on downstream side of 10th Street bridge. Mar. 10, 1966 to Aug. 16, 1967, during channelization of Eagle Creek, a nonrecording gage on downstream side of Lynhurst Drive bridge. Prior to Oct. 1, 1967, at datum 9.21 ft higher, (erroneously published as 7.21 ft higher in 1992 report). Oct. 1, 1967 to Sept. 30, 1992 at datum 2 ft higher.

REMARKS.--Records poor. Flow regulated since November 1969 by Eagle Creek Reservoir, 4.7 mi upstream (see station 03353450).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of 23.2 ft present datum, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e11	e14	e12	e11	e10	e10	e155	e644	175	135	15	14
2	e10	e12	e11	e11	e12	e10	e301	e602	107	80	16	15
3	e10	e11	e13	e12	e11	e10	e267	e407	31	16	15	15
4	e10	e10	e12	e12	e11	e12	e156	e153	29	174	15	12
5	e11	e8.8	e12	e18	e10	e15	e51	e276	210	128	27	13
6	e11	e9.8	e12	e17	e10	e21	e49	e236	32	84	21	11
7	e11	e11	e12	e28	e10	e31	e58	e993	26	115	53	11
8	e12	e11	e12	e32	e11	e50	e89	2300	21	102	63	14
9	e13	e11	e12	e17	e11	e70	e1320	746	160	148	223	14
10	e11	e11	e15	e15	e12	e42	e1690	465	304	17	95	9.2
11	e11	e12	e14	e14	e13	e42	e544	242	1640	14	17	9.9
12	e11	e12	e12	e14	e11	e45	e307	239	4880	16	16	9.1
13	e14	e11	e12	e15	e9.9	e52	e167	243	2610	15	14	9.7
14	e12	e11	e12	e12	e10	e59	e358	134	771	14	14	10
15	e11	e12	e12	e15	e9.5	e69	e119	30	4110	15	14	9.9
16	e11	e13	e12	e13	e8.7	e76	e427	84	1710	14	50	9.4
17	e11	e12	e12	e12	e14	e85	e319	151	782	14	17	10
18	e11	e11	e12	e11	e13	e144	e193	90	419	13	14	9.2
19	e11	e11	e12	e11	e9.5	e465	e189	28	1290	17	14	10
20	e11	e11	e12	e10	e9.8	e1020	e104	323	807	68	15	11
21	e11	e13	e13	e10	e10	e1400	e57	192	248	17	14	14
22	e11	e12	e16	e12	e10	e564	e161	118	104	24	14	27
23	e11	e11	e15	e17	e11	e401	e224	934	753	56	14	11
24	e11	e11	e17	e12	e11	e292	e185	1160	337	205	13	11
25	e11	e11	e14	e11	e11	e117	e124	1150	99	135	13	10
26	e12	e11	e11	e11	e11	e118	e122	351	93	18	14	10
27	e11	e11	e11	e11	e11	e119	e88	211	174	19	14	9.7
28	e11	e13	e11	e11	e11	e274	e28	208	202	15	13	9.7
29	e10	e13	e11	e12	---	e306	e205	174	26	15	13	10
30	e10	e16	e11	e10	---	e307	e261	97	81	18	13	9.1
31	e12	---	e11	e9.7	---	e288	---	170	---	18	13	---
TOTAL	345	347.6	386	426.7	302.4	6514	8318	13151	22231	1739	876	347.9
MEAN	11.1	11.6	12.5	13.8	10.8	210	277	424	741	56.1	28.3	11.6
MAX	14	16	17	32	14	1400	1690	2300	4880	205	223	27
MIN	10	8.8	11	9.7	8.7	10	28	28	21	13	13	9.1
CFSM	.06	.07	.07	.08	.06	1.21	1.59	2.44	4.26	.32	.16	.07
IN.	.07	.07	.08	.09	.06	1.39	1.78	2.81	4.75	.37	.19	.07

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1998, BY WATER YEAR (WY)

	MEAN	32.9	115	167	203	239	310	307	216	150	86.5	39.8	39.0
MAX	201	851	906	1485	765	900	906	1127	904	800	490	625	
(WY)	1970	1993	1991	1950	1976	1978	1964	1943	1957	1979	1958	1989	
MIN	1.52	3.05	3.48	4.06	10.8	27.7	28.0	14.3	4.66	3.69	.19	.40	
(WY)	1941	1941	1945	1945	1998	1941	1976	1976	1988	1968	1941	1941	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1939 - 1998
ANNUAL TOTAL	51897.4	54984.6	
ANNUAL MEAN	142	151	158
HIGHEST ANNUAL MEAN			316
LOWEST ANNUAL MEAN			18.8
HIGHEST DAILY MEAN	5050	Feb 22	9890
LOWEST DAILY MEAN	8.0	Sep 22	.00
ANNUAL SEVEN-DAY MINIMUM	10	Nov 3	.01
INSTANTANEOUS PEAK FLOW			5580
INSTANTANEOUS PEAK STAGE			10.01
ANNUAL RUNOFF (CFSM)	.82		.87
ANNUAL RUNOFF (INCHES)	11.10		11.76
10 PERCENT EXCEEDS	345		307
50 PERCENT EXCEEDS	26		14
90 PERCENT EXCEEDS	11		10

e Estimated



## 03353551 LITTLE EAGLE CREEK AT 52ND STREET AT INDIANAPOLIS, IN

LOCATION.--Lat 39°50'45", long 86°14'55", in NE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.7, T.16 N., R.2 E., Marion County, Hydrologic Unit 05120201, on right bank at downstream side of West 52nd Street at Indianapolis, 0.4 mi east of Lafayette Road, 1.1 mi upstream from Guion Creek, and at mile 7.2.

DRAINAGE AREA.--6.28 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1989 to current year.

REVISED RECORDS.--WDR IN-95-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 766.34 ft above sea level.

REMARKS.--Records poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.22	8.8	3.8	.67	1.9	2.1	26	27	9.8	5.1	1.1	.12
2	e.23	4.6	1.6	.67	2.1	2.0	8.6	11	26	3.2	.61	.11
3	e.21	1.4	1.8	.67	1.9	2.1	6.5	15	8.2	2.3	.52	e.11
4	e.30	.98	2.8	.64	1.9	2.1	7.1	10	6.3	28	3.4	e.10
5	e.22	.79	1.2	17	1.6	2.3	5.0	6.4	13	7.9	9.4	e.10
6	e.20	.70	1.1	18	1.5	1.9	4.4	4.8	6.6	4.1	12	e.15
7	e.22	.62	.97	37	1.4	1.7	7.0	113	3.4	16	27	.53
8	e.25	.58	.89	89	1.3	28	31	43	2.6	12	15	.35
9	e3.3	.57	.92	12	1.3	70	134	19	39	4.6	11	.28
10	e1.0	.57	11	5.5	1.5	13	29	11	11	3.4	4.5	.25
11	e.48	.55	3.1	3.8	3.9	6.7	13	7.2	247	2.5	2.3	e.22
12	e.30	.54	1.6	3.5	5.7	e4.5	8.1	5.4	163	1.6	1.5	e.19
13	e7.0	.55	1.1	6.8	2.6	e3.7	6.9	4.5	52	1.3	1.1	e.17
14	10	1.0	.97	4.3	1.8	3.4	15	3.6	65	1.1	.93	e.16
15	1.4	2.4	.88	8.8	1.6	2.7	8.8	3.0	119	.98	.69	e.25
16	.67	2.8	.83	4.8	2.1	2.5	41	2.6	32	.93	21	.55
17	.55	1.2	.77	3.4	21	48	10	2.2	24	1.2	13	.49
18	.51	.86	.74	3.1	14	101	6.8	1.9	13	1.2	3.7	.19
19	.45	1.3	.67	2.7	6.6	35	5.1	6.8	40	7.8	1.8	.27
20	.41	1.5	.63	2.6	8.4	97	4.2	24	16	15	1.1	6.1
21	.40	1.4	.61	2.3	5.2	32	12	5.0	12	3.8	.96	7.7
22	.39	4.3	9.3	2.5	3.7	16	16	3.4	21	7.3	1.1	11
23	.40	1.5	3.0	17	3.1	12	16	41	80	13	.94	2.2
24	.48	.91	12	5.3	3.3	10	6.4	23	16	3.4	1.4	.92
25	.95	.74	9.3	3.4	2.8	8.6	4.9	9.2	10	1.7	7.2	.60
26	1.4	.65	2.1	3.0	2.6	7.4	5.8	5.9	6.9	1.2	1.3	.43
27	4.4	.72	1.2	2.6	2.6	6.4	6.0	4.3	5.9	1.0	.53	.33
28	.97	1.5	.99	3.1	2.3	18	3.5	3.7	4.4	.88	.37	.20
29	.65	4.3	.89	2.7	---	9.1	5.6	3.2	4.6	.72	.36	.16
30	.52	23	.81	2.4	---	6.9	30	3.5	16	1.2	.36	.14
31	.55	---	.72	2.0	---	13	---	8.6	---	2.6	.20	---
TOTAL	39.03	71.33	78.29	271.25	109.7	569.1	483.7	432.2	1073.7	157.01	146.37	34.37
MEAN	1.26	2.38	2.53	8.75	3.92	18.4	16.1	13.9	35.8	5.06	4.72	1.15
MAX	10	23	12	89	21	101	134	113	247	28	27	11
MIN	.20	.54	.61	.64	1.3	1.7	3.5	1.9	2.6	.72	.20	.10
CFSM	.20	.38	.40	1.39	.62	2.92	2.57	2.22	5.70	.81	.75	.18
IN.	.23	.42	.46	1.61	.65	3.37	2.87	2.56	6.36	.93	.87	.20

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1998, BY WATER YEAR (WY)

	MEAN	4.67	15.3	10.9	11.6	11.1	13.2	15.4	15.9	10.7	7.88	4.34	5.47
MAX	13.3	41.1	49.8	23.2	31.1	25.0	29.1	43.0	35.8	22.5	6.54	16.3	
(WY)	1991	1994	1991	1996	1990	1991	1996	1996	1998	1992	1995	1993	
MIN	1.06	2.38	1.15	5.92	3.12	3.36	4.66	4.32	1.63	2.21	1.02	1.05	
(WY)	1995	1998	1990	1995	1995	1994	1995	1992	1991	1991	1996	1991	

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

## WATER YEARS 1989 - 1998

ANNUAL TOTAL	3203.60	3466.05	
ANNUAL MEAN	8.78	9.50	10.5
HIGHEST ANNUAL MEAN			13.3
LOWEST ANNUAL MEAN			6.14
HIGHEST DAILY MEAN	363	247	664
LOWEST DAILY MEAN	.20	.10	.10
ANNUAL SEVEN-DAY MINIMUM	.23	.13	.13
INSTANTANEOUS PEAK FLOW		775	1550
INSTANTANEOUS PEAK STAGE		5.62	8.30
ANNUAL RUNOFF (CFSM)	1.40	1.51	1.68
ANNUAL RUNOFF (INCHES)	18.98	20.53	22.78
10 PERCENT EXCEEDS	18	21	21
50 PERCENT EXCEEDS	3.2	3.0	3.2
90 PERCENT EXCEEDS	.59	.41	.71

e Estimated

## WABASH RIVER BASIN

03353560 GUION CREEK ABOVE 52ND STREET AT INDIANAPOLIS, IN

LOCATION.--Lat 39°50'45", long 86°13'57", in NW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.08., T.16 N., R.3 E., Marion County, Hydrologic Unit 05120201, on right bank 25 ft upstream from private bridge at Indianapolis, 0.2 mi north of West 52nd Street along Guion Road, and 1.25 mi upstream of the confluence with Little Eagle Creek.

DRAINAGE AREA.--4.10 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1989 to current year.

REVISED RECORDS.--WDR IN-95-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 760.11 ft above sea level.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.09	2.0	1.8	e.25	.69	1.0	8.9	14	1.6	2.4	.48	.00
2	.11	1.8	.78	e.23	.43	.77	5.6	7.9	23	1.8	.29	.00
3	.10	.67	.78	e.21	e.41	.81	3.6	7.6	6.2	1.5	.28	.00
4	.09	.27	.99	e.20	e.40	.94	2.8	6.5	2.9	13	.29	.00
5	.09	.13	.58	e4.5	e.39	1.2	2.2	4.4	4.9	3.4	4.7	.00
6	.08	e.09	.45	8.8	e.38	1.4	1.6	2.8	2.4	2.1	7.5	.00
7	.08	e.08	.36	14	e.37	.76	5.2	63	1.3	4.3	15	.03
8	.09	e.07	.27	35	e.36	9.4	26	53	.92	3.7	10	.05
9	.74	e.06	.28	15	e.36	31	92	21	16	3.1	4.3	.05
10	.37	e.06	3.3	8.0	e.45	13	45	11	7.1	1.6	1.9	.05
11	.16	e.05	2.0	4.9	.95	7.2	17	5.4	130	1.9	.78	e.03
12	.12	e.04	.99	3.3	1.5	4.5	8.8	3.1	143	.95	.29	e.02
13	1.8	e.06	.58	3.4	.92	3.2	5.5	2.2	81	1.7	.20	e.01
14	2.1	e.11	.39	2.5	.66	2.6	4.8	1.6	46	.87	.08	e.01
15	.63	e.25	.29	3.8	.52	2.0	3.9	1.2	90	2.0	.07	e.02
16	.25	e.33	.24	3.3	.62	1.6	17	.74	37	1.3	2.5	.05
17	.15	e.13	e.23	2.4	6.1	18	7.4	.49	21	1.2	.97	.03
18	.10	e.07	e.22	1.9	8.6	51	4.0	.24	13	1.1	.12	.01
19	.07	e.13	.20	1.8	5.4	36	2.5	1.2	30	2.3	.08	.00
20	.07	e.20	e.19	1.6	4.2	59	2.6	2.8	15	5.4	.04	e.70
21	.06	.16	e.18	1.3	3.3	37	3.4	1.0	8.1	2.6	.01	e1.0
22	.05	.52	e2.7	1.4	2.0	17	6.3	1.4	9.3	5.8	.02	2.7
23	.04	.14	e1.1	6.1	1.4	9.8	6.9	16	51	5.9	.01	.36
24	.12	.07	e3.3	4.4	1.7	6.7	3.9	11	18	2.2	.11	.11
25	.31	.05	e1.2	2.8	1.5	5.2	2.8	5.1	9.2	1.6	.11	.09
26	.60	.11	e.70	2.1	1.1	4.4	2.8	2.7	5.2	1.1	.04	e.06
27	1.3	.13	e.47	1.7	1.1	3.2	2.6	1.5	3.7	.92	.01	e.04
28	.48	.16	e.40	1.4	1.0	6.2	1.6	1.0	2.8	.78	.28	e.03
29	.16	.26	e.34	1.2	---	4.6	2.4	.60	3.2	2.0	.08	e.02
30	.06	5.3	e.31	.87	---	3.7	13	.56	4.4	1.8	.00	e.01
31	.04	---	e.28	.78	---	6.4	---	1.9	---	1.0	.00	---
TOTAL	10.51	13.50	25.90	139.14	46.81	349.58	312.1	252.93	787.22	81.32	50.54	5.48
MEAN	.34	.45	.84	4.49	1.67	11.3	10.4	8.16	26.2	2.62	1.63	.18
MAX	2.1	5.3	3.3	35	8.6	59	92	63	143	13	15	2.7
MIN	.04	.04	.18	.20	.36	.76	1.6	.24	.92	.78	.00	.00
CFSM	.08	.11	.20	1.09	.41	2.75	2.54	1.99	6.40	.64	.40	.04
IN.	.10	.12	.23	1.26	.42	3.17	2.83	2.29	7.14	.74	.46	.05

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1998, BY WATER YEAR (WY)

	MEAN	1.62	7.35	4.73	5.86	5.26	7.09	7.74	8.28	6.03	3.24	1.49	2.08
MAX	5.45	20.8	19.6	10.6	16.4	12.5	12.1	21.4	26.2	10.5	3.32	9.03	
(WY)	1991	1994	1991	1993	1990	1991	1996	1996	1998	1992	1993	1993	
MIN	.15	.45	.52	1.94	1.17	1.77	1.98	1.76	.56	.33	.15	.17	
(WY)	1995	1998	1990	1992	1995	1994	1995	1992	1991	1991	1991	1991	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1990 - 1998
ANNUAL TOTAL	1513.34	2075.03	
ANNUAL MEAN	4.15	5.69	5.05
HIGHEST ANNUAL MEAN			7.26
LOWEST ANNUAL MEAN			2.87
HIGHEST DAILY MEAN	156	Feb 27	283
LOWEST DAILY MEAN	.04	Jul 30	.00
ANNUAL SEVEN-DAY MINIMUM	.05	Jul 28	.00
INSTANTANEOUS PEAK FLOW			435
INSTANTANEOUS PEAK STAGE			7.35
ANNUAL RUNOFF (CFSM)	1.01		1.23
ANNUAL RUNOFF (INCHES)	13.73		16.75
10 PERCENT EXCEEDS	9.5		10
50 PERCENT EXCEEDS	1.1		1.5
90 PERCENT EXCEEDS	.08		.13

e Estimated

## 03353583 FALCON CREEK AT 30TH ST. AT INDIANAPOLIS, IN

LOCATION.--Lat 39°48'33", long 86°13'56", in NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.29, T.16 N., R.03 E., Marion County, Hydrologic Unit 05120201, on left bank, 150 ft downstream from bridge on West 30th Street at Indianapolis, 0.6 mi west of Lafayette Road, and 0.6 mi upstream of confluence with Little Eagle Creek.

DRAINAGE AREA.--4.15 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1989 to current year.

REVISED RECORDS.--WDR IN-95-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 727.27 ft above sea level.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.15	2.6	.55	.36	e.41	.47	8.3	16	1.2	.96	.48	e.17
2	.15	.33	.37	.41	e.39	.47	2.9	7.7	4.5	.71	.59	e.13
3	.13	.23	1.2	.54	e.37	.47	3.2	12	2.5	.61	.47	e.10
4	.13	.17	.49	.50	e.36	.58	2.3	7.3	.98	33	.63	e.09
5	.10	.15	.40	7.5	e.36	.51	1.3	3.2	6.9	2.7	7.0	e.08
6	.10	.18	e.33	6.1	e.34	.41	1.1	1.9	1.1	1.3	8.9	e.14
7	.11	.15	e.30	12	e.32	.43	3.9	57	.63	4.5	20	e.34
8	.13	e.16	e.28	28	e.31	13	19	27	.52	1.5	4.0	e.25
9	1.5	e.28	e.33	4.9	e.29	29	76	9.6	21	.85	2.8	e.21
10	.25	e.24	3.4	1.5	e.28	6.5	22	4.6	4.3	.65	1.0	e.18
11	.18	e.14	.52	.91	1.8	2.5	7.6	2.4	114	.58	.70	e.16
12	.15	e.09	.41	1.3	.64	1.3	4.1	1.9	77	.52	.64	e.15
13	4.9	e.12	.33	1.3	.44	1.0	4.2	3.3	43	.47	.64	e.14
14	.55	.63	e.29	.68	.38	.90	4.3	1.4	32	.47	.62	e.13
15	.13	.47	e.25	3.2	.33	.75	4.2	1.1	83	.56	.60	e.17
16	.11	.27	e.22	.90	.87	.69	21	.74	35	.56	19	e.38
17	.11	.19	e.20	.73	8.1	20	5.7	.59	8.9	.53	6.3	e.30
18	.10	.19	e.18	.63	5.4	52	2.7	.52	5.0	.55	1.2	e.20
19	.11	.23	e.17	.55	1.6	19	1.9	4.6	34	6.0	.74	e.16
20	.10	.23	e.16	.48	2.3	49	1.4	3.4	8.1	11	.58	e.25
21	.09	.86	e.17	.47	1.2	19	3.1	.81	3.7	.71	.47	4.0
22	.10	.54	3.8	1.5	.85	7.0	8.8	1.1	3.8	7.2	.46	5.5
23	.11	.22	.58	4.0	.77	4.3	6.8	37	52	2.9	.40	.53
24	.40	.18	5.8	1.0	.94	2.9	2.7	18	7.2	.71	2.1	.38
25	.18	.17	2.1	.75	.63	1.9	2.3	5.0	3.2	.52	.59	e.29
26	1.4	.16	.71	.64	.54	1.6	1.8	2.1	1.9	.47	.41	e.23
27	.34	.18	.56	.58	.58	1.3	1.7	1.2	1.5	.47	.41	e.19
28	.13	.29	.47	.55	.51	6.5	1.2	.89	1.3	.47	1.1	e.16
29	.11	.38	.43	e.49	---	2.5	6.3	.80	4.8	.49	.45	e.13
30	.11	7.1	.40	e.45	---	1.7	20	.92	2.5	1.4	e.30	e.12
31	.12	---	.36	e.43	---	9.4	---	1.2	---	.61	e.22	---
TOTAL	12.28	17.13	25.76	83.35	31.31	257.08	251.8	235.27	565.53	83.97	83.80	17.51
MEAN	.40	.57	.83	2.69	1.12	8.29	8.39	7.59	18.9	2.71	2.70	.58
MAX	4.9	7.1	5.8	28	8.1	52	76	57	114	33	20	5.5
MIN	.09	.09	.16	.36	.28	.41	1.1	.52	.52	.47	.22	.08
CFSM	.10	.14	.20	.65	.27	2.00	2.02	1.83	4.54	.65	.65	.14
IN.	.11	.15	.23	.75	.28	2.30	2.26	2.11	5.07	.75	.75	.16

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1998, BY WATER YEAR (WY)

MEAN	1.65	6.05	4.25	4.37	4.34	6.08	7.27	8.63	5.68	3.33	1.71	2.07
MAX	4.37	16.0	17.8	8.64	13.7	12.3	13.1	26.9	18.9	10.0	2.70	6.22
(WY)	1991	1994	1991	1993	1990	1991	1996	1996	1998	1992	1998	1993
MIN	.31	.57	.73	1.44	.89	1.37	1.91	1.57	.82	.61	.30	.52
(WY)	1995	1998	1996	1992	1995	1994	1995	1992	1991	1991	1996	1991

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

## WATER YEARS 1989 - 1998

ANNUAL TOTAL	1339.77	1664.79	
ANNUAL MEAN	3.67	4.56	4.61
HIGHEST ANNUAL MEAN			6.00
LOWEST ANNUAL MEAN			2.66
HIGHEST DAILY MEAN	118	114	226
LOWEST DAILY MEAN	.09	.08	.00
ANNUAL SEVEN-DAY MINIMUM	.10	.10	.07
INSTANTANEOUS PEAK FLOW		306	565
INSTANTANEOUS PEAK STAGE		5.73	6.78
ANNUAL RUNOFF (CFSM)	.88	1.10	1.11
ANNUAL RUNOFF (INCHES)	12.01	14.92	15.11
10 PERCENT EXCEEDS	11	8.9	10
50 PERCENT EXCEEDS	.80	.64	1.1
90 PERCENT EXCEEDS	.17	.15	.24

e Estimated

## 03353600 LITTLE EAGLE CREEK AT SPEEDWAY, IN

LOCATION.--Lat 39°47'15", long 86°13'41", in NE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.32, T.16 N., R.3 E., Marion County, Hydrologic Unit 05120201, on right bank at downstream side of 16th Street bridge in Speedway, 0.6 mi upstream from Dry Run, and 2.3 mi upstream from mouth.

DRAINAGE AREA.--24.3 mi<sup>2</sup> including 5.57 mi<sup>2</sup> from Dry Run basin. Since June 1964 part of the flow from the 5.57 mi<sup>2</sup> of Dry Run basin has been diverted into Little Eagle Creek above gage.

PERIOD OF RECORD.--October 1959 to current year. Figures of runoff for June 1964 to September 1966 have been found to be in error and should not be used.

REVISED RECORDS.--WDR IN-95-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 707.82 ft above sea level (levels by State of Indiana, Department of Natural Resources). Prior to June 13, 1975, at datum 3.00 ft higher.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.84	16	13	e3.8	4.6	4.3	53	73	25	10	e4.0	e.60
2	.88	13	5.4	3.9	4.2	4.1	21	39	56	7.6	e2.4	e.42
3	.82	4.5	8.2	3.9	4.1	4.1	17	49	29	6.5	e1.4	e.35
4	1.1	2.6	9.1	3.4	4.1	4.6	16	35	20	124	e3.1	e.32
5	.83	1.8	5.3	31	4.1	4.4	9.8	23	41	19	e13	e.30
6	.67	1.5	4.4	51	3.7	3.9	7.6	17	21	12	19	e.52
7	.69	1.5	3.8	68	3.1	3.1	13	302	13	29	66	e1.6
8	.71	1.2	3.4	178	2.9	56	91	133	11	20	25	e1.2
9	5.9	2.0	2.9	43	2.8	157	430	58	109	11	15	e.96
10	2.3	2.2	27	22	2.7	43	121	35	42	8.5	6.3	e.74
11	1.3	2.3	11	14	9.7	23	55	24	663	7.5	3.8	e.60
12	.80	1.4	5.6	12	13	13	36	18	477	6.1	2.7	e.56
13	12	1.3	4.1	e17	5.8	9.6	31	20	271	5.5	2.1	e.52
14	20	5.4	3.3	e10	4.0	8.2	39	14	164	5.2	1.8	e.50
15	3.9	7.9	2.7	25	3.2	5.9	28	12	475	4.9	1.6	e.70
16	1.9	8.1	2.3	14	5.8	4.7	104	10	145	5.1	53	e1.8
17	1.2	4.5	e2.1	10	43	93	37	8.8	73	4.4	19	e1.5
18	.89	3.1	e1.9	8.4	41	274	25	7.7	48	4.5	4.9	e.70
19	.81	4.1	1.8	7.5	22	109	19	14	152	20	3.0	e.60
20	.79	6.3	1.7	6.6	23	271	16	50	56	58	2.2	9.4
21	.69	9.0	1.7	5.8	16	100	27	13	38	11	1.8	19
22	.74	15	26	7.8	10	46	41	11	45	e20	1.7	25
23	.74	5.9	14	37	7.7	31	46	147	244	e50	1.5	6.7
24	2.3	3.7	29	17	9.1	25	23	81	40	e18	3.6	4.9
25	2.2	2.6	32	11	6.9	21	19	33	23	e7.0	5.3	e3.5
26	7.0	2.2	11	8.5	5.6	17	18	23	15	e4.0	2.1	e1.9
27	10	3.4	6.5	7.2	5.7	13	18	17	12	e3.0	1.5	e1.3
28	3.2	4.3	4.9	7.2	4.8	35	12	15	10	e2.3	2.7	e.84
29	1.7	11	4.3	6.7	---	19	25	12	16	e1.9	2.4	e.62
30	1.4	44	e4.0	5.6	---	14	80	13	25	e5.0	1.4	e.45
31	1.1	---	e3.9	4.9	---	29	---	15	---	e10	e.90	---
TOTAL	89.40	191.8	256.3	651.2	272.6	1445.9	1478.4	1322.5	3359	501.0	274.20	88.10
MEAN	2.88	6.39	8.27	21.0	9.74	46.6	49.3	42.7	112	16.2	8.85	2.94
MAX	20	44	32	178	43	274	430	302	663	124	66	25
MIN	.67	1.2	1.7	3.4	2.7	3.1	7.6	7.7	10	1.9	.90	.30
CFSM	.12	.26	.34	.86	.40	1.92	2.03	1.76	4.61	.67	.36	.12
IN.	.14	.29	.39	1.00	.42	2.21	2.26	2.02	5.14	.77	.42	.13

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1998, BY WATER YEAR (WY)

MEAN	10.6	26.3	29.5	26.3	30.7	38.0	36.8	33.8	20.6	18.6	11.7	11.2
MAX	88.9	115	111	78.3	77.1	87.8	84.4	140	112	92.3	44.7	101
(WY)	1987	1994	1991	1969	1997	1978	1996	1996	1998	1979	1979	1989
MIN	.81	1.50	.85	.32	3.82	4.84	5.51	4.84	.98	.67	.15	.20
(WY)	1967	1966	1977	1977	1978	1981	1976	1976	1988	1966	1966	1966

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

## WATER YEARS 1965 - 1998

ANNUAL TOTAL	9808.62	9930.40	24.5
ANNUAL MEAN	26.9	27.2	43.6
HIGHEST ANNUAL MEAN			4.86
LOWEST ANNUAL MEAN			
HIGHEST DAILY MEAN	830	Feb 27	663
LOWEST DAILY MEAN	.67	Oct 6	.30
ANNUAL SEVEN-DAY MINIMUM	.81	Oct 2	.49
INSTANTANEOUS PEAK FLOW			1550
INSTANTANEOUS PEAK STAGE			7.53
ANNUAL RUNOFF (CFSM)	1.11		1.12
ANNUAL RUNOFF (INCHES)	15.02		15.20
10 PERCENT EXCEEDS	63		54
50 PERCENT EXCEEDS	11		8.1
90 PERCENT EXCEEDS	1.7		1.2

e Estimated

## 03353611 WHITE RIVER AT STOUT GEN. STN. AT INDIANAPOLIS, IN

LOCATION.--Lat 39°42'52", long 86°12'02", in SE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.28, T.15N., R.3E., Marion County, Hydrologic Unit 05120201, on right bank 0.30 mi above confluence with Lick Creek and 0.31 mi above dam at Stout Generating Plant, and at mile 226.32

DRAINAGE AREA.--1,898 mi<sup>2</sup>.

PERIOD OF RECORD.--Oct. 1, 1992 to current year.

GAGE.--Water-stage recorder. Datum of gage is 663.40 above sea level.

REMARKS.--Records good except for estimated daily discharges, which are poor. Natural flow affected by regulation of Morse Reservoir and Geist Reservoir, and by diversion of municipal water supply by the Indianapolis Water Company.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	272	432	843	307	553	676	2900	5380	1850	2040	814	350
2	265	471	652	290	528	628	3110	5950	1810	1720	695	354
3	277	355	626	291	510	580	2730	5060	1400	1310	633	354
4	287	307	605	279	524	578	2250	3920	1220	2010	627	342
5	275	285	524	419	571	560	1710	3970	1550	2430	1090	327
6	274	268	476	954	487	527	1480	3140	1250	2790	4760	349
7	281	265	419	1350	449	480	1350	5930	1120	2180	5730	358
8	280	260	419	3150	422	866	1760	11900	1000	2560	5290	368
9	340	258	375	4210	410	3950	6560	10800	1950	4960	4730	361
10	348	257	533	3660	405	5960	12000	7020	2570	3110	2900	339
11	304	252	522	2130	456	5840	12400	4390	8010	1860	1970	328
12	295	250	462	1370	510	3560	9990	3320	19300	1360	1550	315
13	443	250	408	1140	487	2420	4970	2770	22800	1100	1210	308
14	649	393	401	927	445	1900	4030	2220	18800	920	1000	311
15	441	441	404	881	435	1690	3140	1770	25400	816	865	318
16	394	369	385	799	441	1480	4130	1590	20700	738	931	332
17	354	355	347	737	697	2140	e3500	1550	16500	660	941	331
18	323	325	333	667	906	5230	e3100	1340	11900	624	702	326
19	302	315	298	630	1500	8900	e2700	1190	9980	736	607	316
20	281	300	297	586	2970	11700	e2400	2080	8080	1510	524	311
21	279	311	287	544	2060	11200	1970	1660	5540	1290	462	372
22	253	392	443	534	1790	8400	2030	1360	3800	1310	424	456
23	254	344	415	737	1450	5860	2420	4580	5760	7080	411	369
24	272	341	459	708	1200	4250	2390	5760	3670	9850	407	347
25	272	329	687	709	1030	3210	2010	7350	2710	5470	462	337
26	283	324	561	717	883	2670	1850	4890	2220	2690	451	325
27	306	288	554	645	816	2290	1840	3000	1970	1880	449	309
28	281	303	549	617	744	2620	1670	2270	1800	1430	401	300
29	269	362	453	587	---	3140	1920	1860	1490	1180	389	297
30	260	950	366	594	---	3520	3190	1620	1560	1040	376	316
31	269	---	329	589	---	2920	---	1700	---	948	368	---
TOTAL	9683	10352	14432	31758	23679	109745	107500	121340	207710	69602	42169	10126
MEAN	312	345	466	1024	846	3540	3583	3914	6924	2245	1360	338
MAX	649	950	843	4210	2970	11700	12400	11900	25400	9850	5730	456
MIN	253	250	287	279	405	480	1350	1190	1000	624	368	297
CFSM	.16	.18	.25	.54	.45	1.87	1.89	2.06	3.65	1.18	.72	.18
IN.	.19	.20	.28	.62	.46	2.15	2.11	2.38	4.07	1.36	.83	.20

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1998, BY WATER YEAR (WY)

	MEAN	541	3056	1694	2689	1762	3193	3131	3371	3056	1544	667	577
MAX	1039	7366	4215	4718	4000	5526	4170	7735	6924	3806	1360	1485	
(WY)	1993	1994	1997	1993	1997	1997	1993	1996	1998	1993	1998	1993	
MIN	227	345	382	1024	666	1375	1574	1464	829	538	406	254	
(WY)	1995	1998	1996	1998	1995	1994	1997	1997	1994	1994	1994	1995	

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

## WATER YEARS 1992 - 1998

ANNUAL TOTAL	677677	758096	
ANNUAL MEAN	1857	2077	2106
HIGHEST ANNUAL MEAN			2947
LOWEST ANNUAL MEAN			1186
HIGHEST DAILY MEAN	19900	Feb 28	25400
LOWEST DAILY MEAN	242	Jul 26	250
ANNUAL SEVEN-DAY MINIMUM	256	Nov 7	256
INSTANTANEOUS PEAK FLOW			27800
INSTANTANEOUS PEAK STAGE			11.68
ANNUAL RUNOFF (CFSM)	.98		1.09
ANNUAL RUNOFF (INCHES)	13.28		14.86
10 PERCENT EXCEEDS	4940		5250
50 PERCENT EXCEEDS	825		737
90 PERCENT EXCEEDS	291		298

e Estimated



## WABASH RIVER BASIN

03353620 LICK CREEK AT INDIANAPOLIS, IN

LOCATION.--Lat 39°42'21", long 86°06'13", in NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.32, T.15 N., R.4 E., Marion County, Hydrologic Unit 05120201, on left bank, at upstream side of Sherman Drive bridge, in Indianapolis, and at mile 6.2.

DRAINAGE AREA.--15.6 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1970 to current year.

GAGE.--Water-stage recorder. Datum of gage is 742.00 ft above sea level (Indiana Flood Control and Water Resources Commission bench mark).

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.38	14	8.4	e1.7	3.3	4.4	60	86	4.7	5.2	1.9	1.2
2	e.37	10	3.7	e1.8	e3.1	4.1	17	60	10	3.9	1.6	e1.1
3	e.36	4.1	4.2	2.0	e2.9	3.9	15	62	3.9	3.2	2.2	e1.1
4	e.39	2.0	5.0	3.7	e2.8	4.9	16	64	3.4	59	2.5	e1.0
5	e.34	1.2	3.0	15	3.2	5.6	9.1	22	20	8.9	2.2	e1.0
6	e.33	1.0	2.4	32	3.1	3.9	7.4	13	5.3	5.2	62	e1.1
7	e.33	.78	2.1	67	3.0	3.5	7.2	278	2.8	23	55	e1.4
8	e.40	.64	1.9	115	2.7	35	17	124	2.4	11	20	e1.3
9	3.6	.71	2.0	28	2.4	207	370	47	73	5.6	6.6	e1.3
10	2.0	.63	8.1	14	2.2	50	110	22	24	3.9	4.9	e1.2
11	e1.0	.65	4.1	8.9	6.3	23	37	13	258	3.1	5.8	e1.1
12	e.60	.68	2.8	8.1	7.8	e11	19	9.0	232	2.7	3.1	e1.1
13	e5.0	.86	2.2	10	4.0	e9.0	15	11	130	2.5	2.7	e1.0
14	13	3.3	1.9	e6.6	3.0	e7.4	18	5.9	227	2.4	2.5	e1.0
15	1.4	7.7	1.7	e7.2	2.6	e6.2	13	4.5	776	2.3	2.3	e1.1
16	.84	6.0	1.6	e6.0	2.7	5.8	122	3.8	191	2.2	2.4	1.4
17	.80	3.0	e1.5	e5.2	32	75	28	3.4	64	2.9	2.0	1.3
18	.64	e2.0	e1.4	e4.8	32	206	14	4.2	30	3.1	1.8	1.2
19	.63	e1.5	e1.3	e4.3	15	151	10	14	142	9.7	1.6	1.1
20	e.63	e2.0	e1.2	e4.0	20	193	7.8	12	59	35	1.5	1.4
21	e.64	6.4	e1.1	e3.8	12	91	11	3.6	33	4.3	1.4	8.3
22	e.65	15	10	e5.0	9.0	37	11	3.0	23	8.3	1.1	3.0
23	.66	2.6	5.0	25	7.9	24	7.9	137	244	14	1.1	1.8
24	1.6	1.1	15	10	7.7	18	5.7	62	41	3.5	1.5	.99
25	2.0	.77	15	7.4	6.0	13	6.2	18	18	2.4	2.1	.85
26	2.9	.87	5.1	6.0	5.3	10	6.0	9.6	12	2.2	1.6	.81
27	2.4	1.3	3.7	5.1	5.6	8.5	4.1	6.2	8.4	2.0	1.2	.82
28	2.0	3.0	3.1	4.4	4.9	61	3.6	4.6	6.9	2.1	1.3	.81
29	1.7	6.2	2.6	4.0	---	29	24	3.6	9.0	2.4	1.4	.78
30	1.8	44	e2.0	e3.7	---	15	111	12	10	4.0	1.3	e.76
31	2.2	---	e1.6	e3.5	---	30	---	3.8	---	3.9	1.3	---
TOTAL	51.59	143.99	124.7	423.2	212.5	1346.2	1103.0	1122.2	2663.8	243.9	199.9	42.32
MEAN	1.66	4.80	4.02	13.7	7.59	43.4	36.8	36.2	88.8	7.87	6.45	1.41
MAX	13	44	15	115	32	207	370	278	776	59	62	8.3
MIN	.33	.63	1.1	1.7	2.2	3.5	3.6	3.0	2.4	2.0	1.1	.76
CFSM	.11	.31	.26	.88	.49	2.78	2.36	2.32	5.69	.50	.41	.09
IN.	.12	.34	.30	1.01	.51	3.21	2.63	2.68	6.35	.58	.48	.10

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 1998, BY WATER YEAR (WY)

	7.58	22.4	23.9	21.3	26.2	32.3	28.1	26.7	18.4	17.8	11.4	7.89
MEAN	7.58	22.4	23.9	21.3	26.2	32.3	28.1	26.7	18.4	17.8	11.4	7.89
MAX	53.1	102	76.4	50.5	57.1	64.6	71.4	102	88.8	95.5	54.1	48.2
(WY)	1987	1994	1991	1997	1975	1978	1996	1996	1998	1992	1979	1989
MIN	1.03	1.44	2.14	1.00	4.67	5.98	3.92	1.87	.39	2.55	1.28	.53
(WY)	1983	1982	1981	1981	1978	1994	1971	1988	1988	1991	1986	1983

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1971 - 1998
ANNUAL TOTAL	5563.98	7677.30	
ANNUAL MEAN	15.2	21.0	20.3
HIGHEST ANNUAL MEAN			27.6
LOWEST ANNUAL MEAN			11.7
HIGHEST DAILY MEAN	439	776	1380
LOWEST DAILY MEAN	.13	.33	.05
ANNUAL SEVEN-DAY MINIMUM	.22	.36	.11
INSTANTANEOUS PEAK FLOW		1610	2500
INSTANTANEOUS PEAK STAGE		7.56	9.61
ANNUAL RUNOFF (CFSM)	.98	1.35	1.30
ANNUAL RUNOFF (INCHES)	13.27	18.31	17.68
10 PERCENT EXCEEDS	39	52	45
50 PERCENT EXCEEDS	4.6	4.1	7.0
90 PERCENT EXCEEDS	.64	1.0	1.3

e Estimated

03353630 LITTLE BUCK CREEK NEAR SOUTHPORT, IN

LOCATION.--Lat 39°40'11", long 86°04'57", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.10, T.14 N., T.4 E., Marion County, Hydrologic Unit 05120201, on right bank 5 ft upstream from Emerson Avenue bridge in Indianapolis, 1.1 mi downstream from Bunker Creek, and 2.5 mi upstream from Derbyshire Creek.

DRAINAGE AREA.--5.75 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1989 to current year.

REVISED RECORDS.--WDR IN-95-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 783.17 ft above sea level.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.67	.51	.00	.45	.71	25	16	1.1	3.2	.40	.02
2	.00	1.2	.21	.00	.43	.59	10	9.6	.86	1.5	.31	.03
3	.00	.59	.19	.00	.30	.59	7.4	21	.68	1.1	.23	.03
4	.00	.44	.28	.00	.29	.62	7.3	26	.76	18	.35	.02
5	.00	.26	.14	3.3	.34	.66	4.8	8.3	2.4	5.3	1.6	.02
6	.00	.19	.10	11	.33	.47	4.0	5.4	1.2	2.9	7.8	.02
7	.00	.21	.09	32	.30	.41	3.4	151	.75	10	30	.01
8	.00	.21	.06	62	.27	18	9.6	61	.61	7.1	15	.02
9	.00	.21	.00	31	.26	120	172	25	28	4.0	7.5	.02
10	.00	.19	.15	17	.23	47	57	12	6.8	3.0	4.7	.02
11	.00	.19	.07	9.4	1.3	29	21	6.8	47	2.3	2.5	.01
12	.00	.17	.02	7.1	1.9	16	11	4.9	80	2.0	1.4	.01
13	.06	.16	.00	6.6	.78	13	7.5	6.6	58	2.5	1.1	.01
14	1.3	.21	.00	e3.5	.46	11	7.4	3.4	82	2.4	1.0	.01
15	.23	.81	.00	e2.6	.34	7.7	5.6	2.5	179	1.9	.83	.01
16	.12	.65	.00	e1.9	.35	7.2	75	1.9	56	1.0	.87	.00
17	.10	.41	.00	e1.5	21	41	18	1.4	23	.78	1.2	.01
18	.10	.27	.00	e1.2	36	125	8.5	1.0	13	.50	1.3	.00
19	.09	.25	.00	.96	23	58	5.5	1.2	43	.55	1.4	.00
20	.08	.27	.00	.78	28	89	4.2	3.8	17	8.2	2.2	.09
21	.07	.41	.04	.70	20	44	4.9	1.3	12	2.3	2.4	.11
22	.08	1.9	.60	.85	13	20	4.7	1.0	9.6	14	1.3	.40
23	.09	.61	.06	20	9.2	13	4.0	92	70	8.3	.60	.23
24	.09	.36	3.8	11	7.0	9.1	3.1	44	17	3.2	.76	.19
25	.10	e.26	3.3	6.6	4.5	6.7	2.8	13	9.7	1.9	.63	.14
26	.13	e.19	.18	5.8	3.4	5.4	2.7	6.5	6.9	1.0	.23	.09
27	.18	e.14	.26	2.4	2.6	4.3	2.0	4.4	5.6	1.7	.63	.06
28	.24	e.16	.05	1.7	1.0	9.3	1.3	3.0	4.6	3.0	.16	.04
29	.19	e.35	.03	1.4	---	7.1	1.8	2.2	4.0	1.2	.10	.02
30	.25	12	.01	.72	---	4.9	30	2.7	6.9	1.4	.07	.02
31	.23	---	.00	.59	---	8.5	---	1.4	---	.77	.03	---
TOTAL	3.73	23.94	10.15	243.60	177.03	718.25	521.5	540.3	787.46	117.00	88.60	1.66
MEAN	.12	.80	.33	7.86	6.32	23.2	17.4	17.4	26.2	3.77	2.86	.055
MAX	1.3	12	3.8	62	36	125	172	151	179	18	30	.40
MIN	.00	.14	.00	.00	.23	.41	1.3	1.0	.61	.50	.03	.00
CFSM	.02	.14	.06	1.37	1.10	4.03	3.02	3.03	4.56	.66	.50	.01
IN.	.02	.15	.07	1.58	1.15	4.65	3.37	3.50	5.09	.76	.57	.01

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1998, BY WATER YEAR (WY)

	1990	1991	1992	1993	1994	1995	1996	1997	1998
MEAN	2.87	13.5	9.37	11.2	8.75	13.4	15.8	15.2	11.2
MAX	6.73	38.1	34.3	16.6	23.2	26.9	31.8	48.0	26.2
(WY)	1994	1994	1991	1996	1990	1991	1996	1998	1992
MIN	.12	.80	.33	4.39	2.98	3.67	3.32	2.61	.18
(WY)	1998	1998	1998	1992	1996	1994	1997	1993	1991

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1990 - 1998
ANNUAL TOTAL	2037.00	3233.22	
ANNUAL MEAN	5.58	8.86	9.45
HIGHEST ANNUAL MEAN			12.0
LOWEST ANNUAL MEAN			5.92
HIGHEST DAILY MEAN	185 Jan 22	179 Jun 15	531 Nov 14 1993
LOWEST DAILY MEAN	.00 Sep 28	.00 Oct 1	.00 Jun 27 1991
ANNUAL SEVEN-DAY MINIMUM	.00 Sep 28	.00 Oct 1	.00 Jun 27 1991
INSTANTANEOUS PEAK FLOW		585 Jun 14	1260 Jul 9 1992
INSTANTANEOUS PEAK STAGE		8.07 Jun 14	8.93 Jul 9 1992
ANNUAL RUNOFF (CFSM)	.97	1.54	1.64
ANNUAL RUNOFF (INCHES)	13.18	20.92	22.32
10 PERCENT EXCEEDS	11	22	19
50 PERCENT EXCEEDS	1.6	1.2	2.7
90 PERCENT EXCEEDS	.05	.01	.12

e Estimated

## 03353635 DERBYSHIRE CREEK AT SOUTHPORT, IN

LOCATION.--Lat 39°40'15", long 86°07'21", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.07, T.14 N., R.04 E., Marion County Hydrologic Unit 05120201, on left bank, 10 ft downstream from bridge on Derbyshire Road, and 0.3 mi upstream from mouth.

DRAINAGE AREA.--1.76 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1989 to current year.

REVISED RECORDS.--WDR IN-95-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 746.37 ft above sea level.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.05	.31	.63	e.22	.60	.87	4.8	5.1	1.4	1.1	.48	.36
2	.05	.24	.37	e.23	.55	.87	2.7	3.5	1.2	.96	.43	.37
3	.04	.22	.42	.24	.55	.84	2.4	6.5	1.2	.88	.47	.34
4	.04	.16	.41	.24	.58	.83	2.3	6.6	1.1	4.6	.47	.34
5	.03	.13	.34	1.0	.57	.78	1.9	3.3	1.9	1.3	.46	.33
6	.06	.12	.29	2.0	.55	.78	1.7	2.5	1.3	1.0	8.2	.33
7	.05	.12	.24	4.6	.55	.78	1.6	34	1.1	2.4	2.9	.34
8	.06	.10	.24	11	.55	2.6	3.5	12	1.1	1.6	1.7	.32
9	.17	.10	.25	2.8	.51	20	45	5.3	9.2	1.1	1.1	.30
10	.08	.10	.55	1.7	.48	4.1	12	3.4	3.1	.88	.88	.30
11	.05	.10	.34	1.4	.79	2.7	4.6	2.6	18	.84	.79	.29
12	.06	.10	.28	1.2	.79	2.0	3.4	2.1	40	.76	.70	.29
13	.35	.11	.24	1.1	.63	1.7	2.9	3.8	21	.71	.66	.26
14	.31	.20	.24	e.96	.55	1.5	2.8	2.2	65	.66	.64	.26
15	.10	.24	.23	e.90	.55	1.2	2.7	1.8	84	.66	.61	.32
16	.08	.22	.23	e.82	.56	1.2	16	1.5	23	.64	.92	.38
17	.08	.16	.21	e.76	2.4	5.7	4.4	1.3	5.3	.59	.67	.33
18	.07	.15	.19	e.70	2.5	25	3.0	1.2	3.3	.57	.60	.30
19	.06	.17	.17	e.66	1.8	12	2.5	2.0	12	.58	.57	.28
20	.06	.16	.17	e.62	2.0	28	2.1	2.0	4.5	4.3	.53	.52
21	.06	.32	.17	e.60	1.7	11	2.2	1.2	3.3	.94	.51	.97
22	.06	.48	.75	e.70	1.4	4.2	2.1	1.2	2.5	.79	.51	.56
23	.06	.23	.38	1.9	1.2	3.1	1.9	45	23	.81	.49	.35
24	.04	.20	1.1	1.3	1.2	2.8	1.7	17	3.7	.66	.74	.31
25	.06	.16	.95	1.1	1.1	2.3	1.6	5.1	2.3	.59	.59	.29
26	.05	.15	.53	.91	.98	2.1	1.6	3.3	1.8	.58	.47	.29
27	.06	.15	.42	.84	1.0	1.8	1.4	2.5	1.5	.56	.42	.26
28	.04	.17	.37	.78	.91	5.1	1.3	2.0	1.3	.55	.42	.27
29	.04	.23	.32	.72	---	3.3	1.6	1.7	1.4	.58	.41	.25
30	.04	1.8	e.28	.69	---	2.3	11	2.0	1.3	.61	.39	.24
31	.06	---	e.25	.60	---	3.9	---	1.6	---	.54	.39	---
TOTAL	2.42	7.10	11.56	43.29	27.55	155.35	148.7	185.3	340.8	33.34	29.12	10.35
MEAN	.078	.24	.37	1.40	.98	5.01	4.96	5.98	11.4	1.08	.94	.34
MAX	.35	1.8	1.1	11	2.5	28	45	45	84	4.6	8.2	.97
MIN	.03	.10	.17	.22	.48	.78	1.3	1.2	1.1	.54	.39	.24
CFSM	.04	.13	.21	.79	.56	2.85	2.82	3.40	6.45	.61	.53	.20
IN.	.05	.15	.24	.91	.58	3.28	3.14	3.92	7.20	.70	.62	.22

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1998, BY WATER YEAR (WY)

	MEAN	MAX	(WY)	MIN	(WY)
1990	.77	2.49	1991	.078	1998
1991	3.68	11.9	1994	.24	1998
1992	3.39	17.0	1991	.37	1998
1993	3.42	6.49	1997	1.00	1995
1994	3.34	13.1	1990	.98	1998
1995	4.40	8.25	1991	.87	1994
1996	4.49	7.78	1996	1.52	1997
1997	4.65	12.2	1996	.74	1992
1998	3.17	11.4	1998	.28	1991
1999	2.26	10.8	1992	.26	1991
2000	.85	2.54	1990	.17	1991
2001	.73	2.30	1993	.052	1991

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1990 - 1998
ANNUAL TOTAL	694.85	994.88	
ANNUAL MEAN	1.90	2.73	2.92
HIGHEST ANNUAL MEAN			4.25
LOWEST ANNUAL MEAN			1.60
HIGHEST DAILY MEAN	58	84	273
LOWEST DAILY MEAN	.03	.03	.03
ANNUAL SEVEN-DAY MINIMUM	.04	.05	.04
INSTANTANEOUS PEAK FLOW		482	1010
INSTANTANEOUS PEAK STAGE		4.57	5.14
ANNUAL RUNOFF (CFSM)	1.08	1.55	1.66
ANNUAL RUNOFF (INCHES)	14.69	21.03	22.58
10 PERCENT EXCEEDS	3.7	4.5	5.2
50 PERCENT EXCEEDS	.62	.75	.98
90 PERCENT EXCEEDS	.06	.13	.21

e Estimated

03353636 LITTLE BUCK CREEK AT SOUTHPORT, IN

LOCATION.--Lat 39°39'54", long 86°08'11", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.7, T.14 N., R.4 E., Marion County, Hydrologic Unit 05120201, on left bank 50 ft downstream from Southport Road bridge in Indianapolis.

DRAINAGE AREA.--10.8 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1989 to current year.

REVISED RECORDS.--WDR IN-95-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 725.50 ft above sea level.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.10	2.7	6.3	e.72	2.9	5.1	48	38	6.7	8.4	1.8	.51
2	.12	1.8	3.0	e.76	2.8	4.8	26	27	5.0	5.2	1.3	.54
3	.11	1.4	2.6	.80	2.4	4.8	21	39	4.6	4.0	1.3	.49
4	.13	.86	3.0	.75	2.4	5.2	22	51	4.6	52	1.2	.43
5	.15	.54	2.2	5.0	2.6	5.1	17	26	12	19	2.7	.43
6	.15	.36	1.7	16	2.6	4.2	16	19	8.0	10	40	.43
7	.21	.29	1.5	38	2.5	3.9	14	260	5.2	16	56	.41
8	.21	.29	1.3	81	2.3	20	29	102	4.2	20	37	.43
9	1.2	.28	.96	27	2.1	164	335	47	66	11	17	.46
10	.57	.25	2.5	15	2.2	47	105	28	26	7.6	11	.42
11	.14	.26	2.1	11	4.4	28	41	20	91	5.7	6.5	.39
12	.11	.27	1.5	8.6	6.1	20	26	17	172	4.4	4.0	.36
13	3.3	.38	1.1	8.2	4.3	17	21	24	142	4.3	3.1	.31
14	4.4	1.4	.97	e6.0	3.7	15	20	15	183	4.1	2.6	.28
15	1.8	1.9	.85	e5.0	3.0	12	19	12	530	4.1	2.2	.31
16	.80	1.8	.74	e4.4	3.0	11	130	10	162	3.1	3.7	.57
17	.53	1.2	.65	e4.0	19	42	38	7.2	61	2.4	2.9	.50
18	.40	.95	.60	e3.6	26	166	24	5.5	37	2.0	2.1	.46
19	.34	.92	.55	e3.3	17	116	18	8.8	100	1.9	1.9	.34
20	.25	.84	.51	e3.1	19	175	15	14	40	40	2.2	3.3
21	.25	2.1	.50	e2.9	15	84	17	7.2	27	14	2.9	3.5
22	.31	3.4	3.7	e3.5	12	42	17	5.8	18	18	2.4	1.7
23	.32	1.5	2.3	16	10	31	14	203	147	21	1.4	.89
24	.72	.94	6.3	11	8.6	26	12	104	38	10	2.6	.56
25	.76	.71	8.9	8.1	7.3	21	11	37	21	6.0	3.3	.38
26	.99	.66	3.8	6.9	6.8	19	11	22	15	3.8	1.6	.30
27	1.1	.47	2.4	5.1	6.9	16	8.6	16	12	2.9	1.3	.22
28	e.90	.53	2.0	4.5	5.8	30	6.9	13	9.9	4.8	1.3	.19
29	e.80	.70	1.6	4.1	---	24	9.0	10	8.8	2.6	---	.94
30	e.74	16	1.3	3.6	---	18	65	13	14	3.4	.73	.17
31	e.70	---	e1.0	3.3	---	24	---	8.4	---	2.6	.62	---
TOTAL	22.61	45.70	68.43	311.23	202.7	1201.1	1156.5	1209.9	1971.0	314.3	219.59	19.45
MEAN	.73	1.52	2.21	10.0	7.24	38.7	38.5	39.0	65.7	10.1	7.08	.65
MAX	4.4	16	8.9	81	26	175	335	260	530	52	56	3.5
MIN	.10	.25	.50	.72	2.1	3.9	6.9	5.5	4.2	1.9	.62	.17
CFSM	.07	.14	.20	.93	.67	3.59	3.57	3.61	6.08	.94	.66	.06
IN.	.08	.16	.24	1.07	.70	4.14	3.98	4.17	6.79	1.08	.76	.07

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1998, BY WATER YEAR (WY)

	1990	1991	1992	1993	1994	1995	1996	1997	1998
MEAN	5.41	22.9	18.2	19.4	17.5	26.5	29.7	28.3	21.1
MAX	14.0	68.9	72.5	34.8	48.1	53.8	50.4	73.9	65.7
(WY)	1991	1994	1991	1997	1990	1991	1996	1996	1998
MIN	.73	1.52	2.21	7.58	6.38	7.12	9.67	5.95	1.68
(WY)	1998	1998	1998	1995	1996	1994	1997	1993	1991

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1990 - 1998

ANNUAL TOTAL	4330.67	6742.51	
ANNUAL MEAN	11.9	18.5	17.8
HIGHEST ANNUAL MEAN			19.9
LOWEST ANNUAL MEAN			10.8
HIGHEST DAILY MEAN	300	530	1110
LOWEST DAILY MEAN	.09	.10	.09
ANNUAL SEVEN-DAY MINIMUM	.11	.14	.11
INSTANTANEOUS PEAK FLOW		1140	2120
INSTANTANEOUS PEAK STAGE		8.50	10.63
ANNUAL RUNOFF (CFSM)	1.10	1.71	1.64
ANNUAL RUNOFF (INCHES)	14.92	23.22	22.33
10 PERCENT EXCEEDS	27	39	35
50 PERCENT EXCEEDS	4.1	4.2	6.4
90 PERCENT EXCEEDS	.29	.41	.70

e Estimated

## WABASH RIVER BASIN

03353637 LITTLE BUCK CREEK NEAR INDIANAPOLIS, IN

LOCATION.--Lat 39°40'00", long 86°11'48", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.10, T.14 N., R.3 E., Marion County, Hydrologic Unit 05120201, on right bank, 10 ft upstream from bridge on South Belmont Street, and 2.2 mi above mouth.

DRAINAGE AREA.--17.0 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1989 to current year.

REVISED RECORDS.--WDR IN-95-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 666.20 above sea level.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	5.1	e.13	2.4	3.9	50	43	14	9.8	3.0	.25
2	.00	.00	1.3	.09	2.2	3.5	27	30	12	6.4	2.2	.20
3	.00	.00	.92	.00	1.9	3.5	20	34	10	5.1	1.3	.08
4	.00	.00	1.2	.00	1.8	3.8	22	59	10	55	1.4	.01
5	.00	.00	.89	2.2	1.9	4.0	17	27	19	18	1.5	.00
6	.00	.00	.73	13	1.9	3.2	14	21	15	9.7	55	.00
7	.00	.00	.48	33	1.8	2.8	12	243	11	18	60	.00
8	.00	.00	.34	95	1.6	13	29	125	9.1	18	41	.00
9	.00	.00	.20	35	1.5	157	305	64	74	9.7	18	.00
10	.00	.00	.89	18	1.5	53	127	44	35	7.4	12	.00
11	.00	.00	.85	12	3.3	30	51	35	81	5.7	7.7	.00
12	.00	.00	.52	8.8	5.3	25	34	30	144	4.6	4.9	.00
13	.92	.00	.32	9.0	3.5	18	28	37	181	4.3	3.6	.00
14	2.0	.00	.10	e6.6	2.9	15	28	27	192	4.1	3.0	.00
15	.00	.00	.00	e5.2	2.1	11	24	23	665	3.9	2.4	.00
16	.00	.00	.00	e4.5	2.1	9.4	138	20	209	3.1	2.3	.00
17	.00	.00	.00	e4.0	11	34	48	15	76	3.3	3.7	.00
18	.00	.00	.00	e3.5	27	142	30	12	48	2.1	2.0	.00
19	.00	.00	.00	e3.2	19	139	24	17	112	2.1	e1.9	.00
20	.00	.00	.00	2.9	18	174	19	31	50	44	e2.0	.89
21	.00	.00	.00	2.6	16	101	20	15	38	11	e2.8	2.6
22	.00	2.4	1.3	2.8	12	46	20	13	29	15	e2.3	.91
23	.00	.55	.96	16	9.0	33	18	219	143	18	e1.4	.24
24	.00	.00	3.3	13	7.4	28	14	131	43	8.1	e2.4	.00
25	.00	.00	7.0	8.7	6.4	22	13	54	27	5.1	e3.2	.00
26	.00	.00	2.2	6.6	5.4	19	13	37	19	3.5	1.3	.00
27	.00	.00	1.2	5.4	5.5	16	10	29	14	2.8	.94	.00
28	.00	.00	e.80	4.3	4.5	31	8.0	24	12	3.9	1.0	.00
29	.00	.00	e.50	3.9	---	25	12	20	11	3.6	.80	.00
30	.00	13	e.30	3.3	---	18	78	22	17	2.9	.55	.00
31	.00	---	e.19	2.7	---	20	---	17	---	3.7	.31	---
TOTAL	2.92	15.95	31.59	325.42	178.9	1204.1	1253.0	1518	2320.1	311.9	245.90	5.18
MEAN	.094	.53	1.02	10.5	6.39	38.8	41.8	49.0	77.3	10.1	7.93	.17
MAX	2.0	13	7.0	95	27	174	305	243	665	55	60	2.6
MIN	.00	.00	.00	.00	1.5	2.8	8.0	12	9.1	2.1	.31	.00
CFSM	.01	.03	.06	.62	.38	2.28	2.46	2.88	4.55	.59	.47	.01
IN.	.01	.03	.07	.71	.39	2.63	2.74	3.32	5.08	.68	.54	.01

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1998, BY WATER YEAR (WY)

	MEAN	7.20	31.3	23.9	26.6	22.3	33.0	38.4	37.4	28.1	19.1	6.80	6.45
MAX	20.6	91.9	99.4	50.1	54.5	68.0	63.7	105	77.3	85.7	18.3	28.6	
(WY)	1991	1994	1991	1993	1990	1991	1996	1996	1998	1992	1990	1993	
MIN	.094	.53	1.02	8.93	6.39	9.58	14.1	9.22	4.99	2.67	1.35	.13	
(WY)	1998	1998	1998	1995	1998	1994	1997	1992	1991	1991	1991	1991	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1990 - 1998
ANNUAL TOTAL	5043.94	7412.96	
ANNUAL MEAN	13.8	20.3	23.4
HIGHEST ANNUAL MEAN			30.3
LOWEST ANNUAL MEAN			11.9
HIGHEST DAILY MEAN	330	665	1390
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
INSTANTANEOUS PEAK FLOW		1340	2300
INSTANTANEOUS PEAK STAGE		8.76	11.21
ANNUAL RUNOFF (CFSM)	.81	1.19	1.37
ANNUAL RUNOFF (INCHES)	11.04	16.22	18.67
10 PERCENT EXCEEDS	35	47	48
50 PERCENT EXCEEDS	4.8	3.7	9.3
90 PERCENT EXCEEDS	.00	.00	.20

e Estimated



03353700 WEST FORK WHITE LICK CREEK AT DANVILLE, IN

LOCATION.--Lat 39°45'39", long 86°30'54", in NW¼NE¼ sec.10, T.15 N., R.1 W., Hendricks County, Hydrologic Unit 05120201, 600 ft upstream of U.S. Highway 36 bridge, at Danville Filtration Plant, 0.6 mi upstream from small left bank tributary, and 7 mi west of Avon.

DRAINAGE AREA.--28.8 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1958 to current year.

REVISED RECORDS.--WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 828.83 ft above sea level. Prior to Oct. 23, 1968, nonrecording gage and crest-stage gage on upstream side of bridge at same datum. Oct. 23, 1968, to Aug. 6, 1970, water-stage recorder on upstream side of bridge at same datum. Aug. 7, 1970 to Nov. 14, 1994, water-stage recorder on downstream side of bridge at same datum.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 28, 1957, reached a stage of 16.0 ft, from floodmarks, discharge, 6,660 ft<sup>3</sup>/s, from contracted-opening measurement.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.30	.84	.26	e.08	7.0	8.9	75	198	17	33	1.4	.30
2	.16	.54	.19	e.10	6.5	6.7	44	106	13	23	1.1	.28
3	.14	.37	.38	.13	5.1	6.6	34	67	9.8	17	1.1	.21
4	.11	.34	.22	.18	5.1	6.3	32	47	9.7	255	1.0	.21
5	.09	.29	.18	e.40	5.3	5.9	25	33	14	82	1.4	.19
6	.10	.25	.13	e.80	4.5	5.5	22	27	11	45	2.8	.17
7	.12	.23	.11	e20	4.1	5.3	21	220	8.4	54	5.5	.18
8	.11	e.20	.15	174	3.9	21	73	217	8.5	62	6.1	.20
9	.29	e.18	.11	95	3.7	227	192	121	64	34	5.4	.17
10	.29	e.16	.10	44	3.6	125	156	78	47	24	3.3	.14
11	.16	e.14	e.10	23	5.3	71	83	50	274	17	2.0	.14
12	.12	e.12	e.10	17	5.9	e45	55	34	557	13	1.4	.13
13	.84	e.17	e.09	13	4.3	e36	44	37	272	11	1.1	.11
14	.56	.35	e.09	17	4.1	e32	66	27	483	8.8	.97	.16
15	.26	.38	e.09	12	3.8	30	53	22	1570	8.0	.82	.12
16	.20	.35	e.09	9.0	4.2	27	165	18	313	7.2	.88	.23
17	.18	.30	e.09	7.4	16	101	79	14	168	5.8	.95	.33
18	e.16	e.23	e.08	5.8	36	389	48	13	106	4.8	1.1	.25
19	e.14	e.18	e.08	e4.8	21	248	36	14	288	4.3	.58	.18
20	e.12	e.15	e.08	e4.2	21	494	26	19	121	45	.48	.16
21	e.11	.57	e.16	e3.8	21	271	24	13	82	12	.42	.31
22	e.10	.55	1.4	e4.5	17	128	24	12	69	7.6	.44	.97
23	e.10	.26	.92	33	16	86	22	175	309	9.2	.49	.18
24	e.16	.14	.40	26	13	61	18	219	117	5.4	1.2	.13
25	.30	e.11	.23	16	11	46	17	99	75	3.7	1.2	.13
26	.75	e.10	.25	13	10	38	15	56	52	3.0	.63	.09
27	.48	e.10	.19	12	11	31	11	34	39	2.6	.43	.06
28	.27	e.11	.14	13	8.1	55	8.6	24	29	2.3	.40	e.04
29	e.15	e.12	e.12	12	---	47	13	18	45	2.0	.38	e.03
30	e.11	1.4	e.10	8.9	---	36	81	46	63	1.9	.32	e.02
31	e.25	---	e.09	7.4	---	35	---	29	---	1.8	.28	---
TOTAL	7.23	9.23	6.72	597.49	277.5	2725.2	1562.6	2087	5234.4	805.4	45.57	5.82
MEAN	.23	.31	.22	19.3	9.91	87.9	52.1	67.3	174	26.0	1.47	.19
MAX	.84	1.4	1.4	174	36	494	192	220	1570	255	6.1	.97
MIN	.09	.10	.08	.08	3.6	5.3	8.6	12	8.4	1.8	.28	.02
CFSM	.01	.01	.01	.67	.34	3.05	1.81	2.34	6.06	.90	.05	.01
IN.	.01	.01	.01	.77	.36	3.52	2.02	2.70	6.76	1.04	.06	.01

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 1998, BY WATER YEAR (WY)

	8.89	29.0	38.9	37.0	47.8	61.6	52.4	39.8	22.9	19.5	8.24	6.29
MEAN	8.89	29.0	38.9	37.0	47.8	61.6	52.4	39.8	22.9	19.5	8.24	6.29
MAX	82.0	156	154	131	151	145	123	178	174	134	69.4	109
(WY)	1987	1986	1991	1974	1990	1978	1996	1996	1998	1979	1979	1989
MIN	.000	.053	.035	.062	2.82	8.86	9.14	3.87	.51	.14	.026	.003
(WY)	1965	1965	1964	1977	1964	1994	1971	1976	1988	1991	1964	1963

SUMMARY STATISTICS FOR 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1959 - 1998

	10648.58	13364.16	31.0	
ANNUAL TOTAL	10648.58	13364.16	31.0	
ANNUAL MEAN	29.2	36.6	55.7	1973
HIGHEST ANNUAL MEAN			6.35	1966
LOWEST ANNUAL MEAN				
HIGHEST DAILY MEAN	2030	1570	2030	Feb 27 1997
LOWEST DAILY MEAN	.08	.02	.00	Oct 3 1960
ANNUAL SEVEN-DAY MINIMUM	.09	.07	.00	Oct 3 1960
INSTANTANEOUS PEAK FLOW		4220	5120	Jun 15 1997
INSTANTANEOUS PEAK STAGE		11.18	12.13	Jul 13 1979
ANNUAL RUNOFF (CFSM)	1.01	1.27	1.08	
ANNUAL RUNOFF (INCHES)	13.75	17.26	14.62	
10 PERCENT EXCEEDS	64	82	72	
50 PERCENT EXCEEDS	6.2	5.3	8.2	
90 PERCENT EXCEEDS	.14	.12	.19	

e Estimated

## WABASH RIVER BASIN

03353800 WHITE LICK CREEK AT MOORESVILLE, IN

LOCATION.--Lat 39°36'28", long 86°22'56", in NE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.35, T.14 N., R.1 E., Morgan County, Hydrologic Unit 05120201, on right bank at downstream side of bridge on State Highway 42 at Mooresville, 0.9 mi downstream from McCracken Creek, 2.0 mi upstream from East Fork White Lick Creek, and at mile 11.4.

DRAINAGE AREA.--212 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1957 to current year.

GAGE.--Water-stage recorder. Datum of gage is 644.64 ft above sea level. Dec. 10, 1963 to Sept. 30, 1964, nonrecording gage at bridge 1,950 ft upstream at datum 1.39 ft higher.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Pumpage from a well field above gage affects low flows.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 28, 1957, reached a stage of 22.5 ft, from levels to high-water mark by State of Indiana, Department of Natural Resources.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e6.2	e6.0	e28	e15	48	40	477	1040	222	258	48	23
2	e6.0	e7.6	e26	e16	45	40	344	771	176	173	44	23
3	e5.8	e12	e23	17	42	39	253	504	141	136	42	23
4	e5.6	e10	e22	17	40	37	257	395	118	1370	41	23
5	e5.4	e9.5	e22	20	40	36	207	299	142	640	42	22
6	e5.2	e9.4	20	75	38	34	182	235	131	332	51	22
7	e5.1	e9.2	19	104	37	33	170	957	95	268	61	22
8	e5.0	e8.6	18	438	35	61	377	1740	89	497	196	22
9	e5.2	e8.2	17	455	34	584	1200	941	434	335	154	21
10	e8.2	e8.0	22	204	34	685	1410	602	449	220	83	20
11	e5.0	e7.8	27	124	36	353	692	410	886	165	65	20
12	e4.5	e7.6	25	90	44	e200	450	295	2700	132	56	20
13	e5.0	e7.4	22	e74	42	e160	337	258	2140	113	48	19
14	e10	e8.4	20	e62	37	e140	394	214	916	100	44	19
15	e8.0	e10	19	e62	35	e120	346	172	6210	92	41	19
16	e5.4	e14	18	e58	35	108	1160	147	2870	88	39	19
17	e4.8	e11	e17	e54	53	166	746	122	1300	83	37	19
18	e4.5	e10	e16	e50	128	1280	430	106	738	77	37	20
19	e4.4	e9.2	e15	e47	93	1770	e300	105	1870	73	37	19
20	e4.3	e11	e15	e45	82	2040	e240	320	911	325	34	18
21	e4.2	e14	e16	e43	83	2090	e210	213	566	198	32	20
22	e4.1	e18	22	42	71	920	e260	149	453	92	31	27
23	e4.0	e15	25	95	64	599	e530	738	1810	145	29	27
24	e4.2	e14	28	127	58	447	313	1810	857	107	29	24
25	e4.5	e13	44	96	52	368	239	769	483	73	33	22
26	e5.2	e12	33	78	46	297	214	444	330	63	32	20
27	e8.0	e11	27	70	45	249	175	297	248	57	28	19
28	e6.2	e13	23	67	43	291	147	217	196	54	27	17
29	e5.4	e15	e20	62	---	332	152	177	180	51	27	16
30	e5.2	e21	e18	58	---	259	482	204	425	50	25	e15
31	e5.0	---	e16	52	---	233	---	187	---	50	24	---
TOTAL	169.6	330.9	683	2817	1440	14011	12694	14838	28086	6417	1517	620
MEAN	5.47	11.0	22.0	90.9	51.4	452	423	479	936	207	48.9	20.7
MAX	10	21	44	455	128	2090	1410	1810	6210	1370	196	27
MIN	4.0	6.0	15	15	34	33	147	105	89	50	24	15
CFSM	.03	.05	.10	.43	.24	2.13	2.00	2.26	4.42	.98	.23	.10
IN.	.03	.06	.12	.49	.25	2.46	2.23	2.60	4.93	1.13	.27	.11

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 1998, BY WATER YEAR (WY)

	MEAN	66.1	203	270	258	324	434	383	299	175	146	81.2	57.1
MAX	547	1193	975	845	942	1154	1328	1062	936	764	567	712	
(WY)	1987	1994	1991	1969	1971	1963	1964	1996	1998	1979	1979	1989	
MIN	5.47	9.86	8.83	9.60	35.7	98.2	83.1	46.3	12.9	11.7	5.10	3.51	
(WY)	1998	1968	1964	1977	1964	1966	1971	1976	1988	1966	1966	1991	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1957 - 1998
ANNUAL TOTAL	71594.1	83623.5	
ANNUAL MEAN	196	229	225
HIGHEST ANNUAL MEAN			372
LOWEST ANNUAL MEAN			51.1
HIGHEST DAILY MEAN	5880	6210	12100
LOWEST DAILY MEAN	4.0	4.0	.68
ANNUAL SEVEN-DAY MINIMUM	4.2	4.2	1.8
INSTANTANEOUS PEAK FLOW		8790	19000
INSTANTANEOUS PEAK STAGE		19.23	23.31
ANNUAL RUNOFF (CFSM)	.93	1.08	1.06
ANNUAL RUNOFF (INCHES)	12.56	14.67	14.42
10 PERCENT EXCEEDS	452	573	481
50 PERCENT EXCEEDS	70	50	89
90 PERCENT EXCEEDS	7.7	8.2	13

e Estimated

## WABASH RIVER BASIN

137

03354000 WHITE RIVER NEAR CENTERTON, IN

(Former National stream-quality accounting network station)

LOCATION.--Lat 39°29'51", long 86°24'02", in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.10, T.12 N., R.1 E., Morgan County, Hydrologic Unit 05120201, on right bank at upstream side of bridge on Blue Bluff Road, 0.8 mi downstream from White Lick Creek, 1 mi south of Centerton, and at mile 199.3.

DRAINAGE AREA.--2,444 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1925 to September 1930 (gage heights only), October 1930 to March 1932, October 1946 to current year. Monthly discharge only for October and November 1946, published in WSP 1305. Published as West Fork White River at Martinsville prior to March 1932, and as West Fork White River near Centerton October 1946 to September 1948.

REVISED RECORDS.--WSP 1335: 1948-49. WSP 1909: 1931(M). WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 595.44 ft above sea level (Corps of Engineers bench mark), levels by Indianapolis Power and Light Co. See WSP 1725 for history of changes prior to July 1953. July 1953 to Aug. 7, 1975, water-stage recorder at site 0.4 mi downstream at same datum.

REMARKS.--Records good. Flow regulated by upstream reservoirs.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of 22.8 ft at Martinsville site (from information by Indiana State Highway Commission) and 21.9 ft at site 0.4 mi downstream (from information by Corps of Engineers), discharge, 90,000 ft<sup>3</sup>/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	385	426	876	462	802	1040	4470	6880	2660	3160	1580	698
2	379	597	671	453	766	981	4110	7640	2530	3170	1430	663
3	370	553	604	444	740	945	4000	6680	2350	2620	1300	652
4	378	474	628	433	722	889	3560	5590	2020	5530	1220	645
5	376	439	579	437	757	898	2870	5050	2030	4270	1290	607
6	353	420	527	800	730	859	2470	4430	2310	4210	3410	593
7	356	400	492	1090	661	806	2240	6140	1770	3730	6640	608
8	352	383	459	2730	623	929	2670	12900	1560	3580	7060	628
9	350	379	463	3260	592	3520	6700	13300	2930	5590	6290	648
10	474	366	483	3660	584	4990	12300	10800	3620	5270	4630	612
11	415	365	572	2690	583	5920	13300	6820	4740	3440	3280	570
12	376	354	541	1900	742	4190	13300	5050	14000	2660	2590	555
13	378	362	498	1550	720	3010	8880	4230	22100	2230	2170	517
14	656	384	461	1340	683	2440	5910	3620	25700	1960	1820	502
15	592	532	459	1210	643	2130	5190	2970	35900	1790	1600	506
16	502	531	468	1160	632	1930	8870	2580	37100	1670	1450	524
17	465	482	450	1070	731	1990	6560	2420	27900	1550	1680	531
18	426	469	431	979	1340	5570	5560	2230	22400	1440	1400	519
19	400	459	418	904	1300	10100	4630	1970	20100	1400	1250	495
20	386	449	390	862	2540	11900	3840	2770	15200	3390	1130	494
21	365	448	385	812	2460	16100	3240	2840	10800	2640	1030	540
22	353	515	424	778	2110	12800	3120	2230	7410	2060	954	658
23	330	507	617	999	1870	9280	3480	3820	10800	4560	910	712
24	341	469	545	1110	1620	6650	3540	9670	8100	9130	874	582
25	374	471	764	1030	1430	5090	3050	8270	5520	8680	953	537
26	372	459	725	1000	1280	4330	2800	7430	4470	4440	913	505
27	411	444	654	967	1170	3760	2600	4740	3810	3150	917	475
28	416	411	643	912	1100	3680	2460	3630	3440	2520	863	450
29	396	438	624	870	---	4150	2360	2990	2980	2110	818	420
30	388	577	566	850	---	4630	4260	2950	3170	1890	769	419
31	382	---	500	837	---	4150	---	2630	---	1730	735	---
TOTAL	12497	13563	16917	37599	29931	139657	152340	165270	309420	105570	62956	16865
MEAN	403	452	546	1213	1069	4505	5078	5331	10310	3405	2031	562
MAX	656	597	876	3660	2540	16100	13300	13300	37100	9130	7060	712
MIN	330	354	385	433	583	806	2240	1970	1560	1400	735	419
CFSM	.16	.18	.22	.50	.44	1.84	2.08	2.18	4.22	1.39	.83	.23
IN.	.19	.21	.26	.57	.46	2.13	2.32	2.52	4.71	1.61	.96	.26

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1948 - 1998, BY WATER YEAR (WY)

	MEAN	830	1880	2600	3287	3762	4641	4392	3115	2518	1852	1135	894
MAX	3709	11760	8248	17760	10430	10390	11530	11280	10310	6629	6001	8417	
(WY)	1987	1994	1958	1950	1950	1963	1964	1996	1998	1979	1979	1989	
MIN	281	320	305	302	460	1207	1097	799	419	344	338	213	
(WY)	1964	1954	1964	1977	1964	1966	1971	1976	1988	1954	1966	1954	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1948 - 1998
ANNUAL TOTAL	939476	1062585	2568
ANNUAL MEAN	2574	2911	4115
HIGHEST ANNUAL MEAN			812
LOWEST ANNUAL MEAN			1950
HIGHEST DAILY MEAN	22500	Mar 1	37100
LOWEST DAILY MEAN	330	Oct 23	330
ANNUAL SEVEN-DAY MINIMUM	360	Oct 20	360
INSTANTANEOUS PEAK FLOW			39600
INSTANTANEOUS PEAK STAGE			17.26
ANNUAL RUNOFF (CFSM)	1.05		1.19
ANNUAL RUNOFF (INCHES)	14.30		16.17
10 PERCENT EXCEEDS	6820		6690
50 PERCENT EXCEEDS	1270		1160
90 PERCENT EXCEEDS	409		417
			408

## WABASH RIVER BASIN

03357000 WHITE RIVER AT SPENCER, IN

LOCATION.--Lat 39°16'49", long 86°45'42", in NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.29, T.10 N., R. 3 W., Owen County, Hydrologic Unit 05120202, on right bank at upstream side of county road bridge at the south edge of Spencer, 3.3 mi upstream from McBrides Creek, and at mile 165.9.

DRAINAGE AREA.--2,988 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1925 to September 1971 (discharge), October 1971 to current year (gage heights only).

REVISED RECORDS.--WDR IN-95-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 526.04 ft above sea level. Prior to Dec. 26, 1940, nonrecording gage at same site and datum.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 23.99 ft Jan. 1, 1991; minimum gage height, 0.88 ft Sept. 25, 30, and Oct. 1, 1941.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 28.5 ft Mar. 26, 1913, from flood marks.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 22.39 ft, June 17; minimum gage height, unknown.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	2.72	3.48	2.85	3.54	4.00	8.81	12.03	6.40	7.48	4.94	3.41
2	---	2.87	3.31	2.83	3.49	3.91	8.16	12.70	6.09	7.38	4.70	3.36
3	---	2.98	3.21	---	3.43	3.85	8.08	11.41	5.87	6.74	4.51	3.32
4	---	2.89	3.15	---	3.42	3.78	7.70	10.00	5.47	10.03	4.46	3.31
5	---	2.81	3.12	---	3.42	3.75	6.90	9.03	5.39	9.06	4.38	3.28
6	---	2.77	2.97	---	3.43	3.70	6.34	8.47	5.86	8.47	6.03	3.22
7	---	2.74	2.89	---	3.34	3.65	6.01	12.84	5.15	8.66	9.84	3.24
8	---	2.71	2.83	---	3.29	3.80	6.33	15.34	4.91	8.36	10.78	3.22
9	---	2.70	2.84	---	3.23	7.69	10.20	16.40	7.60	9.50	10.09	3.26
10	---	---	2.82	---	3.21	8.98	14.10	16.09	8.01	9.62	8.71	3.23
11	---	---	---	---	3.27	9.81	15.37	12.09	7.64	7.69	7.20	3.19
12	---	---	---	---	3.61	8.28	15.61	9.47	13.35	6.72	6.34	3.15
13	---	---	2.91	---	3.68	6.91	15.00	8.32	16.01	6.10	5.76	3.13
14	---	---	2.83	---	3.55	6.16	10.63	7.59	18.70	5.71	5.28	3.09
15	---	---	2.80	---	3.41	5.68	9.74	6.82	20.72	5.47	4.96	3.08
16	2.77	---	2.80	---	3.37	5.39	14.68	6.30	22.32	5.25	4.72	3.09
17	2.68	---	2.79	---	3.54	5.42	13.86	6.00	21.95	5.03	4.94	3.10
18	2.63	---	2.76	---	4.53	9.79	11.50	5.71	20.76	4.82	4.57	3.08
19	2.58	2.83	2.74	---	4.52	13.21	9.71	5.63	20.00	4.70	4.34	3.06
20	2.55	2.83	2.70	---	5.67	14.80	8.34	6.72	19.00	7.15	4.16	3.08
21	2.51	2.85	2.69	3.63	5.92	16.62	7.51	6.62	16.95	---	4.01	3.07
22	2.48	2.85	2.71	3.62	5.45	17.29	7.21	5.92	14.67	6.15	3.89	3.18
23	2.46	2.94	2.95	3.85	5.17	15.13	7.58	10.57	15.99	7.29	3.80	3.32
24	2.46	2.88	3.03	4.18	4.85	11.30	7.53	14.26	16.18	11.31	3.72	3.18
25	2.47	2.86	3.19	4.02	4.57	9.42	6.99	13.50	10.90	12.27	3.72	3.14
26	2.56	2.84	3.39	3.95	4.36	8.46	6.87	12.36	9.27	8.63	3.62	3.07
27	2.53	2.82	3.22	3.88	4.21	7.72	6.51	9.27	8.34	7.08	3.69	3.02
28	2.60	2.80	3.16	3.79	4.13	7.65	6.23	7.79	11.35	6.29	3.66	3.00
29	2.56	2.77	3.15	3.69	---	7.93	6.01	6.91	8.82	5.72	3.59	2.97
30	2.54	2.94	3.05	3.64	---	8.28	10.87	7.22	8.31	5.51	3.53	2.94
31	2.54	---	2.95	3.61	---	8.03	---	6.76	---	5.22	3.46	---
MEAN	---	---	---	---	3.99	8.08	9.35	9.68	12.07	---	5.21	3.16
MAX	---	---	---	---	5.92	17.29	15.61	16.40	22.32	---	10.78	3.41
MIN	---	---	---	---	3.21	3.65	6.01	5.63	4.91	---	3.46	2.94

## 03357350 PLUM CREEK NEAR BAINBRIDGE, IN

LOCATION.--Lat 39°45'42", long 86°43'46", in SW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.3, T.15 N., R.3 W., Putnam County, Hydrologic Unit 05120203, on right upstream wingwall of bridge on U.S. Highway 36, 0.5 mi west of Groveland, and 4.5 mi east of Bainbridge.

DRAINAGE AREA.--3.00 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is 828.44 ft above sea level (Indiana Department of Highways bench mark).

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.50	.53	5.6	19	.83	2.5	.07	.00
2	.00	.00	.00	.00	.48	.53	3.4	7.3	.72	1.8	.03	.00
3	.00	.00	.00	.00	.48	.53	2.9	6.5	.63	1.5	.01	.00
4	.00	.00	.00	.00	.48	.53	2.9	4.7	.67	34	.01	.00
5	.00	.00	.00	.08	.48	.49	2.3	3.4	.97	6.6	.16	.00
6	.00	.00	.00	.11	.46	.45	2.1	2.8	.73	5.2	.43	.00
7	.00	.00	.00	.12	.45	.46	1.9	12	.62	21	.63	.00
8	.00	.00	.00	5.7	.43	.97	5.6	8.2	.64	9.5	.49	.00
9	.00	.00	.00	1.8	.40	8.6	8.4	5.2	3.9	5.2	.52	.00
10	.00	.00	.00	.79	.40	4.7	7.0	3.8	1.8	3.4	.34	.00
11	.00	.00	.00	.60	.45	2.8	4.5	2.9	15	2.1	.22	.00
12	.00	.00	.00	.53	.49	e1.8	3.5	2.2	31	1.3	.15	.00
13	.00	.00	.00	.53	.43	e1.5	4.0	1.8	13	1.0	.06	.00
14	.00	.00	.00	.44	.40	e1.3	6.5	1.4	60	.83	.02	.00
15	.00	.00	.00	.48	.40	e1.2	5.1	1.2	128	.77	.01	.00
16	.00	.00	.00	.46	.42	e1.1	13	.97	22	.69	.00	.00
17	.00	.00	.00	.43	.60	e5.0	5.7	.81	13	.56	.00	.00
18	.00	.00	.00	.40	.79	39	4.1	.75	11	.49	.00	.00
19	.00	.00	.00	.35	.66	13	3.3	.79	43	.43	.00	.00
20	.00	.00	.00	.32	.77	53	2.5	1.0	10	.97	.00	.00
21	.00	.00	.00	.31	.82	20	2.6	.74	7.4	.56	.00	.00
22	.00	.00	.00	.35	.76	8.6	3.2	.76	6.0	.49	.00	.00
23	.00	.00	.00	1.3	.75	6.0	2.8	11	9.9	.85	.00	.00
24	.00	.00	.00	.95	.69	4.6	2.2	9.7	6.1	.46	.00	.00
25	.00	.00	.00	.75	.62	3.9	1.9	4.2	4.7	.37	.00	.00
26	.00	.00	.00	.66	.63	3.2	1.7	2.7	3.8	.31	.00	.00
27	.00	.00	.00	.63	.62	2.7	1.2	1.9	2.9	.30	.00	.00
28	.00	.00	.00	.63	.54	4.0	1.1	1.4	2.2	.26	.00	.00
29	.00	.00	.00	.60	---	3.1	3.5	1.1	4.7	.21	.00	.00
30	.00	.00	.00	.55	---	2.5	9.3	1.0	5.0	.19	.00	.00
31	.00	---	.00	.51	---	3.0	---	.96	---	.21	.00	---
TOTAL	0.00	0.00	0.00	20.38	15.40	199.09	123.8	122.18	410.21	104.05	3.15	0.00
MEAN	.0000	.0000	.0000	.66	.55	6.42	4.13	3.94	13.7	3.36	.10	.0000
MAX	.00	.00	.00	5.7	.82	53	13	19	128	34	.63	.00
MIN	.00	.00	.00	.00	.40	.45	1.1	.74	.62	.19	.00	.00
CFSM	.00	.00	.00	.22	.18	2.14	1.38	1.31	4.56	1.12	.03	.00
IN.	.00	.00	.00	.25	.19	2.47	1.54	1.52	5.09	1.29	.04	.00

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1998, BY WATER YEAR (WY)

	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
MEAN	1.13	3.96	4.79	3.69	5.61	6.81	5.52	4.14	2.65	2.36	1.17	1.08																		
MAX	5.80	20.6	18.4	13.5	17.1	19.1	12.8	16.1	13.7	12.9	7.90	12.8																		
(WY)	1987	1986	1991	1974	1971	1978	1996	1981	1998	1979	1979	1989																		
MIN	.0000	.0000	.0000	.0000	.55	1.46	.92	.14	.007	.019	.001	.000																		
(WY)	1997	1998	1998	1977	1998	1981	1971	1976	1988	1988	1991	1988																		

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1969 - 1998
ANNUAL TOTAL	1024.42	998.26	
ANNUAL MEAN	2.81	2.73	3.55
HIGHEST ANNUAL MEAN			5.71
LOWEST ANNUAL MEAN			1.55
HIGHEST DAILY MEAN	146	128	218
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
INSTANTANEOUS PEAK FLOW		656	940
INSTANTANEOUS PEAK STAGE		5.34	6.50
ANNUAL RUNOFF (CFSM)	.94	.91	1.18
ANNUAL RUNOFF (INCHES)	12.70	12.38	16.10
10 PERCENT EXCEEDS	6.3	6.0	7.3
50 PERCENT EXCEEDS	.49	.46	.98
90 PERCENT EXCEEDS	.00	.00	.01

e Estimated



## 03357500 BIG WALNUT CREEK NEAR REELSVILLE, IN

LOCATION.--Lat 39°32'11", long 86°58'35", in NW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.28, T.13 N., R.5 W., Putnam County, Hydrologic Unit 05120203, on left bank at downstream side of county highway bridge, 1.5 mi southwest of Reelsville, and 4.1 mi upstream from Mill Creek.

DRAINAGE AREA.--326 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1949 to current year. Published as Eel River near Reelsville, October 1952 to September 1956.

REVISED RECORDS.--WSP 1335: 1950. WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 588.24 ft above sea level (levels by State of Indiana, Department of Natural Resources). Prior to Dec. 10, 1949, nonrecording gage at same site and datum.

REMARKS.--Records good except for estimated daily discharges, which are poor. Flow partly regulated by Soil Conservation Service control structures on tributaries to Little Walnut Creek beginning in 1971.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e9.0	e13	61	22	82	89	556	2390	327	831	80	30
2	e8.6	e16	45	23	77	86	521	1430	293	565	74	28
3	e8.3	e19	38	24	72	81	419	1060	237	445	69	27
4	e8.1	e24	29	24	67	80	427	812	217	1560	66	27
5	e8.0	e22	25	58	64	80	361	634	237	1170	66	26
6	e7.8	e22	23	117	62	75	321	507	213	714	99	24
7	e7.6	e19	21	120	58	69	301	739	183	981	99	27
8	e7.5	e17	20	419	54	117	468	1880	169	1680	140	25
9	e9.0	e15	19	486	51	552	953	1230	647	935	167	23
10	e7.6	e14	27	270	49	856	1300	842	558	595	141	21
11	e6.0	e14	29	184	51	517	876	615	439	412	106	20
12	e5.6	e13	28	149	57	359	610	478	2570	309	89	19
13	13	e13	e25	143	59	e300	502	397	2620	251	77	19
14	23	e20	e22	119	53	e260	694	346	1420	216	70	18
15	22	e29	e21	122	47	e225	598	300	7030	192	64	16
16	16	e31	e20	114	46	e200	1060	269	5580	175	61	16
17	13	e22	e19	100	65	388	883	241	2290	159	74	16
18	e12	e19	e18	91	104	2130	598	218	1430	143	63	16
19	e12	e16	e18	83	116	1940	482	212	3700	130	55	15
20	e11	e14	18	72	121	2490	411	294	1900	146	51	15
21	e11	e15	19	e66	123	3540	365	260	1150	152	49	15
22	e11	e29	24	72	124	1590	442	243	847	126	47	20
23	e10	e26	28	143	116	1000	385	487	1190	174	43	19
24	e15	e22	31	151	111	740	330	841	1140	184	42	17
25	e20	e20	48	144	104	594	297	700	746	137	40	17
26	e16	e18	40	123	96	511	285	473	569	113	39	19
27	e15	e17	36	110	91	443	260	353	471	101	38	18
28	e13	e16	32	102	89	459	233	289	412	94	36	e17
29	e12	e15	29	99	---	570	246	250	917	87	35	e15
30	e11	56	e25	96	---	513	575	422	1530	104	33	e14
31	e11	---	24	90	---	434	---	479	---	88	32	---
TOTAL	360.1	606	862	3936	2209	21288	15759	19691	41032	12969	2145	599
MEAN	11.6	20.2	27.8	127	78.9	687	525	635	1368	418	69.2	20.0
MAX	23	56	61	486	124	3540	1300	2390	7030	1680	167	30
MIN	5.6	13	18	22	46	69	233	212	169	87	32	14
CFSM	.04	.06	.09	.39	.24	2.11	1.61	1.95	4.20	1.28	.21	.06
IN.	.04	.07	.10	.45	.25	2.43	1.80	2.25	4.68	1.48	.24	.07

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 1998, BY WATER YEAR (WY)

	MEAN	97.1	276	403	459	515	648	596	468	335	223	125	115
MAX	642	1655	1602	2947	1402	1636	1459	1848	2183	1221	1047	1248	
(WY)	1987	1986	1991	1950	1950	1978	1957	1996	1957	1979	1979	1989	
MIN	4.79	13.7	9.71	13.6	65.1	151	142	69.5	26.7	19.4	9.49	4.76	
(WY)	1965	1964	1964	1977	1964	1966	1971	1976	1988	1954	1966	1954	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1950 - 1998
ANNUAL TOTAL	117334.1	121456.1	
ANNUAL MEAN	321	333	354
HIGHEST ANNUAL MEAN			640
LOWEST ANNUAL MEAN			76.0
HIGHEST DAILY MEAN	8640	Feb 27	18600
LOWEST DAILY MEAN	4.4	Sep 22	1.4
ANNUAL SEVEN-DAY MINIMUM	5.0	Sep 22	2.3
INSTANTANEOUS PEAK FLOW			30700
INSTANTANEOUS PEAK STAGE			18.63
ANNUAL RUNOFF (CFSM)	.99		1.09
ANNUAL RUNOFF (INCHES)	13.39		14.75
10 PERCENT EXCEEDS	740		768
50 PERCENT EXCEEDS	132		149
90 PERCENT EXCEEDS	9.2		22

e Estimated

03358000 MILL CREEK NEAR CATARACT, IN

LOCATION.--Lat 39°26'00", long 86°45'48", in NE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.32, T.12 N., R.3 W., Owen County, Hydrologic Unit 05120203, on left bank at downstream side of bridge on U.S. Highway 231, 3 mi east of Cataract, and at mile 17.5.

DRAINAGE AREA.--245 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1949 to current year.

REVISED RECORDS.--WSP 1505: 1956(P). WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 706.40 ft above sea level. Prior to Nov. 8, 1949, nonrecording gage, and Nov. 8, 1949, to Sept. 22, 1968, water-stage recorder at site 100 ft upstream at same datum.

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

EXTREMES FOR PERIOD OF RECORD.--Maximum instantaneous gage height may have occurred Dec. 30, 1990, during period of no gage height record.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.9	e3.9	35	e7.0	65	82	501	1780	192	428	31	8.7
2	2.9	e5.0	23	e8.0	62	76	337	733	152	238	26	8.3
3	e2.8	e7.6	15	8.8	54	73	250	426	122	175	24	8.1
4	e2.5	e7.8	13	8.9	50	70	350	316	114	1140	25	7.8
5	e2.4	e6.0	13	15	51	66	267	250	255	1710	25	8.0
6	e2.3	e4.9	12	109	50	61	223	209	261	451	32	7.2
7	e2.2	e4.8	10	166	46	57	198	764	156	430	141	7.9
8	e2.7	e4.3	9.7	1080	43	99	477	2490	128	538	298	8.6
9	3.7	e4.1	8.8	717	40	1480	1150	1250	1460	295	275	7.6
10	5.8	e3.9	10	277	38	961	1000	524	1370	209	153	7.1
11	5.2	e3.8	15	168	41	421	499	355	509	163	79	6.7
12	e3.5	e3.7	16	125	63	e260	348	273	991	132	51	6.4
13	5.3	e4.7	13	115	55	e220	289	225	1330	113	37	6.3
14	10	e6.4	11	84	47	e190	546	189	551	97	31	6.2
15	7.4	e9.0	9.3	110	42	176	602	164	2520	86	27	6.2
16	e5.6	e6.6	8.6	102	41	157	2630	146	4060	83	24	6.3
17	e4.6	e5.5	8.2	87	107	275	1810	123	3290	73	48	6.3
18	e4.1	e4.8	7.7	74	318	1870	571	110	1350	63	30	6.7
19	e3.8	e4.4	7.2	64	221	2690	392	103	2650	57	21	7.0
20	e3.3	e4.1	7.0	59	208	2430	297	324	1770	172	17	7.2
21	e3.2	e5.0	6.6	53	231	2930	260	221	612	200	15	8.2
22	e2.9	e5.8	8.1	53	182	1330	260	161	386	92	14	9.0
23	e2.8	e8.0	11	308	159	589	324	1450	1340	92	13	8.2
24	e3.2	e5.8	14	285	137	420	254	1590	509	82	12	7.9
25	e3.9	e5.2	39	178	120	333	205	776	309	58	12	7.8
26	e5.0	e4.7	35	137	107	291	192	417	233	48	13	6.8
27	e7.0	e4.5	23	116	106	250	160	292	188	43	11	6.2
28	e6.6	e5.6	16	104	95	257	134	225	156	39	10	5.7
29	e4.0	e7.6	e13	96	---	301	134	186	292	35	10	5.8
30	e3.4	e16	e10	83	---	238	1000	404	1410	42	9.9	5.4
31	e3.2	---	e8.4	71	---	215	---	274	---	37	9.5	---
TOTAL	128.2	173.5	436.6	4868.7	2779	18868	15660	16750	28666	7421	1524.4	215.6
MEAN	4.14	5.78	14.1	157	99.3	609	522	540	956	239	49.2	7.19
MAX	10	16	39	1080	318	2930	2630	2490	4060	1710	298	9.0
MIN	2.2	3.7	6.6	7.0	38	57	134	103	114	35	9.5	5.4
CFSM	.02	.02	.06	.64	.41	2.48	2.13	2.21	3.90	.98	.20	.03
IN.	.02	.03	.07	.74	.42	2.86	2.38	2.54	4.35	1.13	.23	.03

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 1998, BY WATER YEAR (WY)

	MEAN	58.9	235	313	343	406	508	426	338	242	187	109	78.1
MAX	435	1576	1135	2214	1088	1425	1064	1522	1120	1694	1092	918	
(WY)	1987	1994	1958	1950	1971	1963	1964	1981	1957	1979	1993	1989	
MIN	2.88	4.46	4.05	6.55	41.1	108	74.5	35.1	11.2	6.84	3.72	.91	
(WY)	1965	1965	1964	1977	1954	1994	1971	1954	1988	1954	1954	1954	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1950 - 1998
ANNUAL TOTAL	98360.5	97491.0	
ANNUAL MEAN	269	267	270
HIGHEST ANNUAL MEAN			528
LOWEST ANNUAL MEAN			37.3
HIGHEST DAILY MEAN	4820	4060	11500
LOWEST DAILY MEAN	2.2	2.2	.10
ANNUAL SEVEN-DAY MINIMUM	2.5	2.5	.20
INSTANTANEOUS PEAK FLOW		4250	12200
INSTANTANEOUS PEAK STAGE		15.24	22.58
ANNUAL RUNOFF (CFSM)	1.10	1.09	1.10
ANNUAL RUNOFF (INCHES)	14.93	14.80	14.95
10 PERCENT EXCEEDS	561	654	583
50 PERCENT EXCEEDS	72	64	81
90 PERCENT EXCEEDS	4.3	5.0	8.0

e Estimated

## WABASH RIVER BASIN

03359000 MILL CREEK NEAR MANHATTAN, IN

LOCATION.--Lat 39°29'16", long 86°55'30", in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.11, T.12 N., R.5 W., Putnam County, Hydrologic Unit 05120203, on left bank 0.3 mi upstream from Cagles Mill Dam, 0.4 mi downstream from Cagles Mill Lake, 1.3 mi upstream from Deer Creek, 5.0 mi south of Manhattan, and at mile 2.3.

DRAINAGE AREA.--294 mi<sup>2</sup>.

PERIOD OF RECORD.--May to September 1931 (fragmentary), October 1938 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 1335: 1940-41. WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 581.83 ft above sea level. May 12, 1941 to Sept. 30, 1974, water-stage recorder at site 0.3 mi downstream. See WSP 1725 for history of changes prior to May 12, 1941.

REMARKS.--Flow regulated by U.S. Army Corps of Engineers from Cagles Mill Lake since July 1953.

COOPERATION.--Records of daily discharge provided by U.S. Army Corps of Engineers beginning Oct. 1, 1976.

AVERAGE DISCHARGE.--60 years (1938 to current year), 324 ft<sup>3</sup>/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,960 ft<sup>3</sup>/s, Jan. 5, 1950, gage height, 18.38 ft; no flow Aug. 7, 1953.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 1,780 ft<sup>3</sup>/s July 21; minimum daily, 19 ft<sup>3</sup>/s Oct. 1-31, Nov. 1-7, and Sept. 9-30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	19	64	46	82	93	957	121	1180	220	157	20
2	19	19	64	46	82	99	953	122	1330	638	105	20
3	19	19	47	46	82	130	1090	123	1390	1010	105	20
4	19	19	39	41	82	126	1150	353	1370	1090	104	20
5	19	19	38	39	82	82	1260	664	1350	727	87	20
6	19	19	38	39	115	82	1360	905	1340	730	69	20
7	19	19	38	82	103	82	1350	445	1320	820	70	20
8	19	34	33	104	64	157	1020	154	1300	819	71	20
9	19	60	31	106	64	207	571	116	838	952	142	19
10	19	67	31	107	47	212	458	117	670	1260	493	19
11	19	66	31	161	31	214	460	117	672	1320	477	19
12	19	66	31	304	75	500	460	377	675	1460	154	19
13	19	66	31	427	124	906	460	865	359	1560	81	19
14	19	66	31	521	82	1030	307	1010	229	1550	65	19
15	19	53	31	631	82	822	232	1150	140	1530	50	19
16	19	47	31	625	82	410	239	1220	112	1520	50	19
17	19	47	31	501	82	205	244	1200	116	1500	50	19
18	19	47	31	223	408	176	246	1290	118	1480	50	19
19	19	47	31	85	375	121	247	1580	121	1470	50	19
20	19	47	31	65	204	126	247	854	123	1640	38	19
21	19	47	31	79	205	122	247	922	124	1780	33	19
22	19	54	31	102	307	121	247	952	124	1760	33	19
23	19	65	31	134	181	122	370	269	125	1730	33	19
24	19	65	31	325	163	122	657	110	125	1700	24	19
25	19	65	31	411	204	306	736	112	126	1670	20	19
26	19	54	31	257	122	489	1020	112	223	1470	20	19
27	19	46	31	148	82	489	1190	113	658	1290	20	19
28	19	36	31	114	82	488	1180	359	949	977	20	19
29	19	31	39	46	---	812	1160	878	452	468	20	19
30	19	53	46	114	---	968	439	1200	136	211	20	19
31	19	---	46	115	---	962	---	1190	---	210	20	---
TOTAL	589	1362	1112	6044	3694	10781	20557	19000	17795	36562	2731	578
MEAN	19.0	45.4	35.9	195	132	348	685	613	593	1179	88.1	19.3
MAX	19	67	64	631	408	1030	1360	1580	1390	1780	493	20
MIN	19	19	31	39	31	82	232	110	112	210	20	19
CAL YR 1997	TOTAL 131282	MEAN 360	MAX 1990	MIN 19								
WTR YR 1998	TOTAL 120805	MEAN 331	MAX 1780	MIN 19								

## 03360000 EEL RIVER AT BOWLING GREEN, IN

LOCATION.--Lat 39°22'58", long 87°01'14", in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.24, T.11 N., R.6 W., Clay County, Hydrologic Unit 05120203, on left bank 500 ft downstream from bridge on State Highway 46 at Bowling Green, 0.2 mi downstream from Jordan Creek, and at mile 38.4.

DRAINAGE AREA.--830 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1931 to current year. Prior to October 1934, published as "near Centerpoint".

REVISED RECORDS.--WSP 893: 1935, 1937-39. WSP 973: 1937-38, 1939(M). WSP 1335: 1931(M). WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 548.02 ft above sea level, (levels by U.S. Army Corps of Engineers). See WSP 1725 for history of changes prior to Dec. 1, 1949.

REMARKS.--Records good except for estimated daily discharges and flows above 500 ft<sup>3</sup>/s, which are fair. Flow regulated by Cagles Mill Lake.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage, about 30.0 ft in 1875, present datum, from information by U.S. Army Corps of Engineers.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	43	120	e84	232	232	2090	3680	1720	1880	390	82
2	39	43	109	e85	218	242	1850	2730	1660	1440	302	80
3	40	45	105	86	210	244	1680	1980	1700	1650	284	78
4	39	45	91	85	206	285	1970	1680	1640	2400	274	76
5	37	45	87	116	205	235	1820	1620	1790	3030	270	74
6	36	47	83	302	204	218	1870	1640	1770	1750	266	72
7	36	46	80	288	259	211	1790	1980	1590	2050	285	73
8	36	44	77	1110	197	267	2330	2660	1520	2870	329	75
9	38	60	72	962	181	996	2730	2030	2840	2380	387	74
10	38	79	79	584	177	1540	2430	1380	2220	2120	562	70
11	37	81	88	418	161	1030	1990	1020	1580	2030	789	68
12	36	80	84	425	174	837	1450	916	2870	1920	396	67
13	39	82	80	596	256	1150	1250	1220	4010	2020	246	65
14	50	87	78	581	210	1380	1770	1450	2490	1950	189	63
15	48	88	75	779	192	1270	1560	1430	5070	1900	164	63
16	44	79	72	789	189	861	4030	1530	10400	1850	156	62
17	42	76	70	719	236	714	2280	1470	5830	1800	155	62
18	40	74	69	501	462	3360	1440	1430	2360	1740	161	62
19	40	74	69	314	732	3810	1120	1710	6250	1700	146	60
20	40	75	67	221	461	3500	959	2260	4530	1710	136	63
21	39	77	66	207	447	5580	860	1110	2040	2030	124	61
22	39	86	72	253	434	2970	874	1490	1700	1960	119	60
23	38	96	82	463	504	1780	911	4730	2090	1970	115	62
24	39	97	86	493	297	1310	1090	2490	1940	1970	111	60
25	40	94	127	609	371	1080	1190	1500	1240	1890	100	64
26	42	92	114	545	338	1250	1270	991	996	1780	96	62
27	44	79	100	351	245	1140	1520	743	1130	1460	94	58
28	43	77	91	333	234	1200	1450	697	1450	1290	92	55
29	42	65	86	248	---	1480	1450	995	4560	865	90	54
30	42	76	91	239	---	1730	2320	2040	4480	455	87	54
31	41	---	e86	297	---	1610	---	2010	---	423	84	---
TOTAL	1244	2132	2656	13083	8032	43512	51344	54612	85466	56283	6999	1979
MEAN	40.1	71.1	85.7	422	287	1404	1711	1762	2849	1816	226	66.0
MAX	50	97	127	1110	732	5580	4030	4730	10400	3030	789	82
MIN	36	43	66	84	161	211	860	697	996	423	84	54
CFSM	.05	.09	.10	.51	.35	1.69	2.06	2.12	3.43	2.19	.27	.08
IN.	.06	.10	.12	.59	.36	1.95	2.30	2.45	3.83	2.52	.31	.09

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 1998, BY WATER YEAR (WY)

	MEAN	269	584	902	1233	1293	1560	1626	1237	875	598	327	298
MAX	1393	3076	2960	7212	3249	3843	4120	5090	4077	2746	2656	2488	
(WY)	1987	1986	1991	1950	1950	1938	1944	1943	1957	1987	1979	1989	
MIN	22.5	29.7	29.0	27.5	107	125	285	129	66.9	39.4	24.1	13.9	
(WY)	1941	1965	1964	1977	1934	1941	1971	1934	1988	1954	1936	1954	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1931 - 1998
ANNUAL TOTAL	326399	327342	901
ANNUAL MEAN	894	897	1551
HIGHEST ANNUAL MEAN			161
LOWEST ANNUAL MEAN			28700
HIGHEST DAILY MEAN	11000	Feb 28	11
LOWEST DAILY MEAN	36	Oct 6	12
ANNUAL SEVEN-DAY MINIMUM	37	Oct 6	34000
INSTANTANEOUS PEAK FLOW		10900	23.53
INSTANTANEOUS PEAK STAGE		19.51	Jan 4 1950
ANNUAL RUNOFF (CFSM)	1.08	1.08	1.09
ANNUAL RUNOFF (INCHES)	14.63	14.67	14.75
10 PERCENT EXCEEDS	2190	2090	2200
50 PERCENT EXCEEDS	295	285	361
90 PERCENT EXCEEDS	44	47	57

e Estimated

## WABASH RIVER BASIN

03360500 WHITE RIVER AT NEWBERRY, IN

LOCATION.--Lat 38°55'39", long 87°00'41", in NE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.30, T.6 N., R.5 W., Greene County, Hydrologic Unit 05120202, on left bank 0.4 mi upstream from bridge on State Highway 57 at Newberry, 1.9 mi downstream from Doans Creek, and at mile 113.0.

DRAINAGE AREA.--4,688 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1928 to current year. Prior to October 1948, published as West Fork White River at Newberry.

REVISED RECORDS.--WSP 873: 1937(M). WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 465.59 ft above sea level. Nonrecording gage prior to Oct. 21, 1928. Prior to Aug. 5, 1982, recording gage 0.3 mi downstream at same datum.

REMARKS.--Records fair, except those for estimated daily discharges, which are poor. Flow regulated by upstream reservoirs.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1875, 27.5 ft Mar. 27, 1913, from floodmarks by Indiana Department of Highways, discharge, 130,000 ft<sup>3</sup>/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	617	567	e820	857	1450	1890	9360	19400	7190	22900	3850	1430
2	605	593	e875	825	1420	1770	9610	19200	6190	17000	3310	1390
3	588	656	e970	838	1340	1690	8710	18100	5680	10400	2970	1330
4	583	736	e1050	822	1300	1640	8410	16200	5440	7770	2730	1290
5	570	757	980	823	1280	1630	8450	12600	5200	8640	3410	1260
6	555	728	959	1120	1260	1610	7310	10000	5170	11500	3820	1240
7	549	706	907	1630	1270	1540	6440	13200	5340	9670	3960	1210
8	536	676	850	3470	1300	1520	6110	20900	4780	14700	9520	1180
9	539	646	819	5530	1300	2450	8260	20300	7330	13600	10200	1150
10	549	619	805	5470	1230	5430	11000	19600	11000	11400	9050	1140
11	527	621	802	4710	1210	7750	14200	19600	10100	10700	7930	1150
12	544	638	803	4160	1720	7930	16100	17900	9620	8750	6270	1120
13	582	653	849	3330	1810	7180	17000	11500	15200	7000	4870	1100
14	602	673	843	2850	1660	5860	18400	8500	18500	6170	3960	1080
15	583	695	811	2640	1560	5110	17600	7550	20400	5610	3370	1060
16	665	710	779	2590	1420	4510	23600	6570	23000	5300	2960	1040
17	727	760	769	2530	1450	3960	25200	5870	28800	5040	2700	1040
18	673	795	764	2370	2040	5800	23100	5340	47200	4700	2580	1050
19	621	766	757	2100	2660	12300	18700	5010	56100	4420	2540	1060
20	586	744	748	1810	3070	15800	12400	5420	51700	4330	2310	1050
21	560	747	731	1620	3280	19500	9030	7410	44700	5350	2140	1050
22	537	747	734	1500	3790	20800	7880	6000	36400	7280	2000	1080
23	516	752	738	1740	3420	22100	6920	9210	29400	6240	1880	1080
24	512	766	760	2240	3190	22200	6650	16000	25100	5970	1780	1130
25	517	790	999	2250	2750	17700	6740	19300	22900	9340	1710	1140
26	532	790	1060	2220	2470	11000	6480	19700	18700	11500	1650	1060
27	555	e770	1130	2110	2310	8540	6780	16200	11100	9800	1640	1030
28	542	e765	1080	1880	2080	7420	6660	11100	8350	6780	1580	986
29	539	e760	1010	1730	---	7160	5960	7640	14500	5530	1560	952
30	552	e780	975	1600	---	7420	11800	6540	25400	5110	1520	932
31	546	---	941	1470	---	7680	---	7350	---	5480	1480	---
TOTAL	17709	21406	27118	70835	55040	248890	344860	389210	580490	267980	111250	33810
MEAN	571	714	875	2285	1966	8029	11500	12560	19350	8645	3589	1127
MAX	727	795	1130	5530	3790	22200	25200	20900	56100	22900	10200	1430
MIN	512	567	731	822	1210	1520	5960	5010	4780	4330	1480	932
CFSM	.12	.15	.19	.49	.42	1.71	2.45	2.68	4.13	1.84	.77	.24
IN.	.14	.17	.22	.56	.44	1.97	2.74	3.09	4.61	2.13	.88	.27

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 1998, BY WATER YEAR (WY)

	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940
MEAN	1435	3090	4598	6758	6924	8742	8962	6973	4711	3268	1985	1585
MAX	6193	24180	16780	36920	21870	19150	20340	25090	19350	13270	15900	13510
(WY)	1994	1994	1958	1950	1950	1963	1944	1943	1998	1979	1979	1989
MIN	259	408	386	405	705	686	1539	677	771	536	308	317
(WY)	1941	1945	1945	1945	1931	1941	1941	1941	1988	1936	1941	1940

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

## WATER YEARS 1929 - 1998

	1918374	2168598	4908	1950
ANNUAL TOTAL	1918374	2168598	4908	1950
ANNUAL MEAN	5256	5941	8752	1941
HIGHEST ANNUAL MEAN			958	1941
LOWEST ANNUAL MEAN			103000	Nov 18 1993
HIGHEST DAILY MEAN	34700	Mar 3	200	Oct 1 1941
LOWEST DAILY MEAN	512	Oct 24	211	Sep 26 1941
ANNUAL SEVEN-DAY MINIMUM	530	Oct 22	105000	Nov 18 1993
INSTANTANEOUS PEAK FLOW		56600	25.87	Nov 18 1993
INSTANTANEOUS PEAK STAGE		22.70	1.05	
ANNUAL RUNOFF (CFSM)	1.12	1.27	14.22	
ANNUAL RUNOFF (INCHES)	15.22	17.21		
10 PERCENT EXCEEDS	12800	17200	11600	
50 PERCENT EXCEEDS	2560	2370	2540	
90 PERCENT EXCEEDS	658	661	627	

e Estimated



03360895 KESSINGER DITCH NEAR MONROE CITY, IN

LOCATION.--Lat 38°34'14", long 87°16'37", in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.27 T.2N., R.8W., Knox County, Hydrologic Unit 05120202 on left bank at county road bridge 1.7 miles upstream of the confluence with White River, and approximately 4.7 miles southeast of Monroe City.

DRAINAGE AREA.--56.2 mi<sup>2</sup> (revised).

PERIOD OF RECORD.--October 1992 to September 1998. (Discontinued.)

GAGE.--Water-stage recorder. Elevation of gage is 410.34 ft, above sea level.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Stage-discharge relation is affected by backwater from White River during times of flood.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e3.3	e4.0	e35	e4.7	13	22	151	e290	218	e80	e6.6	e3.7
2	e2.9	e15	13	e5.6	13	20	56	e200	48	e60	e6.2	e3.5
3	e2.6	e9.6	8.5	6.8	11	20	45	e150	29	e45	e6.0	e3.4
4	e2.3	e6.8	9.4	6.4	12	18	57	e130	24	e37	e5.8	e3.3
5	e2.1	e4.9	7.5	17	14	18	43	e110	58	e31	e5.8	e3.2
6	e2.0	e11	5.5	50	19	16	37	e100	43	e27	e7.0	e3.1
7	e3.5	e7.2	5.4	127	21	16	34	e180	26	e120	e86	e3.0
8	6.1	e5.2	5.3	229	35	24	43	e130	24	e160	e240	e3.0
9	5.9	e4.1	6.7	78	48	68	67	e90	255	e56	e325	e2.9
10	4.9	e4.0	43	39	74	39	47	e70	104	e40	e110	e2.8
11	2.8	e3.4	18	27	150	27	35	e56	47	e32	e70	e2.8
12	2.2	e2.9	9.7	24	194	22	31	e45	38	e26	e43	e2.7
13	3.1	e3.7	7.6	21	71	23	54	e37	126	e23	e32	e2.6
14	8.5	e20	6.4	16	49	24	e100	e32	89	e21	e22	e2.4
15	5.3	e12	6.0	23	40	18	e300	e27	e60	e20	e17	e2.3
16	3.9	e8.6	5.4	21	53	19	e2000	24	e45	e17	e13	e2.4
17	3.4	e6.0	5.6	18	126	29	e300	19	e35	e15	e10	e2.6
18	e2.9	e5.0	4.6	17	229	92	e190	17	e30	e14	e8.8	e3.5
19	e2.5	e4.0	4.1	19	93	73	e140	16	e70	e13	e8.0	e2.3
20	e2.3	e3.2	4.4	16	100	228	e110	27	e45	e12	e7.4	e2.0
21	e2.3	e3.8	4.2	15	73	311	e290	30	e31	e11	e6.8	e3.1
22	e2.2	e11	9.3	16	54	141	e250	317	e70	e10	e6.4	e2.4
23	e2.2	e9.0	9.8	50	46	e100	e70	476	e270	e9.7	e6.0	e2.0
24	e2.4	e7.0	32	34	37	e80	e43	491	e120	e9.1	e5.6	e1.9
25	e7.6	e5.8	55	25	31	e70	e31	e220	e74	e8.6	e5.2	e5.8
26	e8.0	e4.6	21	21	30	e62	e24	e180	e54	e8.2	e4.9	e4.5
27	e10	e3.9	15	19	29	e56	34	e150	e40	e7.8	e4.6	e2.7
28	e6.2	e3.5	9.6	18	24	53	24	e130	e31	e7.4	e4.4	e2.0
29	e4.1	e4.5	8.2	17	---	39	30	e110	e60	e7.2	e4.2	e1.8
30	e3.3	e29	e6.8	15	---	32	1250	e100	e420	e7.0	e4.0	e1.7
31	e2.5	---	e5.6	14	---	42	---	95	---	e7.0	e3.8	---
TOTAL	123.3	222.7	387.6	1009.5	1689	1802	5886	4049	2584	942.0	1085.5	85.4
MEAN	3.98	7.42	12.5	32.6	60.3	58.1	196	131	86.1	30.4	35.0	2.85
MAX	10	29	55	229	229	311	2000	491	420	160	325	5.8
MIN	2.0	2.9	4.1	4.7	11	16	24	16	24	7.0	3.8	1.7
CFSM	.07	.13	.22	.58	1.07	1.03	3.49	2.32	1.53	.54	.62	.05
IN.	.08	.15	.26	.67	1.12	1.19	3.90	2.68	1.71	.62	.72	.06

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 1998, BY WATER YEAR (WY)

	MEAN	10.5	84.9	46.0	108	57.4	82.4	121	133	70.1	21.1	17.9	19.5
MAX	40.0	318	90.5	163	89.9	167	196	295	147	30.4	36.0	85.9	
(WY)	1994	1994	1994	1994	1997	1997	1998	1995	1997	1998	1995	1993	
MIN	3.05	7.08	12.5	32.6	16.9	25.1	44.6	49.7	12.1	5.75	6.68	2.47	
(WY)	1996	1996	1998	1998	1996	1994	1995	1997	1994	1994	1997	1995	

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1993 - 1998

ANNUAL TOTAL	21556.1	19866.0	
ANNUAL MEAN	59.1	54.4	64.3
HIGHEST ANNUAL MEAN			76.5
LOWEST ANNUAL MEAN			54.4
HIGHEST DAILY MEAN	1170	Jan 22	e 2000 Apr 16
LOWEST DAILY MEAN	2.0	Oct 6	1.7 Sep 30
ANNUAL SEVEN-DAY MINIMUM	2.4	Oct 18	2.4 Oct 18
INSTANTANEOUS PEAK FLOW			unknown Jun 21
INSTANTANEOUS PEAK STAGE			a 17.57 Jun 21
ANNUAL RUNOFF (CFSM)	1.05	.97	1.14
ANNUAL RUNOFF (INCHES)	14.27	13.15	15.54
10 PERCENT EXCEEDS	130	128	140
50 PERCENT EXCEEDS	16	19	18
90 PERCENT EXCEEDS	3.4	3.1	3.0

e Estimated

a Backwater

## WABASH RIVER BASIN

03361000 BIG BLUE RIVER AT CARTHAGE, IN

LOCATION.--Lat 39°44'38", long 85°34'33", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.18, T.15 N., R.9 E., Rush County, Hydrologic Unit 05120204, on right bank 300 ft upstream from highway bridge, 0.5 mi northwest of Carthage, 2.2 mi downstream from Three Mile Creek, and at mile 50.7.

DRAINAGE AREA.--184 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1950 to current year. Prior to October 1961, published as Blue River at Carthage.

REVISED RECORDS.--WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 859.33 ft above sea level. Prior to July 19, 1951, nonrecording gage at site 300 ft downstream at same datum.

REMARKS.--Records good. Flow partly regulated by Big Blue River Conservancy District control structures on tributaries to Big Blue River beginning in 1969.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	69	75	123	79	98	118	225	336	191	180	95	62
2	70	84	98	79	96	113	197	292	179	168	91	63
3	70	81	90	79	92	111	177	240	165	160	90	60
4	69	76	104	77	90	110	177	246	160	189	88	61
5	67	73	93	79	91	105	161	213	162	168	102	59
6	66	72	85	153	87	99	156	195	157	155	140	58
7	66	70	80	893	85	97	154	433	146	155	114	60
8	68	69	76	1220	84	114	166	962	141	153	108	59
9	71	68	76	677	83	815	1320	619	206	143	110	57
10	77	68	103	408	82	544	1920	399	247	135	104	56
11	70	67	110	296	88	325	767	302	957	128	97	55
12	70	65	98	238	105	243	478	252	2360	124	88	53
13	72	66	89	217	93	213	363	222	1550	121	87	53
14	93	74	83	187	88	200	325	204	766	118	87	52
15	77	75	79	174	85	182	273	188	2680	117	82	52
16	73	73	76	158	88	168	926	179	2220	116	79	55
17	73	69	74	149	107	262	675	166	1030	110	93	57
18	72	67	72	135	482	978	407	158	600	107	85	55
19	72	70	71	125	406	1080	319	152	1050	113	78	53
20	71	72	70	116	314	781	269	184	640	338	76	55
21	69	78	68	111	274	767	244	158	447	172	75	58
22	69	94	79	109	223	502	237	151	369	292	73	60
23	69	83	86	150	193	368	227	411	373	334	71	56
24	72	76	92	151	170	298	209	871	312	184	73	54
25	76	73	205	135	152	255	198	670	267	144	80	55
26	75	72	156	125	141	233	200	382	241	126	72	54
27	84	69	124	118	138	215	210	281	219	118	70	52
28	75	71	109	115	125	207	190	235	203	113	68	51
29	72	78	100	112	---	201	186	208	192	110	69	51
30	71	128	94	108	---	187	266	192	202	106	68	50
31	71	---	86	102	---	180	---	181	---	102	63	---
TOTAL	2239	2256	2949	6875	4160	10071	11622	9682	18432	4799	2676	1676
MEAN	72.2	75.2	95.1	222	149	325	387	312	614	155	86.3	55.9
MAX	93	128	205	1220	482	1080	1920	962	2680	338	140	63
MIN	66	65	68	77	82	97	154	151	141	102	63	50
CFSM	.39	.41	.52	1.21	.81	1.77	2.11	1.70	3.34	.84	.47	.30
IN.	.45	.46	.60	1.39	.84	2.04	2.35	1.96	3.73	.97	.54	.34

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1998, BY WATER YEAR (WY)

	MEAN	93.8	169	216	233	288	334	332	261	214	151	105	78.1
MAX	579	925	702	619	741	967	829	916	848	581	649	400	
(WY)	1987	1994	1991	1959	1951	1963	1964	1996	1958	1979	1979	1989	
MIN	34.2	38.6	33.2	27.9	59.6	84.2	97.8	81.5	48.1	32.5	30.5	24.4	
(WY)	1964	1977	1977	1977	1964	1981	1971	1976	1988	1977	1988	1954	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1951 - 1998
ANNUAL TOTAL	82646	77437	
ANNUAL MEAN	226	212	206
HIGHEST ANNUAL MEAN			324
LOWEST ANNUAL MEAN			78.8
HIGHEST DAILY MEAN	3500	2680	6900
LOWEST DAILY MEAN	65	50	17
ANNUAL SEVEN-DAY MINIMUM	68	52	19
INSTANTANEOUS PEAK FLOW		3250	12900
INSTANTANEOUS PEAK STAGE		8.79	14.62
ANNUAL RUNOFF (CFSM)	1.23	1.15	1.12
ANNUAL RUNOFF (INCHES)	16.71	15.66	15.19
10 PERCENT EXCEEDS	441	406	410
50 PERCENT EXCEEDS	140	112	117
90 PERCENT EXCEEDS	72	67	51

LOCATION.--Lat 39°31'45", long 85°46'55", in SE $\frac{1}{4}$ /SE $\frac{1}{4}$  sec.31, T.13 N., R.7 E., Shelby County. Hydrologic Unit 05120204, on left bank 0.2 mi downstream from bridge on State Highway 9 in Shelbyville, 0.6 mi downstream from Little Blue River, and at mile 23.9.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of about 20.2 ft from floodmarks.

ANNUAL TOTAL	189822			191704			
ANNUAL MEAN	520			525		475	
HIGHEST ANNUAL MEAN						908	1950
LOWEST ANNUAL MEAN						166	1954
HIGHEST DAILY MEAN	8820	Jun	1	6380	Jun	16	Mar 5 1963
LOWEST DAILY MEAN	85	Oct	6	63	Sep	29	Jan 18 1977
ANNUAL SEVEN-DAY MINIMUM	87	Oct	2	66	Sep	24	Jan 16 1977
INSTANTANEOUS PEAK FLOW				6820	Jun	15	Nov 15 1993
INSTANTANEOUS PEAK STAGE				14.46	Jun	15	Nov 15 1993
ANNUAL RUNOFF (CFSM)	1.24			1.25		1.13	
ANNUAL RUNOFF (INCHES)	16.77			16.94		15.34	
10 PERCENT EXCEEDS	1120			1150		1010	
50 PERCENT EXCEEDS	285			234		241	
90 PERCENT EXCEEDS	97			88		74	

e Estimated

## WABASH RIVER BASIN

03361650 SUGAR CREEK AT NEW PALESTINE, IN

LOCATION.--Lat 39°42'51", long 85°53'08", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.29, T.15 N., R.6 E., Hancock County, Hydrologic Unit 05120204, on left bank 10 ft downstream from bridge on County Road 450 West, 0.5 mi south of New Palestine, 3.1 mi upstream from Little Sugar Creek, and 37.3 mi upstream from mouth.

DRAINAGE AREA.--93.9 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1967 to current year.

REVISED RECORDS.--WDR IN-76-1: 1975.

GAGE.--Water-stage recorder. Datum of gage is 786.00 ft above sea level.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.6	e5.2	14	e10	22	34	227	324	177	69	16	6.7
2	3.9	e6.4	13	e9.8	21	30	214	532	143	60	15	6.7
3	3.4	e8.0	12	9.7	20	29	152	278	105	53	14	6.5
4	3.4	e6.8	12	9.2	19	28	125	202	83	75	13	6.0
5	e3.3	e6.0	11	11	19	26	103	147	88	70	14	5.6
6	e3.2	e5.6	9.6	25	18	23	89	115	83	64	27	5.3
7	e3.1	e5.4	8.8	59	18	22	83	448	68	55	23	5.6
8	e3.0	e5.2	8.4	187	17	33	82	781	59	51	28	5.4
9	e3.0	e5.0	8.4	241	17	322	439	742	141	45	21	5.0
10	e4.3	e4.9	9.5	153	16	453	738	495	234	40	20	4.6
11	e3.8	e4.8	9.3	93	17	297	744	255	669	36	19	4.6
12	e3.7	e4.7	8.8	67	19	171	361	178	1290	32	19	4.5
13	e4.4	e5.0	8.3	54	17	126	218	140	1440	30	17	4.2
14	e7.0	e5.8	e8.2	e44	18	106	171	114	1190	28	15	4.0
15	e4.7	e7.2	e8.1	e41	17	90	140	98	1720	27	14	3.5
16	e4.3	e6.8	e8.0	40	17	78	300	86	1410	26	13	3.7
17	e4.2	e6.0	7.9	36	23	107	315	77	1210	25	13	4.5
18	e4.1	e5.6	7.7	31	61	378	196	67	809	24	12	4.2
19	e4.0	e5.5	7.5	28	104	840	145	62	591	25	11	3.8
20	e3.9	e5.4	7.2	25	107	971	120	63	538	37	10	3.8
21	e3.8	e7.0	7.2	23	92	787	107	63	405	27	10	4.7
22	e3.7	10	8.1	23	80	494	104	60	243	30	9.4	4.9
23	e3.7	9.4	8.7	34	65	308	101	224	376	31	9.1	4.3
24	e4.0	9.3	9.7	35	56	228	91	414	274	41	8.3	4.7
25	e5.2	8.3	17	40	48	175	83	422	186	37	9.5	5.4
26	e5.4	7.6	16	36	43	146	79	413	145	27	8.8	4.8
27	e5.2	7.3	e14	31	39	124	72	193	119	23	8.7	4.1
28	e4.8	7.7	e13	29	37	131	66	139	99	20	8.2	3.7
29	e4.4	8.9	e12	28	---	204	66	109	86	20	7.9	3.8
30	e4.2	18	e11	26	---	179	116	218	79	18	7.8	3.5
31	e4.5	---	e11	24	---	141	---	214	---	17	7.3	---
TOTAL	127.2	208.8	315.4	1502.7	1047	7081	5847	7673	14060	1163	429.0	142.1
MEAN	4.10	6.96	10.2	48.5	37.4	228	195	248	469	37.5	13.8	4.74
MAX	7.0	18	17	241	107	971	744	781	1720	75	28	6.7
MIN	3.0	4.7	7.2	9.2	16	22	66	60	59	17	7.3	3.5
CFSM	.04	.07	.11	.52	.40	2.43	2.08	2.64	4.99	.40	.15	.05
IN.	.05	.08	.12	.60	.41	2.81	2.32	3.04	5.57	.46	.17	.06

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1998, BY WATER YEAR (WY)

	MEAN	35.6	95.5	125	130	163	177	161	135	100	64.0	44.7	28.3
MAX	309	441	352	345	439	413	299	549	469	241	306	314	
(WY)	1987	1994	1991	1969	1982	1978	1996	1996	1998	1969	1979	1989	
MIN	4.10	6.96	9.11	5.35	35.7	35.0	30.0	23.4	8.47	9.21	4.06	3.42	
(WY)	1998	1998	1977	1977	1978	1981	1971	1976	1988	1977	1988	1983	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1968 - 1998
ANNUAL TOTAL	34555.0	39596.2	105
ANNUAL MEAN	94.7	108	150
HIGHEST ANNUAL MEAN			37.7
LOWEST ANNUAL MEAN			1973
HIGHEST DAILY MEAN	1170	Jun 2	1720
LOWEST DAILY MEAN	3.0	Oct 8	3.0
ANNUAL SEVEN-DAY MINIMUM	3.2	Oct 3	3.2
INSTANTANEOUS PEAK FLOW			1840
INSTANTANEOUS PEAK STAGE			9.47
ANNUAL RUNOFF (CFSM)	1.01		1.16
ANNUAL RUNOFF (INCHES)	13.69		15.69
10 PERCENT EXCEEDS	234		286
50 PERCENT EXCEEDS	36		24
90 PERCENT EXCEEDS	4.7		4.5

e Estimated

## 03361850 BUCK CREEK AT ACTON, IN

LOCATION.--Lat 39°39'25", long 85°57'27", in NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.15, T.14 N., R.5 E., Marion County, Hydrologic Unit 05120204, on left bank 30 ft downstream from McGregor Road bridge, 0.5 mi east of Acton, and 4.1 mi upstream from mouth.

DRAINAGE AREA.--78.8 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1967 to current year.

REVISED RECORDS.--WDR IN-79-1: 1969 (M).

GAGE.--Water-stage recorder. Datum of gage is 757.00 ft above sea level.

REMARKS.--Records good except for estimated daily discharges, which are poor. Low flow is affected by regulation.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	e3.5	39	e4.8	14	24	260	261	104	39	10	3.9
2	1.6	e6.0	17	e4.5	13	22	177	644	113	30	8.7	3.6
3	1.6	e17	11	5.2	12	21	123	358	111	26	7.6	3.4
4	1.5	e8.0	10	5.7	12	20	113	373	76	103	7.2	3.1
5	1.5	e5.6	9.6	10	12	20	94	203	76	74	7.2	2.9
6	1.6	e4.5	6.7	58	12	18	83	140	86	41	13	3.1
7	1.7	e4.0	5.1	124	11	16	77	624	65	46	44	3.8
8	1.8	e3.5	4.4	295	10	43	87	1070	55	56	107	e3.0
9	2.2	e3.1	4.1	174	10	619	872	448	163	34	31	e2.6
10	3.7	e2.9	6.2	84	9.6	375	1090	249	243	26	20	e2.4
11	e2.2	e2.7	11	53	11	210	393	163	588	22	19	e2.4
12	e1.7	e2.6	8.1	39	21	138	230	123	1960	18	13	e2.3
13	e2.0	e2.9	6.8	33	18	111	165	107	1620	16	11	e2.2
14	e15	e7.0	5.9	28	14	97	141	88	714	15	9.1	e2.1
15	e7.6	e14	5.9	26	12	81	113	76	2840	14	8.1	e2.0
16	e4.5	e8.0	5.2	24	12	73	484	68	1760	14	8.7	e2.2
17	e3.2	e5.8	4.8	21	31	127	291	60	574	12	18	e2.9
18	e2.5	e4.5	4.6	19	116	575	161	54	292	12	9.9	e2.6
19	e2.2	e3.5	e4.5	17	96	1130	122	51	608	16	7.5	e2.5
20	e2.1	e3.0	e4.4	16	82	922	100	58	347	52	6.2	e2.5
21	e2.0	e5.0	e4.3	14	75	785	94	52	327	31	5.4	e3.0
22	e1.9	e13	e7.0	14	57	365	98	48	193	56	4.9	e6.6
23	e1.9	e10	e13	41	48	234	95	205	697	76	4.8	e2.6
24	e2.1	e8.0	21	45	40	184	84	379	278	32	4.8	e3.0
25	e2.7	e7.0	39	33	34	149	75	200	149	20	5.8	e5.0
26	e3.0	e4.5	27	27	30	125	73	127	95	16	6.2	e4.0
27	e6.0	e3.2	17	23	30	107	65	95	69	13	5.1	e3.3
28	e3.0	e4.0	13	21	26	119	59	77	52	12	4.5	e2.9
29	e2.5	e7.0	10	19	---	204	63	66	43	11	4.4	e2.8
30	e2.2	32	8.8	17	---	144	191	93	52	15	4.2	e2.3
31	e2.6	---	7.0	15	---	113	---	108	---	13	4.0	---
TOTAL	91.8	205.8	341.4	1310.2	868.6	7171	6073	6668	14350	961	420.3	91.0
MEAN	2.96	6.86	11.0	42.3	31.0	231	202	215	478	31.0	13.6	3.03
MAX	15	32	39	295	116	1130	1090	1070	2840	103	107	6.6
MIN	1.5	2.6	4.1	4.5	9.6	16	59	48	43	11	4.0	2.0
CFSM	.04	.09	.14	.54	.39	2.94	2.57	2.73	6.07	.39	.17	.04
IN.	.04	.10	.16	.62	.41	3.39	2.87	3.15	6.77	.45	.20	.04

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1998, BY WATER YEAR (WY)

	MEAN	31.4	101	115	115	136	162	141	122	85.4	68.3	38.5	22.4
MAX	312	463	333	352	349	347	302	462	478	324	216	166	
(WY)	1987	1994	1991	1969	1971	1978	1996	1996	1998	1969	1979	1989	
MIN	2.96	6.86	8.11	4.09	18.8	27.8	18.5	17.4	6.04	5.97	3.74	2.42	
(WY)	1998	1998	1977	1977	1978	1969	1971	1976	1988	1991	1983	1983	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1968 - 1998
ANNUAL TOTAL	26750.5	38552.1	
ANNUAL MEAN	73.3	106	94.7
HIGHEST ANNUAL MEAN			138
LOWEST ANNUAL MEAN			36.7
HIGHEST DAILY MEAN	1200	2840	3570
LOWEST DAILY MEAN	1.5	1.5	.60
ANNUAL SEVEN-DAY MINIMUM	1.6	1.6	1.6
INSTANTANEOUS PEAK FLOW		3410	7140
INSTANTANEOUS PEAK STAGE		12.00	14.99
ANNUAL RUNOFF (CFSM)	.93	1.34	1.20
ANNUAL RUNOFF (INCHES)	12.63	18.20	16.33
10 PERCENT EXCEEDS	172	245	210
50 PERCENT EXCEEDS	20	18	34
90 PERCENT EXCEEDS	3.2	2.7	5.8

e Estimated



## WABASH RIVER BASIN

03362000 YOUNGS CREEK NEAR EDINBURGH, IN

LOCATION.--Lat 39°25'08", long 86°00'18", in SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.5, T.11 N., R.5 E., Johnson County, Hydrologic Unit 05120204, on right bank at downstream side of county highway bridge, 0.5 mi southwest of Amity, 2.0 mi upstream from mouth, and 5.0 mi northwest of Edinburg.

DRAINAGE AREA.--107 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1942 to current year. Prior to December 1942 monthly discharge only, published in WSP 1305.

REVISED RECORDS.--WSP 1335: 1944. WSP 1909: 1958. WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 670.20 ft above sea level. Prior to June 30, 1955, nonrecording gage at same site and datum.

REMARKS.--Records good.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.5	6.9	36	18	29	43	185	451	96	111	26	8.6
2	3.7	12	27	18	28	41	136	260	79	88	23	8.7
3	4.0	9.3	22	19	27	40	108	188	67	77	22	8.3
4	3.8	8.1	22	18	25	38	117	180	63	489	22	8.0
5	4.2	7.6	22	19	26	36	96	141	78	225	22	7.6
6	4.5	6.8	20	48	25	34	87	118	78	125	23	7.2
7	5.3	6.6	19	147	26	32	84	454	59	98	33	10
8	5.8	6.6	18	361	25	47	123	909	55	87	80	9.3
9	7.3	6.5	18	207	25	598	929	417	245	77	45	7.9
10	8.5	6.5	22	112	23	382	967	268	275	63	44	7.5
11	8.7	7.1	25	77	26	206	425	190	267	54	32	7.8
12	8.0	7.7	22	62	43	140	262	147	337	48	25	7.2
13	7.8	8.4	20	56	39	115	196	122	1110	40	21	6.7
14	17	11	19	48	33	102	178	103	508	37	19	6.7
15	9.2	15	18	46	29	82	167	89	3650	36	17	6.6
16	5.5	16	18	42	29	74	1550	79	1830	34	16	6.5
17	4.3	14	18	37	53	91	1050	69	735	31	15	8.1
18	4.2	12	18	33	130	389	382	63	385	27	14	8.9
19	4.0	11	18	30	107	883	262	58	838	25	14	7.1
20	4.0	11	17	28	112	794	194	85	477	1120	13	6.8
21	4.0	11	16	26	117	858	182	76	316	434	12	7.1
22	4.1	14	18	25	92	397	196	64	232	163	11	6.9
23	4.3	15	21	72	82	262	210	148	800	143	11	6.9
24	4.8	13	24	85	71	207	164	334	320	92	11	7.1
25	5.8	11	39	64	61	170	135	267	203	64	23	7.6
26	6.1	10	32	53	56	150	120	168	156	50	18	7.2
27	7.5	8.3	25	47	56	126	101	127	125	43	12	6.9
28	6.4	7.6	23	42	50	121	88	103	104	39	10	7.0
29	5.9	7.4	21	40	---	105	86	89	101	35	9.5	7.5
30	5.6	17	21	36	---	93	425	241	149	32	8.9	7.2
31	5.7	---	20	31	---	90	---	129	---	30	8.7	---
TOTAL	183.5	304.4	679	1947	1445	6746	9205	6137	13738	4017	661.1	226.9
MEAN	5.92	10.1	21.9	62.8	51.6	218	307	198	458	130	21.3	7.56
MAX	17	17	39	361	130	883	1550	909	3650	1120	80	10
MIN	3.5	6.5	16	18	23	32	84	58	55	25	8.7	6.5
CFSM	.06	.09	.20	.59	.48	2.03	2.87	1.85	4.28	1.21	.20	.07
IN.	.06	.11	.24	.68	.50	2.35	3.20	2.13	4.78	1.40	.23	.08

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 1998, BY WATER YEAR (WY)

	MEAN	21.4	84.7	118	156	174	212	185	150	99.5	72.2	29.3	22.0
MAX	260	593	470	837	441	498	516	551	463	492	231	228	
(WY)	1994	1994	1991	1950	1971	1963	1964	1996	1958	1979	1979	1989	
MIN	1.82	3.91	2.90	3.13	15.1	40.9	28.3	20.7	6.73	2.03	2.43	2.36	
(WY)	1954	1954	1964	1977	1954	1969	1971	1988	1988	1944	1954	1954	

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

## WATER YEARS 1944 - 1998

ANNUAL TOTAL	39860.6	45289.9	110	
ANNUAL MEAN	109	124	176	1979
HIGHEST ANNUAL MEAN			20.3	1954
LOWEST ANNUAL MEAN			6260	May 24 1968
HIGHEST DAILY MEAN	3310	Jun 1		
LOWEST DAILY MEAN	2.5	Sep 21	3.5	Oct 1
ANNUAL SEVEN-DAY MINIMUM	3.4	Sep 26	4.1	Oct 17
INSTANTANEOUS PEAK FLOW			5170	Jun 15
INSTANTANEOUS PEAK STAGE			10.95	Jun 15
ANNUAL RUNOFF (CFSM)	1.02		1.16	
ANNUAL RUNOFF (INCHES)	13.86		15.75	
10 PERCENT EXCEEDS	221		271	249
50 PERCENT EXCEEDS	41		36	36
90 PERCENT EXCEEDS	5.8		6.9	4.6

LOCATION.--Lat 39°21'39", long 85°59'51", in SW¼SE¼ sec.29, T.11 N., R.5 E., Johnson County, Hydrologic Unit 05120204, on left bank 50 ft upstream from highway bridge in Camp Atterbury, 1.3 mi upstream from confluence with Blue River, 1.5 mi northwest of Edinburgh, and at mile 1.3.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	e31	123	e64	135	198	813	1570	550	414	127	56
2	35	e38	130	62	128	186	940	1890	477	348	116	55
3	35	e45	90	59	123	173	682	1710	460	305	110	54
4	35	e41	75	55	121	166	591	1460	376	764	105	52
5	35	e38	72	57	126	158	504	1060	339	781	102	50
6	33	e37	67	85	116	150	434	754	370	485	101	49
7	33	e35	62	388	112	142	396	1150	325	393	128	49
8	34	e34	56	1170	109	153	444	4170	276	417	235	50
9	38	e33	64	1260	105	1460	1940	4220	532	370	231	47
10	38	e31	79	752	102	2350	4630	2090	1270	303	171	46
11	36	e31	64	484	103	1390	4100	1270	1130	258	139	46
12	34	e30	72	353	123	859	1960	899	3010	228	124	45
13	35	e29	65	295	135	619	1150	701	5970	207	110	44
14	47	e36	60	241	125	518	910	589	6670	193	103	43
15	50	e44	56	216	116	427	751	492	7980	184	96	43
16	54	e40	53	201	113	364	3330	431	11200	178	90	41
17	e38	e37	51	182	134	353	3740	377	8210	167	86	43
18	e34	e35	50	165	359	1290	1520	335	3930	154	90	45
19	e32	e33	49	150	559	3480	1020	308	2980	145	83	43
20	e29	e32	48	146	505	4070	781	326	2790	1490	77	43
21	e28	e31	46	131	534	4590	670	322	1850	974	73	43
22	e27	e40	47	127	430	3150	693	289	1360	414	70	43
23	e27	60	51	172	365	1580	759	395	2630	429	68	46
24	e26	64	58	328	323	1150	630	2130	2480	362	67	49
25	e28	63	81	270	278	909	535	1610	1220	255	75	47
26	e32	59	134	230	247	760	483	1150	864	211	71	44
27	e36	55	111	202	238	640	432	831	678	180	67	42
28	e34	52	96	183	219	573	377	580	558	161	63	40
29	e31	51	84	171	---	629	357	468	478	149	63	40
30	e29	62	77	159	---	667	831	603	467	141	61	39
31	e28	---	e67	145	---	557	---	655	---	139	59	---
TOTAL	1066	1247	2238	8503	6083	33711	36403	34835	71430	11199	3161	1377
MEAN	34.4	41.6	72.2	274	217	1087	1213	1124	2381	361	102	45.9
MAX	54	64	134	1260	559	4590	4630	4220	11200	1490	235	56
MIN	26	29	46	55	102	142	357	289	276	139	59	39
CFSM	.07	.09	.15	.58	.46	2.29	2.56	2.37	5.02	.76	.22	.10
IN.	.08	.10	.18	.67	.48	2.65	2.86	2.73	5.61	.88	.25	.11

MEAN	131	384	519	706	789	956	856	697	480	324	179	123
MAX	983	2591	1742	4000	2192	2281	2076	2878	2381	1564	1348	1295
(WY)	1987	1994	1991	1950	1950	1961	1964	1996	1998	1979	1979	1989
MIN	22.2	33.4	30.4	36.5	74.8	215	170	120	58.7	29.5	25.4	13.4
(WY)	1945	1954	1964	1977	1964	1981	1971	1976	1988	1954	1954	1954

ANNUAL TOTAL	186406		211253				
ANNUAL MEAN	511		579			510	
HIGHEST ANNUAL MEAN						849	1950
LOWEST ANNUAL MEAN						160	1954
HIGHEST DAILY MEAN	10300	Jun 2	11200	Jun 16		19200	May 29 1956
LOWEST DAILY MEAN	26	Oct 24	26	Oct 24		9.2	Sep 18 1954
ANNUAL SEVEN-DAY MINIMUM	28	Oct 19	28	Oct 19		10	Sep 13 1954
INSTANTANEOUS PEAK FLOW			12000	Jun 16		27600	May 29 1956
INSTANTANEOUS PEAK STAGE			15.03	Jun 16		18.38	May 29 1956
ANNUAL RUNOFF (CFSM)	1.08		1.22			1.08	
ANNUAL RUNOFF (INCHES)	14.63		16.58			14.63	
10 PERCENT EXCEEDS	1240		1420			1160	
50 PERCENT EXCEEDS	195		150			210	
90 PERCENT EXCEEDS	36		36			46	

e Estimated

## WABASH RIVER BASIN

03363500 FLATROCK RIVER AT ST. PAUL, IN

LOCATION.--Lat 39°25'03", long 85°38'03", in SE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.9, T.11 N., R.8 E., Shelby County, Hydrologic Unit 05120205, on right bank 500 ft downstream from county road bridge, 0.8 mi southwest of St. Paul, 1.5 mi downstream from Mill Creek, and at mile 34.4.

DRAINAGE AREA.--303 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1930 to current year. Prior to October 1958, published as Flatrock Creek at St. Paul.

REVISED RECORDS.--WSP 853: 1934-36. WSP 973: 1942. WSP 1335: 1933, 1936. WSP 1725: 1957(M). WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 764.84 ft above sea level (levels by State of Indiana, Department of Natural Resources). Prior to Oct. 21, 1938, nonrecording gage at site 500 ft upstream at same datum.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of approximately 20.5 ft, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	31	111	e100	158	222	383	573	311	255	83	19
2	15	35	107	e94	154	207	369	473	249	222	72	18
3	14	38	83	90	144	197	321	403	259	200	64	17
4	14	37	77	87	140	188	328	403	219	366	60	17
5	14	33	78	87	151	178	289	366	210	277	58	16
6	13	33	70	183	144	166	268	336	203	214	84	15
7	13	33	62	1690	132	160	261	591	180	198	113	14
8	13	31	56	2420	133	176	270	1550	168	295	96	13
9	15	29	54	2190	147	800	2710	1240	287	242	99	12
10	17	31	63	1080	168	1110	6520	791	589	178	281	12
11	21	31	116	645	209	667	3340	597	2740	155	143	11
12	19	29	116	484	350	493	1290	484	7480	138	102	12
13	23	28	95	399	310	416	811	411	6400	132	80	11
14	26	37	86	333	252	382	657	358	2800	123	66	11
15	25	39	78	314	215	330	556	322	4890	119	60	10
16	e24	40	69	276	206	295	4240	296	4300	117	54	10
17	e23	37	63	239	228	326	2930	266	2910	109	48	9.8
18	e22	35	61	212	601	912	1290	242	1420	100	47	8.2
19	e21	33	57	190	901	1280	798	225	1630	97	44	9.7
20	e20	32	56	175	668	1230	618	222	1550	431	39	11
21	e20	41	52	163	616	1490	516	208	836	492	36	9.6
22	e19	46	53	159	506	1010	496	188	622	233	34	9.2
23	e19	50	62	282	436	727	566	666	1660	257	32	10
24	e21	50	82	370	372	606	451	1510	858	269	32	8.0
25	27	41	200	298	319	506	390	1210	567	171	33	8.3
26	32	37	293	252	287	452	362	705	447	131	31	8.4
27	31	35	209	226	278	401	345	500	374	113	26	9.4
28	28	35	166	211	247	383	311	394	325	103	24	7.9
29	27	35	140	202	---	353	299	331	291	95	23	7.4
30	25	53	127	187	---	322	453	294	288	99	22	7.4
31	26	---	e110	168	---	311	---	266	---	94	21	---
TOTAL	642	1095	3052	13806	8472	16296	32438	16421	45063	6025	2007	342.3
MEAN	20.7	36.5	98.5	445	303	526	1081	530	1502	194	64.7	11.4
MAX	32	53	293	2420	901	1490	6520	1550	7480	492	281	19
MIN	13	28	52	87	132	160	261	188	168	94	21	7.4
CFSM	.07	.12	.32	1.47	1.00	1.73	3.57	1.75	4.96	.64	.21	.04
IN.	.08	.13	.37	1.69	1.04	2.00	3.98	2.02	5.53	.74	.25	.04

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 1998, BY WATER YEAR (WY)

MEAN	84.1	219	347	499	522	593	584	454	298	189	93.4	66.8
MAX	585	1342	1567	3450	1808	1605	1534	1968	1502	915	716	393
(WY)	1937	1994	1991	1937	1950	1961	1964	1996	1998	1979	1979	1989
MIN	1.96	9.67	9.98	15.1	27.7	41.8	51.9	42.9	19.7	9.28	4.06	3.37
(WY)	1964	1954	1964	1977	1935	1941	1941	1934	1934	1936	1988	1953

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1931 - 1998
ANNUAL TOTAL	127746	145659.3	
ANNUAL MEAN	350	399	328
HIGHEST ANNUAL MEAN			642
LOWEST ANNUAL MEAN			40.6
HIGHEST DAILY MEAN	8920	7480	16500
LOWEST DAILY MEAN	13	7.4	.60
ANNUAL SEVEN-DAY MINIMUM	14	8.1	.80
INSTANTANEOUS PEAK FLOW		9440	18500
INSTANTANEOUS PEAK STAGE		8.79	12.37
ANNUAL RUNOFF (CFSM)	1.16	1.32	1.08
ANNUAL RUNOFF (INCHES)	15.68	17.88	14.71
10 PERCENT EXCEEDS	812	804	756
50 PERCENT EXCEEDS	157	168	134
90 PERCENT EXCEEDS	23	17	16

e Estimated

## 03363900 FLATROCK RIVER AT COLUMBUS, IN

LOCATION.--Lat 39°14'06", long 85°55'36", in NE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.12, T.9 N., R.5 E., Bartholomew County, Hydrologic Unit 05120205, on left bank at downstream side of bridge on U.S. Highway 31, 0.2 mi northwest of Columbus city limits, and 2.6 mi upstream from mouth.

DRAINAGE AREA.--534 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 610.14 ft above sea level.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	61	61	92	e160	310	409	530	1340	575	672	237	105
2	60	62	170	e155	289	378	600	1090	551	605	210	102
3	59	62	177	e150	276	355	508	880	479	549	186	97
4	58	63	150	e148	259	338	488	887	459	884	167	93
5	57	65	139	156	262	320	464	807	423	1060	157	91
6	56	65	139	175	266	293	414	709	412	677	174	87
7	55	64	133	1250	248	273	390	782	374	577	246	87
8	55	63	124	3460	236	280	385	2570	342	540	302	84
9	54	62	118	3710	247	1000	1850	2480	435	858	272	81
10	54	62	117	2570	275	2210	6460	1600	857	575	416	79
11	53	61	121	1320	310	1390	8540	1150	1370	487	637	78
12	53	61	184	951	419	925	3560	907	5590	436	435	76
13	53	61	189	767	554	722	1780	773	10400	395	333	73
14	57	63	166	652	482	629	1360	685	9300	387	276	72
15	57	63	150	589	419	551	1130	613	6480	373	243	72
16	58	64	139	551	380	478	4070	560	9360	336	223	70
17	58	66	131	497	388	442	8130	511	6970	324	209	69
18	58	67	123	450	642	844	3720	465	4040	293	195	69
19	58	67	119	404	1340	1660	1870	432	3100	263	181	67
20	58	67	115	369	1130	1700	1390	424	3380	1630	170	66
21	57	68	111	340	988	2700	1120	404	2520	1540	163	65
22	56	69	111	320	855	1960	980	383	1670	771	158	65
23	56	74	109	349	729	1270	1210	461	3720	577	153	63
24	58	81	116	621	642	971	1050	2600	2930	563	145	62
25	58	88	142	583	564	803	877	3060	1640	494	142	61
26	58	86	388	499	504	698	790	1680	1200	410	141	60
27	58	82	415	447	483	620	731	1080	975	350	130	59
28	59	79	330	411	456	571	663	835	833	308	123	58
29	61	78	279	388	---	549	621	696	741	281	119	57
30	60	86	242	369	---	491	779	665	723	260	115	56
31	59	---	e200	339	---	458	---	596	---	249	110	---
TOTAL	1772	2060	5239	23150	13953	26288	56460	32125	81849	17724	6768	2224
MEAN	57.2	68.7	169	747	498	848	1882	1036	2728	572	218	74.1
MAX	61	88	415	3710	1340	2700	8540	3060	10400	1630	637	105
MIN	53	61	92	148	236	273	385	383	342	249	110	56
CFSM	.11	.13	.32	1.40	.93	1.59	3.52	1.94	5.11	1.07	.41	.14
IN.	.12	.14	.36	1.61	.97	1.83	3.93	2.24	5.70	1.23	.47	.15

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1998, BY WATER YEAR (WY)

	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
MEAN	161	455	695	757	949	991	1026	930	620	403	263	153																			
MAX	912	2336	2092	1827	2524	2223	2301	3871	2728	1556	1296	837																			
(WY)	1994	1994	1991	1969	1982	1978	1996	1996	1998	1979	1979	1989																			
MIN	33.2	47.6	44.8	30.6	189	204	251	132	77.2	50.8	35.0	30.1																			
(WY)	1992	1977	1977	1977	1992	1992	1976	1976	1988	1988	1988	1988																			

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1968 - 1998
ANNUAL TOTAL	235679	269612	615
ANNUAL MEAN	646	739	949
HIGHEST ANNUAL MEAN			271
LOWEST ANNUAL MEAN			1977
HIGHEST DAILY MEAN	15200	Jun 2	18200
LOWEST DAILY MEAN	53	Oct 11	22
ANNUAL SEVEN-DAY MINIMUM	54	Oct 7	23
INSTANTANEOUS PEAK FLOW			20000
INSTANTANEOUS PEAK STAGE			15.87
ANNUAL RUNOFF (CFSM)	1.21	1.38	1.15
ANNUAL RUNOFF (INCHES)	16.42	18.78	15.65
10 PERCENT EXCEEDS	1350	1630	1360
50 PERCENT EXCEEDS	290	349	319
90 PERCENT EXCEEDS	62	61	62

e Estimated

## WABASH RIVER BASIN

03364000 EAST FORK WHITE RIVER AT COLUMBUS, IN

LOCATION.--Lat 39°12'00", long 85°55'32", in NE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.25, T.9 N., R.5 E., Bartholomew County, Hydrologic Unit 05120205, on left bank at abutment of abandoned bridge at west end of Second Street in Columbus, 0.6 mi downstream from confluence of Driftwood River and Flatrock River, 1.3 mi upstream from Haw Creek, and at mile 238.7.

DRAINAGE AREA.--1,707 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1947 to current year. Prior to January 1948 monthly discharge only, published in WSP 1305.

REVISED RECORDS.--WSP 1335: 1948-49. WSP 2109: Drainage area.

GAGE.--Water-stage recorder above concrete control. Datum of gage is 603.12 ft above sea level. Prior to Oct. 22, 1952, nonrecording gage 600 ft upstream at same datum.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	211	260	413	e500	863	1190	2490	5030	2160	1990	836	406
2	205	269	614	e500	824	1090	2910	4490	2000	1770	766	394
3	198	304	596	521	795	1020	2460	4440	1780	1600	712	379
4	194	323	532	489	762	974	2230	3740	1690	3550	679	367
5	192	321	500	489	776	939	2060	3310	1560	3390	658	354
6	186	309	496	588	756	889	1820	2680	1560	2220	825	343
7	181	294	475	2230	721	843	1690	3080	1470	1830	1320	341
8	178	274	451	6010	703	926	1670	8570	1320	1760	1270	339
9	181	265	430	7120	709	3810	4900	11400	1930	2130	1200	323
10	202	258	460	5520	740	7290	13500	8110	3270	1660	1090	316
11	201	252	450	3460	879	5530	18500	4810	3910	1420	1190	332
12	203	248	534	2600	1130	3660	13000	3540	10500	1270	887	340
13	206	255	559	2130	1200	2770	5770	2890	18200	1170	757	332
14	241	279	517	1800	1060	2370	4180	2510	23600	1140	688	328
15	249	287	484	1600	932	2090	3640	2200	21500	1090	643	327
16	274	299	462	1470	874	1820	12300	1980	27600	1010	611	332
17	265	304	440	1330	1030	1700	17800	1790	27800	959	583	332
18	245	306	421	1210	1640	2940	11200	1630	19100	889	565	332
19	236	300	407	1090	3140	6970	5440	1540	12600	831	553	342
20	229	298	395	996	3040	9900	3990	1720	11500	9180	525	327
21	223	311	383	932	2810	12000	3340	1570	8430	6240	504	313
22	216	331	387	886	2490	10500	3090	1440	5260	2490	486	324
23	213	343	385	967	2140	5810	3700	2090	10700	1960	473	313
24	225	361	427	1560	1880	4200	3100	6470	10200	2000	460	317
25	233	377	516	1600	1650	3450	2630	8190	5080	1610	463	321
26	243	361	826	1370	1470	2960	2360	5390	3580	1320	461	308
27	247	343	994	1230	1380	2620	2230	3690	2920	1140	446	295
28	252	331	822	1120	1300	2400	1980	2810	2520	1010	426	282
29	258	325	715	1050	---	2320	1860	2340	2250	931	431	267
30	248	365	645	987	---	2270	3980	2430	2160	889	443	264
31	241	---	e580	923	---	2100	---	2320	---	886	427	---
TOTAL	6876	9153	16316	54278	37694	109351	159820	118200	248150	61335	21378	9890
MEAN	222	305	526	1751	1346	3527	5327	3813	8272	1979	690	330
MAX	274	377	994	7120	3140	12000	18500	11400	27800	9180	1320	406
MIN	178	248	383	489	703	843	1670	1440	1320	831	426	264
CFSM	.13	.18	.31	1.03	.79	2.07	3.12	2.23	4.85	1.16	.40	.19
IN.	.15	.20	.36	1.18	.82	2.38	3.48	2.58	5.41	1.34	.47	.22

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 1998, BY WATER YEAR (WY)

	MEAN	542	1374	1996	2657	3000	3296	3129	2595	1763	1291	771	521
MAX	2957	8137	6004	14400	8640	8014	7466	10960	8272	4990	5185	3696	
(WY)	1987	1994	1967	1950	1950	1963	1964	1996	1998	1958	1979	1989	
MIN	104	172	191	163	342	829	852	532	325	161	136	101	
(WY)	1995	1955	1964	1977	1964	1954	1971	1976	1988	1954	1954	1954	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1949 - 1998	
ANNUAL TOTAL	768801		852441		1906	
ANNUAL MEAN	2106		2335		3304	
HIGHEST ANNUAL MEAN					534	
LOWEST ANNUAL MEAN					49000	
HIGHEST DAILY MEAN	34500	Jun 2	27800	Jun 17	85	Mar 6 1963
LOWEST DAILY MEAN	178	Oct 8	178	Oct 8	90	Sep 22 1994
ANNUAL SEVEN-DAY MINIMUM	187	Oct 3	187	Oct 3	52300	Sep 28 1954
INSTANTANEOUS PEAK FLOW			31600	Jun 16	16.23	Mar 6 1963
INSTANTANEOUS PEAK STAGE			12.67	Jun 16	1.12	
ANNUAL RUNOFF (CFSM)			1.37		15.17	
ANNUAL RUNOFF (INCHES)	1.23		18.58			
10 PERCENT EXCEEDS	4980		5470		4310	
50 PERCENT EXCEEDS	1020		994		970	
90 PERCENT EXCEEDS	259		265		253	

e Estimated



## 03364500 CLIFTY CREEK AT HARTSVILLE, IN

LOCATION.--Lat 39°16'25", long 85°42'10", in NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.36, T.10 N., R.7 E., Bartholomew County, Hydrologic Unit 05120206, at downstream side of left abutment of county highway bridge, 0.2 mi north of Hartsville, 5.9 mi upstream from Duck Creek, and at mile 22.0.

DRAINAGE AREA.--91.4 mi<sup>2</sup>.

PERIOD OF RECORD.--February 1948 to current year.

REVISED RECORDS.--WSP 1335: 1950. WSP 1725: 1949(M). WSP 2109: Drainage area. WDR IN-74-1: 1973.

GAGE.--Water-stage recorder. Datum of gage is 677.34 ft above sea level. Prior to Sept. 24, 1952, nonrecording gage at same site and datum.

REMARKS.--Records good except for estimated daily discharges and those below 1 ft<sup>3</sup>/s, which are poor.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1913 reached an elevation of 702.4 ft above sea level, from floodmarks, upstream from bridge.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.24	e2.6	12	14	30	50	101	442	148	e66	15	e2.2
2	.21	e2.1	18	e13	29	46	91	296	97	e54	12	e1.9
3	.19	e3.5	12	e12	27	43	74	190	72	e45	11	e1.6
4	e.17	e2.5	9.4	12	26	41	89	177	61	e250	9.5	e1.4
5	e.16	e1.8	8.3	12	29	37	80	134	63	e140	9.0	e1.3
6	e.14	e1.4	7.6	37	28	33	71	108	70	e70	9.5	e1.2
7	e.13	e2.9	7.5	289	26	32	66	296	52	e52	61	e1.1
8	e.12	e2.5	6.4	706	26	38	70	582	44	157	57	e1.1
9	e.19	e2.1	5.9	337	28	415	462	284	313	220	53	e1.0
10	e.40	e1.8	7.4	180	37	327	653	189	494	79	79	e.92
11	e.37	e1.5	10	121	72	181	294	139	1750	54	71	e.84
12	e.33	e1.3	19	93	194	126	187	111	1920	42	31	e.78
13	e.30	e2.4	14	78	146	106	142	95	1590	35	20	e.72
14	e.60	e4.0	11	64	103	97	123	80	499	31	15	e.66
15	e.54	e3.5	9.1	62	80	78	129	70	2000	29	12	e.61
16	e.47	e3.0	8.5	54	73	70	2270	64	500	35	10	e.57
17	e.42	e2.4	7.0	45	83	71	609	54	330	34	8.8	e.53
18	e.38	e1.9	6.0	39	220	186	306	47	197	25	7.7	e.47
19	e.34	e2.5	5.9	34	247	344	209	43	837	21	6.7	e.51
20	e.31	e3.7	5.8	31	176	371	153	45	323	245	5.7	e.63
21	e.28	6.0	5.3	29	148	501	124	40	194	84	5.1	e.52
22	e.26	7.3	5.4	28	121	279	113	37	159	53	4.6	e.48
23	e.24	7.8	5.9	62	107	189	154	272	1850	201	4.3	e.38
24	e.50	10	8.9	95	91	154	128	1140	373	83	e3.2	e.44
25	e1.0	7.4	54	72	76	132	104	613	198	45	e4.1	e.52
26	e1.1	4.4	68	58	69	117	94	264	137	31	e3.5	e.45
27	e2.0	4.4	40	50	68	101	84	168	107	25	e2.9	e.32
28	e1.6	3.6	29	45	58	95	71	122	87	21	e2.4	e.27
29	e1.1	3.2	24	42	---	82	69	97	75	19	e3.2	e.22
30	e1.5	4.1	21	38	---	72	372	303	80	17	e2.9	e.19
31	e2.0	---	16	33	---	70	---	144	---	18	e2.6	---
TOTAL	17.59	107.6	468.3	2785	2418	4484	7492	6646	14620	2281	542.7	23.83
MEAN	.57	3.59	15.1	89.8	86.4	145	250	214	487	73.6	17.5	.79
MAX	2.0	10	68	706	247	501	2270	1140	2000	250	79	2.2
MIN	.12	1.3	5.3	12	26	32	66	37	44	17	2.4	.19
CFSM	.01	.04	.17	.98	.94	1.58	2.73	2.35	5.33	.81	.19	.01
IN.	.01	.04	.19	1.13	.98	1.82	3.05	2.70	5.95	.93	.22	.01

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 1998, BY WATER YEAR (WY)

	MEAN	20.7	72.2	119	161	165	184	160	137	78.3	55.7	32.8	18.2
MAX	183	431	515	874	551	465	572	482	487	242	264	261	
(WY)	1978	1986	1991	1949	1950	1961	1996	1996	1998	1992	1995	1974	
MIN	.000	.000	.13	1.47	7.18	21.1	17.7	10.9	1.16	.000	.000	.000	
(WY)	1954	1954	1954	1977	1954	1954	1976	1976	1988	1954	1954	1953	

## SUMMARY STATISTICS FOR 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1949 - 1998

	ANNUAL TOTAL	33577.45	41886.02	
ANNUAL MEAN		92.0	115	99.9
HIGHEST ANNUAL MEAN				197
LOWEST ANNUAL MEAN				9.00
HIGHEST DAILY MEAN	3040	Jun 1	2270	Apr 16
LOWEST DAILY MEAN	.12	Oct 8	.12	Oct 8
ANNUAL SEVEN-DAY MINIMUM	.16	Oct 3	.16	Oct 3
INSTANTANEOUS PEAK FLOW			4760	Jun 12
INSTANTANEOUS PEAK STAGE			9.35	Jun 12
ANNUAL RUNOFF (CFSM)	1.01		1.26	
ANNUAL RUNOFF (INCHES)	13.67		17.05	
10 PERCENT EXCEEDS	188		281	
50 PERCENT EXCEEDS	31		37	
90 PERCENT EXCEEDS	.98		.56	.90

e Estimated

## WABASH RIVER BASIN

03365500 EAST FORK WHITE RIVER AT SEYMOUR, IN

LOCATION.--Lat 38°58'57", long 85°53'57", in NW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.7, T.6 N., R.6 E., Jackson County, Hydrologic Unit 05120206, on left bank 1,700 ft downstream from highway bridge, 1 mi north of Seymour, 9.5 mi downstream from Sand Creek, and at mile 214.6.

DRAINAGE AREA.--2,341 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1927 to current year. Yearly maximum discharge only for water years 1924-27 published in WSP 1305. Daily gage heights from May 1923 to September 1927 are available in the district office.

REVISED RECORDS.--WSP 743: 1928-29, 1931-32. WSP 783: 1934. WSP 873: 1938. WSP 1335: 1928(M), 1929-30, 1932-33(M), 1937(M), 1942. WSP 1435: 1949. WSP 1705: 1958. WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 550.67 ft above sea level. Oct. 1, 1927 to July 2, 1931, nonrecording gage 1,700 ft upstream at datum 7.61 ft higher. July 3, 1931 to July 16, 1934, nonrecording gage at site 100 ft downstream at present datum.

REMARKS.--Records good.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 26, 1913, reached a stage of 21.0 ft, from information by Corps of Engineers and Indiana Department of Highways, discharge, 120,000 ft<sup>3</sup>/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	363	331	583	709	1180	1620	3140	9810	2910	3400	1450	623
2	351	340	675	660	1120	1480	3820	8410	2650	2950	1320	607
3	345	344	755	660	1070	1380	3540	7020	2310	2600	1210	587
4	338	418	698	642	1040	1310	3140	5790	2140	3320	1140	567
5	331	416	638	624	1040	1270	3050	5060	2000	7470	1080	555
6	321	413	616	709	1040	1210	2710	4080	1950	4290	1050	537
7	316	406	593	1640	1010	1140	2440	3820	1900	3090	1670	526
8	310	385	559	6630	975	1140	3660	8500	1750	2700	2950	514
9	306	372	539	8620	961	4080	5670	10600	2080	2870	2720	503
10	310	361	546	8590	1020	7710	8240	12200	4890	3030	2400	492
11	308	359	619	6060	1480	8610	17300	9060	5130	2300	2980	483
12	304	354	649	4050	2410	6300	21000	6010	12300	2020	2220	474
13	308	356	694	3180	2370	4340	12500	4440	23000	1850	1550	466
14	332	373	666	2630	1910	3500	7290	3690	29600	1750	1310	457
15	325	372	616	2270	1590	3020	5590	3170	32000	1690	1170	448
16	325	376	585	2060	1410	2600	27100	2770	34600	1610	1080	443
17	348	387	555	1880	1420	2330	39800	2470	37900	1530	1020	442
18	338	383	534	1700	2450	2430	22300	2210	32800	1490	963	441
19	326	378	515	1560	3790	5450	11700	2030	27000	1390	936	436
20	316	374	501	1430	4420	8760	7520	2190	21700	7270	888	440
21	312	377	485	1330	3930	12400	5750	2120	13100	27700	848	421
22	306	394	486	1250	3560	13800	4890	1940	10000	7330	815	416
23	302	396	492	1320	3060	11000	5090	3870	15200	4250	790	411
24	309	428	543	1760	2680	7150	5370	6690	24400	3930	764	408
25	316	444	969	2090	2340	5420	4200	10600	11500	3010	745	409
26	318	447	1140	1880	2050	4560	3590	10300	7200	2390	735	400
27	331	429	1270	1660	1880	3960	3730	6930	5330	2050	718	385
28	320	410	1150	1520	1770	3510	3240	4640	4340	1820	699	375
29	329	399	992	1420	---	3240	2800	3520	3750	1650	682	370
30	326	434	887	1340	---	3070	4590	2980	3570	1630	661	365
31	318	---	807	1260	---	2890	---	3380	---	1640	643	---
TOTAL	10008	11656	21357	73134	54976	140680	254760	170300	379000	116020	39207	14001
MEAN	323	389	689	2359	1963	4538	8492	5494	12630	3743	1265	467
MAX	363	447	1270	8620	4420	13800	39800	12200	37900	27700	2980	623
MIN	302	331	485	624	961	1140	2440	1940	1750	1390	643	365
CFSM	.14	.17	.29	1.01	.84	1.94	3.63	2.35	5.40	1.60	.54	.20
IN.	.16	.19	.34	1.16	.87	2.24	4.05	2.71	6.02	1.84	.62	.22

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 1998, BY WATER YEAR (WY)

	MEAN	706	1631	2571	3839	3965	4608	4390	3523	2340	1596	973	643
MAX	3599	11570	9245	19560	12290	10690	9211	17020	12630	6040	8795	4244	
(WY)	1994	1994	1928	1950	1950	1963	1944	1996	1998	1979	1979	1989	
MIN	162	182	207	192	373	299	356	264	394	199	148	136	
(WY)	1941	1935	1964	1977	1931	1941	1941	1941	1931	1941	1941	1941	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1928 - 1998
ANNUAL TOTAL	1103715	1285099	
ANNUAL MEAN	3024	3521	2558
HIGHEST ANNUAL MEAN			4575
LOWEST ANNUAL MEAN			287
HIGHEST DAILY MEAN	45300	Jun 2	63500
LOWEST DAILY MEAN	302	Oct 23	86
ANNUAL SEVEN-DAY MINIMUM	309	Oct 7	93
INSTANTANEOUS PEAK FLOW		54800	78500
INSTANTANEOUS PEAK STAGE		18.73	19.67
ANNUAL RUNOFF (CFSM)	1.29	1.50	1.09
ANNUAL RUNOFF (INCHES)	17.54	20.42	14.85
10 PERCENT EXCEEDS	7070	8450	5800
50 PERCENT EXCEEDS	1470	1530	1220
90 PERCENT EXCEEDS	360	360	300

## 03365575 VON FANGE DITCH AT SEYMOUR, IN

LOCATION.--Lat 38°56'42", long 85°54'54", in NW¼SE¼ sec. 24, T.6 N., R.5 E., Jackson County, Hydrologic Unit 05120206, on left bank 4500 ft upstream of U.S. 50 bridge over Von Fange Ditch, 1.0 mi north of Freeman Municipal Airport, 1.5 mi southwest of Seymour, and 1.8 mi upstream from mouth.

DRAINAGE AREA.--4.17 mi<sup>2</sup>.

PERIOD OF RECORD.--October 17, 1994 to October 1, 1998. (Discontinued.)

GAGE.--Water-stage recorder and Acoustic Velocity Meter. Datum of gage is 557.30 ft above sea level.

REMARKS.--Records poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	4.2	.26	.00	.00	.05	3.8	11	1.8	3.0	e1.2	.49
2	.00	.08	.00	.00	.00	.12	.55	7.5	1.5	2.1	e.43	.47
3	.00	.00	.26	.00	.00	.11	1.0	4.8	1.4	1.3	e.30	.44
4	.00	.00	.03	.00	.00	.70	3.6	3.1	1.5	10	e.21	.20
5	.00	.00	.00	2.7	.00	.22	.67	2.3	6.1	2.3	e.17	.11
6	.00	.11	.00	2.5	2.6	.06	.56	2.2	1.8	1.8	e.14	e.00
7	.00	.05	.00	12	.52	.00	.47	14	1.6	8.6	e20	e.00
8	.00	.00	.00	5.8	.31	9.0	22	5.9	1.8	3.8	e10	e.00
9	.00	.00	.00	1.6	.28	36	16	3.2	31	1.9	e13	e.00
10	.00	.00	1.4	.53	.44	5.6	6.2	2.4	7.5	1.3	e5.0	e.00
11	.00	.00	.01	.27	6.8	3.0	2.8	2.0	37	.99	e6.0	e.00
12	.00	.00	.00	.37	5.4	1.9	1.7	1.6	13	.88	e2.5	e.00
13	1.0	2.2	.00	.10	2.2	1.6	1.6	1.4	23	e.84	e1.5	e.00
14	.48	.52	.00	.10	1.2	1.2	1.3	1.2	7.4	e.77	e.70	e.00
15	.00	.00	.00	.12	.75	.88	17	1.1	8.1	e.75	e.50	e.00
16	.00	.00	.00	.19	1.5	.84	158	.95	5.0	e1.0	e.35	e.00
17	.00	.00	.00	.09	5.8	.91	22	.85	3.2	.61	e.25	e.00
18	.00	.00	.00	.00	2.4	1.2	9.7	.87	2.3	.51	e.19	e.00
19	.00	.00	.00	.04	1.0	.91	8.5	5.4	66	.51	e.15	e.00
20	.00	.00	.00	.00	.95	11	5.4	33	11	e18	e.12	e.00
21	.00	.25	.00	.00	.52	4.7	6.7	4.2	8.3	e10	e.10	e.00
22	.00	.10	.30	.68	.39	2.1	4.9	5.6	8.9	e2.7	e.09	e.30
23	.00	.00	.00	1.3	.94	e1.4	3.5	54	33	e1.4	e.08	e.13
24	1.3	.00	6.3	.09	.33	e1.0	2.8	27	8.5	e.90	e.20	e.06
25	.00	.00	1.0	.00	.28	e.80	2.4	10	4.8	e.60	e.55	e.16
26	2.0	.00	.02	.00	.23	.66	3.4	6.2	3.6	e.45	1.0	e.05
27	.04	.00	.00	.00	.38	.55	4.1	4.3	3.2	e.32	1.1	e.00
28	.00	.00	.00	.00	.12	.43	2.1	3.7	2.6	e.25	1.4	e.00
29	.00	.00	.00	.00	---	.33	6.8	3.0	5.8	e.20	1.3	e.00
30	.00	7.9	.00	.00	---	.38	46	2.6	8.4	e1.7	1.0	e.00
31	.00	---	.00	.00	---	5.0	---	2.2	---	e4.0	.82	---
TOTAL	4.82	15.41	9.58	28.48	35.34	92.65	365.55	227.57	319.1	83.48	70.35	2.41
MEAN	.16	.51	.31	.92	1.26	2.99	12.2	7.34	10.6	2.69	2.27	.080
MAX	2.0	7.9	6.3	12	6.8	36	158	54	66	18	20	.49
MIN	.00	.00	.00	.00	.00	.00	.47	.85	1.4	.20	.08	.00
CFSM	.04	.12	.07	.22	.30	.72	2.92	1.76	2.55	.65	.54	.02
IN.	.04	.14	.09	.25	.32	.83	3.26	2.03	2.85	.74	.63	.02

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 1998, BY WATER YEAR (WY)

	MEAN	.19	.72	2.24	3.11	1.98	4.15	8.95	8.81	6.81	2.02	1.67	.43
MAX	.40	.98	4.27	5.45	3.80	8.01	15.1	12.3	10.6	2.69	3.01	1.46	
(WY)	1996	1997	1997	1996	1997	1997	1996	1995	1998	1998	1995	1996	
MIN	.059	.51	.31	.92	1.20	2.33	2.86	4.24	2.76	.78	.48	.022	
(WY)	1995	1998	1998	1998	1996	1995	1997	1997	1995	1996	1996	1997	

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

## WATER YEARS 1995 - 1998

ANNUAL TOTAL	1087.11	1254.74	
ANNUAL MEAN	2.98	3.44	3.42
HIGHEST ANNUAL MEAN			3.98
LOWEST ANNUAL MEAN			2.92
HIGHEST DAILY MEAN	41	158	180
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
INSTANTANEOUS PEAK FLOW		272	272
INSTANTANEOUS PEAK STAGE		6.96	6.96
INSTANTANEOUS LOW FLOW			.00
ANNUAL RUNOFF (CFSM)	.71	.82	.82
ANNUAL RUNOFF (INCHES)	9.70	11.19	11.16
10 PERCENT EXCEEDS	7.4	8.2	8.6
50 PERCENT EXCEEDS	1.3	.52	.79
90 PERCENT EXCEEDS	.00	.00	.00

e Estimated

## WABASH RIVER BASIN

03366200 HARBERTS CREEK NEAR MADISON, IN

LOCATION.--Lat 38°46'55", long 85°29'08", in SW<sup>1</sup>/<sub>4</sub> SE<sup>1</sup>/<sub>4</sub> sec.14, T.4 N., R.9 E., Jefferson County, Hydrologic Unit 05120207, mounted on left downstream wingwall of bridge on County Road 533 West, 0.2 mi west of Smyrna, 3.7 mi upstream from Big Creek, and 4 mi northwest of Madison.

DRAINAGE AREA.--9.31 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Datum of gage is 725.75 ft above sea level.

REMARKS.--Records good except for estimated daily discharges and daily discharges below 1.0 ft<sup>3</sup>/s, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	1.0	4.7	e.84	1.2	3.7	9.6	44	.84	1.4	.61	e.00
2	.00	.50	1.3	e.80	1.2	3.3	6.6	27	.68	.98	.44	.00
3	.00	.20	.88	.99	1.1	3.0	4.9	26	.60	.82	.35	.00
4	.00	.15	1.8	1.2	e1.1	3.0	20	15	.60	6.1	.31	.00
5	.00	.14	1.1	1.8	e1.3	3.5	10	8.4	.95	2.3	.30	.00
6	.00	.13	.74	6.7	e1.7	4.3	6.9	5.8	.75	.99	6.0	.00
7	.00	.13	.60	120	e2.1	3.6	5.6	209	.56	1.3	30	.00
8	.00	.12	.55	124	e3.0	11	12	111	.54	2.6	2.9	.00
9	.00	.12	.58	19	e5.0	141	21	24	117	1.2	e.60	.00
10	.00	.12	8.6	10	12	24	38	11	14	.79	e.09	.00
11	.00	.11	3.7	6.9	155	12	11	7.0	301	.58	e.01	.00
12	.00	.10	1.5	5.7	87	8.3	7.7	4.5	70	.51	e.00	.00
13	.00	.24	.96	4.9	22	7.2	6.2	3.0	151	.46	e.00	.00
14	.00	2.8	.74	3.6	13	6.4	5.9	2.0	16	.59	e.00	.00
15	.00	.27	e.68	3.2	8.9	4.9	51	1.4	9.8	.88	e.00	.00
16	.00	.24	e.64	2.7	9.0	4.0	506	1.0	7.2	.89	e.00	.00
17	.00	.22	.62	2.4	24	3.8	57	.82	4.9	.57	e.00	.00
18	.00	.18	e.60	2.1	35	8.2	18	.70	3.4	.47	e.00	.00
19	.00	.17	e.58	2.2	16	9.4	20	.99	17	.42	e.00	.00
20	.00	.16	e.58	1.9	14	85	13	4.9	5.8	13	e.00	.00
21	.00	.19	e.60	1.6	11	40	9.2	1.1	6.2	3.3	e.00	.00
22	.00	.40	2.2	1.6	8.2	17	7.8	1.0	12	1.0	e.00	.00
23	.00	.28	2.6	6.3	7.0	10	7.3	98	138	.68	e.00	.00
24	.00	.23	8.1	5.3	5.6	7.8	5.6	43	14	.55	e.00	.00
25	.01	.21	15	3.5	4.6	6.4	4.3	21	7.1	.44	e.00	.00
26	.32	.20	5.8	2.6	4.2	6.0	3.9	7.1	4.7	.37	e.00	.00
27	.33	.23	3.1	2.1	4.9	5.1	14	4.0	3.1	.34	e.00	.00
28	.16	.26	2.0	1.8	4.6	4.6	6.6	2.3	2.1	.32	e.00	.00
29	.12	.22	1.5	1.7	---	4.0	14	1.5	2.0	.30	e.00	.00
30	.10	7.1	1.3	1.5	---	3.4	268	1.1	3.0	2.2	e.00	.00
31	.09	---	e.92	1.3	---	3.4	---	1.0	---	2.5	e.00	---
TOTAL	1.13	16.42	74.57	350.23	463.7	457.3	1171.1	688.61	914.82	48.85	41.61	0.00
MEAN	.036	.55	2.41	11.3	16.6	14.8	39.0	22.2	30.5	1.58	1.34	.000
MAX	.33	7.1	15	124	155	141	506	209	301	13	30	.00
MIN	.00	.10	.55	.80	1.1	3.0	3.9	.70	.54	.30	.00	.00
CFSM	.00	.06	.26	1.21	1.78	1.58	4.19	2.39	3.28	.17	.14	.00
IN.	.00	.07	.30	1.40	1.85	1.83	4.68	2.75	3.66	.20	.17	.00

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1998, BY WATER YEAR (WY)

	3.74	13.3	18.9	18.3	20.6	25.9	25.0	18.8	9.11	4.07	4.10	2.14
MEAN	3.74	13.3	18.9	18.3	20.6	25.9	25.0	18.8	9.11	4.07	4.10	2.14
MAX	28.8	48.6	64.1	57.5	51.9	52.0	84.5	76.1	51.3	14.7	28.2	18.7
(WY)	1984	1980	1991	1982	1971	1975	1996	1996	1997	1993	1992	1979
MIN	.036	.29	1.52	.49	1.47	4.72	2.65	1.12	.083	.21	.11	.000
(WY)	1998	1982	1977	1977	1992	1969	1976	1976	1988	1991	1975	1998

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

## WATER YEARS 1969 - 1998

ANNUAL TOTAL	5891.00	4228.34	
ANNUAL MEAN	16.1	11.6	13.6
HIGHEST ANNUAL MEAN			23.7
LOWEST ANNUAL MEAN			6.13
HIGHEST DAILY MEAN	414	Jun 18	1110
LOWEST DAILY MEAN	.00	Aug 4	.00
ANNUAL SEVEN-DAY MINIMUM	.00	Aug 4	.00
INSTANTANEOUS PEAK FLOW			1340
INSTANTANEOUS PEAK STAGE			6.93
ANNUAL RUNOFF (CFSM)	1.73		1.24
ANNUAL RUNOFF (INCHES)	23.54		16.90
10 PERCENT EXCEEDS	33		17
50 PERCENT EXCEEDS	2.0		1.3
90 PERCENT EXCEEDS	.00		.00

e Estimated

## 03366500 MUSCATATUCK RIVER NEAR DEPUTY, IN

LOCATION.--Lat 38°48'15", long 85°40'26", in SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.7, T.4 N., R.8 E., Jefferson County, Hydrologic Unit 05120207, on left bank at downstream side of highway bridge, 1.4 mi northwest of Deputy, 1.9 mi upstream from Coffee Creek, 2.4 mi downstream from confluence of Graham Creek and Big Creek, and at mile 50.0.

DRAINAGE AREA.--293 mi<sup>2</sup>.

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

REVISED RECORDS.--WSP 1335: 1948. WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 540.00 ft above sea level. Prior to June 22, 1955, nonrecording gage at same site. Prior to Aug. 25, 1983, at datum 1.17 ft higher.

REMARKS.--Records poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	8.1	202	e49	70	135	186	2600	510	123	72	e3.4
2	e.80	13	205	e43	65	119	223	837	132	95	35	e4.8
3	e.70	7.0	93	e38	62	109	178	654	80	62	23	e3.9
4	e.60	8.2	69	e37	60	103	293	657	63	77	18	e3.7
5	e.54	7.4	71	48	e58	106	354	420	62	272	16	e4.9
6	e.47	6.3	75	79	e56	112	236	288	70	119	14	e4.3
7	e.43	6.1	56	628	e79	127	187	1750	57	73	501	e3.5
8	e.39	5.6	42	5800	103	139	1730	3360	48	178	330	e3.1
9	e.37	4.9	34	1600	146	3080	1640	1230	1930	156	168	e2.8
10	e.33	4.4	43	495	229	1680	1950	548	1340	100	152	e2.5
11	e.54	4.0	195	300	1870	532	730	351	3830	58	192	e2.2
12	e.79	3.7	159	226	3530	330	371	259	2370	40	95	e2.0
13	e1.1	3.9	90	196	1160	257	266	206	3800	32	49	e1.9
14	e1.5	14	63	177	499	227	225	170	1030	28	33	e1.7
15	e1.8	30	49	157	328	197	327	138	398	29	25	e1.5
16	e1.6	26	41	139	266	171	11400	113	315	31	20	e1.8
17	e1.4	17	34	125	330	155	4340	93	489	31	17	e2.0
18	e1.1	14	29	113	887	162	903	78	239	26	15	e2.5
19	e.95	e12	25	103	689	247	553	68	2000	22	17	e3.0
20	e.83	e10	24	98	444	663	470	337	1140	1100	17	e3.5
21	e.72	e8.0	21	92	409	1980	351	163	390	1200	12	e4.5
22	e.64	e14	21	86	314	764	287	107	465	224	9.9	e6.6
23	e.55	e12	26	102	257	414	259	1950	3430	120	8.6	e4.0
24	e.51	e10	63	220	220	293	244	1420	1210	77	7.6	e2.9
25	e2.5	e8.3	613	188	188	236	205	558	345	54	6.4	e2.3
26	e1.9	e6.9	432	147	166	210	180	322	216	41	5.6	e2.7
27	e2.3	e5.9	222	120	158	194	417	222	157	34	4.6	e3.0
28	e2.0	e4.9	143	104	151	173	400	174	113	27	4.1	e2.6
29	e1.7	e4.3	104	94	---	154	266	137	87	22	e3.7	e2.4
30	e1.4	31	82	85	---	134	3950	108	149	22	e2.9	e2.4
31	e1.2	---	e64	77	---	120	---	169	---	154	e2.7	---
TOTAL	32.66	310.9	3390	11766	12794	13323	33121	19487	26465	4627	1877.1	92.4
MEAN	1.05	10.4	109	380	457	430	1104	629	882	149	60.6	3.08
MAX	2.5	31	613	5800	3530	3080	11400	3360	3830	1200	501	6.6
MIN	.33	3.7	21	37	56	103	178	68	48	22	2.7	1.5
CFSM	.00	.04	.37	1.30	1.56	1.47	3.77	2.15	3.01	.51	.21	.01
IN.	.00	.04	.43	1.49	1.62	1.69	4.21	2.47	3.36	.59	.24	.01

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 1998, BY WATER YEAR (WY)

	MEAN	59.3	253	446	612	632	728	584	471	248	157	90.3	47.2
MAX	720	1438	1723	2896	1826	2055	1957	1967	1552	661	748	480	480
(WY)	1984	1980	1991	1950	1950	1964	1996	1983	1997	1958	1992	1974	1974
MIN	.000	.15	.21	9.24	18.1	65.2	73.2	23.8	9.46	.42	.000	.000	.000
(WY)	1954	1964	1964	1977	1954	1954	1976	1976	1988	1954	1954	1954	1954

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1949 - 1998
ANNUAL TOTAL	161851.16	127286.06	
ANNUAL MEAN	443	349	359
HIGHEST ANNUAL MEAN			636
LOWEST ANNUAL MEAN			25.3
HIGHEST DAILY MEAN	11500	11400	32400
LOWEST DAILY MEAN	.33	.33	.00
ANNUAL SEVEN-DAY MINIMUM	.44	.44	.00
INSTANTANEOUS PEAK FLOW		17800	52200
INSTANTANEOUS PEAK STAGE		25.10	34.27
ANNUAL RUNOFF (CFSM)	1.51	1.19	1.23
ANNUAL RUNOFF (INCHES)	20.55	16.16	16.67
10 PERCENT EXCEEDS	892	744	757
50 PERCENT EXCEEDS	86	93	77
90 PERCENT EXCEEDS	1.9	2.3	3.6

e Estimated



## WABASH RIVER BASIN

03368000 BRUSH CREEK NEAR NEBRASKA, IN

LOCATION.--Lat 39°04'13", long 85°29'10" in NW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.11, T.7 N., R.9 E., Jennings County, Hydrologic Unit 05120207, at downstream side of bridge on right bank on county road, 1.5 mi northwest of Nebraska, 2.9 mi northeast of Butlerville, and 3.6 mi upstream from Brush Creek Dam.

DRAINAGE AREA.--11.4 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1955 to current year.

REVISED RECORDS.--WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 717.17 ft above sea level (levels by State of Indiana, Department of Natural Resources).

REMARKS.--Records poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	36	e1.0	e1.8	8.0	12	86	1.4	4.4	1.5	.03
2	.00	.86	2.9	e.82	e1.6	7.5	5.6	47	1.1	2.8	1.2	.03
3	.00	1.8	2.3	e1.3	e1.5	8.0	4.6	27	.87	1.9	1.2	.02
4	.00	1.3	13	e2.2	e1.4	9.5	11	14	.89	36	.95	.02
5	.00	.93	e4.0	e3.7	e1.9	11	6.9	9.4	1.3	5.9	.74	.02
6	.00	.78	e1.4	9.2	e2.4	10	5.1	7.6	1.4	3.2	.95	.02
7	.00	.83	e.89	167	e3.4	9.3	4.4	147	1.0	2.5	7.3	.02
8	.00	.89	e.69	226	e4.3	15	260	92	.87	2.8	1.2	.01
9	.00	.83	e1.0	10	e5.8	221	116	72	15	3.5	4.8	.01
10	.00	.75	e11	e23	20	28	52	32	13	1.7	21	.01
11	.00	.71	e5.3	e15	70	14	15	14	10	1.2	.78	.01
12	.00	.68	e2.0	e10	52	9.2	9.5	7.1	129	.97	.51	.01
13	.00	.74	e1.0	e6.3	20	8.1	7.3	4.1	131	.86	.41	.00
14	.00	e2.9	e.82	e5.4	13	7.2	6.6	2.9	17	1.1	.39	.00
15	.00	e1.6	e.75	e4.7	9.9	5.5	76	2.5	6.2	1.1	.51	.00
16	.00	e.90	e.69	e4.0	15	4.9	1210	2.1	42	1.0	.48	.00
17	.00	e.56	e.62	e3.5	43	5.1	68	1.8	11	.83	.46	.00
18	.00	e.35	e.58	e2.9	58	24	25	1.6	3.7	.71	.43	.00
19	.00	e.17	e.52	e3.2	31	21	20	1.4	217	.63	.28	.00
20	.00	e.16	e.49	e2.8	26	64	15	1.7	21	244	.15	.00
21	.00	e.56	e.97	e3.5	21	38	12	1.5	7.4	13	.12	.00
22	.00	e1.9	e1.7	e5.9	16	17	12	1.5	4.6	5.8	.10	.00
23	.00	e.80	2.7	e7.5	14	10	13	20	544	4.4	.08	.00
24	.00	e.35	47	e6.0	12	8.4	10	14	22	3.4	.06	.00
25	.00	e.28	42	e4.5	11	7.0	8.7	9.3	13	2.7	.05	.00
26	.00	e.26	e20	e3.7	9.8	6.3	33	4.2	7.9	2.1	.04	.00
27	.00	e.23	e9.1	e3.1	9.6	5.2	82	2.9	5.0	1.8	.03	.00
28	.00	e.20	e3.5	e2.7	8.7	4.7	22	2.2	3.5	1.6	.03	.00
29	.00	e12	e2.2	e2.4	---	4.1	15	1.8	4.9	1.5	.03	.00
30	.00	80	e1.6	e2.1	---	3.7	260	1.7	23	2.3	.03	.00
31	.00	---	e1.3	e1.9	---	3.6	---	1.5	---	2.3	.02	---
TOTAL	0.00	114.32	218.02	545.32	484.1	598.3	2397.7	633.8	1260.03	358.00	45.83	0.21
MEAN	.000	3.81	7.03	17.6	17.3	19.3	79.9	20.4	42.0	11.5	1.48	.007
MAX	.00	80	47	226	70	221	1210	147	544	244	21	.03
MIN	.00	.00	.49	.82	1.4	3.6	4.4	1.4	.87	.63	.02	.00
CFSM	.00	.33	.62	1.54	1.52	1.69	7.01	1.79	3.68	1.01	.13	.00
IN.	.00	.37	.71	1.78	1.58	1.95	7.82	2.07	4.11	1.17	.15	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1956 - 1998, BY WATER YEAR (WY)

	MEAN	2.45	9.99	17.3	19.5	21.9	28.5	25.6	21.1	9.74	7.16	4.29	1.57
MAX	19.7	64.5	86.9	70.4	51.8	89.6	79.9	86.1	45.6	72.0	41.9	11.0	
(WY)	1984	1986	1991	1959	1971	1963	1998	1995	1997	1962	1978	1974	
MIN	.000	.000	.000	.063	1.44	4.22	2.12	.76	.12	.025	.000	.000	
(WY)	1958	1964	1964	1977	1964	1969	1976	1976	1965	1970	1964	1957	

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1956 - 1998

ANNUAL TOTAL	5685.31	6655.63	
ANNUAL MEAN	15.6	18.2	14.0
HIGHEST ANNUAL MEAN			27.3
LOWEST ANNUAL MEAN			5.92
HIGHEST DAILY MEAN	462	1210	1460
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
INSTANTANEOUS PEAK FLOW		5200	9360
INSTANTANEOUS PEAK STAGE		12.20	12.99
ANNUAL RUNOFF (CFSM)	1.37	1.60	1.23
ANNUAL RUNOFF (INCHES)	18.55	21.72	16.74
10 PERCENT EXCEEDS	27	29	24
50 PERCENT EXCEEDS	2.3	2.4	2.2
90 PERCENT EXCEEDS	.01	.00	.00

e Estimated

03369000 VERNON FORK MUSCATATUCK RIVER NEAR BUTLERVILLE, IN

LOCATION.--Lat 39°02'55", long 85°32'40", in NW 1/4 SE 1/4 sec. 17, T. 7 N., R. 9 E., Jennings County, Hydrologic Unit 05120207, on left bank 0.3 mi downstream from Muscatatuck State School dam, 1.1 mi downstream from Brush Creek, 2 mi northwest of Butlerville, and at mile 50.6.

DRAINAGE AREA.--85.9 mi<sup>2</sup>.

PERIOD OF RECORD.--February 1942 to current year. Prior to October 1960, published as North Fork of Vernon Fork near Butlerville, and as Vernon Fork near Butlerville, October 1960 to September 1979.

REVISED RECORDS.--WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 669.40 ft above sea level. Prior to Aug. 19, 1942, nonrecording gage at same site and datum.

REMARKS.--Records good except for estimated daily discharges, which are poor. Water supply for the Muscatatuck State School is diverted and the sewage effluent returned above station. Flow regulated by Brush Creek Reservoir.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e2.5	8.4	140	e13	20	34	91	456	20	46	8.2	e2.3
2	e2.3	8.8	36	e11	19	31	60	258	16	27	7.1	2.5
3	e2.2	9.6	23	e12	18	29	45	197	13	21	6.3	2.2
4	e2.1	8.2	32	e13	e17	29	70	149	13	301	5.9	2.3
5	e2.0	6.6	27	e16	e18	31	62	115	18	93	6.0	2.5
6	1.6	5.5	19	52	e20	30	48	90	26	41	7.0	2.4
7	1.4	5.2	15	363	e22	28	42	854	15	28	29	e2.2
8	1.3	4.6	12	977	26	33	986	467	11	24	22	e2.0
9	.86	5.3	12	257	34	906	957	243	224	23	26	e1.9
10	e.84	4.6	73	126	65	287	552	158	155	17	101	e1.8
11	e1.1	4.7	62	80	236	136	199	114	549	15	35	e1.8
12	2.3	4.0	33	60	405	e82	122	86	1070	12	14	e1.7
13	5.8	5.5	24	52	170	e70	87	64	1090	11	6.7	e1.7
14	6.6	7.1	19	41	99	e64	74	59	205	11	4.9	e1.6
15	5.2	9.3	15	40	70	54	121	44	231	11	3.8	e1.6
16	e3.8	12	13	37	59	46	8000	35	289	10	3.0	e1.6
17	e3.0	9.8	12	34	121	45	589	29	230	9.6	2.5	e1.7
18	e2.4	8.0	11	30	317	197	272	23	112	9.1	2.2	e1.8
19	e2.0	7.1	10	28	213	168	205	20	1120	8.3	1.9	e2.1
20	e1.8	6.3	9.5	25	145	300	158	27	233	611	1.9	e2.4
21	e1.7	7.5	8.7	23	118	316	126	21	219	146	1.8	2.7
22	e1.6	9.7	14	23	84	162	117	18	145	46	1.7	3.9
23	e1.5	16	50	82	74	105	140	537	2740	176	e1.6	2.9
24	e2.0	14	64	71	68	88	108	441	311	44	e1.6	2.1
25	e8.0	10	213	49	57	71	86	254	148	22	e2.0	1.9
26	3.0	8.1	71	38	48	63	94	119	89	14	2.5	2.0
27	1.9	7.7	44	34	45	53	369	77	59	12	2.5	2.0
28	1.8	7.0	33	31	39	47	144	53	41	10	e2.2	1.9
29	2.3	6.2	e26	28	---	42	120	38	35	8.9	e2.1	1.7
30	3.1	71	e20	26	---	36	1230	33	90	9.7	e2.1	1.7
31	3.1	---	e16	23	---	34	---	26	---	9.1	e2.0	---
TOTAL	81.10	297.8	1157.2	2695	2627	3617	15274	5105	9517	1826.7	316.5	62.9
MEAN	2.62	9.93	37.3	86.9	93.8	117	509	165	317	58.9	10.2	2.10
MAX	8.0	71	213	977	405	906	8000	854	2740	611	101	3.9
MIN	.84	4.0	8.7	11	17	28	42	18	11	8.3	1.6	1.6
CFSM	.03	.12	.43	1.01	1.09	1.36	5.93	1.92	3.69	.69	.12	.02
IN.	.04	.13	.50	1.17	1.14	1.57	6.61	2.21	4.12	.79	.14	.03

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 1998, BY WATER YEAR (WY)

	MEAN	15.9	61.2	107	153	159	204	173	132	63.9	44.3	28.1	15.1
MAX	99.7	441	395	763	492	604	509	554	317	277	308	126	
(WY)	1991	1986	1991	1950	1950	1945	1998	1968	1998	1992	1978	1950	
MIN	.33	.34	.37	1.28	11.3	29.3	18.4	6.91	1.56	1.22	1.32	.37	
(WY)	1952	1944	1944	1977	1964	1983	1976	1949	1965	1954	1951	1943	

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1943 - 1998

ANNUAL TOTAL	27153.80	42577.20	
ANNUAL MEAN	74.4	117	96.2
HIGHEST ANNUAL MEAN			188
LOWEST ANNUAL MEAN			13.1
HIGHEST DAILY MEAN	1840	Jun 1	13200
LOWEST DAILY MEAN	.84	Oct 10	.00
ANNUAL SEVEN-DAY MINIMUM	1.3	Oct 5	.00
INSTANTANEOUS PEAK FLOW			18500
INSTANTANEOUS PEAK STAGE	21.54	Apr 16	26200
ANNUAL RUNOFF (CFSM)	.87		25.41
ANNUAL RUNOFF (INCHES)	11.76		1.12
10 PERCENT EXCEEDS	132		15.21
50 PERCENT EXCEEDS	23		189
90 PERCENT EXCEEDS	3.8		20
			1.4

e Estimated

## 03369500 VERNON FORK MUSCATATUCK RIVER AT VERNON, IN

LOCATION.--Lat 38°58'34", long 85°37'13", in NW<sup>1</sup>/<sub>4</sub> SE<sup>1</sup>/<sub>4</sub> sec.10, T.6 N., R.8 E., Jennings County, Hydrologic Unit 05120207, at downstream end of left bank bridge pier, 1 mi southwest of Vernon, 3.1 mi downstream from Otter Creek, and at mile 36.4.

DRAINAGE AREA.--198 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1939 to current year. Monthly discharge only for some periods, published in WSP 1305. Prior to October 1979, published as Vernon Fork at Vernon.

REVISED RECORDS.--WSP 1335: 1940, 1953. WSP 1909: 1952-53. WSP 2109: Drainage area. WDR IN-91-1: 1990. WDR IN-95-1: 1991-94 (M).

GAGE.--Water-stage recorder. Datum of gage is 585.00 ft above sea level, (levels by State of Indiana, Department of Natural Resources). Prior to Jan. 14, 1940, and June 23 to Nov. 13, 1967, nonrecording gage, and Jan. 14, 1940, to June 22, 1967, water-stage recorder at site on right bank. Prior to Aug. 8, 1983, datum 2.30 ft higher.

REMARKS.--Records good except for estimated daily discharges, which are poor. Diversion above station for municipal water supply of North Vernon and Vernon. Part of this diversion returned above gage as sewage effluent by North Vernon Sewage Treatment Plant. Some regulation at times at low flow by Old Timbers Lake on Jefferson Proving Grounds and Brush Creek Reservoir.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e3.6	e21	e380	e19	e32	e76	e250	e1300	e56	e130	44	3.1
2	e3.1	e25	e90	e15	e28	e68	e140	e700	e40	e80	29	3.3
3	e2.9	e28	e33	e17	e25	e60	e80	e450	e35	e58	25	3.2
4	e2.8	e19	e90	e20	e23	e54	e190	e300	e32	e900	21	3.2
5	e2.5	e14	e70	e35	e30	e48	e160	e230	e45	e400	20	3.7
6	e2.0	e11	e50	e70	e40	e45	e100	e180	e76	e170	20	3.7
7	e1.6	e1.6	e30	e250	e50	e42	e70	e2100	e45	e110	98	3.4
8	e1.5	e8.4	e22	e2600	e80	e56	e2700	e1100	e27	e86	88	3.1
9	e1.2	e7.6	e16	e1100	e140	e2500	e2500	e640	e520	e66	150	e2.9
10	e1.0	e6.8	e210	e390	e230	e1100	e1000	e380	e370	e54	264	e2.7
11	e1.3	e6.2	e170	e249	e450	e360	e440	e270	e1000	42	97	e2.5
12	e2.5	e5.8	e92	e160	e1100	e230	e230	e200	e3200	34	37	e2.4
13	e17	e8.0	e62	e120	e400	e180	e160	e150	e3300	29	16	e2.3
14	e20	e12	e45	e94	e210	e140	e130	e140	e500	28	9.6	e2.2
15	e12	e19	e36	e90	e120	e110	e200	e110	e640	31	7.2	e2.2
16	e8.0	e35	e28	e72	e82	e90	e22000	e84	e840	32	5.3	e2.3
17	e6.0	e17	e22	e62	e250	e82	e4000	e68	e600	30	4.5	e2.5
18	e4.6	e12	e19	e52	e860	e210	e1000	e54	e270	25	3.5	e2.7
19	e3.7	e10	e16	e44	e540	e470	e500	e46	e3350	24	3.2	e3.0
20	e3.0	e9.0	e14	e39	e350	e800	e370	e80	e600	2260	2.7	e3.5
21	e2.5	e11	e12	e35	e250	e860	e270	e56	e540	391	2.4	4.9
22	e2.1	e19	e22	e33	e200	e450	e230	e45	e370	144	2.4	6.7
23	e1.9	e44	e120	e230	e170	e270	e340	e1600	e8000	183	2.3	4.0
24	e3.5	e39	e250	e190	e150	e200	e230	e1300	e640	109	2.1	2.8
25	e24	e25	e580	e120	e130	e160	e170	e700	e450	65	2.6	2.9
26	e6.2	e16	e250	e84	e115	e130	e190	e400	e300	46	3.4	3.2
27	e2.8	e12	e120	e70	e100	e110	e900	e200	e200	38	3.4	3.3
28	e2.5	e9.4	e72	e58	e86	e90	e280	e150	e140	32	3.0	3.2
29	e2.9	e8.0	e50	e50	---	e76	e240	e110	e100	29	2.9	2.8
30	e3.0	e180	e35	e42	---	e66	e3000	e86	e270	191	2.8	3.1
31	e7.0	---	e24	e36	---	e58	---	e70	---	115	2.7	---
TOTAL	158.7	647.8	3030	6446	6241	9191	42070	13299	26556	5932	975.0	94.8
MEAN	5.12	21.6	97.7	208	223	296	1402	429	885	191	31.5	3.16
MAX	24	180	580	2600	1100	2500	22000	2100	8000	2260	264	6.7
MIN	1.0	5.8	12	15	23	42	70	45	27	24	2.1	2.2
CFSM	.03	.11	.49	1.05	1.13	1.50	7.08	2.17	4.47	.97	.16	.02
IN.	.03	.12	.57	1.21	1.17	1.73	7.90	2.50	4.99	1.11	.18	.02

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 1998, BY WATER YEAR (WY)

	MEAN	36.7	140	257	356	386	476	415	307	167	100	64.3	33.1
MAX	292	986	962	2049	1188	1798	1402	1440	963	581	639	284	
(WY)	1984	1986	1991	1950	1950	1945	1998	1968	1960	1962	1978	1974	
MIN	.22	.61	1.03	4.23	24.4	19.0	37.3	8.77	1.80	.63	.003	.19	
(WY)	1941	1954	1944	1977	1964	1941	1941	1941	1988	1954	1940	1943	

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

## WATER YEARS 1940 - 1998

ANNUAL TOTAL	68608.8	114641.3	
ANNUAL MEAN	188	314	227
HIGHEST ANNUAL MEAN			468
LOWEST ANNUAL MEAN			32.8
HIGHEST DAILY MEAN	4600	Jun 1	31900
LOWEST DAILY MEAN	1.0	Oct 10	.00
ANNUAL SEVEN-DAY MINIMUM	1.6	Oct 5	.00
INSTANTANEOUS PEAK FLOW		31100	56800
INSTANTANEOUS PEAK STAGE		26.93	32.83
ANNUAL RUNOFF (CFSM)	.95	1.59	1.15
ANNUAL RUNOFF (INCHES)	12.89	21.54	15.61
10 PERCENT EXCEEDS	374	588	462
50 PERCENT EXCEEDS	52	56	47
90 PERCENT EXCEEDS	6.7	2.9	2.7

e Estimated

## 03371500 EAST FORK WHITE RIVER NEAR BEDFORD, IN

LOCATION.--Lat 38°46'10", long 86°24'30", in SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.21, T.4 N., R.1 E., Lawrence County, Hydrologic Unit 05120208, on right downstream side of county road bridge, 0.4 mi upstream from Mill Creek, 2.9 mi downstream from Sugar Creek, 3.9 mi northeast of Mitchell, 7.8 mi southeast of Bedford, and at mile 153.3.

DRAINAGE AREA.--3,861 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1939 to current year (high-water records only October 1943 to September 1957).

REVISED RECORDS.--WSP 2109: Drainage area. WDR IN-73-1: 1972.

GAGE.--Water-stage recorder. Datum of gage is 473.59 ft above sea level. Prior to Feb. 6, 1940, nonrecording gage, and Feb. 6, 1940, to Sept. 24, 1957, water-stage recorder, at site 9.8 mi downstream at datum 4.39 ft lower.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of 47.5 ft, from floodmark determined by U.S. Army Corps of Engineers, discharge, 155,000 ft<sup>3</sup>/s, at former site.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	569	e430	700	1310	1910	2960	4210	12800	6240	7190	3590	967
2	557	e435	897	1200	1810	2760	4580	12900	6630	5720	3580	941
3	540	e440	1140	1100	1700	2570	5000	14800	5940	4900	2900	905
4	526	e435	1220	1030	1640	2450	5050	15000	4860	4280	2400	880
5	516	e430	1120	1010	1640	2340	5040	14100	4100	4010	2140	853
6	506	e435	1010	1110	1630	2270	5020	12400	3730	6050	2000	824
7	490	e440	949	1580	1610	2200	4540	11000	3520	6860	2820	796
8	474	e440	908	3580	1650	2150	4890	10100	3350	5690	4440	770
9	455	e430	865	6560	1670	3430	7850	9990	4760	4840	7010	751
10	438	e420	827	8540	1710	7260	9750	11900	7490	4600	7560	735
11	428	e405	846	9850	2250	9190	10800	14000	8480	4540	6330	719
12	425	e400	897	10500	5570	10700	12800	15000	9820	3910	5330	707
13	429	e395	1030	9420	7220	11700	15800	13400	11700	3360	4620	696
14	439	e410	1100	6860	7460	10600	18400	9920	14200	3030	3470	686
15	449	e430	1040	4740	7320	8230	17200	6770	19300	2770	2780	673
16	474	e440	953	3800	6970	5560	21300	5340	25400	2640	2380	662
17	e450	e435	883	3310	6380	4220	23100	4580	30000	2520	2120	649
18	e440	e430	830	2980	5730	3650	36100	4060	32500	2390	1920	639
19	e440	e430	787	2720	5830	3530	42200	3660	34600	2290	1760	631
20	e430	e430	752	2490	6670	5450	37800	3480	33000	2210	1640	637
21	e430	e430	724	2300	7070	9960	31100	4080	29800	5240	1540	671
22	e420	e425	708	2140	6560	11600	24500	4420	26200	11400	1450	714
23	e410	e420	706	2050	5860	13400	18600	6420	26700	18100	1360	836
24	e400	e420	735	2090	5150	15000	13900	10400	23800	14800	1290	734
25	e410	e420	940	2320	4500	14300	11100	11300	22600	9280	1230	660
26	e420	e430	1530	2760	3960	10900	8940	12400	24700	5900	1170	625
27	e420	e440	2320	2780	3530	7380	6770	14200	21400	4300	1120	605
28	e420	e440	2260	2520	3190	5680	6020	14300	16400	3530	1090	592
29	e410	e440	1930	2310	---	4870	6390	11400	12000	3080	1070	579
30	e420	e440	1650	2160	---	4350	10200	7600	9680	2780	1030	568
31	e420	---	1460	2030	---	4000	---	5790	---	2770	1000	---
TOTAL	14055	12845	33717	109150	118190	204660	428950	307510	482900	164980	84140	21705
MEAN	453	428	1088	3521	4221	6602	14300	9920	16100	5322	2714	724
MAX	569	440	2320	10500	7460	15000	42200	15000	34600	18100	7560	967
MIN	400	395	700	1010	1610	2150	4210	3480	3350	2210	1000	568
CFSM	.12	.11	.28	.91	1.09	1.71	3.70	2.57	4.17	1.38	.70	.19
IN.	.14	.12	.32	1.05	1.14	1.97	4.13	2.96	4.65	1.59	.81	.21

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 1998, BY WATER YEAR (WY)

	MEAN	1033	2427	4393	4969	6343	8143	7526	6602	3912	2504	1842	1096
MAX	4186	15520	12090	15010	15610	18710	15180	30650	16310	9649	11280	5234	
(WY)	1994	1994	1958	1991	1982	1964	1989	1996	1997	1958	1979	1989	
MIN	228	297	272	300	712	450	730	382	622	603	291	244	
(WY)	1941	1965	1964	1977	1941	1941	1941	1941	1988	1941	1941	1941	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1940 - 1998	
ANNUAL TOTAL	1926321		1982802		4222	
ANNUAL MEAN	5278		5432		6752	
HIGHEST ANNUAL MEAN					643	
LOWEST ANNUAL MEAN					78200	
HIGHEST DAILY MEAN	46800		42200		May 1 1996	
LOWEST DAILY MEAN	395		395		Nov 13	
ANNUAL SEVEN-DAY MINIMUM	413		413		Oct 23	
INSTANTANEOUS PEAK FLOW			42900		Apr 19	
INSTANTANEOUS PEAK STAGE			29.70		Apr 19	
ANNUAL RUNOFF (CFSM)	1.37		1.41		36.32	
ANNUAL RUNOFF (INCHES)	18.56		19.10		1.09	
10 PERCENT EXCEEDS	13000		14000		14.86	
50 PERCENT EXCEEDS	2630		2760		10400	
90 PERCENT EXCEEDS	435		435		2140	

e Estimated

## 03371520 BACK CREEK AT LEESVILLE, IN

LOCATION.--Lat 38°50'48", long 86°18'06", in SW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.21, T.5 N., R.2 E., Lawrence County, Hydrologic Unit 05120208, on left bank at downstream side of county road bridge, 0.9 mi west of Leesville, 2.5 mi upstream from Jones Defeat Hollow, and 7 mi above mouth.

DRAINAGE AREA.--24.1 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1970 to current year.

REVISED RECORDS.--WDR IN-72-1: 1971.

GAGE.--Water-stage recorder. Datum of gage is 575.00 ft above sea level.

REMARKS.--Records poor.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1913 reached a stage of 18.1 ft from information by local resident.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.05	.53	10	e5.2	7.3	14	71	148	15	13	4.1	.44
2	.04	1.1	6.8	e4.7	7.1	13	41	63	12	10	2.6	.41
3	.01	1.4	5.7	5.4	6.6	12	33	40	10	7.8	2.0	.38
4	.00	e1.1	6.6	5.0	6.6	12	84	28	9.6	7.0	1.7	.34
5	.00	e.80	e5.8	7.4	e6.6	13	55	21	14	6.5	1.5	.31
6	.00	e.72	e5.0	93	e6.8	11	42	16	14	5.2	17	.29
7	.00	e1.9	e4.3	172	e7.2	10	35	227	10	13	278	.30
8	.00	e1.6	e4.0	173	e7.8	21	164	109	9.5	17	124	.26
9	.00	e1.2	e3.7	79	9.9	159	190	53	393	11	135	.22
10	.00	e.92	6.2	49	17	74	96	35	70	7.6	54	.19
11	.00	e.72	7.8	36	116	49	63	25	122	5.8	30	.14
12	.00	e.56	6.7	29	162	e35	48	18	133	4.5	19	.11
13	.00	e.52	5.9	23	74	e30	39	13	216	3.8	13	.08
14	.03	e3.3	5.3	18	49	e25	36	9.8	60	6.0	10	.05
15	.00	e2.7	4.8	17	37	22	260	7.7	41	5.9	7.8	.04
16	.00	e2.0	4.3	15	35	19	2160	6.2	34	6.6	6.2	.03
17	.00	e2.8	4.1	13	49	20	136	4.9	24	4.7	5.0	.03
18	.00	e2.2	3.8	11	76	23	55	4.0	17	3.7	4.0	.03
19	.00	e1.8	3.6	10	56	32	35	3.5	222	3.2	3.2	.02
20	.00	e1.5	3.4	9.1	50	209	23	26	47	152	2.5	.03
21	.00	e1.2	3.2	8.7	44	146	25	7.1	30	30	2.1	.06
22	.00	e2.1	3.5	8.6	37	79	23	8.1	285	13	1.7	.19
23	.00	e1.8	3.6	16	33	56	23	412	355	8.9	1.4	.17
24	.04	e1.3	5.3	15	27	43	19	253	82	6.5	1.1	.15
25	.07	e1.0	23	13	23	36	16	60	44	4.6	.92	.18
26	.13	e.76	14	12	20	31	14	38	29	3.4	.77	.14
27	.21	e.60	10	11	20	26	20	28	21	2.7	.63	.09
28	.36	e.46	8.5	10	16	25	13	22	16	2.3	.56	.06
29	.27	e.44	e7.2	9.5	---	21	86	18	15	1.9	.54	.04
30	.18	4.2	e6.4	8.6	---	18	967	15	28	10	.51	.03
31	.17	---	e5.6	7.9	---	20	---	14	---	9.6	.47	---
TOTAL	1.56	43.23	198.1	895.1	1006.9	1304	4872	1733.3	2378.1	387.2	731.30	4.81
MEAN	.050	1.44	6.39	28.9	36.0	42.1	162	55.9	79.3	12.5	23.6	.16
MAX	.36	4.2	23	173	162	209	2160	412	393	152	278	.44
MIN	.00	.44	3.2	4.7	6.6	10	13	3.5	9.5	1.9	.47	.02
CFSM	.00	.06	.27	1.20	1.49	1.75	6.74	2.32	3.29	.52	.98	.01
IN.	.00	.07	.31	1.38	1.55	2.01	7.52	2.68	3.67	.60	1.13	.01

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 1998, BY WATER YEAR (WY)

	MEAN	8.01	31.0	41.9	42.4	48.6	65.2	70.3	48.1	23.7	20.9	15.0	5.79
MAX	48.0	132	101	147	105	168	176	174	159	195	92.4	60.9	
(WY)	1984	1986	1983	1982	1979	1989	1972	1995	1997	1973	1979	1974	
MIN	.000	1.05	2.37	.98	5.78	9.74	8.62	2.70	.25	.014	.052	.000	
(WY)	1989	1988	1990	1977	1992	1981	1976	1988	1988	1991	1996	1988	

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1971 - 1998

ANNUAL TOTAL	18610.66	13555.60	35.0
ANNUAL MEAN	51.0	37.1	64.6
HIGHEST ANNUAL MEAN			14.4
LOWEST ANNUAL MEAN			1973
HIGHEST DAILY MEAN	1300	2160	5000
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
INSTANTANEOUS PEAK FLOW		8590	15300
INSTANTANEOUS PEAK STAGE		11.18	14.00
ANNUAL RUNOFF (CFSM)	2.12	1.54	1.45
ANNUAL RUNOFF (INCHES)	28.73	20.92	19.73
10 PERCENT EXCEEDS	113	77	75
50 PERCENT EXCEEDS	12	8.6	9.3
90 PERCENT EXCEEDS	.13	.08	.32

e Estimated



## 03372500 SALT CREEK NEAR HARRODSBURG, IN

LOCATION.--Lat 39°00'16", long 86°30'31", in NE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.34, T.7 N., R.1 W., Monroe County, Hydrologic Unit 05120208, on right bank 0.35 mi downstream from Monroe Lake, 0.9 mi upstream from Clear Creek, 2.2 mi southeast of Harrodsburg, and 25.7 mi upstream from mouth.

DRAINAGE AREA.--432 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1955 to current year.

REVISED RECORDS.--WSP 1705: 1959. WSP 1725: 1956(M). WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 480.00 ft above sea level, (levels by U.S. Army Corps of Engineers). Oct. 1, 1960, to Sept. 30, 1974, water-stage recorder at site described in "LOCATION" paragraph. Prior to Oct. 1, 1960, nonrecording gage at site 0.7 mi upstream at datum 2.41 ft higher.

REMARKS.--Flow regulated by U.S. Army Corps of Engineers from Monroe Lake since April 1966.

COOPERATION.--Records of daily discharge provided by U.S. Army Corps of Engineers beginning Oct. 1, 1976.

AVERAGE DISCHARGE.--43 years, 504 ft<sup>3</sup>/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,000 ft<sup>3</sup>/s June 25, 1960, gage height, 32.76 ft site and datum then in use; maximum gage height at present site and datum, 35.35 ft May 9, 1961; no flow Sept. 29 to Dec. 2, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 2270 ft<sup>3</sup>/s May 11, July 2; minimum daily, 38 ft<sup>3</sup>/s Jan. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	55	55	55	92	292	1240	235	2240	2160	2000	92
2	55	55	55	55	68	292	1250	237	2230	2270	2110	92
3	55	55	55	55	56	231	1250	708	2220	2260	2100	68
4	55	55	55	55	56	146	1240	1240	2220	2020	2090	56
5	55	55	55	55	56	146	1660	1620	2210	1980	2090	56
6	55	55	55	55	56	200	1860	1750	2200	2120	2080	56
7	55	55	55	55	56	200	1850	949	2190	1560	2070	56
8	55	55	55	56	56	200	1850	239	2190	1660	2070	56
9	55	55	55	38	56	201	1510	1010	1150	2230	2070	56
10	55	55	55	201	151	204	1240	1990	330	2220	1910	56
11	55	55	55	202	201	417	1250	2270	233	2220	1770	56
12	55	55	55	202	202	568	1250	2260	234	2210	1760	56
13	55	55	55	202	363	567	1240	2260	235	2200	1910	56
14	55	55	55	202	663	567	1240	2250	235	2190	2030	56
15	55	55	55	202	734	567	770	2240	236	2180	2020	56
16	55	55	55	202	733	726	218	2230	236	2180	2020	56
17	55	55	55	258	732	765	228	2220	237	2170	2010	56
18	55	55	55	294	732	564	230	2220	237	2160	2000	56
19	55	55	55	293	733	566	231	2210	238	2150	1990	56
20	55	55	55	293	733	418	231	1010	240	1260	1970	56
21	55	55	55	293	732	209	231	1680	240	1070	1320	56
22	55	55	55	293	732	211	231	2090	240	1040	670	56
23	55	55	55	293	891	211	232	904	242	229	317	56
24	55	55	55	293	1050	211	495	236	243	486	194	56
25	55	55	55	292	495	211	885	238	450	961	194	56
26	55	55	55	292	261	399	1000	238	1030	1480	194	56
27	55	55	55	292	293	587	1390	532	1490	1680	143	56
28	55	55	55	235	292	804	1910	679	1850	1950	92	56
29	55	55	55	200	---	1130	2030	941	1970	2120	92	56
30	55	55	55	132	---	1250	839	1880	1970	1560	92	56
31	55	---	55	92	---	1240	---	2250	---	1280	92	---
TOTAL	1705	1650	1705	5737	11275	14300	31081	42816	31266	55256	43470	1764
MEAN	55.0	55.0	55.0	185	403	461	1036	1381	1042	1782	1402	58.8
MAX	55	55	55	294	1050	1250	2030	2270	2240	2270	2110	92
MIN	55	55	55	38	56	146	218	235	233	229	92	56

CAL YR 1997 TOTAL 234381 MEAN 642 MAX 2580 MIN 55  
WTR YR 1998 TOTAL 242025 MEAN 663 MAX 2270 MIN 38

## WABASH RIVER BASIN

03373500 EAST FORK WHITE RIVER AT SHOALS, IN

LOCATION.--Lat 38°39'58", long 86°47'35", in SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.30, T.3 N., R.3 W., Martin County, Hydrologic Unit 05120208, on left bank 100 feet downstream of Baltimore and Ohio Railroad bridge, 440 feet downstream from U.S. Highway 50 bridge at Shoals, 0.9 mi upstream from Beaver Creek, 6.6 mi downstream from Indian Creek, and at mile 105.2

DRAINAGE AREA.--4,927 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1903 to July 1906, October 1908 to September 1916, June 1923 to current year. Monthly discharge only for some periods, published in WSP 1305. Published as East Branch White River at Shoals, 1903-06, 1908-16. Gage-height records collected at same site since May 1908 are contained in reports of the National Weather Service. Prior to Dec. 13, 1989 at site 440 ft upstream at same datum.

REVISED RECORDS.--WSP 353: 1912. WSP 1335: 1903-6. WSP 2109: Drainage area. WDR IN-91-1: Location.

GAGE.--Water-stage recorder. Datum of gage is 442.25 ft above sea level. Oct. 26, 1932 to Dec. 13, 1989, water-stage recorder located at U.S. Highway 50 bridge 440 ft upstream. See WSP 1725 for history of changes prior to Oct. 26, 1932.

REMARKS.--Records good. Flow partially regulated by upstream reservoir.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	638	488	632	1600	2490	3830	6710	24700	7850	11500	5050	1240
2	617	499	824	1410	2380	3600	7390	21900	8440	8690	5330	1190
3	603	550	999	1290	2250	3420	7010	17800	8270	7430	5190	1150
4	594	553	1270	1180	2120	3240	7120	17900	7380	6600	4690	1120
5	581	528	1330	1120	2080	3080	7420	17600	6430	5990	4390	1060
6	568	500	1210	1210	2080	2950	7470	16500	5980	6120	4170	1010
7	557	505	1090	2070	2050	2940	7370	17700	5660	8360	4300	983
8	539	512	986	4310	2060	2920	7690	20900	5420	8500	5870	944
9	531	507	934	6910	2120	3680	10100	17600	7270	6990	7640	913
10	504	479	911	8220	2240	7000	13000	14300	13000	6660	9630	884
11	482	453	894	9460	2640	9170	13100	15900	10400	6410	8760	861
12	472	427	917	10600	4840	10800	13800	17600	10700	6110	7220	844
13	490	420	972	10600	7940	12300	15800	17800	14600	5510	6390	834
14	487	433	1100	8640	8240	12600	18600	15300	15800	5290	5650	817
15	486	462	1160	6070	8230	10700	20700	11200	17200	4930	4990	805
16	498	504	1100	4730	7970	8180	31400	8370	20700	4820	4580	789
17	516	507	993	4130	7650	6270	40200	7150	24100	4700	4300	775
18	498	476	897	3780	7510	5430	37900	6390	27000	4530	4090	762
19	482	454	841	3530	7170	5750	37800	5920	29600	4410	3930	779
20	479	457	786	3300	7340	6520	41200	5630	32600	4330	3780	753
21	471	462	737	3100	7950	12100	41400	5400	32900	5270	3680	750
22	441	459	716	2930	7870	13900	37600	6140	31300	8550	3230	807
23	426	457	695	2830	7140	14200	31100	9150	30500	14700	2500	835
24	433	460	734	2910	6530	15500	23100	16700	30300	17500	2030	950
25	428	442	934	3010	5980	16300	16000	15100	27000	13700	1720	892
26	426	437	1410	3180	5120	14600	12300	13700	24500	8580	1600	788
27	455	445	2180	3450	4440	10700	10100	14400	24500	6180	1530	716
28	447	463	2800	3340	4090	7820	8590	15800	22500	5320	1460	672
29	436	446	2590	3100	---	6730	8460	14800	18300	4980	1360	644
30	424	517	2190	2890	---	6290	17000	11800	15100	4850	1300	629
31	443	---	1860	2690	---	5920	---	8470	---	4990	1280	---
TOTAL	15452	14302	36692	127590	140520	248440	557430	429620	535300	222500	131640	26196
MEAN	498	477	1184	4116	5019	8014	18580	13860	17840	7177	4246	873
MAX	638	553	2800	10600	8240	16300	41400	24700	32900	17500	9630	1240
MIN	424	420	632	1120	2050	2920	6710	5400	5420	4330	1280	629
CFSM	.10	.10	.24	.84	1.02	1.63	3.77	2.81	3.62	1.46	.86	.18
IN.	.12	.11	.28	.96	1.06	1.88	4.21	3.24	4.04	1.68	.99	.20

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1904 - 1998, BY WATER YEAR (WY)

	MEAN	1586	2943	5342	8696	8637	11110	10230	7713	4622	2981	1972	1368
MAX	12520	18370	17890	47640	30880	34300	24000	35120	19290	13520	15220	9154	
(WY)	1911	1994	1928	1937	1950	1945	1913	1996	1997	1958	1979	1926	
MIN	262	293	305	432	589	562	1029	529	696	365	265	233	
(WY)	1941	1955	1964	1931	1931	1941	1915	1941	1936	1954	1936	1954	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1904 - 1998
ANNUAL TOTAL	2524969	2485682	
ANNUAL MEAN	6918	6810	5579
HIGHEST ANNUAL MEAN			10370
LOWEST ANNUAL MEAN			855
HIGHEST DAILY MEAN	43500	41400	155000
LOWEST DAILY MEAN	420	420	64
ANNUAL SEVEN-DAY MINIMUM	436	436	168
INSTANTANEOUS PEAK FLOW		42100	160000
INSTANTANEOUS PEAK STAGE		24.72	42.20
ANNUAL RUNOFF (CFSM)	1.40	1.38	1.13
ANNUAL RUNOFF (INCHES)	19.06	18.77	15.39
10 PERCENT EXCEEDS	17100	17300	14500
50 PERCENT EXCEEDS	4360	4310	2630
90 PERCENT EXCEEDS	489	489	528

03373530 LOST RIVER NEAR LEIPSIC, IN

LOCATION.--Lat 38°38'11", long 86°21'55", in NE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>, sec.2, T.2N., R.1E., Orange County, Hydrologic Unit 05120208, on left bank, 5 ft upstream from bridge on Potato Road, 400 ft upstream from Carter Creek, and 2.2 mile south of Leipsic.

DRAINAGE AREA.--34.8 mi<sup>2</sup> (Above a gage height of about 12.5 ft, flow from Carter Creek is included. Total drainage area is 44 mi<sup>2</sup>).

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

REVISED RECORDS.--WDR IN-94-1: 1993.

GAGE.--Water-stage recorder. Datum of gage is 645.00 ft above sea level.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e1.4	e2.5	e17	e4.3	9.3	24	81	173	35	48	4.8	2.9
2	e1.4	e7.2	e8.0	e4.5	8.8	22	46	128	30	35	4.4	2.8
3	e1.3	e5.0	4.7	e4.6	8.2	20	40	111	27	28	4.3	2.6
4	e1.3	e4.0	2.8	e4.7	8.2	18	52	93	25	25	4.1	2.6
5	e1.2	e3.1	2.6	e5.0	e8.3	17	38	80	24	21	4.1	2.5
6	e1.1	e2.6	2.4	e25	e8.1	16	34	69	21	19	4.7	2.4
7	e1.1	e2.5	2.3	e70	7.9	15	31	94	19	44	42	2.2
8	e1.0	e2.2	2.2	112	8.2	28	38	82	18	61	87	2.2
9	e1.0	e2.0	2.6	68	9.0	112	111	68	90	28	124	2.2
10	e1.1	e1.9	5.0	50	12	57	68	60	44	22	53	2.2
11	e1.0	e1.8	7.1	41	182	43	53	53	33	19	32	2.2
12	e1.0	e1.8	6.4	35	136	e36	46	48	29	16	23	2.0
13	e1.1	e2.5	e5.2	31	86	e33	41	43	62	15	18	2.0
14	e3.9	e10	e4.5	25	67	e30	38	39	37	14	15	1.9
15	e2.7	e7.0	e4.2	23	56	28	88	35	33	14	13	1.8
16	e2.1	e4.7	e3.9	21	58	25	1020	32	28	13	11	1.9
17	e1.8	e3.5	e3.7	19	75	23	186	29	24	11	9.6	2.0
18	e1.7	e2.9	e3.6	17	90	24	124	27	21	9.8	8.7	e1.6
19	e1.7	e2.4	e3.6	16	64	37	104	25	36	9.1	7.7	e1.5
20	e1.5	e2.1	e3.5	14	58	393	87	25	26	8.6	6.8	e1.7
21	e1.4	e2.3	e3.5	14	52	164	95	22	22	8.3	6.2	e1.6
22	e1.4	e6.2	e7.0	13	46	108	85	25	43	7.6	5.6	e1.5
23	e1.3	e5.4	8.7	15	43	87	70	734	96	7.4	5.2	e1.4
24	e1.5	e4.0	13	15	39	73	61	148	49	6.8	4.9	e1.4
25	e4.5	e3.0	39	14	34	63	54	106	37	6.2	4.5	e1.7
26	e4.8	e2.6	e29	13	33	55	49	83	31	5.9	4.1	e1.5
27	e6.0	e2.5	e19	12	33	49	72	70	26	5.8	3.8	e1.4
28	e3.5	e2.4	e12	12	28	45	49	58	22	5.6	3.8	e1.3
29	e2.5	e3.0	e8.0	12	---	40	100	50	41	5.3	3.6	e1.2
30	e1.9	e16	e6.0	11	---	35	644	43	157	5.6	3.4	e1.2
31	e1.5	---	e4.8	10	---	34	---	39	---	5.6	3.1	---
TOTAL	60.7	119.1	245.3	731.1	1268.0	1754	3605	2692	1186	530.6	525.4	57.4
MEAN	1.96	3.97	7.91	23.6	45.3	56.6	120	86.8	39.5	17.1	16.9	1.91
MAX	6.0	16	39	112	182	393	1020	734	157	61	124	2.9
MIN	1.0	1.8	2.2	4.3	7.9	15	31	22	18	5.3	3.1	1.2
CFSM	.06	.11	.23	.68	1.30	1.63	3.45	2.50	1.14	.49	.49	.05
IN.	.06	.13	.26	.78	1.36	1.87	3.85	2.88	1.27	.57	.56	.06

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 1998, BY WATER YEAR (WY)

	MEAN	8.61	38.5	47.2	60.1	48.8	78.2	124	114	63.5	14.5	17.4	20.2
MAX	21.1	148	106	88.6	80.6	168	307	251	131	28.1	40.2	94.7	
(WY)	1997	1994	1997	1996	1997	1997	1996	1995	1996	1995	1993	1996	
MIN	1.96	3.97	7.91	23.6	22.4	24.1	43.5	37.8	8.15	5.95	5.94	1.91	
(WY)	1998	1998	1998	1998	1996	1994	1997	1993	1994	1994	1996	1998	

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1993 - 1998

ANNUAL TOTAL	18125.98	12774.6	
ANNUAL MEAN	49.7	35.0	52.9
HIGHEST ANNUAL MEAN			79.0
LOWEST ANNUAL MEAN			35.0
HIGHEST DAILY MEAN	1010	1020	4100
LOWEST DAILY MEAN	.68	1.0	.68
ANNUAL SEVEN-DAY MINIMUM	.75	1.0	.75
INSTANTANEOUS PEAK FLOW		3600	10700
INSTANTANEOUS PEAK STAGE		12.95	15.01
ANNUAL RUNOFF (CFSM)	1.43	1.01	1.52
ANNUAL RUNOFF (INCHES)	19.38	13.66	20.63
10 PERCENT EXCEEDS	114	81	104
50 PERCENT EXCEEDS	18	14	20
90 PERCENT EXCEEDS	1.7	1.8	2.8

e Estimated

03373980 WHITE RIVER ABOVE PETERSBURG, IN

LOCATION.--Lat 38°31'42", long 87°15'12", in NE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.12, T.1 N., R.8 W., Pike County, Hydrologic Unit 05120202, on left bank 300 ft upstream from intake structure of Indianapolis Power and Light Company's generating plant, 1.5 mi downstream from East Fork White River, 2.2 mi upstream from State Highway 61, 2.9 mi northeast of Petersburg, and at mile 48.0.

DRAINAGE AREA.--11,123 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1976 to current year. Discharges below 1500 ft<sup>3</sup>/s only, published 1980 to 1993, and 1995 to current year.

GAGE.--Water-stage recorder. Datum of gage is 401.52 ft above sea level.

REMARKS.--Discharges below 1,500 ft<sup>3</sup>/s only published. No discharges below 1,500 ft<sup>3</sup>/s. For a complete record of White River in this vicinity use records of White River at Petersburg, IN (sta. 03374000), 2.3 mi downstream.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

(No daily discharges below 1,500 ft<sup>3</sup>/s)

03374000 WHITE RIVER AT PETERSBURG, IN

LOCATION.--Lat 38°30'39", long 87°17'22", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.15, T.1 N., R.8 W., Pike County, Hydrologic Unit 05120202, on left bank 300 ft downstream from bridge on State Highway 61, 0.4 mi upstream from Prides Creek, 1.4 mi north of Petersburg, and at mile 45.7.

DRAINAGE AREA.--11,125 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1927 to current year. Monthly discharge only for October 1927, published in WSP 1305. Published as "at Hazleton" October 1927 to September 1938. Records published for both sites October 1937 to September 1938. Gage-height records collected at present site and datum since January 1935 are contained in reports of National Weather Service.

REVISED RECORDS.--WSP 1305: 1930(M). WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 400.00 ft above sea level. See WSP 1725 for history of changes prior to Apr. 1, 1941.

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow partially regulated by upstream reservoir.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913, reached a stage of 29.5 ft, present site and datum, from floodmarks by U.S. Army Corps of Engineers, discharge, 235,000 ft<sup>3</sup>/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1670	1460	2180	3060	4540	7030	16400	37400	20700	34300	12500	3540
2	1630	1510	2080	2820	4240	6460	17900	42900	18800	34300	11000	3440
3	1600	1490	2180	2610	4040	6040	18500	46200	17500	33700	10400	3320
4	1590	1480	2420	2470	3890	5690	17700	45900	16400	28500	9910	3230
5	1570	1510	2620	2400	3770	5410	17100	43800	15400	20800	9090	3140
6	1520	1610	2660	2500	3680	5170	17100	40900	14500	17200	8630	3040
7	1490	1650	2570	3330	3640	4990	16500	39200	13600	21100	10300	2950
8	1470	1610	2440	5530	3630	4940	16500	44000	13100	32200	14300	2870
9	1440	1580	2320	8800	3720	5280	16900	45800	13600	30300	16100	2770
10	1430	1530	2310	12300	3930	6980	20000	44400	19000	26000	19000	2690
11	1400	1500	2210	13700	4930	12000	23300	41400	23800	22400	20800	2640
12	1370	1450	2140	14200	6280	16100	25200	39900	22800	19800	19300	2600
13	1380	1440	2120	14700	8250	18000	26800	39600	23000	17700	16100	2570
14	1470	1510	2140	14100	11200	19100	30400	38300	27200	15800	13700	2510
15	1450	1520	2210	12200	11400	18400	34100	31700	30800	14000	11900	2460
16	1420	1500	2290	9770	11100	16300	45300	23700	33900	12900	10400	2410
17	1400	1530	2230	8140	11100	13800	61300	18800	37800	12200	9330	2380
18	1460	1580	2130	7270	12000	11900	70500	16100	42400	11600	8570	2360
19	1500	1620	2020	6720	12000	12600	75000	14500	48700	e11200	8030	2340
20	1470	1620	1940	6200	11900	17200	72900	13500	60500	e11000	7640	2340
21	1440	1600	1870	5690	12200	23000	68800	13200	77600	e10700	7280	2300
22	1400	1600	1850	5270	12600	28000	63100	14700	83200	e11600	6920	2270
23	1360	1600	1830	5100	12700	31200	57600	18000	81800	15700	6440	2220
24	1350	1580	1840	5150	11900	33300	52200	25600	77500	20500	5660	2190
25	1360	1570	2130	5410	10900	35400	44400	32300	71400	22300	5030	2270
26	1370	1600	2330	5560	10000	36900	33600	33900	64500	21400	4570	2340
27	1380	1580	2690	5670	8750	34300	24300	34600	57300	19400	4260	2270
28	1350	1570	3230	5820	7700	25100	20100	35400	50900	17200	4070	2170
29	1350	1570	3760	5670	---	18900	18100	34200	42500	14200	3940	2100
30	1340	1700	3710	5250	---	16200	25700	29100	36300	13600	3780	2040
31	1350	---	3390	4880	---	15400	---	23400	---	15000	3650	---
TOTAL	44780	46670	73840	212290	225990	511090	1047300	1002400	1156500	608600	302600	77770
MEAN	1445	1556	2382	6848	8071	16490	34910	32340	38550	19630	9761	2592
MAX	1670	1700	3760	14700	12700	36900	75000	46200	83200	34300	20800	3540
MIN	1340	1440	1830	2400	3630	4940	16400	13200	13100	10700	3650	2040
CFSM	.13	.14	.21	.62	.73	1.48	3.14	2.91	3.47	1.76	.88	.23
IN.	.15	.16	.25	.71	.76	1.71	3.50	3.35	3.87	2.04	1.01	.26

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 1998, BY WATER YEAR (WY)

	MEAN	MAX	(WY)	MIN	(WY)
1928	3190	12780	1994	653	1941
1929	6661	46810	1994	884	1954
1930	11020	38140	1986	861	1964
1931	17280	86440	1950	981	1977
1932	18150	67080	1950	1388	1931
1933	22710	55340	1945	1597	1941
1934	22350	42900	1944	3767	1941
1935	17900	70110	1996	1597	1941
1936	11470	38550	1998	1950	1988
1937	7501	25620	1998	1118	1954
1938	4787	39590	1979	870	1936
1939	3395	19640	1989	878	
1940			1936		

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1928 - 1998
ANNUAL TOTAL	5215030	5309830	12180
ANNUAL MEAN	14290	14550	22760
HIGHEST ANNUAL MEAN			2138
LOWEST ANNUAL MEAN			1950
HIGHEST DAILY MEAN	66000	83200	182000
LOWEST DAILY MEAN	1340	1340	573
ANNUAL SEVEN-DAY MINIMUM	1360	1360	598
INSTANTANEOUS PEAK FLOW		83700	183000
INSTANTANEOUS PEAK STAGE		24.10	28.30
ANNUAL RUNOFF (CFSM)	1.28	1.31	1.09
ANNUAL RUNOFF (INCHES)	17.44	17.76	14.87
10 PERCENT EXCEEDS	36800	37600	30000
50 PERCENT EXCEEDS	7760	8570	6450
90 PERCENT EXCEEDS	1520	1520	1510

e Estimated



03374455 PATOKA RIVER NEAR HARDINSBURG, IN

LOCATION.--Lat 38°26'41", long 86°23'14", in NW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.10, T.1 S., R.1 E., Orange County, Hydrologic Unit 05120209, on downstream end of center pier of county road bridge, 0.3 mi downstream from Fudge Creek, 0.7 mi northeast of Valeene, 6.0 mi southwest of Hardinsburg, and at mile 158.0.

DRAINAGE AREA.--12.8 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder and concrete control. Datum of gage is 606.89 ft above sea level.

REMARKS.--Records fair except for daily discharges of less than 1.0 ft<sup>3</sup>/s and estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	37	e1.6	2.3	5.8	116	208	4.0	40	2.0	e.70
2	.00	.00	5.2	1.4	2.1	5.5	42	105	4.2	14	1.5	e.58
3	.00	.00	1.9	1.4	2.0	5.1	24	57	3.9	7.4	1.4	e.48
4	.00	.03	2.0	1.4	2.1	4.9	25	53	3.6	5.8	1.4	e.40
5	.00	e.02	e1.4	3.7	2.6	5.1	20	33	3.7	4.3	1.4	e.35
6	.00	e.02	e1.2	36	2.7	5.2	16	21	2.8	3.4	1.9	e.29
7	.00	.06	1.1	88	2.4	5.3	12	77	2.3	181	328	e.25
8	.00	.08	.93	164	3.1	11	14	87	2.5	185	202	e.20
9	.00	.09	.94	56	5.2	107	83	52	46	56	392	e.15
10	.00	.06	8.1	24	15	54	40	32	20	17	110	e.12
11	.00	.02	7.4	14	189	27	23	20	11	8.7	e30	e.09
12	.00	.01	3.5	11	196	18	16	14	7.6	5.4	e10	e.07
13	.00	.04	2.2	8.2	79	15	12	9.5	59	5.0	e7.0	e.06
14	.00	.40	e1.6	6.8	34	12	12	7.1	21	4.5	e5.0	e.05
15	.00	.69	e1.3	6.2	19	8.5	173	6.1	21	7.1	e3.5	e.04
16	.00	.49	e1.1	5.7	24	7.3	739	5.2	20	7.1	e2.5	.28
17	.00	.32	e.90	5.1	71	6.9	210	4.5	13	5.2	e1.8	.16
18	.00	.29	e.80	4.6	125	7.7	94	4.0	8.4	4.2	e1.4	.16
19	.00	.22	e.70	4.1	59	17	54	3.7	8.3	3.6	e1.0	.16
20	.00	e.14	e.64	3.5	36	470	33	4.2	6.6	3.1	e.80	.13
21	.00	.23	e.60	3.3	25	233	40	3.7	4.8	2.8	e.60	.10
22	.00	.35	e.66	3.1	17	97	53	14	101	2.3	e.46	.31
23	.00	.34	e.78	3.3	14	47	33	517	186	2.0	e.35	.43
24	.00	e.26	e10	3.5	10	29	23	146	66	1.8	e.27	.16
25	.00	e.20	41	3.4	8.1	22	16	55	21	1.5	e.20	.11
26	.00	e.16	13	3.1	7.2	19	13	27	10	1.3	e.17	.13
27	.00	e.13	7.6	3.0	7.1	15	75	15	6.6	1.3	e.15	.14
28	.00	e.10	4.7	2.8	6.4	13	36	8.8	4.7	1.2	e1.9	.10
29	.00	e.08	3.3	2.6	---	10	140	5.8	29	1.0	e1.0	.07
30	.00	20	2.4	2.5	---	9.0	762	4.4	186	1.8	e.66	.05
31	.00	---	2.1	2.3	---	11	---	3.9	---	3.3	e.80	---
TOTAL	0.00	24.83	166.05	479.6	966.3	1303.3	2949	1603.9	884.0	588.1	1111.16	6.32
MEAN	.000	.83	5.36	15.5	34.5	42.0	98.3	51.7	29.5	19.0	35.8	.21
MAX	.00	20	41	164	196	470	762	517	186	185	392	.70
MIN	.00	.00	.60	1.4	2.0	4.9	12	3.7	2.3	1.0	.15	.04
CFSM	.00	.06	.42	1.21	2.70	3.28	7.68	4.04	2.30	1.48	2.80	.02
IN.	.00	.07	.48	1.39	2.81	3.79	8.57	4.66	2.57	1.71	3.23	.02

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1998, BY WATER YEAR (WY)

	MEAN	3.20	19.2	32.2	33.9	38.4	51.3	51.9	39.6	19.8	9.56	5.87	4.12
MAX	11.9	77.3	109	107	89.6	134	133	158	108	89.6	35.8	34.4	
(WY)	1991	1980	1991	1982	1990	1997	1996	1996	1997	1979	1998	1996	
MIN	.000	.20	1.17	.61	2.58	8.80	6.79	2.66	.46	.26	.000	.003	
(WY)	1998	1992	1981	1981	1992	1981	1976	1988	1988	1983	1991	1991	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1969 - 1998
ANNUAL TOTAL	14100.25	10082.56	
ANNUAL MEAN	38.6	27.6	25.7
HIGHEST ANNUAL MEAN			47.3
LOWEST ANNUAL MEAN			6.35
HIGHEST DAILY MEAN	812	762	1770
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
INSTANTANEOUS PEAK FLOW		1640	9270
INSTANTANEOUS PEAK STAGE		7.76	11.35
ANNUAL RUNOFF (CFSM)	3.02	2.16	2.01
ANNUAL RUNOFF (INCHES)	40.98	29.30	27.27
10 PERCENT EXCEEDS	87	62	53
50 PERCENT EXCEEDS	5.4	3.9	5.3
90 PERCENT EXCEEDS	.00	.02	.28

e Estimated

03374500 PATOKA RIVER NEAR CUZCO, IN

LOCATION.--Lat 38°26'31", long 86°42'51", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.11, T.1 S., R.3 W., Dubois County, Hydrologic Unit 05120209 on right bank 20 ft upstream from bridge on Cuzco Road South, 0.7 mi downstream from Patoka Lake, 2.3 mi south of Cuzco, 4.5 mi upstream from Dillon Creek, and at mile 117.8.

DRAINAGE AREA.--170 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 477.00 ft above sea level, (levels by State of Indiana, Department of Natural Resources). Prior to Oct. 1, 1961, nonrecording gage on downstream side of bridge, 1.7 mi downstream at same datum. Oct. 1, 1961 to Sept. 30, 1981, water-stage recorder at site described above. Prior to October 1979, published as "near Ellsworth".

REMARKS.--Flow regulated by U.S. Army Corps of Engineers from Patoka Lake since February 1978.

COOPERATION.--Records of daily discharge provided by U.S. Army Corps of Engineers beginning Oct. 1, 1981.

AVERAGE DISCHARGE.--37 years, 224 ft<sup>3</sup>/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 14,700 ft<sup>3</sup>/s Mar. 10, 1964, gage height, 20.02 ft; no flow Oct. 30, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of 19.1 ft according to information by local resident, discharge, 12,300 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 626 ft<sup>3</sup>/s Dec. 6; minimum daily, 25 ft<sup>3</sup>/s Dec. 30 to Jan. 10.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	195	193	49	25	31	444	511	53	105	46	99	198
2	195	193	49	25	31	430	506	53	105	88	99	198
3	194	193	218	25	31	416	497	53	105	105	99	198
4	194	193	287	25	31	195	488	53	105	105	99	198
5	194	193	514	25	31	94	477	151	105	105	99	198
6	194	109	626	25	31	94	465	209	105	105	99	197
7	194	45	625	25	31	94	454	136	174	66	99	197
8	194	45	624	25	31	94	441	105	209	46	100	197
9	194	46	623	25	31	94	439	105	144	46	100	197
10	194	50	623	25	31	94	433	105	105	47	100	197
11	194	50	622	84	31	94	425	105	105	46	65	197
12	194	48	621	235	31	94	415	49	105	46	47	197
13	194	48	620	312	132	94	271	79	105	46	47	197
14	194	48	619	305	300	94	138	206	105	46	83	196
15	194	48	618	391	300	94	100	307	105	46	100	196
16	146	48	617	429	300	94	102	307	105	47	100	196
17	98	48	616	424	300	94	64	191	105	47	133	196
18	165	48	615	420	300	94	51	105	105	46	200	196
19	193	48	614	414	300	94	51	206	105	46	199	196
20	193	48	612	239	328	94	84	216	105	46	199	196
21	193	48	611	81	374	95	225	239	105	46	199	196
22	193	48	508	62	373	95	299	206	81	46	199	196
23	193	48	405	62	373	222	299	105	46	46	199	196
24	193	48	274	62	373	302	299	105	85	82	199	195
25	193	48	132	62	373	412	298	105	105	99	199	195
26	193	48	102	62	372	559	298	105	105	99	199	195
27	193	48	102	39	434	549	298	175	105	99	199	195
28	145	48	102	31	457	538	298	210	105	99	198	195
29	97	48	52	31	---	526	256	210	64	99	198	130
30	133	48	25	31	---	516	79	210	46	99	198	98
31	193	---	25	31	---	507	---	172	---	99	198	---
TOTAL	5626	2222	12750	4057	5761	7310	9061	4636	3159	2134	4351	5729
MEAN	181	74.1	411	131	206	236	302	150	105	68.8	140	191
MAX	195	193	626	429	457	559	511	307	209	105	200	198
MIN	97	45	25	25	31	94	51	49	46	46	47	98

CAL YR 1997 TOTAL 125537 MEAN 344 MAX 1220 MIN 19  
WTR YR 1998 TOTAL 66796 MEAN 183 MAX 626 MIN 25

03375500 PATOKA RIVER AT JASPER, IN

LOCATION.--Lat 38°24'49", long 86°52'36", in NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.20, T.1 S., R.4 W., Dubois County, Hydrologic Unit 05120209, on left bank 0.3 mi upstream from unnamed outlet of Idlewild Lake, 1.0 mi downstream from Coon Seitz bridge, 1.2 mi downstream from Beaver Creek, 3.3 mi northeast of Jasper, and at mile 91.5.

DRAINAGE AREA.--262 mi<sup>2</sup>.

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

REVISED RECORDS.--WSP 1909: 1958. WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 446.00 ft above sea level (levels by State of Indiana, Department of Natural Resources). Nonrecording gage at bridge 5.6 mi downstream, used for high-water periods when flow exceeds about 2,500 ft<sup>3</sup>/s, at datum 0.34 ft lower. Prior to Sept. 18, 1956, nonrecording gage at bridge 5.6 mi downstream at datum 0.34 ft lower.

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow regulated by Beaver Creek Reservoir beginning Oct. 11, 1955, and by Patoka Lake beginning Feb. 13, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of 15.9 ft at downstream site, from floodmark furnished by local residents, discharge 16,000 ft<sup>3</sup>/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	198	211	511	57	62	613	911	2170	111	109	151	200
2	198	219	178	56	62	608	872	2150	52	32	119	199
3	198	223	87	57	58	604	744	1290	42	58	113	198
4	199	224	276	57	53	590	729	623	39	96	112	199
5	199	220	353	60	58	294	712	347	42	111	109	199
6	198	227	636	166	65	165	686	308	40	91	109	198
7	199	151	729	479	69	159	667	849	36	537	131	198
8	199	54	730	816	77	168	668	1240	91	1260	189	200
9	201	46	730	469	93	306	747	778	155	587	406	201
10	207	44	764	228	144	371	741	350	116	172	421	201
11	207	44	765	144	564	261	689	236	54	110	906	201
12	205	44	760	167	969	211	658	160	51	83	503	200
13	213	46	765	324	569	196	631	66	153	70	145	200
14	220	63	759	366	397	189	399	58	169	66	100	199
15	212	58	748	368	441	174	406	214	172	84	109	201
16	209	50	741	489	457	164	1410	264	157	100	121	202
17	161	47	736	522	537	166	1780	251	119	75	117	203
18	104	46	731	520	687	199	1680	117	120	61	148	204
19	163	45	725	520	628	343	725	43	129	54	207	231
20	200	46	726	510	517	551	336	156	130	51	208	232
21	202	47	723	285	503	1200	293	167	174	48	207	232
22	201	50	724	137	492	1040	457	303	186	46	207	230
23	202	49	647	116	474	453	e460	845	132	45	205	229
24	208	47	616	118	457	432	464	579	59	44	204	229
25	208	46	501	112	442	455	444	224	69	e109	204	232
26	212	45	283	107	433	608	438	134	102	e109	203	233
27	211	45	201	87	434	695	438	100	97	e109	201	230
28	211	45	178	66	570	682	438	139	94	109	202	229
29	174	45	165	66	---	670	553	154	94	109	204	227
30	107	121	116	66	---	659	1750	140	156	244	202	152
31	136	---	66	63	---	668	---	130	---	388	200	---
TOTAL	5962	2648	16670	7598	10312	13894	21926	14585	3141	5167	6663	6289
MEAN	192	88.3	538	245	368	448	731	470	105	167	215	210
MAX	220	227	765	816	969	1200	1780	2170	186	1260	906	233
MIN	104	44	66	56	53	159	293	43	36	32	100	152
CFSM	.73	.34	2.05	.94	1.41	1.71	2.79	1.80	.40	.64	.82	.80
IN.	.85	.38	2.37	1.08	1.46	1.97	3.11	2.07	.45	.73	.95	.89

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 1998, BY WATER YEAR (WY)

	MEAN	104	238	432	617	665	775	625	442	216	123	103	93.2
MAX	494	800	1506	2742	1899	2543	1574	2034	1044	787	530	485	
(WY)	1980	1975	1952	1950	1950	1964	1972	1996	1996	1958	1977	1979	
MIN	.000	.000	.17	17.5	27.7	144	130	37.5	8.66	.074	.000	.000	
(WY)	1949	1954	1954	1964	1964	1992	1976	1952	1953	1954	1952	1953	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1949 - 1998
ANNUAL TOTAL	198488	114855	
ANNUAL MEAN	544	315	368
HIGHEST ANNUAL MEAN			673
LOWEST ANNUAL MEAN			63.6
HIGHEST DAILY MEAN	2390	Jun 1	13500
LOWEST DAILY MEAN	20	Sep 25	.00
ANNUAL SEVEN-DAY MINIMUM	46	Nov 23	.00
INSTANTANEOUS PEAK FLOW			14100
INSTANTANEOUS PEAK STAGE			21.20
ANNUAL RUNOFF (CFSM)	2.08		1.40
ANNUAL RUNOFF (INCHES)	28.18		19.09
10 PERCENT EXCEEDS	1260	725	1080
50 PERCENT EXCEEDS	205	201	136
90 PERCENT EXCEEDS	54	54	6.5

e Estimated

03375800 HALL CREEK NEAR ST. ANTHONY, IN

LOCATION.--Lat 38°21'45", long 86°49'43", in NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.11, T.2 S., R.4 W., Dubois County, Hydrologic Unit 05120209, on right bank 10 ft downstream of bridge on County Road 125 South, 0.7 mi upstream from Grassy Fork, 3.3 mi north of St. Anthony, and at mile 4.1.

DRAINAGE AREA.--21.8 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1970 to current year.

REVISED RECORDS.--WDR IN-75-1: 1971-74.

GAGE.--Water-stage recorder. Datum of gage is 456.22 ft above sea level (levels by State of Indiana, Department of Natural Resources). Prior to Oct. 1, 1997 at datum 3.00 ft higher.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	.44	60	e6.4	4.4	9.5	63	121	4.1	3.9	3.3	.80
2	.02	2.4	19	6.6	4.2	9.0	29	72	3.2	2.8	2.8	.73
3	.03	1.2	19	6.5	3.8	9.1	25	111	2.3	2.2	2.6	.71
4	.07	.25	21	6.6	4.2	10	24	80	3.1	7.0	2.5	.65
5	.11	.07	12	41	e5.2	10	20	43	4.4	5.8	2.4	.64
6	.03	.10	8.0	66	e7.0	9.1	17	30	2.8	2.8	18	.57
7	.02	1.1	6.6	206	e10	8.7	15	147	2.1	1180	63	.56
8	.01	.24	7.2	163	e14	16	13	82	2.1	366	34	.49
9	.01	.06	9.3	61	e19	74	22	49	46	58	183	.34
10	.02	.03	65	35	70	39	17	35	10	29	31	.32
11	.02	.02	22	25	288	24	13	27	5.9	18	83	.24
12	.00	.02	14	21	141	e19	11	19	5.2	11	22	.17
13	.18	2.8	10	18	57	e16	11	14	28	12	13	.14
14	.86	13	7.8	14	35	e13	14	10	24	9.6	8.2	.19
15	.56	1.4	6.3	14	26	11	97	8.0	14	104	5.6	.33
16	.04	.31	5.5	11	61	10	743	6.6	11	33	4.3	.51
17	.01	.11	4.6	10	71	13	129	5.1	6.2	18	3.5	.61
18	.00	.05	3.8	9.3	94	15	56	4.3	4.3	11	2.9	.72
19	.00	.04	3.5	9.2	55	12	38	4.0	18	8.1	2.1	.83
20	.00	.04	3.2	7.9	42	305	28	39	6.3	6.1	1.7	.88
21	.00	.09	2.9	7.3	31	141	30	17	187	5.2	1.7	.89
22	.00	.56	5.5	7.4	25	57	37	109	29	4.4	1.8	.67
23	.00	.19	4.6	12	25	36	26	67	41	4.6	1.7	.43
24	.01	.05	59	9.4	19	27	21	32	16	3.5	1.5	.40
25	.06	.04	42	7.9	16	25	17	22	9.5	3.1	1.4	.64
26	.47	.04	22	7.1	14	21	15	16	6.8	2.6	1.3	.71
27	.12	.03	15	6.6	14	20	13	12	4.8	3.1	1.1	.72
28	.04	.02	11	6.2	11	18	11	8.7	3.5	3.0	1.1	.63
29	.02	.03	9.7	5.8	---	15	241	6.5	3.0	2.9	1.1	.55
30	.02	279	8.2	5.1	---	13	812	5.1	11	7.5	.98	.50
31	.02	---	e6.8	4.5	---	34	---	4.3	---	5.6	.88	---
TOTAL	2.77	303.73	494.5	816.8	1166.8	1039.4	2608	1206.6	514.6	1933.8	503.46	16.57
MEAN	.089	10.1	16.0	26.3	41.7	33.5	86.9	38.9	17.2	62.4	16.2	.55
MAX	.86	279	65	206	288	305	812	147	187	1180	183	.89
MIN	.00	.02	2.9	4.5	3.8	8.7	11	4.0	2.1	2.2	.88	.14
CFSM	.00	.46	.73	1.21	1.91	1.54	3.99	1.79	.79	2.86	.74	.03
IN.	.00	.52	.84	1.39	1.99	1.77	4.45	2.06	.88	3.30	.86	.03

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 1998, BY WATER YEAR (WY)

	MEAN	8.24	33.9	41.1	39.6	54.5	60.5	56.7	37.1	21.5	20.0	11.4	10.9
MAX	34.1	147	125	154	131	131	142	153	73.7	247	52.5	68.0	
(WY)	1978	1980	1991	1982	1985	1989	1972	1983	1979	1979	1979	1986	
MIN	.003	.38	3.28	.17	4.96	13.9	5.83	.35	.003	.32	.040	.022	
(WY)	1988	1988	1977	1977	1992	1981	1986	1988	1988	1983	1991	1987	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1971 - 1998
ANNUAL TOTAL	9738.28	10607.03	
ANNUAL MEAN	26.7	29.1	32.8
HIGHEST ANNUAL MEAN			78.4
LOWEST ANNUAL MEAN			11.5
HIGHEST DAILY MEAN	578	1180	5110
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
INSTANTANEOUS PEAK FLOW		2330	11500
INSTANTANEOUS PEAK STAGE		14.79	15.30
ANNUAL RUNOFF (CFSM)	1.22	1.33	1.50
ANNUAL RUNOFF (INCHES)	16.62	18.10	20.44
10 PERCENT EXCEEDS	54	60	64
50 PERCENT EXCEEDS	7.4	7.5	7.2
90 PERCENT EXCEEDS	.01	.06	.29

e Estimated

## WABASH RIVER BASIN

03376300 PATOKA RIVER AT WINSLOW, IN

LOCATION.--Lat 38°22'48", long 87°13'00", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.32, T.1 S., R.7 W., Pike County, Hydrologic Unit 05120209, on right bank at abandoned bridge abutment, 65 ft upstream from bridge on State Highway 61, 100 ft downstream from dam of Winslow Water Company, and 41.3 mi above mouth.

DRAINAGE AREA.--603 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1963 to September 1974, May 1986 to current year. Discharge measurements and gage readings June 1961 to September 1963, obtained by State of Indiana, Department of Natural Resources, are available in the district office.

GAGE.--Water-stage recorder. Datum of gage is 400.00 ft above sea level (levels by State of Indiana, Department of Natural Resources). Prior to Nov. 21, 1963, nonrecording gage on downstream side of bridge 65 ft downstream at same datum.

REMARKS.--Records poor. Flow regulated by Patoka Lake. Minor diversion by municipal water supply 100 ft above gage.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in January 1937 reached a stage of 28.9 ft, from floodmarks, information from State of Indiana, Department of Natural Resources.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	193	144	752	191	156	624	1080	2750	e370	207	531	221
2	195	157	1020	149	158	679	1150	2710	e340	224	352	219
3	197	213	849	140	164	696	1140	3390	e310	178	233	218
4	197	224	516	140	161	697	1100	4220	e280	145	212	220
5	193	222	385	144	164	694	1020	4580	e350	147	199	218
6	193	228	418	293	176	588	944	4370	e380	172	197	216
7	192	237	499	1010	210	382	884	4580	e340	913	280	217
8	189	250	644	1500	261	305	907	4980	e290	2200	565	215
9	192	190	696	1500	311	417	1030	4580	e270	2060	604	212
10	193	127	807	1460	379	624	1060	4010	e330	2120	870	213
11	192	109	931	1430	1040	671	1010	3410	371	2180	913	214
12	194	104	917	1280	1830	552	936	2800	273	2120	935	215
13	199	105	846	960	1730	437	870	2210	301	1830	849	213
14	209	114	796	696	1670	389	857	1710	451	1320	513	213
15	229	150	761	612	1640	358	962	1460	485	857	273	211
16	211	158	735	568	1610	322	2820	e1180	435	767	195	211
17	196	125	715	575	1560	304	2710	e1040	337	870	183	214
18	189	113	700	617	1560	327	2430	e920	271	609	187	213
19	163	109	688	616	1500	376	2520	e800	232	343	185	217
20	135	107	680	602	1430	695	2740	e700	237	227	201	235
21	152	107	672	585	1330	1510	2810	e640	397	191	222	221
22	179	107	684	509	1190	1500	2660	e720	e600	174	221	213
23	185	110	702	387	1040	1490	2250	e1400	e780	166	220	212
24	188	113	733	338	914	1500	1850	e1300	e590	159	219	211
25	196	112	961	298	791	1460	1480	e1300	e450	156	217	219
26	208	109	972	262	700	1290	1180	e1150	e300	153	216	239
27	211	107	752	236	646	1080	930	e900	223	159	214	245
28	210	107	486	217	609	987	771	e640	196	180	214	218
29	202	107	348	193	---	923	728	e470	180	185	214	210
30	198	127	287	172	---	858	2390	e430	183	192	215	208
31	176	---	250	163	---	814	---	e400	---	421	219	---
TOTAL	5956	4292	21202	17843	24930	23549	45219	65750	10552	21625	10868	6521
MEAN	192	143	684	576	890	760	1507	2121	352	698	351	217
MAX	229	250	1020	1500	1830	1510	2820	4980	780	2200	935	245
MIN	135	104	250	140	156	304	728	400	180	145	183	208
CFSM	.32	.24	1.13	.95	1.48	1.26	2.50	3.52	.58	1.16	.58	.36
IN.	.37	.26	1.31	1.10	1.54	1.45	2.79	4.06	.65	1.33	.67	.40

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1998, BY WATER YEAR (WY)

	MEAN	157	409	755	1014	1299	1576	1477	1185	600	290	173	187
	MAX	579	2218	2048	2576	2833	5126	3426	4863	2958	1305	503	708
	(WY)	1991	1994	1991	1991	1991	1964	1972	1996	1996	1969	1995	1996
	MIN	2.84	6.83	13.8	56.3	45.5	428	349	85.7	13.4	13.5	7.46	.94
	(WY)	1965	1964	1964	1964	1964	1969	1967	1988	1972	1966	1965	1972

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1964 - 1998
ANNUAL TOTAL	419308	258307	757
ANNUAL MEAN	1149	708	1332
HIGHEST ANNUAL MEAN			224
LOWEST ANNUAL MEAN			15200
HIGHEST DAILY MEAN	6200	Jun 4	4980
LOWEST DAILY MEAN	57	Sep 4	104
ANNUAL SEVEN-DAY MINIMUM	79	Aug 31	109
INSTANTANEOUS PEAK FLOW			5080
INSTANTANEOUS PEAK STAGE			24.22
ANNUAL RUNOFF (CFSM)	1.91		1.17
ANNUAL RUNOFF (INCHES)	25.87		15.94
10 PERCENT EXCEEDS	2910		1560
50 PERCENT EXCEEDS	516		370
90 PERCENT EXCEEDS	111		159

e Estimated



## 03376500 PATOKA RIVER NEAR PRINCETON, IN

LOCATION.--Lat 38°23'25", long 87°32'55", in sec. 107, T.1 S., R.10 W., Gibson County, Hydrologic Unit 05120209, on right downstream side of bridge on State Highway 65, 0.5 mi downstream from Indian Creek, 2 mi northeast of Princeton, and at mile 21.4.

DRAINAGE AREA.--822 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1934 to current year. Published as "at Patoka" August 1934 to September 1940. Records published for both sites October 1939 to September 1940 (monthly discharge only at present site, for October, November 1939, published in WSP 1305).

REVISED RECORDS.--WSP 1275: 1952. WSP 1335: 1935-36, 1938-39, 1949(M), 1940-50. WSP 1385: 1951-52. WSP 2109: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 390.00 ft above sea level. Jan. 21, 1941 to Oct. 23, 1986, water-stage recorder at dam 0.1 mi downstream and at datum 4.14 ft higher. See WSP 1725 for history of changes prior to Jan. 21, 1941.

REMARKS.--Records good except for estimated daily discharges, which are poor. Flow regulated by Patoka Lake.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	194	189	771	274	206	709	1420	2610	419	275	546	216
2	195	177	1110	227	198	744	1460	2780	382	286	463	213
3	197	206	1140	193	193	778	1440	3040	336	272	296	212
4	199	240	874	186	188	786	1420	3380	310	212	220	214
5	200	237	535	189	206	782	1350	3560	393	172	205	213
6	199	234	472	314	228	740	1250	3720	427	186	189	212
7	198	252	499	1050	271	552	1150	4680	387	964	1040	211
8	196	268	644	1630	336	410	1330	5280	324	1930	1840	209
9	197	251	760	1690	400	501	1330	5420	293	1970	1090	206
10	206	196	915	1740	511	688	1360	5400	351	2160	965	205
11	209	138	1060	1750	1380	786	1290	5190	475	2260	1070	205
12	211	110	1100	1740	1880	721	1190	4850	415	2330	1060	206
13	214	96	1040	1630	1970	581	1080	4510	464	2360	1060	207
14	238	122	947	1280	2060	493	1050	4110	606	2380	826	206
15	247	158	890	948	2090	442	1300	3690	719	2270	442	206
16	244	185	863	753	2120	406	3310	3190	654	1920	265	204
17	221	168	840	676	2140	392	3020	2680	548	1450	216	207
18	211	138	812	694	2170	498	3120	2090	435	1090	206	212
19	201	118	784	709	2150	496	3290	1320	379	634	198	211
20	174	105	766	689	2120	876	3350	847	408	346	198	235
21	158	102	755	667	2060	1750	3330	661	597	241	220	234
22	185	105	768	629	1960	1840	3290	1170	e900	200	230	215
23	200	106	794	612	1790	1920	3230	1720	e1580	178	226	211
24	204	111	834	484	1530	1930	3160	1570	e1330	164	225	209
25	219	114	1090	413	1280	1900	3040	1510	e1130	149	223	238
26	232	111	1170	358	1050	1870	2850	1370	e960	137	222	236
27	233	110	1070	320	867	1750	2560	1050	e800	128	220	246
28	230	104	740	294	758	1570	2130	721	688	139	217	231
29	219	104	491	268	---	1380	1530	538	427	163	216	213
30	214	148	382	237	---	1200	2480	482	326	317	216	208
31	209	---	330	216	---	1090	---	449	---	334	218	---
TOTAL	6454	4703	25246	22860	34112	30581	63110	83588	17463	27617	14828	6451
MEAN	208	157	814	737	1218	986	2104	2696	582	891	478	215
MAX	247	268	1170	1750	2170	1930	3350	5420	1580	2380	1840	246
MIN	158	96	330	186	188	392	1050	449	293	128	189	204
CFSM	.25	.19	.99	.90	1.48	1.20	2.56	3.28	.71	1.08	.58	.26
IN.	.29	.21	1.14	1.03	1.54	1.38	2.86	3.78	.79	1.25	.67	.29

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1935 - 1998, BY WATER YEAR (WY)

	MEAN	251	528	978	1516	1784	2201	1990	1520	832	439	312	226
MAX	2573	2978	3735	8365	5570	8531	4664	6810	4322	3075	3915	1125	
(WY)	1946	1994	1952	1937	1950	1945	1989	1961	1996	1958	1979	1979	
MIN	1.53	9.83	10.2	44.3	64.2	61.5	373	117	7.93	15.0	4.60	8.12	
(WY)	1943	1944	1944	1944	1944	1941	1976	1941	1936	1944	1936	1942	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1935 - 1998
ANNUAL TOTAL	520856	337013	
ANNUAL MEAN	1427	923	1044
HIGHEST ANNUAL MEAN			2080
LOWEST ANNUAL MEAN			151
HIGHEST DAILY MEAN	4920	5420	18500
LOWEST DAILY MEAN	76	96	.00
ANNUAL SEVEN-DAY MINIMUM	105	108	.00
INSTANTANEOUS PEAK FLOW		5460	18700
INSTANTANEOUS PEAK STAGE		20.21	26.80
ANNUAL RUNOFF (CFSM)	1.74	1.12	1.27
ANNUAL RUNOFF (INCHES)	23.57	15.25	17.26
10 PERCENT EXCEEDS	3750	2160	2830
50 PERCENT EXCEEDS	755	493	390
90 PERCENT EXCEEDS	146	189	27

e Estimated

## WABASH RIVER BASIN

03377500 WABASH RIVER AT MOUNT CARMEL, IL

LOCATION.--Lat 38°24'07", long 87°45'10", in SE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.28, T.1 S., R.12 W., Wabash County, Illinois, Hydrologic Unit 05120113, on right bank on downstream side of Southern Railway bridge at Mount Carmel, 0.2 mi downstream from Patoka River, and at mile 94.4.

DRAINAGE AREA.--28,635 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1908 to September 1913 (gage heights only), October 1927 to current year. Gage-height records collected in this vicinity November 1874 to December 1878, are contained in files of Louisville office of the U.S. Army Corps of Engineers and since June 1884, are contained in reports of National Weather Service.

REVISED RECORDS.--WDR IN-73-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 369.46 ft above sea level. Oct. 1, 1949, to Feb. 8, 1977, at datum 2.00 ft higher. See WSP 1725 for history of changes prior to Sept. 30, 1949.

REMARKS.--Records good. Flow partially regulated by upstream reservoirs.

EXTREMES OUTSIDE THE PERIOD OF RECORD.--(1874-78, 1884 to 1985) Maximum discharge, 428,000 ft<sup>3</sup>/s Mar. 30, 1913, from rating curve extended above 310,000 ft<sup>3</sup>/s, gage height, 33.0 ft, present site and datum.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6150	5920	6920	12600	14500	20000	65800	66400	45800	82100	49100	13400
2	5840	5910	7730	11700	14800	18300	66400	74800	40600	74400	44800	13200
3	5580	5890	9360	10900	14800	17200	68300	81200	35700	70600	37800	12900
4	5360	5840	10800	10200	14400	16600	69800	88800	32400	68100	32600	12600
5	5190	5890	11000	9820	14100	16000	70200	92100	30200	63100	30200	12400
6	5000	6050	10500	9830	13500	15100	69600	92600	29400	53400	35500	12200
7	4850	6190	9990	11500	12900	14200	68100	95200	27400	51700	46600	12100
8	4820	6320	9400	18900	12500	13700	65300	102000	25600	66400	56600	12300
9	4900	6430	9110	28700	12300	14200	61800	108000	25400	74700	56400	11200
10	4920	6270	9190	35700	12100	17400	59500	113000	32300	75700	55400	9660
11	4890	6110	9150	40300	12800	23400	58900	115000	39100	71600	55400	8850
12	4830	5870	9040	42400	15000	34200	59100	112000	42700	65900	55800	8510
13	4910	5760	8830	43900	15800	41500	60000	107000	48500	61500	53100	8830
14	4930	5800	8750	44500	17800	45000	61900	102000	55900	58700	48600	9600
15	4860	5890	9010	43500	19900	46500	65300	96700	62300	54900	43400	9420
16	4850	5950	9310	40300	20700	45600	81000	87900	67200	50500	38100	8630
17	4750	5950	9440	35200	21700	42300	92900	75300	72600	44800	33900	7780
18	4790	5920	9290	30000	25000	40200	102000	62800	80900	39600	31100	7270
19	4810	5900	9010	26400	28200	42900	111000	49400	93600	35800	28900	7050
20	4820	5980	8690	23700	27500	48100	119000	39300	109000	32900	27100	6930
21	4850	6010	8330	20900	26700	56700	120000	35700	124000	30500	25400	6930
22	5150	5990	8430	18700	27700	62100	116000	40200	145000	28900	23100	6780
23	5280	5950	8380	17500	29800	66300	108000	49500	168000	29400	20900	6710
24	5440	5950	8440	17800	30600	70000	98800	54200	174000	35300	19100	6910
25	5330	5950	8790	16800	29900	74200	89400	59600	168000	44200	17500	6890
26	5440	6010	9350	16000	28400	79500	80000	63700	156000	49300	16300	6700
27	5350	6120	9710	15600	25900	83200	69000	65800	140000	48700	15300	6580
28	5410	6510	10900	15500	22700	83600	56700	66000	125000	47400	14800	6420
29	5510	6620	12800	15300	---	77400	47700	63900	111000	46100	14500	6320
30	5720	6610	14200	14900	---	70200	50900	60400	96100	45900	14100	6280
31	5770	---	13700	14400	---	66700	---	54100	---	50000	13700	---
TOTAL	160300	181560	297550	713450	562000	1362300	2312400	2374600	2403700	1652100	1055100	271350
MEAN	5171	6052	9598	23010	20070	43950	77080	76600	80120	53290	34040	9045
MAX	6150	6620	14200	44500	30600	83600	120000	115000	174000	82100	56600	13400
MIN	4750	5760	6920	9820	12100	13700	47700	35700	25400	28900	13700	6280
CFSM	.18	.21	.34	.80	.70	1.53	2.69	2.68	2.80	1.86	1.19	.32
IN.	.21	.24	.39	.93	.73	1.77	3.00	3.08	3.12	2.15	1.37	.35

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 1998, BY WATER YEAR (WY)

MEAN	9205	15570	25650	37730	40490	50490	50820	42290	28790	19360	12150	8992
MAX	37700	87950	92340	199300	147100	108700	106400	144100	80120	73580	75530	50670
(WY)	1994	1994	1986	1950	1950	1985	1938	1996	1998	1958	1979	1989
MIN	2465	2632	2266	2861	3758	4815	11900	5805	5035	3366	2372	2572
(WY)	1941	1931	1964	1977	1931	1941	1941	1934	1988	1936	1936	1940

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

## WATER YEARS 1928 - 1998

ANNUAL TOTAL	11806750	13346410	28400
ANNUAL MEAN	32350	36570	56740
HIGHEST ANNUAL MEAN			6144
LOWEST ANNUAL MEAN			1950
HIGHEST DAILY MEAN	142000	Mar 7	302000
LOWEST DAILY MEAN	4750	Oct 17	1650
ANNUAL SEVEN-DAY MINIMUM	4820	Oct 15	1700
INSTANTANEOUS PEAK FLOW			305000
INSTANTANEOUS PEAK STAGE			31.75
ANNUAL RUNOFF (CFSM)	1.13	29.03	Jan 7 1991
ANNUAL RUNOFF (INCHES)	15.34	1.28	
10 PERCENT EXCEEDS	78700	17.34	13.47
50 PERCENT EXCEEDS	18200	82500	68300
90 PERCENT EXCEEDS	5860	25400	16600
		5890	4370

03378500 WABASH RIVER AT NEW HARMONY, IN

LOCATION.--Lat 38°07'55", long 87°56'25" in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.35, T.4 S., R.14 W., Posey County, Hydrologic Unit 05120113, at bridge on U.S. Highway 66 at New Harmony, at Indiana-Illinois state line, and at mile 51.5.

DRAINAGE AREA.--29,234 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1988 to current year. Water discharge published October 1938 to September 1947.

GAGE.--Water-stage recorder. Datum of gage is 353.20 ft above sea level. (Furnished by National Weather Service). (Prior to October 1992, erroneously published as 353.30 ft above sea level).

REMARKS.--Water-quality data collected October 1974 to September 1986.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 23.84 ft. May 26, 1943. Beginning August 1988, minimum gage height 0.46 ft. Oct. 12, 1988.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of March 1913 reached a stage of 27.7 ft. Flood of Jan. 31, 1937, reached a stage of 24.4 ft.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 19.81 ft. June 25; minimum gage height, 1.14 ft., Oct. 21, 22.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.66	1.41	1.56	3.01	3.50	4.81	13.87	13.93	10.43	15.99	10.71	3.33
2	1.56	1.40	1.76	2.80	3.55	4.39	13.85	14.93	9.29	15.21	9.99	3.29
3	1.47	1.38	2.11	2.62	3.57	4.11	14.11	15.50	8.25	14.65	8.63	3.22
4	1.40	1.38	2.54	---	3.49	3.97	14.28	16.09	7.82	14.25	7.53	3.16
5	1.36	1.40	2.60	---	3.43	3.86	14.35	16.27	7.33	13.59	6.96	3.12
6	1.28	1.45	2.50	---	3.29	3.66	14.33	16.35	6.94	12.19	8.19	3.08
7	1.24	1.46	2.39	---	3.17	3.51	14.15	16.71	6.47	11.66	10.54	3.02
8	1.22	1.48	2.28	---	3.10	3.44	13.79	16.82	6.07	13.63	12.56	3.12
9	1.24	1.52	2.20	---	3.06	3.57	13.29	17.14	5.91	14.64	12.56	2.89
10	1.24	1.48	2.19	---	3.02	4.11	12.87	17.32	7.30	14.96	12.37	2.54
11	1.24	1.42	2.20	---	3.20	5.26	12.67	17.47	8.59	14.66	12.38	2.33
12	1.18	1.37	2.16	---	3.68	7.56	12.68	17.31	9.32	13.94	12.32	2.24
13	1.22	1.35	2.10	9.65	3.82	9.09	12.81	17.17	10.49	13.42	11.82	2.28
14	1.20	1.32	2.08	9.82	4.16	9.77	13.11	16.87	11.79	12.95	10.90	2.48
15	1.20	1.30	2.14	9.71	4.64	10.15	13.76	16.59	12.81	12.18	9.81	2.46
16	1.20	1.34	2.22	9.19	4.93	10.10	15.65	16.14	13.55	11.33	8.70	2.30
17	1.16	1.34	2.26	8.20	5.33	9.58	16.42	15.28	14.25	10.22	7.80	2.10
18	1.15	1.34	2.24	7.07	5.97	9.36	16.90	13.87	14.90	9.11	7.18	1.94
19	1.15	1.32	2.16	6.24	6.65	9.80	17.36	11.74	15.79	8.26	6.70	1.86
20	1.15	1.35	2.08	5.60	6.53	10.89	17.68	9.62	16.71	7.60	6.30	1.83
21	1.14	1.36	2.04	4.97	6.31	12.27	17.75	8.55	17.43	7.07	5.93	1.84
22	1.21	1.34	2.00	4.49	6.43	13.14	17.70	9.59	18.15	6.73	5.47	1.79
23	1.26	1.32	2.00	4.21	6.81	13.71	17.35	11.07	18.85	6.75	4.98	1.75
24	1.34	1.34	2.08	4.26	6.99	14.22	16.88	11.87	19.51	7.87	4.59	1.80
25	1.31	1.32	2.16	4.03	6.89	14.67	16.35	12.78	19.81	9.57	4.25	1.80
26	1.30	1.31	2.26	3.85	6.59	15.14	15.68	13.39	19.62	10.57	3.99	1.77
27	1.26	1.36	2.30	3.76	6.09	15.47	14.72	13.66	19.08	10.56	3.78	1.71
28	1.28	1.44	2.56	3.73	5.41	15.64	13.13	13.69	18.49	10.35	3.65	1.67
29	1.29	1.50	2.98	3.67	---	15.32	11.55	13.35	17.73	10.13	3.59	1.64
30	1.36	1.56	3.32	3.59	---	14.61	12.14	12.91	16.97	10.05	3.49	1.62
31	1.38	---	3.22	3.49	---	14.10	---	11.95	---	10.84	3.41	---
MEAN	1.28	1.39	2.28	---	4.77	9.33	14.71	14.38	12.99	11.45	7.78	2.33
MAX	1.66	1.56	3.32	---	6.99	15.64	17.75	17.47	19.81	15.99	12.56	3.33
MIN	1.14	1.30	1.56	---	3.02	3.44	11.55	8.55	5.91	6.73	3.41	1.62

## 03378550 BIG CREEK NEAR WADESVILLE, IN

LOCATION.--Lat 38°04'58", long 87°46'10", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.16, T.5 S., R.12 W., Posey County, Hydrologic Unit 05120113, on left bank at downstream side of bridge on State Highway 66, 0.6 mi northwest of Blairsville, and 1.6 mi southeast of Wadesville.

DRAINAGE AREA.--104 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1965 to current year.

GAGE.--Water-stage recorder. Datum of gage is 370.00 ft above sea level.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.40	e.12	e18	e3.0	11	43	181	868	34	25	11	.98
2	e.27	e.30	e7.0	4.2	10	39	74	248	20	17	6.9	.89
3	e.10	e1.3	e12	5.5	8.6	37	70	591	15	13	5.9	.81
4	e.05	e.20	e7.0	4.8	8.9	33	79	799	353	12	9.9	.78
5	e.03	e.09	e5.2	9.9	11	29	59	232	740	9.8	22	.67
6	e.02	e1.5	e4.5	58	e13	26	53	147	174	9.9	9.7	.57
7	e.01	e.80	e3.8	212	e16	26	48	3980	80	949	1520	.58
8	e.00	e.50	e3.5	359	e20	49	42	1890	53	484	1100	.47
9	e.10	e.30	e13	100	e26	102	42	258	48	51	138	.39
10	e.04	e.23	60	59	63	81	34	149	37	86	41	.37
11	e.02	e.19	22	42	654	55	28	104	31	561	243	.37
12	e.02	e.16	8.3	34	643	e42	26	73	27	82	159	.36
13	e.45	e.25	5.1	26	208	e39	27	52	24	477	29	.35
14	e.20	e1.5	4.1	21	148	e36	33	39	24	858	18	.34
15	e.10	e1.3	3.2	22	122	35	177	33	26	403	13	.34
16	e.08	e.70	2.8	19	264	35	4090	29	20	151	9.5	.34
17	e.06	e.45	2.7	16	347	63	836	22	16	61	7.3	.33
18	e.05	e.37	e2.6	14	394	161	184	19	14	36	5.8	.37
19	e.04	e.32	e2.5	13	184	119	131	18	20	26	4.9	.51
20	e.04	e.30	e2.5	11	164	546	91	61	19	18	4.0	.45
21	e.03	e.35	e5.0	11	146	566	69	104	205	14	3.4	.43
22	e.03	e1.0	9.2	12	129	197	63	662	60	12	3.0	.64
23	e.04	e.84	11	46	117	140	62	448	1870	56	2.5	3.4
24	e.90	e.76	49	34	97	108	45	123	753	15	2.2	1.5
25	e1.0	e.70	70	25	77	88	37	71	144	9.7	1.9	.91
26	e.40	e.65	19	22	71	74	34	121	48	7.6	1.5	.75
27	e.20	e.62	10	20	65	61	38	137	31	7.4	1.2	.80
28	e.12	e.60	7.4	18	50	62	50	58	22	6.6	1.1	.87
29	e.07	e1.0	6.3	17	---	45	136	41	24	5.6	1.1	.60
30	e.05	e90	e4.8	14	---	40	2210	32	96	122	1.3	.54
31	e.07	---	e3.8	12	---	66	---	27	---	54	.97	---
TOTAL	4.99	107.40	385.3	1264.4	4067.5	3043	9049	11436	5028	4639.6	3378.07	20.71
MEAN	.16	3.58	12.4	40.8	145	98.2	302	369	168	150	109	.69
MAX	1.0	90	70	359	654	566	4090	3980	1870	949	1520	3.4
MIN	.00	.09	2.5	3.0	8.6	26	26	18	14	5.6	.97	.33
CFSM	.00	.03	.12	.39	1.40	.94	2.90	3.55	1.61	1.44	1.05	.01
IN.	.00	.04	.14	.45	1.45	1.09	3.24	4.09	1.80	1.66	1.21	.01

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1998, BY WATER YEAR (WY)

MEAN	18.8	83.7	131	140	188	218	206	168	91.4	69.8	44.6	26.9
MAX	131	513	710	559	727	581	702	742	347	264	341	233
(WY)	1978	1986	1983	1982	1990	1975	1996	1990	1996	1992	1977	1982
MIN	.019	.96	.30	.13	9.15	14.3	8.73	2.98	.62	.33	.18	.000
(WY)	1969	1966	1966	1977	1992	1981	1981	1988	1988	1994	1988	1983

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1966 - 1998
ANNUAL TOTAL	40967.45	42423.97	
ANNUAL MEAN	112	116	115
HIGHEST ANNUAL MEAN			205
LOWEST ANNUAL MEAN			38.7
HIGHEST DAILY MEAN	5120	4090	9400
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.03	.03	.00
INSTANTANEOUS PEAK FLOW		5810	10400
INSTANTANEOUS PEAK STAGE		18.84	20.35
ANNUAL RUNOFF (CFSM)	1.08	1.12	1.11
ANNUAL RUNOFF (INCHES)	14.65	15.17	15.06
10 PERCENT EXCEEDS	212	206	210
50 PERCENT EXCEEDS	22	19	17
90 PERCENT EXCEEDS	.31	.31	.21

e Estimated

04092677 GRAND CALUMET RIVER AT INDUSTRIAL HWY AT GARY, IN

LOCATION.--Lat 41°36'29", long 87°23'39", in NW 1/4 NW 1/4 sec. 6, T. 37 N., R. 8W., Lake County, Hydrologic Unit 04040001, 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 Velocity Meter. Datum of gage is 580.00 ft above sea level.

REMARKS.--Records good except for estimated daily discharges which are poor. Discharge is primarily from industrial and city effluent.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	479	515	473	487	500	530	542	528	485	457	523	e540
2	488	510	485	502	504	533	533	532	477	462	530	e530
3	457	500	474	480	504	527	522	524	499	473	525	e520
4	491	521	460	518	481	515	519	526	487	487	582	e540
5	482	507	475	511	491	516	535	538	491	488	556	e500
6	490	465	485	526	500	514	533	541	496	496	518	e505
7	495	482	483	491	506	520	533	601	495	513	547	e512
8	492	494	481	531	505	546	520	553	507	509	552	e510
9	503	503	471	547	501	498	499	541	537	471	529	e540
10	488	486	443	569	506	519	525	546	500	465	523	518
11	476	486	461	553	526	528	535	538	586	495	501	520
12	493	481	480	529	514	541	546	548	539	487	495	511
13	505	494	482	525	505	550	544	539	512	497	525	507
14	495	469	475	533	517	531	546	534	524	502	521	508
15	483	488	491	511	521	527	531	544	513	505	511	517
16	504	513	490	510	510	530	512	527	510	501	508	509
17	501	510	493	519	514	559	539	533	509	500	517	487
18	515	514	467	516	516	565	533	523	517	503	504	509
19	505	498	466	517	517	500	525	512	521	517	503	518
20	483	489	489	512	524	e532	538	510	509	512	501	508
21	487	480	482	507	538	e532	562	483	492	514	501	509
22	480	492	483	477	523	e532	537	468	482	534	529	484
23	499	485	488	492	531	535	541	487	447	524	531	491
24	494	491	485	510	534	532	530	490	423	506	538	482
25	474	508	494	512	530	534	528	497	377	514	529	483
26	484	487	491	502	528	531	506	502	381	520	514	499
27	552	496	488	506	525	541	512	471	375	533	509	483
28	517	499	481	501	536	546	533	467	375	529	517	485
29	507	497	465	491	---	543	535	450	386	517	509	492
30	497	464	460	504	---	540	537	473	409	506	522	511
31	504	---	465	511	---	554	---	471	---	518	e530	---
TOTAL	15320	14824	14806	15900	14407	16501	15931	15997	14361	15555	16200	15228
MEAN	494	494	478	513	515	532	531	516	479	502	523	508
MAX	552	521	494	569	538	565	562	601	586	534	582	540
MIN	457	464	443	477	481	498	499	450	375	457	495	482

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 1998, BY WATER YEAR (WY)

	1995	1996	1997	1998	1995	1996	1997	1998	1995	1996	1997	1998
MEAN	474	467	450	457	460	464	456	450	474	471	491	487
MAX	494	494	478	513	515	532	531	516	496	502	523	508
(WY)	1998	1998	1998	1998	1998	1998	1998	1998	1996	1998	1998	1998
MIN	454	438	425	427	419	404	381	400	459	434	469	478
(WY)	1995	1996	1996	1996	1996	1996	1996	1996	1995	1995	1995	1995

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR				FOR 1998 WATER YEAR				WATER YEARS 1995 - 1998			
ANNUAL TOTAL	168672				185030							
ANNUAL MEAN	462				507				467			
HIGHEST ANNUAL MEAN									507			
LOWEST ANNUAL MEAN									444			
HIGHEST DAILY MEAN	561				601				601			
LOWEST DAILY MEAN	400				375				305			
ANNUAL SEVEN-DAY MINIMUM	415				389				361			
INSTANTANEOUS PEAK FLOW					749				891			
INSTANTANEOUS PEAK STAGE					4.44				4.81			
10 PERCENT EXCEEDS	499				539				519			
50 PERCENT EXCEEDS	462				509				466			
90 PERCENT EXCEEDS	425				475				419			

e Estimated



## STREAMS TRIBUTARY TO LAKE MICHIGAN

04092750 INDIANA HARBOR CANAL AT EAST CHICAGO, IN

LOCATION.--Lat 41°39'27", long 87°27'21", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.16, T.37N., R.9W., Lake County, Hydrologic Unit 04040001, on right bank 1200 ft downstream (northeast) of Dickey Road bridge, 1.2 miles upstream (southwest) of mouth at Indiana Harbor, 1.3 miles east of Indianapolis Boulevard, 1 mile north of East Chicago, IN.

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 Velocity Meter. Datum of gage is 570.00 ft above sea level.

REMARKS.--Records poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e400	408	458	444	449	525	e520	488	454	405	432	469
2	e420	465	405	425	384	504	e490	484	421	451	479	398
3	e340	373	391	360	439	469	e480	427	452	428	478	405
4	e440	441	385	526	397	433	e440	459	410	427	593	490
5	e370	367	399	493	431	470	e520	563	411	437	490	462
6	384	374	369	480	451	492	e520	596	421	448	391	493
7	424	443	412	363	434	441	e510	797	416	504	495	507
8	503	424	393	669	451	461	e500	612	445	491	498	421
9	499	406	358	616	425	576	e450	547	469	455	548	500
10	386	391	394	616	413	625	e430	636	465	493	552	480
11	400	431	458	534	486	498	e480	528	669	493	477	464
12	419	407	561	477	550	578	e540	555	510	485	432	410
13	447	342	384	520	432	498	e520	583	471	486	465	463
14	406	376	429	429	388	516	489	568	410	476	514	488
15	307	414	e490	436	488	479	477	615	480	491	403	423
16	389	526	e520	484	423	515	523	517	459	479	445	459
17	424	431	e520	446	466	568	595	559	416	452	e470	460
18	436	385	e520	463	569	564	446	532	480	523	e460	505
19	349	423	395	454	479	522	461	463	503	509	447	490
20	450	387	396	443	480	485	516	472	455	448	455	522
21	320	392	402	439	504	556	548	396	426	507	382	420
22	e360	424	420	399	491	543	502	406	463	512	498	427
23	e420	393	418	444	535	522	483	419	404	461	477	474
24	e400	436	391	457	563	507	473	417	424	449	447	419
25	e380	436	479	420	546	480	446	459	434	451	445	408
26	e370	367	436	411	495	497	504	467	375	488	455	447
27	747	428	417	429	588	413	499	517	309	503	415	383
28	494	359	455	417	575	426	515	458	362	500	509	433
29	411	423	325	440	---	525	517	394	395	465	430	410
30	428	324	439	456	---	e520	546	425	359	417	423	402
31	427	---	490	492	---	e540	---	389	---	461	459	---
TOTAL	12950	12196	13309	14482	13332	15748	14940	15748	13168	14595	14464	13532
MEAN	418	407	429	467	476	508	498	508	439	471	467	451
MAX	747	526	561	669	588	625	595	797	669	523	593	522
MIN	307	324	325	360	384	413	430	389	309	405	382	383

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1994 - 1998, BY WATER YEAR (WY)

	1994	1995	1996	1997	1998
MEAN	617	664	714	697	658
MAX	752	916	1094	963	843
(WY)	1997	1997	1997	1997	1996
MIN	418	407	429	467	476
(WY)	1998	1998	1998	1998	1998

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1994 - 1998
ANNUAL TOTAL	208473	168464	
ANNUAL MEAN	571	462	628
HIGHEST ANNUAL MEAN			698
LOWEST ANNUAL MEAN			462
HIGHEST DAILY MEAN	1630	Feb 1	797
LOWEST DAILY MEAN	235	Mar 27	307
ANNUAL SEVEN-DAY MINIMUM	375	Sep 29	377
INSTANTANEOUS PEAK FLOW			3240
INSTANTANEOUS PEAK STAGE			14.41
10 PERCENT EXCEEDS	813		541
50 PERCENT EXCEEDS	503		455
90 PERCENT EXCEEDS	380		389

e Estimated

## 04093000 DEEP RIVER AT LAKE GEORGE OUTLET AT HOBART, IN

LOCATION.--Lat 41°32'10", long 87°15'25", in NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.32, T.36 N., R.7 W., Lake County, Hydrologic Unit 04040001, 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.

DRAINAGE AREA.--124 mi<sup>2</sup>.

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 sea level (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 good except for estimated daily discharges, which are poor. Flow subject to regulation by operation of Lake George Dam.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	48	83	64	121	73	323	349	32	15	20	24
2	9.7	53	73	66	239	81	533	426	30	36	20	23
3	13	51	66	69	189	80	486	350	30	38	21	22
4	16	48	60	395	129	81	308	139	33	68	178	26
5	20	42	55	614	132	79	248	111	32	96	291	29
6	20	40	50	882	116	77	193	233	33	78	520	28
7	18	39	45	894	103	70	118	418	30	192	396	45
8	18	40	40	952	95	177	176	1180	30	707	287	75
9	28	37	40	1200	87	643	217	1210	44	693	231	67
10	36	33	47	1070	82	928	234	897	57	367	242	49
11	33	32	50	768	162	867	192	630	139	136	120	35
12	25	29	56	552	389	753	150	429	338	102	146	29
13	23	27	52	383	479	587	223	220	344	40	109	24
14	22	28	48	168	368	443	417	109	207	32	47	22
15	23	33	45	102	246	360	473	130	70	46	48	22
16	29	36	44	137	142	256	375	113	67	43	42	21
17	27	38	48	125	117	294	183	93	70	38	36	22
18	23	35	54	110	364	1020	161	81	61	35	30	21
19	21	33	56	98	522	1780	137	71	71	43	28	20
20	20	33	61	88	427	1420	124	63	72	47	26	19
21	19	34	63	82	217	1070	154	58	59	42	24	17
22	19	43	80	79	169	931	353	53	49	38	23	18
23	19	44	93	78	161	799	420	52	46	53	23	19
24	22	40	87	75	149	647	304	50	45	47	23	19
25	26	41	154	71	135	512	189	49	40	35	34	19
26	37	36	365	68	186	417	172	45	50	30	37	20
27	121	37	227	66	126	347	130	43	81	28	29	15
28	147	42	67	68	22	181	130	43	62	27	29	15
29	90	53	94	75	---	187	158	39	80	23	31	16
30	64	78	89	90	---	307	194	38	138	22	27	20
31	49	---	78	97	---	345	---	35	---	20	24	---
TOTAL	1039.4	1203	2470	9586	5674	15812	7475	7757	2440	3217	3142	801
MEAN	33.5	40.1	79.7	309	203	510	249	250	81.3	104	101	26.7
MAX	147	78	365	1200	522	1780	533	1210	344	707	520	75
MIN	1.7	27	40	64	22	70	118	35	30	15	20	15
CFSM	.27	.32	.64	2.49	1.63	4.11	2.01	2.02	.66	.84	.82	.22
IN.	.31	.36	.74	2.88	1.70	4.74	2.24	2.33	.73	.97	.94	.24

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1948 - 1998, BY WATER YEAR (WY)

	MEAN	57.9	95.1	114	119	149	222	213	152	117	65.5	49.9	49.0
MAX	433	499	393	475	456	688	477	454	557	315	427	312	
(WY)	1955	1986	1983	1993	1997	1979	1950	1970	1993	1996	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	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1948 - 1998	
ANNUAL TOTAL	55939.92		60616.4		117	
ANNUAL MEAN	153		166		234	
HIGHEST ANNUAL MEAN					35.3	
LOWEST ANNUAL MEAN					3900	
HIGHEST DAILY MEAN	1980	Feb 22	1780	Mar 19	Nov 28 1990	
LOWEST DAILY MEAN	.00	Aug 8	1.7	Oct 1	Nov 5 1978	
ANNUAL SEVEN-DAY MINIMUM	14	Oct 1	14	Oct 1	Aug 29 1996	
INSTANTANEOUS PEAK FLOW			1850	Mar 19	Nov 28 1990	
INSTANTANEOUS PEAK STAGE			12.67	Mar 19	Oct 11 1954	
ANNUAL RUNOFF (CFSM)	1.24		1.34		.94	
ANNUAL RUNOFF (INCHES)	16.78		18.18		12.79	
10 PERCENT EXCEEDS	367		426		278	
50 PERCENT EXCEEDS	73		67		49	
90 PERCENT EXCEEDS	24		22		13	

LOCATION.--Lat 41°34'19", long 87°19'13", in NE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>, sec.15, T.36 N., R.8 W., Lake County, Hydrologic Unit 04040001, on right bank 100 ft upstream of Conrail Railroad bridge, 800 ft upstream of Martin Luther King Avenue bridge at Gary, 1.3 mi downstream of highway 53, and 1.5 mi upstream from confluence with Deep River.

PERIOD OF RECORD.--June 1958 to September 1967, October 1968 to September 30, 1971 (discharge), December, 1984 to current year (gage heights only).

REMARKS.--Stage affected by backwater from Deep River during times of flood. Minimum gage height for the period of record may have been lower prior to December 13, 1984.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 13.31 ft, Nov. 30, 1990; minimum gage height, 5.27 ft, Aug. 7, 8, 1991.  
Minimum gage height was not published prior to December 13, 1984.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Flood in October 1954 reached a stage of 13.09 ft, from flood mark.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 11.16 ft, Mar. 21, 22; minimum gage height, 8.17 ft, Oct. 25, 26.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.40	8.70	8.78	8.82	8.86	8.92	9.22	9.07	8.45	8.68	8.48	8.55
2	8.40	8.69	8.78	8.82	8.94	8.89	9.29	9.10	8.41	8.66	8.46	8.54
3	8.39	8.66	8.76	8.81	9.04	8.87	9.32	9.09	8.42	8.62	8.45	8.53
4	8.44	8.62	8.73	8.98	9.08	8.86	9.31	9.07	8.47	8.74	8.78	8.53
5	8.46	8.59	8.70	9.18	9.08	8.85	9.25	9.05	8.49	8.80	9.20	8.53
6	8.45	8.58	8.67	9.38	9.06	8.84	9.18	9.07	8.49	8.79	9.46	8.53
7	8.46	8.57	8.64	9.58	9.01	8.81	9.12	9.37	8.48	9.06	9.56	8.78
8	8.42	8.56	8.61	9.72	8.96	8.96	9.12	9.80	8.48	9.13	9.53	9.02
9	8.47	8.55	8.61	9.93	8.92	9.25	9.14	10.45	8.64	9.16	9.44	9.03
10	8.47	8.54	8.64	10.12	8.89	9.43	9.14	10.55	8.73	9.10	9.35	8.93
11	8.46	8.53	8.71	9.97	8.97	9.54	9.14	10.19	9.07	9.01	9.29	8.85
12	8.45	8.51	8.73	9.70	9.11	9.55	9.10	9.83	9.23	8.92	9.21	8.78
13	8.46	8.49	8.74	9.71	9.23	9.53	9.07	9.58	9.29	8.84	9.10	8.73
14	8.51	8.50	8.70	9.85	9.27	9.47	9.10	9.43	9.26	8.78	8.98	8.69
15	8.49	8.56	8.68	9.30	9.26	9.41	9.14	9.29	9.14	8.72	8.87	8.66
16	8.47	8.59	8.67	9.20	9.21	9.36	9.11	9.16	9.03	8.67	8.80	8.66
17	8.45	8.60	8.66	9.11	9.19	9.33	9.12	9.06	8.92	8.62	8.74	8.66
18	8.45	8.57	8.65	9.04	9.22	9.47	9.11	8.94	8.83	8.58	8.71	8.67
19	8.44	8.57	8.69	8.97	9.28	10.35	9.08	8.86	8.81	8.61	8.67	8.67
20	8.43	8.57	8.70	8.92	9.31	11.08	9.07	8.80	8.76	8.65	8.64	8.78
21	8.42	8.59	8.70	8.86	9.31	11.16	9.11	8.73	8.70	8.64	8.60	8.77
22	8.40	8.61	8.71	8.82	9.27	10.85	9.13	8.66	8.65	8.71	8.57	8.73
23	8.31	8.60	8.76	8.81	9.21	10.34	9.16	8.60	8.61	8.76	8.55	8.69
24	8.21	8.59	8.85	8.78	9.14	9.90	9.16	8.59	8.56	8.78	8.57	8.68
25	8.17	8.61	8.95	8.76	9.08	9.59	9.11	8.58	8.52	8.77	8.59	8.68
26	8.42	8.59	9.03	8.74	9.02	9.46	9.07	8.53	8.64	8.72	8.61	8.67
27	8.90	8.59	9.06	8.74	8.98	9.36	9.04	8.53	8.76	8.67	8.60	8.66
28	8.95	8.64	9.05	8.74	8.95	9.30	8.99	8.50	8.76	8.62	8.60	8.66
29	8.88	8.69	9.01	8.76	---	9.24	8.99	8.48	8.74	8.56	8.60	8.66
30	8.81	8.74	8.95	8.78	---	9.19	9.02	8.48	8.74	8.52	8.59	8.80
31	8.72	---	8.89	8.81	---	9.17	---	8.45	---	8.49	8.58	---
MEAN	8.49	8.59	8.77	9.15	9.10	9.49	9.13	9.09	8.74	8.75	8.84	8.70
MAX	8.95	8.74	9.06	10.12	9.31	11.16	9.32	10.55	9.29	9.16	9.56	9.03
MIN	8.17	8.49	8.61	8.74	8.86	8.81</						

## 04094000 LITTLE CALUMET RIVER AT PORTER, IN

LOCATION.--Lat 41°37'18", long 87°05'13", in NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.34, T.37 N., R.6 W., Porter County, Hydrologic Unit 04040001, 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 mi<sup>2</sup>.

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 sea level. Prior to June 26, 1952, nonrecording gage at same site and datum.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	53	70	e40	98	66	223	101	44	39	32	32
2	38	59	57	e45	106	64	267	91	43	36	31	31
3	36	54	51	101	95	66	171	81	43	42	31	31
4	35	55	50	205	83	67	120	78	43	206	61	31
5	36	48	47	359	75	65	102	76	42	141	67	30
6	35	45	44	434	70	62	92	84	46	69	49	30
7	35	46	43	348	67	61	87	155	45	74	44	31
8	37	45	43	386	66	79	101	683	43	118	42	33
9	44	48	43	593	64	412	112	450	50	74	40	32
10	45	52	47	395	63	e680	146	179	54	55	38	32
11	41	52	53	177	85	e420	126	114	76	47	36	31
12	39	51	54	111	207	243	103	98	133	43	34	30
13	44	49	51	95	160	162	90	90	89	41	33	30
14	48	45	47	79	106	134	214	82	63	40	34	30
15	43	49	46	80	89	131	356	75	55	38	37	30
16	40	53	47	76	80	127	160	67	51	37	34	32
17	40	52	54	73	84	151	113	61	48	37	33	32
18	40	50	55	71	141	531	96	57	46	36	33	32
19	42	50	60	68	137	730	87	54	61	38	32	31
20	40	50	62	66	108	375	83	52	55	38	31	37
21	40	54	58	65	93	251	131	51	48	35	31	48
22	38	74	54	65	86	251	249	51	44	36	33	37
23	37	70	69	67	78	190	151	50	40	40	37	34
24	40	57	74	66	77	134	108	57	40	36	34	34
25	45	49	128	65	76	115	92	61	39	34	36	34
26	47	49	120	67	71	107	88	54	37	33	36	34
27	86	49	82	67	71	100	86	51	37	33	33	33
28	78	61	66	69	70	105	80	48	37	33	33	33
29	58	80	58	75	---	157	86	46	37	32	34	32
30	50	89	e50	86	---	119	97	47	42	31	33	34
31	46	---	e45	84	---	112	---	48	---	32	32	---
TOTAL	1359	1638	1828	4578	2606	6267	4017	3292	1531	1624	1144	981
MEAN	43.8	54.6	59.0	148	93.1	202	134	106	51.0	52.4	36.9	32.7
MAX	86	89	128	593	207	730	356	683	133	206	67	48
MIN	35	45	43	40	63	61	80	46	37	31	31	30
CFSM	.66	.82	.89	2.23	1.41	3.05	2.02	1.60	.77	.79	.56	.49
IN.	.76	.92	1.03	2.57	1.46	3.52	2.26	1.85	.86	.91	.64	.55

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 1998, BY WATER YEAR (WY)

	MEAN	58.7	77.2	81.2	81.0	95.4	124	118	89.2	74.3	48.2	43.3	44.1
MAX	414	285	186	202	208	319	293	277	272	190	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	52.9	44.6	33.5	25.6	22.2	23.1	21.4	
(WY)	1964	1954	1964	1977	1964	1964	1963	1958	1965	1988	1964	1953	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1946 - 1998
ANNUAL TOTAL	30029	30865	
ANNUAL MEAN	82.3	84.6	77.7
HIGHEST ANNUAL MEAN			124
LOWEST ANNUAL MEAN			36.5
HIGHEST DAILY MEAN	1050	730	3040
LOWEST DAILY MEAN	29	30	17
ANNUAL SEVEN-DAY MINIMUM	33	31	19
INSTANTANEOUS PEAK FLOW		928	3880
INSTANTANEOUS PEAK STAGE		8.12	11.66
ANNUAL RUNOFF (CFSM)	1.24	1.28	1.17
ANNUAL RUNOFF (INCHES)	16.87	17.34	15.96
10 PERCENT EXCEEDS	134	148	143
50 PERCENT EXCEEDS	60	54	50
90 PERCENT EXCEEDS	38	33	28

e Estimated

## STREAM TRIBUTARY TO LAKE MICHIGAN

04095090 BURNS DITCH AT PORTAGE, IN

LOCATION.--Lat 41°37'53", long 86°10'35", in SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 25, T.37N., R.7W., Porter County, Hydrologic Unit 04040001, 400 feet south of mouth, 400 feet east of an industrial access road at an industrial footbridge over Burn's Ditch, 4,000 feet west of Burns Waterway Harbor west shore, and 4,700 ft north of U.S. 12 bridge over Burns Ditch.

DRAINAGE AREA.--331 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder and Acoustic Velocity Meter. Datum of gage is 575 ft above sea level from topographic map.

REMARKS.--Records poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	584	e300	e400	e290	398	297	532	580	671	651	484	302
2	481	e370	e370	e330	468	313	667	586	665	611	406	332
3	290	e350	e350	e400	518	362	631	583	655	576	508	259
4	308	e340	e330	e500	447	355	567	576	633	747	604	312
5	317	e320	e310	e800	466	380	461	542	658	718	822	330
6	234	e280	e300	e1100	415	345	401	713	555	661	829	309
7	257	e280	e300	e1000	390	385	344	949	597	691	806	264
8	214	e290	e300	1230	379	484	390	1500	630	771	800	325
9	230	e300	e300	1510	361	e700	505	1710	670	770	767	307
10	384	e310	e310	1410	377	1250	528	1430	696	725	737	240
11	387	e310	e340	1100	449	1150	442	1190	804	580	701	292
12	267	e310	e345	849	766	1000	322	1090	979	582	594	313
13	420	e300	e350	687	741	845	307	1030	946	535	548	278
14	503	e280	e330	557	631	789	552	882	836	430	417	244
15	e430	e290	e310	457	551	660	675	833	799	442	447	212
16	e230	e300	e310	461	477	611	616	798	745	399	515	230
17	e240	e300	e330	438	488	590	472	749	712	361	392	207
18	e250	e290	e350	429	691	1210	377	727	742	380	444	183
19	e245	e280	e370	375	738	1830	391	743	784	477	349	188
20	e245	e360	e390	360	660	1630	357	736	735	431	292	223
21	e230	e390	e370	355	563	1490	429	718	702	580	341	287
22	e220	e440	e350	349	446	1310	587	705	686	566	376	249
23	e200	e400	e340	362	417	1140	578	681	685	513	375	198
24	e230	e360	e380	347	408	912	476	706	746	468	352	164
25	e300	e320	e560	332	383	751	432	761	640	414	288	181
26	e400	e320	e530	315	397	603	539	702	705	392	349	161
27	e500	e320	e460	345	397	453	493	697	726	342	299	150
28	e450	e350	e430	334	296	406	487	645	648	374	256	157
29	e370	e390	e390	376	---	413	512	683	661	393	295	128
30	e310	e430	e360	396	---	404	536	670	706	430	296	151
31	e270	---	e330	393	---	461	---	666	---	540	292	---
TOTAL	9996	9880	11195	18187	13718	23529	14606	25581	21417	16550	14981	7176
MEAN	322	329	361	587	490	759	487	825	714	534	483	239
MAX	584	440	560	1510	766	1830	675	1710	979	771	829	332
MIN	200	280	300	290	296	297	307	542	555	342	256	128

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 1998, BY WATER YEAR (WY)

	1995	1996	1997	1998
MEAN	252	411	419	441
MAX	368	512	494	587
(WY)	1995	1995	1995	1997
MIN	107	293	354	231
(WY)	1996	1997	1996	1996

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1995 - 1998
ANNUAL TOTAL	147466	186816	
ANNUAL MEAN	404	512	483
HIGHEST ANNUAL MEAN			522
LOWEST ANNUAL MEAN			400
HIGHEST DAILY MEAN	1950	Feb 22	8000
LOWEST DAILY MEAN	97	Sep 8	83
ANNUAL SEVEN-DAY MINIMUM	116	Sep 7	95
INSTANTANEOUS PEAK FLOW			2110
INSTANTANEOUS PEAK STAGE			10.19
10 PERCENT EXCEEDS	660	799	800
50 PERCENT EXCEEDS	329	430	401
90 PERCENT EXCEEDS	156	279	188

e Estimated



## 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, 2000 ft north of Michigan Street, 2,600 ft southeast of lake end of west breakwater,  $\frac{1}{2}$  mi southwest of Washington Park, 3000 ft downstream of U.S. Hwy 12 bridge in Michigan City.

DRAINAGE AREA.--59.1 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder and Acoustic Velocity Meter. Datum of gage is 575 ft above sea level from topographic map.

REMARKS.--Records not published due to possible inaccuracies in the stream velocity versus records velocity correlation. Data or portions of data collected are available in the district office.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

( DATA NOT PUBLISHED )

## STREAMS TRIBUTARY TO LAKE MICHIGAN

04096100 GALENA RIVER NEAR LAPORTE, IN

LOCATION.--Lat 41°44'54", long 86°40'30", in SE 1/4 NW 1/4 sec.17, T.38 N., R.2 W., LaPorte County, Hydrologic Unit 04040001, on left bank at downstream side of bridge on County Road 125 East, 1.3 mi south of Indiana-Michigan State line, and 9.8 mi north of Courthouse in LaPorte.

DRAINAGE AREA.--17.2 mi<sup>2</sup>, of which 2.30 mi<sup>2</sup> does not contribute directly to surface runoff.

PERIOD OF RECORD.--October 1969 to current year.

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 sea level.

REMARKS.--Records good 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 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	21	28	e18	36	27	67	31	15	15	12	13
2	16	22	24	28	37	25	55	28	14	14	11	13
3	15	20	22	94	33	27	40	26	15	13	11	12
4	16	20	22	137	31	26	36	27	15	44	21	12
5	17	19	21	113	28	25	33	25	15	26	23	12
6	16	20	21	135	27	24	31	25	15	20	23	11
7	15	19	21	79	26	23	29	30	15	133	19	12
8	15	19	20	167	25	42	32	42	15	86	18	13
9	19	19	20	174	24	134	45	31	17	34	17	13
10	19	21	24	80	24	91	54	27	19	27	16	12
11	17	23	26	45	52	58	37	24	25	23	15	12
12	16	21	24	37	61	41	33	23	37	21	14	11
13	17	19	21	34	36	36	31	22	26	19	13	11
14	20	20	20	e32	32	35	122	21	22	18	13	11
15	18	21	19	e31	30	33	55	20	20	17	13	12
16	17	26	21	e31	28	33	40	19	24	17	12	14
17	17	25	22	32	37	42	36	18	22	16	12	14
18	17	23	22	31	55	157	32	17	20	15	12	13
19	16	24	24	30	39	103	30	17	26	16	12	13
20	16	23	26	29	34	56	29	17	20	16	11	14
21	16	31	27	28	32	58	44	17	18	15	11	19
22	17	37	27	28	29	59	38	16	17	18	11	16
23	17	32	42	29	27	45	33	16	16	18	12	15
24	19	24	37	28	27	38	29	22	15	15	12	14
25	20	23	65	28	26	36	27	20	14	14	24	15
26	23	23	42	27	25	35	28	18	37	14	17	15
27	45	22	31	28	29	33	26	17	23	13	15	15
28	29	56	25	29	27	73	25	16	19	13	15	15
29	22	44	22	34	---	56	31	16	17	13	15	15
30	20	36	e20	37	---	39	30	16	16	12	14	16
31	19	---	e19	35	---	46	---	15	---	12	13	---
TOTAL	584	753	805	1688	917	1556	1178	679	589	747	457	403
MEAN	18.8	25.1	26.0	54.5	32.8	50.2	39.3	21.9	19.6	24.1	14.7	13.4
MAX	45	56	65	174	61	157	122	42	37	133	24	19
MIN	15	19	19	18	24	23	25	15	14	12	11	11
CFSM	1.10	1.46	1.51	3.17	1.90	2.92	2.28	1.27	1.14	1.40	.86	.78
IN.	1.26	1.63	1.74	3.65	1.98	3.37	2.55	1.47	1.27	1.62	.99	.87

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 1998, BY WATER YEAR (WY)

	MEAN	22.8	30.8	30.9	27.6	31.6	38.2	34.4	27.7	24.4	17.9	16.1	17.0
MAX	43.8	64.4	51.8	54.5	65.3	70.1	56.0	65.5	69.7	39.0	28.5	32.6	
(WY)	1991	1991	1973	1998	1997	1982	1970	1996	1993	1996	1996	1993	
MIN	14.8	16.8	15.6	15.0	19.2	19.4	18.2	15.5	12.3	10.3	9.71	10.4	
(WY)	1990	1981	1990	1976	1980	1981	1971	1992	1971	1988	1970	1988	

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

## WATER YEARS 1970 - 1998

ANNUAL TOTAL	10437	10356	
ANNUAL MEAN	28.6	28.4	26.6
HIGHEST ANNUAL MEAN			35.4
LOWEST ANNUAL MEAN			21.0
HIGHEST DAILY MEAN	292	Feb 21	650
LOWEST DAILY MEAN	11	Jan 19	6.7
ANNUAL SEVEN-DAY MINIMUM	12	Jan 14	7.6
INSTANTANEOUS PEAK FLOW			900
INSTANTANEOUS PEAK STAGE			7.04
ANNUAL RUNOFF (CFSM)	1.66	1.65	1.55
ANNUAL RUNOFF (INCHES)	22.57	22.40	21.00
10 PERCENT EXCEEDS	42	44	43
50 PERCENT EXCEEDS	22	22	21
90 PERCENT EXCEEDS	14	13	12

e Estimated

04099510 PIGEON CREEK NEAR ANGOLA, IN

LOCATION.--Lat 41°38'04", long 85°06'35", in NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.26, T.37 N., R.12 E., Steuben County, Hydrologic Unit 04050001, 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 mi<sup>2</sup>, of which 22.5 mi<sup>2</sup> 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 sea level. 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 good.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	67	59	134	137	116	139	304	124	53	47	31	144
2	63	62	144	122	118	135	282	129	51	44	29	119
3	61	68	141	112	119	130	265	130	50	42	28	101
4	59	72	132	117	118	125	244	128	48	42	30	87
5	56	74	121	163	115	119	222	123	48	41	31	76
6	54	73	110	246	111	113	201	120	47	40	49	68
7	52	71	103	331	107	109	182	116	46	40	63	62
8	50	68	96	451	102	106	168	118	45	38	83	57
9	49	66	90	576	98	130	175	120	46	37	98	52
10	48	63	88	629	94	221	247	119	46	36	100	49
11	47	60	84	639	94	314	324	116	47	35	93	46
12	46	57	81	609	100	358	369	111	49	34	82	44
13	47	55	78	540	112	354	366	105	51	33	73	42
14	48	54	76	463	125	316	333	99	53	32	65	40
15	47	54	74	386	129	276	296	94	54	31	58	38
16	47	53	71	320	127	240	261	89	56	30	53	37
17	45	52	70	270	127	211	230	83	61	29	49	36
18	45	51	69	231	147	197	207	79	66	29	46	35
19	44	50	69	202	197	218	186	75	73	30	43	33
20	43	49	70	180	244	269	168	71	78	31	40	33
21	42	49	72	161	262	320	155	68	81	33	39	35
22	41	51	76	147	254	347	145	65	77	39	38	35
23	41	54	87	139	230	351	137	62	71	45	36	35
24	41	58	106	130	206	332	129	62	65	47	37	34
25	40	62	139	122	185	307	123	62	60	47	66	33
26	42	62	178	115	168	275	120	62	57	44	144	33
27	46	63	205	111	154	245	118	61	56	42	239	32
28	50	71	211	108	144	231	115	59	54	39	273	31
29	52	83	196	108	---	266	115	57	51	37	257	30
30	54	107	173	111	---	305	117	55	51	35	218	30
31	56	---	154	114	---	315	---	54	---	33	178	---
TOTAL	1523	1871	3498	8090	4103	7374	6304	2816	1691	1162	2669	1527
MEAN	49.1	62.4	113	261	147	238	210	90.8	56.4	37.5	86.1	50.9
MAX	67	107	211	639	262	358	369	130	81	47	273	144
MIN	40	49	69	108	94	106	115	54	45	29	28	30
CFSM	.59	.75	1.35	3.13	1.75	2.85	2.52	1.09	.68	.45	1.03	.61
IN.	.68	.83	1.56	3.60	1.83	3.29	2.81	1.25	.75	.52	1.19	.68

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 1998, BY WATER YEAR (WY)

	MEAN	34.6	54.5	77.5	95.8	107	162	164	115	80.2	50.4	38.1	32.9
MAX	154	195	195	385	257	437	491	423	362	164	126	119	
(WY)	1955	1993	1968	1993	1959	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	1964	1964	1946	1963	1988	1963	1964	1963	

SUMMARY STATISTICS FOR 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1946 - 1998

ANNUAL TOTAL	41828	42628	
ANNUAL MEAN	115	117	84.2
HIGHEST ANNUAL MEAN			151
LOWEST ANNUAL MEAN			19.5
HIGHEST DAILY MEAN	535	Mar 2	639
LOWEST DAILY MEAN	36	Aug 10	28
ANNUAL SEVEN-DAY MINIMUM	37	Aug 9	30
INSTANTANEOUS PEAK FLOW			643
INSTANTANEOUS PEAK STAGE			9.55
ANNUAL RUNOFF (CFSM)	1.37		1.40
ANNUAL RUNOFF (INCHES)	18.63		18.99
10 PERCENT EXCEEDS	191		261
50 PERCENT EXCEEDS	89		76
90 PERCENT EXCEEDS	48		37

## STREAMS TRIBUTARY TO LAKE MICHIGAN

04099750 PIGEON RIVER NEAR SCOTT, IN

LOCATION.--Lat 41°44'56", long 85°34'35", in SE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.14, T.38 N., R.8 E., Lagrange County, Hydrologic Unit 04050001, 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 mi<sup>2</sup> of which 53.9 mi<sup>2</sup> 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 sea level.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	295	287	384	455	501	497	842	539	258	281	140	542
2	271	333	381	432	502	483	911	653	250	232	145	463
3	263	333	387	421	499	469	893	666	240	217	146	421
4	259	313	394	452	487	450	830	623	236	234	149	381
5	255	302	391	576	474	430	778	622	238	233	163	330
6	248	294	378	787	461	424	706	577	243	223	526	312
7	241	289	361	1020	448	414	659	533	239	215	949	300
8	235	287	344	1260	435	413	665	532	232	219	678	281
9	222	284	328	1510	423	547	773	538	225	206	527	249
10	224	273	327	1510	400	782	1070	511	230	199	444	232
11	223	262	330	1450	411	830	1210	484	255	191	393	235
12	219	252	318	1410	450	783	1080	463	304	184	363	226
13	219	244	300	1360	463	803	1040	442	328	181	330	218
14	235	246	287	e1300	440	832	1040	420	318	171	304	213
15	231	248	276	e1200	435	818	1050	400	289	169	280	212
16	221	249	269	1130	437	768	1030	374	275	156	262	213
17	217	238	267	1030	456	715	938	360	282	145	251	207
18	210	227	264	925	513	703	841	347	266	155	212	203
19	204	222	261	806	562	743	774	333	290	161	219	197
20	200	218	276	730	570	810	707	322	296	170	214	195
21	195	221	275	675	587	851	645	309	290	172	206	225
22	190	231	276	628	610	923	601	300	284	244	204	225
23	188	231	322	573	612	952	578	284	266	255	208	203
24	193	225	367	580	602	953	551	309	252	200	207	193
25	204	221	433	551	581	929	513	347	241	193	359	177
26	208	223	477	521	551	884	520	320	226	201	663	163
27	296	225	492	490	529	822	522	299	253	191	672	177
28	303	261	502	496	512	792	495	289	254	176	625	181
29	269	327	523	509	---	801	503	281	242	166	634	178
30	252	359	519	514	---	802	522	273	258	161	630	176
31	251	---	490	508	---	784	---	266	---	152	591	---
TOTAL	7241	7925	11199	25809	13951	22207	23287	13016	7860	6053	11694	7528
MEAN	234	264	361	833	498	716	776	420	262	195	377	251
MAX	303	359	523	1510	612	953	1210	666	328	281	949	542
MIN	188	218	261	421	400	413	495	266	225	145	140	163
CFSM	.76	.86	1.18	2.71	1.62	2.33	2.53	1.37	.85	.64	1.23	.82
IN.	.88	.96	1.36	3.13	1.69	2.69	2.82	1.58	.95	.73	1.42	.91

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1998, BY WATER YEAR (WY)

	MEAN	223	304	374	408	433	606	598	458	387	266	225	209
MAX	575	684	719	1169	836	1389	1089	976	1103	654	516	538	
(WY)	1987	1993	1983	1993	1969	1982	1978	1996	1981	1981	1981	1981	
MIN	96.3	96.7	157	173	143	311	324	233	132	104	92.5	85.8	
(WY)	1972	1972	1972	1972	1972	1996	1971	1971	1988	1988	1988	1971	

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

## WATER YEARS 1968 - 1998

ANNUAL TOTAL	154974	157770	
ANNUAL MEAN	425	432	373
HIGHEST ANNUAL MEAN			545
LOWEST ANNUAL MEAN			207
HIGHEST DAILY MEAN	1460	Feb 28	1510
LOWEST DAILY MEAN	158	Aug 10	140
ANNUAL SEVEN-DAY MINIMUM	179	Aug 5	151
INSTANTANEOUS PEAK FLOW			1590
INSTANTANEOUS PEAK STAGE			6.58
ANNUAL RUNOFF (CFSM)	1.38		1.41
ANNUAL RUNOFF (INCHES)	18.78		19.12
10 PERCENT EXCEEDS	725		813
50 PERCENT EXCEEDS	348		327
90 PERCENT EXCEEDS	223		200

e Estimated

## 04099808 LITTLE ELKHART RIVER AT MIDDLEBURY, IN

LOCATION.--Lat 41°40'31", long 85°42'01", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.10, T.37 N., R.7 E., Elkhart County, Hydrologic Unit 04050001, on left bank 15 ft downstream from bridge on County Road 16, 0.1 mi east of Middlebury, and 1.7 mi downstream from Rowe Eden Ditch.

DRAINAGE AREA.--97.6 mi<sup>2</sup>, of which 5.89 mi<sup>2</sup> does not contribute directly to surface runoff.

PERIOD OF RECORD.--October 1979 to current year.

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 sea level.

REMARKS.--Records good.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	87	91	121	105	152	126	221	156	85	71	53	137
2	82	120	109	104	154	122	216	297	83	69	54	129
3	79	100	104	112	146	120	183	176	84	67	55	123
4	76	91	101	212	141	118	167	170	83	78	58	117
5	75	85	98	320	135	115	155	165	84	74	91	113
6	73	82	94	524	131	112	150	143	83	71	340	110
7	71	79	93	443	128	111	145	137	82	74	209	109
8	69	77	92	766	124	118	174	138	79	81	299	107
9	70	75	92	562	123	415	368	131	81	75	178	105
10	72	74	97	401	121	341	557	124	81	71	141	102
11	71	73	99	301	129	234	309	119	88	69	124	99
12	69	72	99	258	147	198	244	116	99	66	113	96
13	70	71	95	232	134	179	211	113	95	64	105	94
14	72	72	91	208	127	172	202	111	90	62	100	93
15	69	72	89	196	123	162	190	108	85	62	97	93
16	68	71	89	185	122	158	179	106	86	62	94	94
17	67	70	91	178	135	158	165	102	87	61	91	92
18	66	68	90	171	182	204	155	100	83	59	90	91
19	65	68	94	165	166	274	149	99	92	61	85	89
20	63	68	102	160	157	224	144	97	84	61	81	91
21	63	71	99	155	147	285	139	95	81	61	75	99
22	62	75	101	151	139	275	136	95	78	69	74	92
23	62	73	161	151	134	242	133	94	77	69	76	90
24	65	70	157	147	131	204	129	102	75	66	80	88
25	64	70	224	144	127	185	126	99	73	63	640	87
26	73	69	183	141	124	175	128	95	77	61	557	86
27	100	69	150	139	129	166	124	91	76	61	294	87
28	88	129	133	144	126	199	120	90	75	56	222	84
29	81	134	123	159	---	203	127	89	74	53	187	83
30	76	149	117	160	---	175	130	87	76	53	163	83
31	76	---	109	154	---	171	---	86	---	52	147	---
TOTAL	2244	2488	3497	7248	3834	5941	5576	3731	2476	2022	4973	2963
MEAN	72.4	82.9	113	234	137	192	186	120	82.5	65.2	160	98.8
MAX	100	149	224	766	182	415	557	297	99	81	640	137
MIN	62	68	89	104	121	111	120	86	73	52	53	83
CFSM	.79	.90	1.23	2.55	1.49	2.09	2.03	1.31	.90	.71	1.75	1.08
IN.	.91	1.01	1.42	2.94	1.56	2.41	2.26	1.51	1.00	.82	2.02	1.20

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1998, BY WATER YEAR (WY)

	MEAN	78.5	100	113	117	125	151	136	111	106	73.2	65.6	64.2
MAX	172	202	207	307	280	404	211	264	278	189	160	118	
(WY)	1991	1986	1991	1993	1985	1982	1985	1996	1993	1981	1998	1981	
MIN	36.0	38.6	42.9	53.8	58.4	57.9	81.5	55.3	36.7	37.9	39.9	38.3	
(WY)	1995	1981	1990	1981	1996	1996	1996	1988	1988	1988	1987	1994	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1980 - 1998	
ANNUAL TOTAL	40500		46993		103	
ANNUAL MEAN	111		129		155	
HIGHEST ANNUAL MEAN					70.1	
LOWEST ANNUAL MEAN						
HIGHEST DAILY MEAN	790	Feb 21	766	Jan 8	2040	Feb 24 1985
LOWEST DAILY MEAN	49	Aug 8	52	Jul 31	24	Jul 9 1988
ANNUAL SEVEN-DAY MINIMUM	52	Aug 4	54	Jul 28	26	Jul 3 1988
INSTANTANEOUS PEAK FLOW			1310	Aug 25	2470	Feb 24 1985
INSTANTANEOUS PEAK STAGE			9.02	Aug 25	10.52	Feb 24 1985
ANNUAL RUNOFF (CFSM)	1.21		1.40		1.13	
ANNUAL RUNOFF (INCHES)	16.43		19.06		15.29	
10 PERCENT EXCEEDS	168		204		171	
50 PERCENT EXCEEDS	92		100		80	
90 PERCENT EXCEEDS	67		69		45	



STREAMS TRIBUTARY TO LAKE MICHIGAN  
04099850 PINE CREEK NEAR ELKHART, IN

LOCATION.--Lat 41°40'53", long 85°52'57", in NE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.7, T.37 N., R.6 E., Elkhart County, Hydrologic Unit 04050001, 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, and 3.1 mi east of Elkhart.

DRAINAGE AREA.--31.0 mi<sup>2</sup>, of which 8.75 mi<sup>2</sup> does not contribute directly to surface runoff.

PERIOD OF RECORD.--October 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 755.00 ft above sea level.

REMARKS.--Records fair.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	17	24	20	21	19	64	33	16	15	7.4	16
2	15	24	20	19	21	18	49	30	16	14	7.5	15
3	14	19	19	22	19	17	36	27	15	13	7.7	15
4	14	18	18	52	18	17	30	28	14	17	7.5	14
5	14	17	18	87	18	16	26	27	15	16	8.9	14
6	13	16	18	143	17	16	24	25	14	15	83	13
7	13	16	18	87	16	15	22	24	15	16	34	14
8	13	15	18	185	16	20	33	25	15	16	25	13
9	13	15	17	150	16	113	81	24	16	15	19	12
10	13	15	20	62	16	83	199	23	16	14	19	12
11	13	15	20	43	19	43	65	22	18	13	17	12
12	13	15	20	36	25	31	46	21	21	11	15	12
13	13	15	19	31	19	26	40	21	19	11	15	12
14	14	15	18	27	18	26	42	20	18	9.9	14	12
15	13	15	17	26	17	23	39	20	17	9.5	14	12
16	13	15	17	24	17	24	38	19	17	9.7	14	12
17	13	15	18	23	20	27	34	19	17	9.7	14	12
18	13	15	17	22	40	65	31	18	16	9.5	14	12
19	13	15	18	21	28	81	30	18	21	9.7	13	12
20	12	14	19	20	24	57	29	18	18	10	12	12
21	12	15	18	20	21	80	28	18	17	9.3	12	13
22	12	16	19	19	19	70	27	17	17	11	12	12
23	12	16	30	20	18	46	26	17	16	12	12	12
24	13	15	32	19	18	35	25	23	16	11	12	12
25	13	15	62	19	17	30	25	21	14	9.7	94	12
26	16	14	44	18	17	29	25	19	16	9.4	107	11
27	35	15	31	18	22	26	25	18	15	8.8	28	11
28	20	47	26	20	20	57	24	18	16	7.7	22	11
29	18	37	23	22	---	51	27	17	16	7.4	20	11
30	16	34	22	23	---	35	28	17	16	7.5	18	11
31	16	---	21	21	---	33	---	17	---	7.3	16	---
TOTAL	451	545	701	1319	557	1229	1218	664	493	355.1	714.0	374
MEAN	14.5	18.2	22.6	42.5	19.9	39.6	40.6	21.4	16.4	11.5	23.0	12.5
MAX	35	47	62	185	40	113	199	33	21	17	107	16
MIN	12	14	17	18	16	15	22	17	14	7.3	7.4	11
CFSM	.47	.59	.73	1.37	.64	1.28	1.31	.69	.53	.37	.74	.40
IN.	.54	.65	.84	1.58	.67	1.47	1.46	.80	.59	.43	.86	.45

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1998, BY WATER YEAR (WY)

	MEAN	15.4	18.0	21.2	20.4	22.3	27.5	26.2	22.3	22.8	16.5	14.0	13.1
MAX	42.4	32.8	52.7	45.6	47.6	82.3	40.6	50.7	68.1	39.2	26.7	23.7	
(WY)	1991	1986	1991	1993	1985	1982	1998	1996	1993	1981	1997	1981	
MIN	6.32	7.39	6.93	7.02	9.41	9.78	14.5	11.8	7.79	6.58	6.75	6.34	
(WY)	1996	1981	1990	1996	1996	1996	1995	1995	1988	1988	1988	1988	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1980 - 1998	
ANNUAL TOTAL	8805		8620.1			
ANNUAL MEAN	24.1		23.6		20.0	
HIGHEST ANNUAL MEAN					30.1	
LOWEST ANNUAL MEAN					12.6	
HIGHEST DAILY MEAN	191	Feb 21	199	Apr 10	532	Dec 30 1990
LOWEST DAILY MEAN	10	Jan 20	7.3	Jul 31	3.6	Feb 5 1996
ANNUAL SEVEN-DAY MINIMUM	11	Jan 15	7.5	Jul 29	4.1	Feb 1 1996
INSTANTANEOUS PEAK FLOW			255	Apr 10	607	Dec 30 1990
INSTANTANEOUS PEAK STAGE			5.75	Apr 10	9.74	Jul 26 1981
ANNUAL RUNOFF (CFSM)	.78		.76		.64	
ANNUAL RUNOFF (INCHES)	10.57		10.34		8.74	
10 PERCENT EXCEEDS	34		37		32	
50 PERCENT EXCEEDS	19		18		16	
90 PERCENT EXCEEDS	13		12		7.9	

04100222 NORTH BRANCH ELKHART RIVER AT COSPERVILLE, IN

LOCATION.--Lat 41°28'54", long 85°32' in NE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.22, T.35 N., R.9 E., Noble County, Hydrologic Unit 04050001, 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 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Datum of gage is 880.12 ft above sea level (levels by State of Indiana, Department of Natural Resources).

REMARKS.--Records fair. Flow regulated at times by dam at Waldron Lake.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	119	86	118	173	253	216	380	235	53	67	29	152
2	111	93	121	169	248	213	383	234	50	59	28	147
3	105	98	122	168	243	209	380	228	48	54	26	143
4	99	101	124	201	237	204	370	224	47	69	26	138
5	95	103	125	261	229	199	355	218	45	69	27	132
6	90	103	125	338	221	193	343	211	44	65	61	126
7	86	105	125	420	214	189	330	205	40	75	93	120
8	83	105	125	543	207	187	325	202	25	93	114	114
9	82	104	123	633	200	241	354	200	29	87	114	107
10	80	103	124	675	194	293	417	194	32	79	111	100
11	78	101	124	688	192	312	443	187	37	70	105	93
12	75	97	123	682	196	316	444	177	45	62	98	82
13	74	96	120	655	196	316	434	170	58	57	90	72
14	74	95	119	625	194	314	424	161	63	52	81	65
15	73	94	116	591	191	312	415	151	64	48	73	60
16	72	93	114	555	189	307	400	142	76	46	67	58
17	70	90	113	517	194	302	383	134	99	43	62	56
18	68	89	111	480	206	305	368	125	99	41	61	52
19	66	87	111	444	216	325	352	119	117	39	58	49
20	63	86	113	410	223	340	338	112	117	37	52	48
21	60	86	114	381	226	360	323	105	112	35	49	58
22	60	88	116	357	229	370	310	99	107	25	52	54
23	59	88	125	341	228	375	297	93	100	28	52	47
24	59	88	137	324	226	371	284	93	92	34	49	44
25	59	86	158	309	226	364	272	91	84	36	103	41
26	61	83	175	296	224	353	266	87	83	36	151	45
27	71	83	185	283	220	343	259	81	82	34	160	64
28	75	87	189	275	218	353	248	73	76	32	163	58
29	78	97	189	268	---	379	239	65	73	30	162	52
30	78	111	186	264	---	380	233	59	73	29	160	48
31	81	---	182	258	---	377	---	54	---	30	156	---
TOTAL	2404	2826	4152	12584	6040	9318	10369	4529	2070	1561	2633	2425
MEAN	77.5	94.2	134	406	216	301	346	146	69.0	50.4	84.9	80.8
MAX	119	111	189	688	253	380	444	235	117	93	163	152
MIN	59	83	111	168	189	187	233	54	25	25	26	41
CFSM	.55	.66	.94	2.86	1.52	2.12	2.43	1.03	.49	.35	.60	.57
IN.	.63	.74	1.09	3.30	1.58	2.44	2.72	1.19	.54	.41	.69	.64

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 1998, BY WATER YEAR (WY)

	MEAN	82.1	120	145	166	156	261	246	171	147	88.5	65.8	67.2
	MAX	272	314	341	542	272	553	530	354	405	211	171	161
	(WY)	1987	1973	1986	1993	1990	1985	1985	1996	1996	1981	1997	1972
	MIN	17.8	17.8	46.5	42.2	43.2	118	133	67.2	18.1	16.4	18.3	13.9
	(WY)	1975	1972	1972	1977	1972	1996	1987	1988	1988	1988	1978	1994

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1972 - 1998

ANNUAL TOTAL	62053	60911	143
ANNUAL MEAN	170	167	222
HIGHEST ANNUAL MEAN			85.7
LOWEST ANNUAL MEAN			916
HIGHEST DAILY MEAN	572	Mar 1	Mar 22 1982
LOWEST DAILY MEAN	59	Oct 23	Jul 7 1988
ANNUAL SEVEN-DAY MINIMUM	60	Oct 20	Jul 3 1988
INSTANTANEOUS PEAK FLOW		688	Jan 11 1982
INSTANTANEOUS PEAK STAGE		7.61	Jan 11
ANNUAL RUNOFF (CFSM)	1.20	1.18	1.01
ANNUAL RUNOFF (INCHES)	16.26	15.96	13.67
10 PERCENT EXCEEDS	297	358	302
50 PERCENT EXCEEDS	139	114	112
90 PERCENT EXCEEDS	82	48	32

## STREAMS TRIBUTARY TO LAKE MICHIGAN

04100252 FORKER CREEK NEAR BURR OAK, IN

LOCATION.--Lat 41°19'58", long 85°25'25", in SE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.12, T.33 N., R.9 E., Noble County, Hydrologic Unit 04050001, 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 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is 889.00 ft above sea level (Indiana Department of Highways bench mark).

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.1	8.1	23	12	16	22	54	16	3.8	3.8	2.7	1.5
2	1.7	13	21	10	15	21	49	18	3.1	3.3	2.2	1.3
3	1.5	e11	19	10	16	20	44	18	2.8	3.0	2.2	1.0
4	1.5	e8.2	18	24	e14	20	38	18	2.6	6.7	3.9	.80
5	1.5	e6.8	16	54	e13	19	33	18	2.4	9.9	4.5	.64
6	1.4	e6.2	15	102	e12	18	30	17	2.1	11	5.5	.59
7	1.4	e5.8	14	114	e11	17	27	16	1.8	14	5.9	.68
8	1.2	e5.6	13	157	e11	18	27	15	2.0	20	7.4	.64
9	1.3	e5.3	13	169	e10	51	42	14	2.4	20	8.5	.60
10	1.5	e5.1	13	122	e10	97	86	13	2.2	16	8.4	.59
11	2.7	e5.0	13	85	e12	89	91	11	3.3	13	7.2	.59
12	3.5	e5.0	13	62	16	67	70	10	5.5	11	6.1	.59
13	4.9	e5.1	12	48	19	53	54	9.5	8.3	10	5.6	.63
14	8.5	e5.3	12	39	19	43	46	8.9	9.2	9.4	5.4	.65
15	7.5	e5.3	11	34	17	38	39	8.3	9.2	8.9	5.0	.70
16	5.8	e5.2	11	29	16	33	34	7.4	9.3	7.8	4.8	.75
17	4.0	e4.9	11	24	18	30	31	6.9	9.2	7.2	4.5	.68
18	3.3	e4.7	11	20	27	31	28	7.5	9.0	7.2	4.5	.74
19	3.2	e4.5	12	17	35	48	25	9.1	14	8.0	4.0	.64
20	3.0	e4.4	13	15	35	60	23	9.3	12	8.7	3.5	.58
21	2.7	e6.1	14	15	33	65	20	6.4	11	9.3	3.7	.66
22	2.3	e8.0	14	e14	29	62	19	5.4	8.9	20	3.6	.68
23	2.1	e7.3	16	e13	25	54	17	4.9	7.3	32	3.1	.64
24	2.0	e6.9	20	e12	23	45	16	5.1	6.2	34	2.8	.66
25	1.9	e5.7	23	e11	22	38	15	5.0	5.2	28	2.8	.73
26	2.6	e5.3	25	e11	20	34	16	4.8	5.9	20	2.5	.68
27	3.4	e4.9	24	e13	20	30	15	4.8	5.3	14	2.3	.67
28	3.6	15	21	16	21	42	14	4.6	5.1	11	2.0	.68
29	3.6	19	18	17	---	74	13	4.3	4.9	11	2.2	.75
30	4.1	22	15	16	---	76	13	4.2	4.3	10	2.3	.80
31	4.7	---	13	17	---	62	---	4.0	---	4.1	2.1	---
TOTAL	94.5	224.7	487	1302	535	1377	1029	304.4	178.3	392.3	131.2	21.84
MEAN	3.05	7.49	15.7	42.0	19.1	44.4	34.3	9.82	5.94	12.7	4.23	.73
MAX	8.5	22	25	169	35	97	91	18	14	34	8.5	1.5
MIN	1.2	4.4	11	10	10	17	13	4.0	1.8	3.0	2.0	.58
CFSM	.16	.39	.82	2.19	1.00	2.31	1.79	.51	.31	.66	.22	.04
IN.	.18	.44	.94	2.52	1.04	2.67	1.99	.59	.35	.76	.25	.04

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 1998, BY WATER YEAR (WY)

	MEAN	7.67	14.1	19.5	18.4	24.4	36.2	34.0	19.5	20.2	9.45	5.18	5.45
MAX	50.6	48.8	52.5	67.1	62.5	111	60.5	41.9	90.7	49.6	36.4	33.4	
(WY)	1991	1989	1978	1993	1985	1982	1978	1996	1981	1986	1990	1990	
MIN	.31	.25	2.59	1.22	2.96	11.1	9.61	4.70	1.98	.41	.25	.23	
(WY)	1995	1995	1977	1977	1979	1996	1971	1988	1988	1971	1971	1978	

SUMMARY STATISTICS FOR 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1970 - 1998

	ANNUAL TOTAL	6088.87	6077.24	
ANNUAL MEAN	16.7	16.6	17.8	
HIGHEST ANNUAL MEAN			29.0	1982
LOWEST ANNUAL MEAN			9.49	1979
HIGHEST DAILY MEAN	125	Feb 22	431	Feb 25 1985
LOWEST DAILY MEAN	.19	Aug 11	.10	Nov 12 1994
ANNUAL SEVEN-DAY MINIMUM	.23	Aug 8	.12	Oct 2 1996
INSTANTANEOUS PEAK FLOW			480	Feb 24 1985
INSTANTANEOUS PEAK STAGE			7.03	Dec 30 1990
ANNUAL RUNOFF (CFSM)	.87		.93	
ANNUAL RUNOFF (INCHES)	11.80		12.57	
10 PERCENT EXCEEDS	32		44	
50 PERCENT EXCEEDS	12		9.3	
90 PERCENT EXCEEDS	2.5		.86	

e Estimated

## 04100295 RIMMELL BRANCH NEAR ALBION, IN

LOCATION.--Lat 41°23'07", long 85°22'14", in NE 1/4 SE 1/4 sec.21, T.34 N., R.10 E., Noble County, Hydrologic Unit 04050001, on right bank 900 ft downstream from culvert on County Road 300 East, 0.75 mi south of State Highway 8, and 3.0 mi east of intersection of State Highway 9 and State Highway 8 in Albion.

DRAINAGE AREA.--10.7 mi<sup>2</sup>.

PERIOD OF RECORD.--November 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 934.49 ft above sea level.

REMARKS.--Records poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	3.8	11	e6.0	12	7.8	26	10	3.5	3.5	1.1	.53
2	1.2	8.0	8.1	e5.5	13	6.9	22	10	3.3	3.2	1.1	.51
3	1.1	4.9	7.1	e5.8	11	6.4	18	8.7	3.2	3.2	1.0	.46
4	1.1	3.8	7.7	69	8.7	6.0	15	13	3.2	22	1.4	.43
5	1.1	3.2	6.6	82	6.6	5.5	13	11	3.2	6.7	1.3	.39
6	1.1	3.0	5.7	94	5.7	5.3	12	8.8	3.1	4.2	2.3	.37
7	1.0	2.8	5.2	81	5.2	5.0	11	8.1	3.1	8.2	1.9	.37
8	1.1	2.5	5.0	159	4.8	6.3	12	9.0	3.0	7.4	2.1	.37
9	1.3	2.3	4.8	80	4.6	105	80	8.4	3.1	4.4	1.7	.37
10	1.6	2.2	5.1	46	4.4	51	59	7.4	3.1	3.4	1.9	.35
11	1.5	2.0	5.5	32	7.3	31	33	6.8	3.8	2.9	1.4	.34
12	1.4	2.0	5.2	26	14	22	24	6.3	5.4	2.7	1.2	.33
13	1.6	2.0	4.4	22	9.3	17	17	6.0	4.3	2.4	1.0	.29
14	2.3	2.2	3.8	17	7.5	15	17	5.6	3.9	2.2	.99	.29
15	2.1	2.1	3.6	14	6.6	13	15	5.3	3.6	2.1	.95	.29
16	1.9	2.1	4.2	13	6.2	13	17	5.0	4.5	2.0	.87	.29
17	1.7	1.9	5.3	11	14	13	13	4.7	4.7	1.8	.81	.29
18	1.6	e1.8	5.1	9.3	25	30	12	4.5	3.9	1.7	.80	.29
19	1.6	e1.8	7.9	8.5	17	51	11	4.5	9.3	1.7	.79	.27
20	1.5	e1.7	9.3	7.8	13	37	9.9	4.3	5.2	1.7	.72	.25
21	1.4	e2.8	7.1	7.4	10	40	9.4	4.1	4.3	2.0	.71	.24
22	1.4	6.5	11	7.0	8.4	29	8.9	4.0	3.9	8.6	.68	.24
23	1.3	5.1	23	7.1	7.3	22	8.4	3.9	3.7	3.3	.67	.24
24	1.5	3.7	20	6.4	7.1	18	7.9	4.1	3.5	2.4	.62	.24
25	1.5	3.2	42	6.1	6.9	16	7.4	4.0	3.3	1.9	2.3	.24
26	1.9	3.1	24	6.0	6.3	14	8.3	3.8	3.9	1.8	1.7	.23
27	3.9	2.7	16	6.6	7.2	13	8.0	3.7	3.6	1.6	.94	.30
28	3.2	9.7	12	9.2	6.9	66	7.4	3.6	3.3	1.5	.76	.25
29	2.8	21	9.6	13	---	46	8.0	3.5	3.4	1.4	.73	.23
30	2.5	21	e8.0	13	---	27	8.8	3.4	4.6	1.2	.61	.23
31	2.7	---	e6.7	12	---	21	---	3.5	---	1.2	.55	---
TOTAL	53.2	134.9	300.0	882.7	256.0	759.2	519.4	189.0	117.9	114.3	35.60	9.52
MEAN	1.72	4.50	9.68	28.5	9.14	24.5	17.3	6.10	3.93	3.69	1.15	.32
MAX	3.9	21	42	159	25	105	80	13	9.3	22	2.3	.53
MIN	1.0	1.7	3.6	5.5	4.4	5.0	7.4	3.4	3.0	1.2	.55	.23
CFSM	.16	.42	.90	2.66	.85	2.29	1.62	.57	.37	.34	.11	.03
IN.	.18	.47	1.04	3.07	.89	2.64	1.81	.66	.41	.40	.12	.03

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 1998, BY WATER YEAR (WY)

	MEAN	5.60	10.9	12.3	12.1	16.6	20.5	17.9	11.4	10.6	5.17	2.57	2.25
MAX	26.8	34.3	38.7	46.2	44.8	69.9	31.8	36.0	39.1	33.0	16.1	12.7	
(WY)	1991	1993	1991	1993	1985	1982	1981	1996	1981	1986	1990	1992	
MIN	.16	.29	1.00	2.27	3.97	4.56	5.94	2.05	.72	.38	.22	.16	
(WY)	1995	1995	1990	1981	1995	1996	1986	1985	1988	1994	1994	1994	

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

## WATER YEARS 1981 - 1998

ANNUAL TOTAL	3670.46	3371.72	10.6
ANNUAL MEAN	10.1	9.24	15.1
HIGHEST ANNUAL MEAN			6.55
LOWEST ANNUAL MEAN			1993
HIGHEST DAILY MEAN	175	159	349
LOWEST DAILY MEAN	.60	.23	.09
ANNUAL SEVEN-DAY MINIMUM	.63	.24	.09
INSTANTANEOUS PEAK FLOW		191	418
INSTANTANEOUS PEAK STAGE		9.83	12.82
ANNUAL RUNOFF (CFSM)	.94	.86	.99
ANNUAL RUNOFF (INCHES)	12.76	11.72	13.46
10 PERCENT EXCEEDS	21	21	24
50 PERCENT EXCEEDS	5.1	4.5	4.4
90 PERCENT EXCEEDS	1.1	.72	.55

e Estimated

## STREAMS TRIBUTARY TO LAKE MICHIGAN

04100377 SOLOMON CREEK NEAR SYRACUSE, IN

LOCATION.--Lat 41°27'30", long 85°43'12", in NW<sup>1</sup>/<sub>4</sub> SE<sup>1</sup>/<sub>4</sub> sec.28, T.35 N., R.7 E., Elkhart County, Hydrologic Unit 04050001, on right bank 40 ft upstream from County Road 52 East bridge over Solomon Creek, and 2.5 mi northeast of Syracuse.

DRAINAGE AREA.--36.1 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1987 to current year.

GAGE.--Water-stage recorder. Datum of gage is 840.00 ft above sea level.

REMARKS.--Records good.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	28	39	39	55	46	86	68	35	39	19	21
2	25	35	35	38	54	45	88	70	34	33	18	20
3	25	33	34	38	52	44	81	66	33	32	17	19
4	24	30	33	70	51	42	76	63	33	44	20	18
5	24	28	32	110	50	41	72	62	33	37	22	19
6	24	27	30	152	47	39	69	60	32	33	29	19
7	23	26	29	170	46	39	67	59	32	42	64	19
8	22	25	28	242	44	41	73	60	32	47	107	19
9	22	25	28	208	43	122	134	58	32	37	81	19
10	22	25	29	149	41	128	205	56	32	33	64	19
11	22	24	28	119	43	97	144	54	41	32	53	19
12	22	23	27	104	50	83	118	53	54	31	44	19
13	22	23	27	94	48	75	106	52	49	30	36	19
14	22	23	26	85	45	70	102	51	44	26	32	18
15	22	23	26	80	44	66	97	50	42	25	31	18
16	22	22	25	76	44	64	92	49	51	25	30	18
17	22	21	25	72	46	62	86	44	68	25	28	18
18	22	21	25	69	55	71	81	42	59	26	27	18
19	22	21	26	66	55	102	78	41	88	26	26	18
20	21	21	28	63	54	93	76	40	81	25	23	18
21	21	22	28	62	53	113	73	33	71	23	21	18
22	20	25	30	60	51	107	71	34	64	29	21	18
23	20	24	40	59	50	95	68	34	59	30	20	18
24	20	23	44	57	48	84	65	48	55	28	22	18
25	20	22	56	56	47	78	63	50	52	27	24	18
26	21	22	56	54	46	74	63	46	51	26	23	18
27	29	22	53	53	48	71	61	42	47	26	22	18
28	29	23	50	54	47	81	58	40	44	25	22	17
29	26	30	47	56	---	98	60	38	42	24	22	17
30	25	42	44	56	---	86	61	37	46	22	22	17
31	25	---	41	55	---	80	---	37	---	20	21	---
TOTAL	712	759	1069	2666	1357	2337	2574	1537	1436	928	1011	552
MEAN	23.0	25.3	34.5	86.0	48.5	75.4	85.8	49.6	47.9	29.9	32.6	18.4
MAX	29	42	56	242	55	128	205	70	88	47	107	21
MIN	20	21	25	38	41	39	58	33	32	20	17	17
CFSM	.64	.70	.96	2.38	1.34	2.09	2.38	1.37	1.33	.83	.90	.51
IN.	.73	.78	1.10	2.75	1.40	2.41	2.65	1.58	1.48	.96	1.04	.57

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1998, BY WATER YEAR (WY)

	MEAN	25.4	33.7	35.7	46.5	39.9	46.3	49.7	41.6	50.6	30.5	22.3	21.7
MAX	61.5	60.1	60.3	94.8	56.6	75.4	85.8	59.4	82.3	56.3	33.2	36.5	
(WY)	1991	1993	1991	1993	1997	1998	1998	1990	1993	1997	1990	1990	
MIN	11.2	14.0	14.8	21.5	21.8	21.6	25.7	24.4	16.5	12.1	10.5	11.7	
(WY)	1996	1988	1990	1996	1996	1996	1996	1989	1988	1988	1988	1994	

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

## WATER YEARS 1988 - 1998

ANNUAL TOTAL	15751	16938	
ANNUAL MEAN	43.2	46.4	37.0
HIGHEST ANNUAL MEAN			53.2
LOWEST ANNUAL MEAN			24.2
HIGHEST DAILY MEAN	170	Feb 27	256
LOWEST DAILY MEAN	14	Aug 10	7.9
ANNUAL SEVEN-DAY MINIMUM	17	Aug 5	9.0
INSTANTANEOUS PEAK FLOW			333
INSTANTANEOUS PEAK STAGE			6.35
ANNUAL RUNOFF (CFSM)	1.20	5.71	1.02
ANNUAL RUNOFF (INCHES)	16.23	17.45	13.91
10 PERCENT EXCEEDS	73	81	63
50 PERCENT EXCEEDS	36	39	31
90 PERCENT EXCEEDS	22	20	15



## STREAMS TRIBUTARY TO LAKE MICHIGAN

195

04100500 ELKHART RIVER AT GOSHEN, IN

LOCATION.--Lat 41°35'36", long 85°50'55", in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.8, T.36 N., R.6 E., Elkhart County, Hydrologic Unit 04050001, on right bank 20 ft downstream from River Avenue bridge at Goshen, 0.4 mi upstream from Rock Run, and at mile 16.1.

DRAINAGE AREA.--594 mi<sup>2</sup>.

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 sea level. Prior to Nov. 20, 1931, nonrecording gage at same site and datum.

REMARKS.--Records fair except for 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 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	383	367	532	614	917	819	1520	1010	340	322	291	e340
2	375	474	507	632	910	797	1710	1150	315	323	281	e330
3	364	454	487	645	881	782	1570	976	309	311	261	e310
4	351	403	484	915	850	764	1410	812	312	356	282	e305
5	321	384	482	1680	825	747	1310	804	324	390	316	e300
6	306	368	471	2210	808	732	1240	730	328	380	496	e295
7	293	368	461	2260	776	720	1170	688	331	394	470	e305
8	284	353	454	2710	754	734	1190	709	326	504	778	e280
9	278	344	453	3180	731	1360	1530	703	332	406	761	e270
10	266	338	479	2730	696	2270	2930	701	345	368	518	e265
11	266	335	478	2360	706	1780	2620	716	335	354	445	e260
12	265	322	460	2170	796	1400	2040	727	406	379	403	e255
13	271	314	445	2050	782	1280	1740	725	413	395	373	e250
14	285	315	427	1910	740	1270	1600	728	386	376	363	e245
15	280	324	421	1860	715	1250	1550	723	384	367	359	e260
16	276	324	418	1750	701	1220	1480	695	428	358	362	e250
17	273	314	418	1630	728	1200	1380	665	511	343	373	e240
18	270	313	421	1510	934	1370	1280	631	494	325	386	e240
19	269	302	428	1410	965	1750	1210	564	482	271	379	e230
20	268	306	462	1310	892	1700	1140	488	502	277	383	e240
21	268	319	474	1230	859	1740	1060	491	485	260	390	e280
22	262	350	475	1150	835	1930	1010	483	475	284	408	e240
23	254	362	588	1110	821	1750	973	470	442	331	416	e220
24	265	361	696	1050	820	1540	948	497	405	336	392	e215
25	259	356	842	1000	816	1410	938	496	356	330	525	e215
26	279	369	906	956	799	1350	948	450	362	322	709	e210
27	369	351	776	925	833	1280	945	442	380	318	484	e205
28	386	369	720	912	847	1340	926	423	369	311	467	e200
29	346	425	701	927	---	1590	947	409	351	302	e430	e195
30	325	566	691	953	---	1470	962	392	334	297	e400	e195
31	319	---	669	931	---	1360	---	381	---	290	e370	---
TOTAL	9276	10850	16726	46680	22737	40705	41277	19879	11562	10580	13271	7645
MEAN	299	362	540	1506	812	1313	1376	641	385	341	428	255
MAX	386	566	906	3180	965	2270	2930	1150	511	504	778	340
MIN	254	302	418	614	696	720	926	381	309	260	261	195
CFSM	.50	.61	.91	2.54	1.37	2.21	2.32	1.08	.65	.57	.72	.43
IN.	.58	.68	1.05	2.92	1.42	2.55	2.59	1.24	.72	.66	.83	.48

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1932 - 1998, BY WATER YEAR (WY)

	MEAN	314	397	504	605	696	947	945	711	513	361	274	254
MAX	1652	1132	1276	2058	1657	2497	2424	2354	1521	1079	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 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1932 - 1998

	ANNUAL TOTAL	254319	251188	542	
ANNUAL MEAN	697	688	1005	1950	
HIGHEST ANNUAL MEAN			197	1964	
LOWEST ANNUAL MEAN			6010	Feb 24 1985	
HIGHEST DAILY MEAN	3100	Feb 22	195	Sep 29	7.0
LOWEST DAILY MEAN	167	Aug 15	205	Sep 24	50
ANNUAL SEVEN-DAY MINIMUM	227	Aug 10	3240	Jan 9	6360
INSTANTANEOUS PEAK FLOW			7.68	Jan 9	11.94
INSTANTANEOUS PEAK STAGE			1.16		.91
ANNUAL RUNOFF (CFSM)	1.17		15.73		12.40
ANNUAL RUNOFF (INCHES)	15.93		1410		1110
10 PERCENT EXCEEDS	1200		462		392
50 PERCENT EXCEEDS	600		272		157
90 PERCENT EXCEEDS	308				

e Estimated

## STREAMS TRIBUTARY TO LAKE MICHIGAN

04101000 ST. JOSEPH RIVER AT ELKHART, IN

LOCATION.--Lat 41°41'30", long 85°58'30", in SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>, sec.5, T.37 N., R.5 E., Elkhart County, Hydrologic Unit 04050001, 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 mi<sup>2</sup>.

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 sea level.

REMARKS.--Records good except for estimated daily discharges, which are poor. The flow is regulated by Elkhart Hydroelectric Plant.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3390	2890	3290	3730	5390	5040	7470	5470	2460	2190	1440	2920
2	3180	3170	3190	3810	5440	4680	7750	5810	2370	2100	1130	2860
3	3100	3180	3230	3780	5350	4520	7710	6160	2490	1990	1100	2750
4	2900	3130	3240	4150	5310	4680	7480	5890	2350	2090	1300	2550
5	2800	3060	3240	5960	5340	4600	7140	6280	2210	2250	1570	2100
6	2720	3120	3260	7220	5210	4450	6890	6140	2560	2030	3560	2070
7	2670	3100	3210	7630	4990	4350	6550	5810	2360	2190	3360	2250
8	2560	3060	3230	9060	4880	4420	6480	5690	2020	2380	3540	2450
9	2550	2880	3200	10900	4780	5820	6950	5430	2530	2050	3820	2030
10	2510	2900	3290	10900	4460	7240	9230	5230	2550	1960	3180	2040
11	2540	2840	3260	10800	4080	7430	9450	4950	2670	1960	3020	2080
12	2510	2800	3200	10700	4490	7180	8850	4830	2530	1780	3000	1820
13	2210	2760	3220	10400	4580	7030	8350	4540	2980	1590	2720	1640
14	2580	2770	3060	9040	4570	7020	8120	4330	3040	1470	2770	2120
15	2570	2760	3000	8970	4600	6950	7870	3860	2780	1560	2430	2140
16	2430	2730	3010	8890	4540	6620	7620	3670	2850	1530	2420	1470
17	2340	2550	3000	8200	4610	6510	7390	3630	2890	1440	2170	1570
18	2560	2600	2990	7600	4990	6820	7080	3400	2770	1150	2190	1860
19	2210	2540	3000	7360	5180	7290	6740	3280	2690	1310	1950	1740
20	2260	2430	3060	6960	5270	7510	6180	3200	2950	1320	2080	1720
21	2470	2640	3070	6440	5340	7810	6000	3080	2720	1480	1790	1680
22	2260	2670	3060	6230	5510	8170	5860	2980	2610	1580	1790	1890
23	2090	2680	3310	6160	5410	8050	5590	2910	2570	1920	1740	1780
24	2300	2330	3560	5940	5320	7740	5250	3100	2320	1830	1740	1710
25	2330	2690	4020	5740	5260	7540	5100	3130	2140	1860	3240	1770
26	2460	2390	4270	5630	5170	7170	5120	3050	2320	1600	4260	1740
27	2840	2860	4160	5420	5180	7160	4910	3020	2360	1630	3630	1620
28	3070	2990	4080	5400	5120	7290	4940	2920	2180	1800	3350	1610
29	2940	3110	4040	5340	---	7430	5080	2760	2570	1530	3420	1610
30	2830	3370	3960	5330	---	7230	5250	2830	2270	1390	3160	1610
31	2780	---	4070	5430	---	7080	---	2780	---	1350	2970	---
TOTAL	80960	85000	104780	219120	140370	202830	204400	130160	76110	54310	79840	59200
MEAN	2612	2833	3380	7068	5013	6543	6813	4199	2537	1752	2575	1973
MAX	3390	3370	4270	10900	5510	8170	9450	6280	3040	2380	4260	2920
MIN	2090	2330	2990	3730	4080	4350	4910	2760	2020	1150	1100	1470
CFSM	.77	.84	1.00	2.10	1.49	1.94	2.02	1.25	.75	.52	.76	.59
IN.	.89	.94	1.16	2.42	1.55	2.24	2.26	1.44	.84	.60	.88	.65

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1948 - 1998, BY WATER YEAR (WY)

	MEAN	2202	2656	3231	3653	3881	5156	5240	4121	3272	2385	1988	1910
MAX	5752	5883	5795	9270	7039	10760	12690	7725	7535	4409	4180	3855	
(WY)	1987	1993	1991	1993	1968	1982	1950	1956	1989	1968	1981	1981	
MIN	791	856	958	1127	1120	1679	2633	1911	1280	898	737	721	
(WY)	1964	1965	1964	1964	1963	1964	1958	1958	1988	1988	1964	1964	

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

## WATER YEARS 1948 - 1998

ANNUAL TOTAL	1428690	1437080	
ANNUAL MEAN	3914	3937	3304
HIGHEST ANNUAL MEAN			5264
LOWEST ANNUAL MEAN			1283
HIGHEST DAILY MEAN	10900	Feb 28	18500
LOWEST DAILY MEAN	1320	Aug 10	336
ANNUAL SEVEN-DAY MINIMUM	1530	Aug 5	561
INSTANTANEOUS PEAK FLOW			18800
INSTANTANEOUS PEAK STAGE		24.28	27.91
ANNUAL RUNOFF (CFSM)	1.16	1.17	.98
ANNUAL RUNOFF (INCHES)	15.77	15.86	13.32
10 PERCENT EXCEEDS	6330	7230	5860
50 PERCENT EXCEEDS	3580	3100	2820
90 PERCENT EXCEEDS	2320	1780	1400

04101370 JUDAY CREEK NEAR SOUTH BEND, IN

LOCATION.--Lat 41°43'43", long 85°15'46", in NW¼SE¼, sec.23, T.38N., R.2E., St. Joseph County, Hydrologic Unit 04050001, 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, IN.

DRAINAGE AREA.--Approx. 38 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Datum of gage is about 690.00 ft above sea level.

REMARKS.--Records fair except for estimated daily discharges and Oct. 1 - Nov. 6, and Nov. 12-23, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	20	18	18	25	21	e50	41	20	e16	9.0	18
2	13	20	e17	18	26	20	55	37	20	e15	8.8	18
3	14	18	17	19	26	20	51	34	19	e17	8.7	17
4	12	15	17	27	25	20	44	33	19	e25	11	16
5	12	16	17	36	24	19	41	31	18	e20	15	15
6	12	17	17	34	24	19	41	30	18	e17	39	14
7	11	13	16	32	23	19	40	30	18	e20	25	14
8	12	12	16	53	23	21	43	31	17	e27	19	13
9	14	12	17	55	22	35	54	27	18	e21	18	13
10	13	13	19	44	22	37	71	27	18	e18	17	12
11	13	13	18	37	25	34	61	26	22	e16	16	12
12	13	14	17	34	26	31	56	25	e29	e14	15	12
13	13	14	17	31	25	30	55	25	e22	e13	14	11
14	13	14	17	28	23	29	63	24	e19	e12	14	11
15	13	16	17	27	23	26	63	23	e17	e11	13	12
16	14	14	17	26	22	25	61	22	18	e12	13	12
17	13	14	17	25	24	27	55	21	17	e12	13	11
18	13	13	17	25	26	38	49	20	17	e11	13	11
19	13	13	17	24	26	42	40	21	19	e11	12	11
20	e11	13	18	24	25	39	39	20	17	e10	12	14
21	13	14	18	24	24	41	40	19	16	e11	11	14
22	12	14	19	23	23	44	40	19	16	18	11	11
23	9.9	15	20	23	23	40	39	18	15	e15	11	9.8
24	12	12	23	23	23	37	38	38	e15	e14	12	10
25	13	12	26	23	22	35	37	32	e18	e13	46	10
26	13	13	25	22	21	34	37	26	e28	12	39	9.7
27	15	13	23	22	23	34	35	23	e22	11	28	9.3
28	20	16	21	22	22	39	34	22	e19	11	24	9.1
29	20	17	21	23	---	38	38	21	e18	10	22	9.2
30	18	18	20	24	---	38	39	23	e17	9.6	20	9.1
31	16	---	19	24	---	41	---	22	---	9.3	19	---
TOTAL	416.9	438	578	870	666	973	1409	811	566	451.9	548.5	368.2
MEAN	13.4	14.6	18.6	28.1	23.8	31.4	47.0	26.2	18.9	14.6	17.7	12.3
MAX	20	20	26	55	26	44	71	41	29	27	46	18
MIN	9.9	12	16	18	21	19	34	18	15	9.3	8.7	9.1

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 1998, BY WATER YEAR (WY)

	1993	1994	1995	1996	1997	1998
MEAN	16.9	22.2	19.7	24.4	22.7	26.9
MAX	27.3	31.6	23.6	38.3	30.5	33.8
(WY)	1994	1994	1993	1993	1997	1993
MIN	12.5	14.6	14.7	15.1	14.4	17.2
(WY)	1995	1998	1996	1996	1996	1996

SUMMARY STATISTICS FOR 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1993 - 1998

	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1993 - 1998
ANNUAL TOTAL	7514.3	8096.5	
ANNUAL MEAN	20.6	22.2	22.0
HIGHEST ANNUAL MEAN			27.7
LOWEST ANNUAL MEAN			19.9
HIGHEST DAILY MEAN	60 Feb 22	71 Apr 10	163 Jun 9 1993
LOWEST DAILY MEAN	5.8 Aug 7	8.7 Aug 3	5.8 Aug 7 1997
ANNUAL SEVEN-DAY MINIMUM	6.9 Aug 4	9.5 Jul 28	6.9 Aug 4 1997
INSTANTANEOUS PEAK FLOW		80 Aug 6	226 Jun 9 1993
INSTANTANEOUS PEAK STAGE		2.84 Aug 6	4.59 Jan 22 1997
10 PERCENT EXCEEDS	31	39	34
50 PERCENT EXCEEDS	20	19	20
90 PERCENT EXCEEDS	10	12	12

e Estimated

## STREAMS TRIBUTARY TO LAKE ERIE

04177720 FISH CREEK AT HAMILTON, IN

LOCATION.--Lat 41°31'55", long 84°54'12", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.34, T.36 N., R.14 E., Steuben County, Hydrologic Unit 04100003, on left bank 6 ft upstream from bridge on County Road 775 South, 0.5 mi downstream from Hamilton Lake outlet, and 0.5 mi southeast of Hamilton.

DRAINAGE AREA.--37.5 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is 876.00 ft above sea level.

REMARKS.--Records good.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	22	92	32	35	44	102	60	8.5	5.1	2.9	28
2	11	41	65	29	36	40	101	53	8.2	4.1	2.6	22
3	13	33	54	33	34	39	79	47	5.3	4.0	2.6	16
4	12	26	53	95	32	37	66	43	5.2	6.2	5.1	13
5	11	22	44	164	29	33	54	38	6.1	5.1	5.9	11
6	10	19	37	279	26	31	46	33	6.8	4.5	50	9.6
7	9.9	18	32	255	24	30	41	34	5.8	6.9	45	9.0
8	9.5	17	28	439	23	33	60	47	4.9	7.4	30	6.8
9	12	15	27	401	22	283	225	44	5.8	6.0	26	5.0
10	13	14	32	260	21	318	372	38	7.9	4.9	21	4.3
11	11	13	33	165	33	196	237	36	10	3.9	17	4.1
12	9.6	12	29	120	69	131	157	30	21	3.4	12	3.9
13	11	11	26	95	56	97	113	28	26	3.3	9.3	3.8
14	15	14	24	70	46	80	99	26	21	3.1	7.9	3.8
15	12	15	22	60	40	62	79	23	16	3.0	6.9	4.0
16	10	15	23	50	38	53	74	21	20	3.0	5.8	3.9
17	9.4	13	24	44	95	49	61	17	23	2.5	5.3	4.0
18	8.6	12	23	40	227	94	48	15	17	2.4	6.8	4.0
19	8.1	12	27	36	177	220	43	14	28	3.4	4.3	3.8
20	7.9	11	31	33	135	179	39	13	23	4.3	3.4	3.9
21	7.0	17	29	31	102	187	36	10	17	14	3.5	4.6
22	5.7	30	37	29	78	148	35	8.3	14	64	4.6	3.8
23	5.7	29	79	33	64	114	33	7.5	11	33	7.3	3.1
24	6.9	24	80	30	56	87	30	11	9.0	19	6.0	3.1
25	7.4	21	151	28	49	70	27	11	7.6	13	257	3.6
26	11	21	123	27	43	63	40	9.8	17	9.9	345	3.8
27	23	18	88	26	45	57	42	9.0	17	7.6	196	4.6
28	18	39	66	30	46	145	34	8.4	12	6.2	124	4.1
29	16	83	53	35	---	222	38	8.2	9.1	5.1	84	4.0
30	14	134	46	37	---	148	46	7.2	8.4	3.8	57	4.2
31	14	---	38	36	---	106	---	9.8	---	3.2	39	---
TOTAL	345.7	771	1516	3042	1681	3396	2457	760.2	391.6	265.3	1393.2	202.8
MEAN	11.2	25.7	48.9	98.1	60.0	110	81.9	24.5	13.1	8.56	44.9	6.76
MAX	23	134	151	439	227	318	372	60	28	64	345	28
MIN	5.7	11	22	26	21	30	27	7.2	4.9	2.4	2.6	3.1
CFSM	.30	.69	1.30	2.62	1.60	2.92	2.18	.65	.35	.23	1.20	.18
IN.	.34	.76	1.50	3.02	1.67	3.37	2.44	.75	.39	.26	1.38	.20

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 1998, BY WATER YEAR (WY)

	MEAN	13.2	29.6	39.0	38.6	48.9	72.8	61.1	40.0	29.9	15.9	13.6	11.2
MAX	69.5	117	91.3	161	129	219	112	174	119	64.3	45.2	47.1	
(WY)	1987	1993	1991	1993	1976	1982	1978	1996	1981	1992	1996	1981	
MIN	2.14	2.46	7.25	5.96	7.84	28.1	18.7	8.24	2.05	2.02	1.89	1.88	
(WY)	1995	1972	1977	1977	1979	1981	1971	1985	1988	1988	1970	1988	

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1970 - 1998

ANNUAL TOTAL	14947.8	16221.8	
ANNUAL MEAN	41.0	44.4	34.4
HIGHEST ANNUAL MEAN			54.7
LOWEST ANNUAL MEAN			17.8
HIGHEST DAILY MEAN	316	Feb 22	439
LOWEST DAILY MEAN	3.3	Aug 8	2.4
ANNUAL SEVEN-DAY MINIMUM	3.6	Aug 4	3.0
INSTANTANEOUS PEAK FLOW			487
INSTANTANEOUS PEAK STAGE			8.70
ANNUAL RUNOFF (CFSM)	1.09		1.19
ANNUAL RUNOFF (INCHES)	14.83		16.09
10 PERCENT EXCEEDS	84		104
50 PERCENT EXCEEDS	26		24
90 PERCENT EXCEEDS	8.6		4.3
			3.1

04177810 FISH CREEK NEAR ARTIC, IN

LOCATION.--Lat 41°27'54", long 84°48'53", in NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec. 29, T. 35 N., R. 15 E., DeKalb County, Hydrologic Unit 04100003, on right bank 3 ft upstream from bridge on county road 79, 0.6 miles south of Artic, 0.8 miles upstream from Indiana-Ohio state line and 3.8 miles north-northeast of Butler, IN.

DRAINAGE AREA.--98 mi<sup>2</sup> (approx.).

PERIOD OF RECORD.--April to September 1998.

GAGE.--Water-stage recorder. Datum of gage is 632.96 ft above sea level.

REMARKS.--Records good.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	144	24	15	14	65
2	---	---	---	---	---	---	---	139	21	13	13	51
3	---	---	---	---	---	---	---	118	21	13	13	40
4	---	---	---	---	---	---	---	114	19	14	14	33
5	---	---	---	---	---	---	---	101	19	14	17	28
6	---	---	---	---	---	---	---	88	20	13	97	25
7	---	---	---	---	---	---	---	78	20	76	212	23
8	---	---	---	---	---	---	140	99	18	44	102	21
9	---	---	---	---	---	---	372	116	18	23	60	18
10	---	---	---	---	---	---	820	101	20	18	42	16
11	---	---	---	---	---	---	780	84	22	16	32	15
12	---	---	---	---	---	---	475	73	31	15	26	14
13	---	---	---	---	---	---	320	63	39	14	21	14
14	---	---	---	---	---	---	245	58	40	14	19	13
15	---	---	---	---	---	---	213	52	31	14	21	13
16	---	---	---	---	---	---	199	46	29	14	21	13
17	---	---	---	---	---	---	170	42	43	14	17	13
18	---	---	---	---	---	---	139	37	33	13	16	13
19	---	---	---	---	---	---	120	33	35	13	16	12
20	---	---	---	---	---	---	108	32	45	15	15	12
21	---	---	---	---	---	---	98	29	34	15	14	12
22	---	---	---	---	---	---	93	26	26	86	14	13
23	---	---	---	---	---	---	90	24	22	71	16	13
24	---	---	---	---	---	---	83	25	19	39	17	12
25	---	---	---	---	---	---	75	29	17	26	408	11
26	---	---	---	---	---	---	85	29	18	21	727	11
27	---	---	---	---	---	---	113	26	28	18	674	11
28	---	---	---	---	---	---	99	24	22	16	348	11
29	---	---	---	---	---	---	90	23	18	16	195	11
30	---	---	---	---	---	---	115	22	16	15	129	10
31	---	---	---	---	---	---	---	21	---	14	89	---
TOTAL	---	---	---	---	---	---	---	1896	768	722	3419	567
MEAN	---	---	---	---	---	---	---	61.2	25.6	23.3	110	18.9
MAX	---	---	---	---	---	---	---	144	45	86	727	65
MIN	---	---	---	---	---	---	---	21	16	13	13	10
CFSM	---	---	---	---	---	---	---	.62	.26	.24	1.13	.19
IN.	---	---	---	---	---	---	---	.72	.29	.27	1.30	.22

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 1998, BY WATER YEAR (WY)

	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998
MEAN	---	---	---	---	---	---	---	61.2	25.6	23.3	110	18.9
MAX	---	---	---	---	---	---	---	61.2	25.6	23.3	110	18.9
(WY)	---	---	---	---	---	---	---	1998	1998	1998	1998	1998
MIN	---	---	---	---	---	---	---	61.2	25.6	23.3	110	18.9
(WY)	---	---	---	---	---	---	---	1998	1998	1998	1998	1998



## STREAMS TRIBUTARY TO LAKE ERIE

04177810 FISH CREEK NEAR ARTIC, IN

(National Water-Quality Assessment Program, Lake Erie-Lake St. Clair Basin Study Unit)

Fish Creek near Artic (04177810) is a tributary of the St. Joseph River. The following data were collected as part of a regional study within the St. Joseph River Basin to determine the water quality in a basin known to have diverse freshwater mussel (Unionid) populations, including three endangered mussel species. The results of chemical and physical measurements, and algae collected from 12 sites in the St. Joseph River Basin (3 in northwest Ohio, 2 in southeast Michigan, and 7 in northeast Indiana) are found in the annual report of the Ohio District USGS for water year 1998. Other water-quality data collected in this basin, St. Joseph River near Newville, Indiana (04178000) by the National Water-Quality Assessment Program (NAWQA), are found in this report.

## EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATION: Maximum daily mean, 264 mg/L, Jul 22; minimum daily mean, 11 mg/L, Sep 29.

SEDIMENT LOAD: Maximum daily, 240 tons, Aug 25; minimum daily, 0.31 tons, Sep 29.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	E. COLI WATER WHOLE TOTAL UREASE (COL / 100 ML) (31633)	HARD-NESS TOTAL (MG/L AS CAC03) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
APR 22...	1245	93	519	8.2	14.0	12.2	742	10.1	95	450	240	67
MAY 13...	1420	64	527	8.1	22.1	18.5	738	8.5	95	300	250	67
JUN 03...	1315	22	617	8.1	21.0	16.3	736	8.2	87	280	290	78
JUN 12...	1145	32	631	8.0	22.5	18.1	734	8.1	88	--	280	77
JUL 07...	1300	14	617	8.1	23.0	21.6	742	5.7	67	1030	290	76
JUL 21...	1110	15	622	8.1	25.8	22.8	740	6.8	82	K190	290	76
AUG 26...	1345	756	267	7.4	23.5	22.0	742	6.1	69	1900	130	37
SEP 29...	1230	11	641	8.1	17.5	16.0	740	7.5	78	260	290	77

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HCO3) (00453)	CAR-BONATE WATER DIS IT FIELD (MG/L AS CO3) (00452)	ALKA-LINITY WAT DIS TOT IT FIELD (MG/L AS CAC03) (39086)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)
APR 22...	18	8.5	2.1	229	0	188	32	14	0.2	3.2	297	0.01
MAY 13...	19	9.8	2.2	298	0	244	33	15	.2	4.6	320	.02
JUN 03...	23	14	.4	312	0	256	42	21	.4	7.6	370	.03
JUN 12...	22	14	2.5	293	0	240	40	21	.4	6.9	370	.02
JUL 07...	24	17	2.7	294	0	241	39	24	.4	7.7	371	<.01
JUL 21...	24	19	2.8	364	0	298	40	26	.4	7.6	383	.01
AUG 26...	10	4.4	4.9	116	0	95	19	7.3	.2	5.8	181	.01
SEP 29...	24	20	3.2	298	0	244	--	--	--	8.3	--	<.01

04177810 FISH CREEK NEAR ARTIC, IN--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (006311)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDED TOTAL (MG/L AS C) (00689)	ACETO- CHLOR, WATER FLTRD REC (UG/L) (49260)
APR 22...	0.71	0.04	0.8	0.4	0.07	0.01	0.02	60	34	6.2	0.4	0.006
MAY 13...	.66	.05	.6	.4	.05	.08	.02	49	34	6.7	.9	.019
JUN 03...	.76	.04	.7	.4	.09	.03	.03	23	47	5.6	.5	.015
12...	1.0	.13	.7	.5	.08	.04	.03	27	48	5.1	2.2	.107
JUL 07...	.73	.03	.5	.4	.07	.08	.04	<10	44	5.4	.6	.010
21...	.54	.04	.5	.3	.05	.02	.02	15	46	4.9	.7	<.002
AUG 26...	1.2	.02	.7	.1	.09	.11	.09	41	7	9.8	1.3	.039
SEP 29...	.68	<.02	.5	.4	.05	.04	.02	13	30	5.3	.4	<.002

DATE	ALA- CHLOR, WATER, DISS, REC, (UG/L) (46342)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	METHYL AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	BEN- FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)	CAR- BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBO- FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	CHLOR- PYRIFOS DIS- SOLVED (UG/L) (38933)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	DOPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	P, P' DDE DISSOLV (UG/L) (34653)
APR 22...	0.010	0.149	E 0.015	<0.001	<0.002	<0.002	<0.003	<0.003	<0.004	0.046	<0.002	<0.006
MAY 13...	.024	.192	E .012	<.001	<.002	<.002	<.003	<.003	<.004	.039	<.002	<.006
JUN 03...	.006	.189	E .036	<.001	<.002	<.002	<.003	<.003	<.004	.035	<.002	<.006
12...	.012	.300	E .057	<.001	<.002	<.002	<.003	<.003	<.004	.020	<.002	<.006
JUL 07...	.009	.384	E .050	<.001	<.002	<.002	<.003	<.003	<.004	.071	<.002	<.006
21...	<.002	.186	E .020	<.001	<.002	<.002	<.003	<.003	<.004	.024	<.002	<.006
AUG 26...	.013	.300	E .063	<.001	<.002	<.002	E .217	<.003	<.004	.054	<.002	<.006
SEP 29...	<.002	.072	E .010	<.001	<.002	<.002	<.003	<.003	<.004	.023	<.002	<.006

## STREAMS TRIBUTARY TO LAKE ERIE

04177810 FISH CREEK NEAR ARTIC, IN--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	DI- AZINON, DIS- SOLVED (UG/L) (39572)	DI- ELDRIN, DIS- SOLVED (UG/L) (39381)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHAL- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	ETHO- PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FONOFOS WATER DISS REC (UG/L) (04095)	ALPHA BHC DIS- SOLVED (UG/L) (34253)	LINDANE DIS- SOLVED (UG/L) (39341)	LIN- URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	MALA- THION, DIS- SOLVED (UG/L) (39532)
APR 22...	<0.002	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004	<0.002	<0.005
MAY 13...	.016	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004	<0.002	<0.005
JUN 03...	.007	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004	<0.002	<0.005
12...	E.002	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004	<0.002	<0.005
JUL 07...	<0.002	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004	<0.002	<0.005
21...	.007	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004	<0.002	<0.005
AUG 26...	<0.010	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004	<0.002	<0.005
SEP 29...	<0.002	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004	<0.002	<0.005

DATE	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MOL- INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	PARA- THION, DIS- SOLVED (UG/L) (39542)	METHYL PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	PEB- ULATE WATER FILTRD 0.7 U GF, REC (UG/L) (82669)	PENDI- METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	PRO- METON, WATER, DISS, REC (UG/L) (04037)
APR 22...	0.058	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004	<0.004	<0.005	<0.002	E0.009
MAY 13...	.157	.037	<0.004	<0.003	<0.004	<0.006	<0.004	<0.004	<0.005	<0.002	E.010
JUN 03...	.089	.010	<0.004	<0.003	<0.004	<0.006	<0.004	<0.004	<0.005	<0.002	E.007
12...	.157	.017	<0.004	<0.003	<0.004	<0.006	<0.004	<0.004	<0.005	<0.002	<0.018
JUL 07...	.208	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004	<0.004	<0.005	<0.002	E.006
21...	.201	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004	<0.004	<0.005	<0.002	<0.018
AUG 26...	.260	.005	<0.004	<0.003	<0.004	<0.006	<0.004	<0.004	<0.005	<0.002	E.010
SEP 29...	.076	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004	<0.004	<0.005	<0.002	E.004

DATE	PRON- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	PROP- CHLOR, WATER, DISS, REC (UG/L) (04024)	PRO- PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	PRO- PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	TEBU- THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TER- BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	THIO- BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	TRIAL- LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	TRI- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)
APR 22...	<0.003	<0.007	<0.004	<0.013	0.027	<0.010	<0.007	<0.013	<0.002	<0.001	<0.002
MAY 13...	<0.003	<0.007	<0.004	<0.013	.023	<0.010	<0.007	<0.013	<0.002	<0.001	<0.002
JUN 03...	<0.003	<0.007	<0.004	<0.013	.324	<0.010	<0.007	<0.013	<0.002	<0.001	<0.002
12...	<0.003	<0.007	<0.004	<0.013	.238	<0.010	<0.007	<0.013	<0.002	<0.001	<0.002
JUL 07...	<0.003	<0.007	<0.004	<0.013	.039	<0.010	<0.007	<0.013	<0.002	<0.001	<0.002
21...	<0.003	<0.007	<0.004	<0.013	.158	<0.010	<0.007	<0.013	<0.002	<0.001	<0.002
AUG 26...	<0.003	<0.007	<0.004	<0.013	.150	<0.020	<0.007	<0.013	<0.002	<0.001	<0.002
SEP 29...	<0.003	<0.007	<0.004	<0.013	.047	<0.010	<0.007	<0.013	<0.002	<0.001	<0.002

--= no data

&lt; = concentration or value reported is less than indicated

E = estimated value

K = value is estimated from a non-ideal colony count

## 04177810 FISH CREEK NEAR ARTIC, IN--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	---	---	---	144	61	24	24	78	5.0
2	---	---	---	139	42	16	21	52	3.0
3	---	---	---	118	45	14	21	38	2.1
4	---	---	---	114	48	15	19	52	2.6
5	---	---	---	101	57	16	19	64	3.2
6	---	---	---	88	49	12	20	54	2.8
7	---	---	---	78	72	15	20	48	2.5
8	---	---	---	99	71	19	18	51	2.5
9	---	---	---	116	71	22	18	62	3.0
10	---	---	---	101	40	11	20	58	3.1
11	---	---	---	84	45	10	22	48	2.8
12	---	---	---	73	55	11	31	74	6.4
13	---	---	---	63	44	7.4	39	66	6.9
14	---	---	---	58	66	11	40	61	6.5
15	---	---	---	52	47	6.6	31	50	4.2
16	---	---	---	46	44	5.4	29	57	4.8
17	---	---	---	42	62	6.9	43	75	8.7
18	---	---	---	37	60	5.9	33	66	5.9
19	---	---	---	33	60	5.4	35	69	6.4
20	---	---	---	32	57	4.9	45	50	6.1
21	---	---	---	29	60	4.7	34	55	5.0
22	---	---	---	26	67	4.7	26	63	4.4
23	---	---	---	24	59	3.9	22	52	3.2
24	---	---	---	25	60	4.1	19	45	2.3
25	---	---	---	29	74	5.8	17	39	1.8
26	---	---	---	29	52	4.0	18	55	2.7
27	---	---	---	26	58	4.0	28	61	4.6
28	99	26	6.9	24	68	4.3	22	39	2.4
29	90	66	16	23	77	4.8	18	35	1.7
30	115	102	32	22	92	5.5	16	40	1.7
31	---	---	---	21	90	5.2	---	---	---
TOTAL	304	---	54.9	1896	---	289.5	768	---	118.3
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	15	43	1.7	14	38	1.4	65	36	6.3
2	13	43	1.5	13	38	1.4	51	32	4.3
3	13	43	1.5	13	43	1.5	40	27	2.9
4	14	47	1.7	14	64	2.5	33	28	2.5
5	14	43	1.7	17	55	2.5	28	27	2.1
6	13	39	1.4	97	157	49	25	25	1.7
7	76	109	41	212	119	69	23	25	1.6
8	44	74	9.2	102	75	21	21	22	1.3
9	23	56	3.5	60	53	8.5	18	18	.88
10	18	52	2.5	42	47	5.3	16	20	.86
11	16	48	2.0	32	42	3.6	15	22	.92
12	15	44	1.8	26	37	2.6	14	25	.99
13	14	40	1.6	21	33	1.9	14	29	1.1
14	14	37	1.4	19	29	1.5	13	29	1.0
15	14	40	1.5	21	34	2.4	13	25	.89
16	14	28	1.1	21	47	2.9	13	39	1.3
17	14	31	1.1	17	38	1.7	13	32	1.1
18	13	39	1.4	16	36	1.6	13	33	1.1
19	13	37	1.4	16	34	1.5	12	28	.94
20	15	42	1.7	15	32	1.3	12	34	1.1
21	15	59	2.4	14	30	1.2	12	33	1.1
22	86	264	73	14	29	1.1	13	35	1.3
23	71	113	23	16	27	1.2	13	39	1.3
24	39	71	7.5	17	26	1.2	12	33	1.0
25	26	58	4.0	408	180	240	11	23	.69
26	21	47	2.6	727	48	94	11	41	1.2
27	18	44	2.2	674	23	42	11	27	.81
28	16	43	1.9	348	33	30	11	17	.51
29	16	41	1.7	195	42	22	11	11	.31
30	15	40	1.6	129	41	14	10	13	.37
31	14	39	1.5	89	38	9.1	---	---	---
TOTAL	722	---	202.1	3419	---	638.9	567	---	43.47
YEAR	2361		1060.67						

## STREAMS TRIBUTARY TO LAKE ERIE

04178000 ST. JOSEPH RIVER NEAR NEWVILLE, IN

LOCATION.--Lat 41°23'08", long 84°48'06", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.18, T.5 N., R.1 E., Defiance County, Ohio, Hydrologic Unit 04100003, on left bank at bridge on Ohio State Highway 249, 3.5 mi northeast of Newville, 6.5 mi northwest of Hicksville, Ohio, and at mile 42.3.

DRAINAGE AREA.--610 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1946 to current year. Monthly discharge only for some periods, published in WSP 1307.

REVISED RECORDS.--WSP 2112: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 795.40 ft above sea level. Prior to Oct. 22, 1947, nonrecording gage at same site and datum.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	307	322	1430	809	642	944	1660	886	163	98	61	1140
2	269	626	1280	675	667	870	1530	966	154	91	56	723
3	247	782	1070	560	678	811	1360	973	143	86	51	536
4	224	783	935	948	654	765	1170	1010	136	87	60	426
5	206	754	798	1460	602	699	1010	958	126	82	66	349
6	192	719	674	1950	541	632	889	820	123	82	162	293
7	180	631	575	2220	483	576	785	706	122	142	709	254
8	170	523	501	3220	439	567	727	677	121	332	940	226
9	163	444	452	4160	408	1560	1370	681	119	150	841	206
10	161	386	433	4580	383	2440	2710	656	121	108	830	190
11	167	342	442	4350	393	e2800	3010	604	126	86	904	177
12	182	311	446	3610	829	e2500	2860	530	181	75	904	166
13	187	287	438	2820	1030	e2300	2540	458	174	71	700	153
14	191	274	421	2250	991	e2100	2240	396	184	64	462	141
15	194	260	396	1750	903	e1750	1880	364	180	61	334	132
16	222	254	379	1430	795	e1400	1670	335	169	59	365	127
17	234	249	409	1100	1010	1100	1380	304	166	58	242	120
18	213	244	417	898	2060	1150	1100	276	160	50	195	117
19	198	244	445	773	2600	1850	918	247	197	51	176	114
20	188	235	533	678	2800	2110	793	233	222	55	154	112
21	178	272	547	603	2870	2310	696	219	193	55	141	115
22	167	481	554	546	2730	2340	623	205	169	118	178	112
23	160	581	957	509	2320	2310	567	186	155	220	155	113
24	155	569	1190	481	1920	2160	519	181	142	172	146	120
25	149	504	1600	458	1600	1910	476	180	129	136	1450	116
26	147	435	1780	438	1300	1630	481	188	123	108	3690	110
27	183	385	1790	426	1080	1350	621	207	120	93	3860	106
28	286	508	1680	438	989	1290	687	207	117	83	3580	105
29	410	905	1550	488	---	1740	738	194	108	76	2980	102
30	407	1370	1400	581	---	1870	798	180	108	70	2350	101
31	351	---	1140	618	---	1820	---	170	---	65	1820	---
TOTAL	6688	14680	26662	45827	33717	49654	37808	14197	4451	3084	28562	6802
MEAN	216	489	860	1478	1204	1602	1260	458	148	99.5	921	227
MAX	410	1370	1790	4580	2870	2800	3010	1010	222	332	3860	1140
MIN	147	235	379	426	383	567	476	170	108	50	51	101
CFSM	.35	.80	1.41	2.42	1.97	2.63	2.07	.75	.24	.16	1.51	.37
IN.	.41	.90	1.63	2.79	2.06	3.03	2.31	.87	.27	.19	1.74	.41

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 1998, BY WATER YEAR (WY)

	MEAN	180	386	601	673	852	1223	1070	630	392	238	156	139
MAX	1066	1756	2085	2545	2302	3512	3102	2499	1865	1045	921	671	
(WY)	1987	1993	1968	1950	1976	1982	1950	1956	1989	1951	1998	1997	
MIN	21.0	30.5	31.1	38.3	41.4	312	321	148	51.4	32.2	29.1	20.3	
(WY)	1964	1965	1964	1963	1963	1964	1971	1988	1988	1988	1967	1963	

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

## WATER YEARS 1947 - 1998

ANNUAL TOTAL	251761	272132	
ANNUAL MEAN	690	746	542
HIGHEST ANNUAL MEAN			1008
LOWEST ANNUAL MEAN			132
HIGHEST DAILY MEAN	3670	Feb 23	4580 Jan 10
LOWEST DAILY MEAN	67	Aug 11	50 Jul 18
ANNUAL SEVEN-DAY MINIMUM	73	Aug 7	56 Jul 15
INSTANTANEOUS PEAK FLOW			4630 Jan 10
INSTANTANEOUS PEAK STAGE			14.42 Jan 10
ANNUAL RUNOFF (CFSM)	1.13		1.22
ANNUAL RUNOFF (INCHES)	15.35		16.60
10 PERCENT EXCEEDS	1420		1910
50 PERCENT EXCEEDS	450		442
90 PERCENT EXCEEDS	149		111

e Estimated



## 04178000 ST. JOSEPH RIVER NEAR NEWVILLE, IN -- Continued

(National Water-Quality Assessment Program, Lake Erie-Lake St. Clair Basin Study Unit)

The goal of the National Water-Quality Program (NAWQA) is to describe the status and trends in the quality of a large, representative part of the Nation's surface- and ground-water resources. The Lake Erie study unit began in October 1993. The period of record is for the 1998 water year. There are ten stream sites in the Lake Erie-Lake St. Clair Basin which are located in four States and the data are being reported in the appropriate State publication as part of the NAWQA study. The ten sites are: Maumee River at Waterville, Oh. (04193500), Auglaize River nr. Ft. Jennings, Oh. (04186500), Cuyahoga River at LTV Steel at Cleveland, Oh. (04208504), Grand River at Harpersfield, Oh. (04211820), Black River near Jeddo, Mi. (04159492), Clinton River at Sterling Heights, Mi. (04161820) River Raisin nr. Manchester, Mi. (04175600), St. Joseph River nr. Newville, In. (04178000), Maumee River at New Haven, In. (04183000), and Cattaraugus Creek at Gowanda, N.Y. (04213500).

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	E. COLI WATER WHOLE TOTAL UREASE (COL / 100 ML) (31633)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML) (31501)	E. COLI WTR UNFLTRD MP MOD . MTEC (COLS. / 100 ML) (90902)
OCT												
14...	1115	185	659	7.9	12.0	14.1	745	7.1	70	270	--	--
22...	1000	158	665	8.0	4.0	7.9	744	9.7	84	210	750	215
NOV												
13...	0830	284	616	8.0	1.0	3.6	740	10.0	82	--	--	--
18...	0840	242	633	7.9	1.5	0.0	744	11.8	83	K110	--	--
DEC												
16...	0900	372	611	7.6	4.0	.9	740	12.6	91	260	190	320
JAN												
14...	1000	2320	360	7.9	12.0	- .3	753	13.3	91	420	--	--
FEB												
25...	0900	1680	386	7.8	4.0	3.8	745	11.4	89	400	--	--
MAR												
30...	1200	1930	361	7.6	26.5	14.1	735	7.8	79	490	--	--
APR												
22...	0930	626	504	8.0	13.5	11.9	742	8.9	85	250	--	--
MAY												
14...	0845	396	556	7.9	20.0	17.7	747	7.5	80	K60	--	--
JUN												
03...	1045	147	634	8.0	20.0	18.3	736	7.5	84	K100	--	--
12...	0820	193	665	7.9	--	17.7	734	6.8	74	--	--	--
JUL												
08...	0930	377	445	7.7	23.0	22.0	738	5.5	63	--	--	--
23...	0830	236	498	7.8	21.5	23.5	742	5.4	64	2800	16700	3300
AUG												
26...	1044	3800	164	7.0	23.0	21.0	742	4.9	57	2100	--	--
SEP												
29...	0845	87	642	7.8	11.5	17.0	738	6.3	67	100	--	--

DATE	COLI-FORM, TOTAL, WTR UNF MP, MI (COLS. / 100 ML) (90900)	E. COLI WTR UNFLTRD MP, MI (COLS. / 100 ML) (90901)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HCO3) (00453)	CAR-BONATE WATER DIS IT FIELD (MG/L AS CO3) (00452)	ALKA-LINITY WAT DIS TOT IT FIELD (MG/L AS CACO3) (39086)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
OCT												
14...	--	--	290	79	22	20	4.1	290	0	238	50	30
22...	2000	220	310	87	23	18	3.3	325	0	266	48	35
NOV												
13...	--	--	300	86	21	12	3.3	317	0	260	46	23
18...	--	--	290	82	21	17	2.9	342	0	280	46	31
DEC												
16...	190	143	290	81	22	15	2.8	295	0	242	49	29
JAN												
14...	--	--	170	48	12	5.7	4.2	178	0	146	26	13
FEB												
25...	--	--	190	54	13	6.3	3.2	190	0	156	29	14
MAR												
30...	--	--	160	45	11	6.9	3.2	154	0	126	22	14
APR												
22...	--	--	240	68	18	9.0	2.4	239	0	196	33	15
MAY												
14...	--	--	260	72	20	10	2.3	276	0	226	34	17
JUN												
03...	--	--	300	80	23	14	2.5	300	0	246	44	22
12...	--	--	290	79	23	18	3.5	266	0	218	49	28
JUL												
08...	--	--	180	50	14	9.9	4.3	161	0	132	27	18
23...	81000	2150	220	60	18	15	3.6	207	0	170	35	22
AUG												
26...	--	--	71	21	4.4	2.4	4.7	62	0	51	9.1	4.3
SEP												
29...	--	--	290	77	24	19	3.3	300	0	246	--	--

## STREAMS TRIBUTARY TO LAKE ERIE

04178000 ST. JOSEPH RIVER NEAR NEWVILLE, IN--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SiO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	IRON, DIS- SOLVED (UG/L AS FE) (01046)
OCT												
14...	0.5	8.7	399	0.02	0.46	<0.01	1.0	0.5	0.15	0.06	0.06	35
22...	.4	8.4	416	<.01	.54	<.01	.6	.4	.08	.04	.03	32
NOV												
13...	.3	7.9	393	<.01	.93	<.02	.6	.5	.03	.03	.03	81
18...	.3	7.1	410	<.01	.88	.34	.6	.6	.02	.02	<.01	85
DEC												
16...	.3	6.7	415	.01	1.5	<.02	.6	.5	.05	.01	.01	32
JAN												
14...	.2	6.1	232	.02	1.5	<.02	.8	.5	.11	.05	.04	56
FEB												
25...	.2	5.6	243	.02	1.6	.06	.8	.5	.16	.05	.05	45
MAR												
30...	.2	4.2	215	.04	1.4	.10	.6	.6	.08	.07	.05	39
APR												
22...	.3	4.0	304	.01	.93	.05	1.0	.5	.14	.03	.03	36
MAY												
14...	.2	5.0	341	.02	.79	<.02	.8	.4	.09	.01	.02	35
JUN												
03...	.4	7.4	378	.03	.99	.04	.8	.4	.09	.04	.03	<10
12...	.5	7.7	404	.08	3.7	.88	2.3	1.8	.18	.07	.07	15
JUL												
08...	.3	6.0	261	.09	5.2	.20	1.7	1.1	.44	.12	.09	11
23...	.4	7.2	321	.05	2.4	.11	1.0	.6	.22	.07	.06	<10
AUG												
26...	.2	5.2	113	.02	1.8	.03	1.5	1.1	.43	.16	.16	45
SEP												
29...	--	9.4	--	.01	.50	.03	.6	.4	.09	.07	.04	10

DATE	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDED TOTAL (MG/L AS C) (00689)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	ACETO- CHLOR, WATER, FLTRD REC (UG/L) (49260)	ALA- CHLOR, WATER, DISS, REC, (UG/L) (46342)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	METHYL AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	BEN- FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)	CAR- BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)
OCT												
14...	36	8.2	1.6	37	--	--	--	--	--	--	--	--
22...	29	7.9	0.7	19	<0.002	0.009	0.165	E0.043	<0.140	<0.002	<0.002	<0.003
NOV												
13...	36	7.5	.3	9	--	--	--	--	--	--	--	--
18...	33	7.0	.2	8	.009	.009	.166	E.019	--	<.002	<.002	<.003
DEC												
16...	41	6.6	.3	15	.008	.009	.142	E.020	<.200	<.002	<.002	<.003
JAN												
14...	8	7.2	1.0	42	.011	.011	.146	E.032	<.300	<.002	<.002	<.003
FEB												
25...	10	7.3	1.5	94	E.004	.008	.098	E.019	<.001	<.002	<.002	<.003
MAR												
30...	<4	7.2	4.5	235	.011	.017	.133	E.026	<.001	<.002	<.002	<.003
APR												
22...	29	6.3	1.1	--	.010	.008	.079	E.016	<.001	<.002	<.002	<.003
MAY												
14...	16	7.2	2.0	55	.033	.021	.322	E.016	<.001	<.002	<.002	<.003
JUN												
03...	14	5.5	1.3	42	.153	.182	.957	E.071	<.001	<.002	<.002	<.003
12...	29	7.0	3.2	95	1.29	.033	4.66	E.442	<.001	<.002	<.002	E.007
JUL												
08...	10	6.9	3.2	221	.675	.134	3.67	E.456	<.001	<.002	<.002	E.079
23...	<4	5.5	3.2	104	.099	.025	.776	E.115	<.001	<.002	<.002	<.003
AUG												
26...	8	8.8	2.5	187	.051	.025	.328	E.095	<.001	<.002	<.002	<.003
SEP												
29...	26	5.5	1.1	33	<.002	<.002	.099	E.023	<.001	<.002	<.002	<.003

04178000 ST. JOSEPH RIVER NEAR NEWVILLE, IN--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	CARBO- FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	CHLOR- PYRIFOS DIS- SOLVED (UG/L) (38933)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	P, P' DDE DISSOLV (UG/L) (34653)	DI- AZINON, DIS- SOLVED (UG/L) (39572)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHAL- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	ETHO- PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)
OCT 14...	--	--	--	--	--	--	--	--	--	--	--	--
22...	<0.003	<0.004	0.031	<0.002	<0.006	<0.002	<0.001	E0.001	<0.017	<0.002	<0.004	<0.003
NOV 13...	--	--	--	--	--	--	--	--	--	--	--	--
18...	<0.010	<0.004	.031	<0.002	<0.006	<0.002	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003
DEC 16...	<0.003	.008	.038	<0.002	<0.006	<0.002	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003
JAN 14...	<0.003	<0.004	.029	<0.002	<0.006	<0.002	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003
FEB 25...	<0.003	<0.004	.018	<0.002	<0.006	<0.002	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003
MAR 30...	<0.003	<0.004	.032	<0.002	<0.006	<0.002	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003
APR 22...	<0.003	<0.004	.015	<0.002	<0.006	<0.002	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003
MAY 14...	<0.003	.007	.062	<0.002	<0.006	<0.002	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003
JUN 03...	<0.003	<0.004	.460	<0.002	<0.006	<0.002	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003
12...	<0.003	<0.010	.161	<0.002	<0.006	<0.002	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003
JUL 08...	<0.003	<0.020	.209	<0.002	<0.006	<0.002	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003
23...	<0.003	<0.004	.212	<0.002	<0.006	<0.002	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003
AUG 26...	<0.003	<0.004	.054	<0.002	<0.006	<0.002	<0.001	<0.003	<0.017	.004	<0.004	<0.003
SEP 29...	<0.003	<0.004	.017	<0.002	<0.006	.008	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003

DATE	FONOFOS WATER DISS REC (UG/L) (04095)	ALPHA BHC DIS- SOLVED (UG/L) (34253)	LINDANE DIS- SOLVED (UG/L) (39341)	LIN- URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	MALA- THION, DIS- SOLVED (UG/L) (39532)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MOL- INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	PARA- THION, DIS- SOLVED (UG/L) (39542)	METHYL PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)
OCT 14...	--	--	--	--	--	--	--	--	--	--	--
22...	<0.003	<0.002	<0.004	<0.002	<0.005	0.069	E0.004	<0.004	<0.003	<0.004	<0.006
NOV 13...	--	--	--	--	--	--	--	--	--	--	--
18...	<0.003	<0.002	<0.004	<0.002	<0.005	.068	<0.004	<0.004	<0.003	<0.004	<0.006
DEC 16...	<0.003	<0.002	<0.004	<0.002	<0.005	.068	.008	<0.004	<0.003	<0.004	<0.006
JAN 14...	<0.003	<0.002	<0.004	<0.002	<0.005	.089	.018	<0.004	<0.003	<0.004	<0.006
FEB 25...	<0.003	<0.002	<0.004	<0.002	<0.005	.058	<0.004	<0.004	<0.003	<0.004	<0.006
MAR 30...	<0.003	<0.002	<0.004	<0.002	<0.005	.106	.013	<0.004	<0.003	<0.004	<0.006
APR 22...	<0.003	<0.002	<0.004	<0.002	<0.005	.041	<0.004	<0.004	<0.003	<0.004	<0.006
MAY 14...	<0.003	<0.002	<0.004	<0.002	<0.005	.410	.053	<0.004	<0.003	<0.004	<0.010
JUN 03...	<0.003	<0.002	<0.004	<0.002	<0.005	4.43	.067	<0.004	<0.003	<0.004	<0.006
12...	<0.003	<0.002	<0.004	<0.020	.010	3.11	.855	<0.004	<0.003	<0.004	<0.006
JUL 08...	<0.003	<0.002	<0.004	<0.002	<0.005	3.10	.188	<0.004	<0.003	<0.004	<0.006
23...	<0.003	<0.002	<0.004	<0.002	<0.005	.621	.059	<0.004	<0.003	<0.004	<0.006
AUG 26...	<0.003	<0.002	<0.004	<0.002	<0.005	.534	.030	<0.004	<0.003	<0.004	<0.006
SEP 29...	<0.003	<0.002	<0.004	<0.002	<0.005	.057	<0.004	<0.004	<0.003	<0.004	<0.006

## STREAMS TRIBUTARY TO LAKE ERIE

04178000 ST. JOSEPH RIVER NEAR NEWVILLE, IN--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	PEB- ULATE WATER FLTRD 0.7 U GF, REC (UG/L) (82669)	PENDI- METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRON- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	PROP- CHLOR, WATER, DISS, REC (UG/L) (04024)	PRO- PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	PRO- PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	TEBU- THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)
OCT											
14...	--	--	--	--	--	--	--	--	--	--	--
22...	<0.004	<0.004	<0.005	<0.002	E0.010	<0.003	<0.007	<0.004	<0.013	0.041	E.007
NOV											
13...	--	--	--	--	--	--	--	--	--	--	--
18...	<.004	<.004	<.005	<.002	E.006	<.003	<.007	<.004	<.013	.036	E.005
DEC											
16...	<.004	<.004	<.005	<.002	E.006	<.003	<.007	<.004	<.013	.031	<.010
JAN											
14...	<.004	<.004	<.005	<.002	<.018	<.003	<.007	<.004	<.013	.032	<.010
FEB											
25...	<.004	<.004	<.005	<.002	<.018	<.003	<.007	<.004	<.013	.023	<.010
MAR											
30...	<.004	<.004	<.005	<.002	E.006	<.003	<.007	<.004	<.013	.021	<.010
APR											
22...	<.004	<.004	<.005	<.002	E.006	<.003	<.007	<.004	<.013	.044	.012
MAY											
14...	<.004	<.004	<.005	<.002	E.011	<.003	<.007	<.004	<.013	.073	<.010
JUN											
03...	<.004	<.004	<.005	<.002	E.011	<.003	<.007	<.004	<.013	.109	<.010
12...	<.004	<.004	<.005	<.002	.042	<.003	<.007	<.004	<.013	1.08	<.010
JUL											
08...	<.004	<.004	<.005	<.002	.038	<.003	<.007	<.004	<.013	.722	<.010
23...	<.004	<.004	<.005	<.002	.110	<.003	<.007	<.004	<.013	.230	<.010
AUG											
26...	<.004	<.004	<.005	<.002	.021	<.003	<.007	<.004	<.013	.060	<.010
SEP											
29...	<.004	<.004	<.005	<.002	<.018	<.003	<.007	<.004	<.013	.020	<.010
DATE	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TER- BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	THIO- BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	TRIAL- LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	TRI- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)	2,4-D, DIS- SOLVED (UG/L) (39732)	2,4-DB WATER, FLTRD, GF 0.7U REC (UG/L) (38746)	2,4,5-T DIS- SOLVED (UG/L) (39742)	ACIFL- UORFEN WATER, FLTRD, GF 0.7U REC (UG/L) (49315)	ALDI- CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (49312)	ALDI- CARB SULFONE WAT,FLT GF 0.7U REC (UG/L) (49313)
OCT											
14...	--	--	--	--	--	--	--	--	--	--	--
22...	<0.007	<0.013	<0.002	<0.001	<0.002	<0.035	<0.035	<0.035	<0.035	<0.016	<0.016
NOV											
13...	--	--	--	--	--	--	--	--	--	--	--
18...	<.007	<.013	<.002	<.001	<.002	<.15	<.24	<.035	<.035	<.55	<.10
DEC											
16...	<.007	<.013	<.002	<.001	<.002	<.15	<.24	<.035	<.035	<.55	<.10
JAN											
14...	<.007	<.013	<.002	<.001	<.002	<.15	<.24	<.035	<.035	<.55	<.10
FEB											
25...	<.007	<.013	<.002	<.001	<.002	<.15	<.24	<.035	<.035	<.55	<.10
MAR											
30...	<.007	<.013	<.002	<.001	<.002	--	--	--	--	--	--
APR											
22...	<.007	<.013	<.002	<.001	<.002	--	--	--	--	--	--
MAY											
14...	<.007	<.013	<.002	<.001	<.002	--	--	--	--	--	--
JUN											
03...	<.007	<.013	<.002	<.001	<.002	--	--	--	--	--	--
12...	<.007	<.013	<.002	<.001	<.002	--	--	--	--	--	--
JUL											
08...	<.007	<.013	<.002	<.001	<.002	--	--	--	--	--	--
23...	<.007	<.013	<.002	<.001	<.002	--	--	--	--	--	--
AUG											
26...	<.007	<.013	<.002	<.001	<.002	--	--	--	--	--	--
SEP											
29...	<.007	<.013	<.002	<.001	<.002	--	--	--	--	--	--

04178000 ST. JOSEPH RIVER NEAR NEWVILLE, IN--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	ALDICA- RB SUL- FOXIDE, WAT,FLT GF 0.7U REC (UG/L) (49314)	BENTA- ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711)	BRO- MACIL, WATER, DISS, REC (UG/L) (04029)	BRO- MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311)	CAR- BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310)	CARBO- FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309)	3HYDRXY CARBO- FURAN WAT,FLT GF 0.7U REC (UG/L) (49308)	CHLOR- AMBEN, WATER, FLTRD, GF 0.7U REC (UG/L) (49307)	CHLORO- THALO- NIL, WAT,FLT GF 0.7U REC (UG/L) (49306)	CLOPYR- ALID, WATER, FLTRD, GF 0.7U REC (UG/L) (49305)	DACTHAL MONO- ACID, WAT,FLT GF 0.7U REC (UG/L) (49304)
OCT											
14...	--	--	--	--	--	--	--	--	--	--	--
22...	<0.021	<0.014	<0.035	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.05	<0.017
NOV											
13...	--	--	--	--	--	--	--	--	--	--	--
18...	<.021	<.014	<.035	<.035	<.008	<.12	<.014	<.42	<.48	<.23	<.017
DEC											
16...	<.021	<.014	<.035	<.035	<.008	<.12	<.014	<.42	<.48	<.23	<.017
JAN											
14...	<.021	<.014	<.035	<.035	<.008	<.12	<.014	<.42	<.48	<.23	<.017
FEB											
25...	<.021	<.014	<.035	<.035	<.008	<.12	<.014	<.42	<.48	<.23	<.017
DATE	DICAMBA WATER, FLTRD, GF 0.7U REC (UG/L) (38442)	DICHLOR- BENIL, WATER, FLTRD, GF 0.7U REC (UG/L) (49303)	DICHLOR PROP, FLTRD, GF 0.7U REC (UG/L) (49302)	DINOSEB WATER, FLTRD, GF 0.7U REC (UG/L) (49301)	DIURON, WATER, FLTRD, GF 0.7U REC (UG/L) (49300)	DNOC WAT,FLT GF 0.7U REC (UG/L) (49299)	FEN- URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297)	FLUO- METURON WATER, FLTRD, GF 0.7U REC (UG/L) (38811)	LINURON WATER, FLTRD, GF 0.7U REC (UG/L) (38478)	MCPA, WATER, FLTRD, GF 0.7U REC (UG/L) (38482)	MCPB, WATER, FLTRD, GF 0.7U REC (UG/L) (38487)
OCT											
14...	--	--	--	--	--	--	--	--	--	--	--
22...	<0.035	<0.02	<0.032	<0.035	<0.02	<0.035	<0.013	<0.035	<0.018	<0.05	<0.035
NOV											
13...	--	--	--	--	--	--	--	--	--	--	--
18...	<.035	<1.2	<.032	<.035	<.02	<.42	<.013	<.035	<.018	<.17	<.14
DEC											
16...	<.035	<1.2	<.032	<.035	<.02	<.42	<.013	<.035	<.018	<.17	<.14
JAN											
14...	<.035	<1.2	<.032	<.035	<.02	<.42	<.013	<.035	<.018	<.17	<.14
FEB											
25...	<.035	<1.2	<.032	<.035	<.02	<.42	<.013	<.035	<.018	<.17	<.14
DATE	METHIO- CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501)	METH- OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296)	NEB- URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294)	NORFLUR AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293)	ORY- ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292)	OXAMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (38866)	PIC- LORAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49291)	PRO- PHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236)	PRO- POXUR, WATER, FLTRD, GF 0.7U REC (UG/L) (38538)	SILVEX, DIS- SOLVED REC (UG/L) (39762)	TRI- CLOPYR, WATER, FLTRD, GF 0.7U REC (UG/L) (49235)
OCT											
14...	--	--	--	--	--	--	--	--	--	--	--
22...	<0.026	<0.017	<0.015	<0.024	<0.019	<0.018	<0.05	<0.035	<0.035	<0.021	<0.05
NOV											
13...	--	--	--	--	--	--	--	--	--	--	--
18...	<.026	<.017	<.015	<.024	<.31	<.018	<.05	<.035	<.035	<.021	<.25
DEC											
16...	<.026	<.017	<.015	<.024	<.31	<.018	<.05	<.035	<.035	<.021	<.25
JAN											
14...	<.026	<.017	<.015	<.024	<.31	<.018	<.05	<.035	<.035	<.021	<.25
FEB											
25...	<.026	<.017	<.015	<.024	<.31	<.018	<.05	<.035	<.035	<.021	<.25

--= no data

&lt; = concentration or value reported is less than indicated

E = estimated value

K = value is estimated from a non-ideal colony count



## STREAMS TRIBUTARY TO LAKE ERIE

04180000 CEDAR CREEK NEAR CEDARVILLE, IN

LOCATION.--Lat 41°13'08", long 85°04'35", in NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.19, T.32 N., R.13 E., Allen County, Hydrologic Unit 04100003, on left bank at downstream side of bridge on Tonkle Road, 3 mi northwest of Cedarville, 5.8 mi upstream from mouth, and 10 mi south of Auburn.

DRAINAGE AREA.--270 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1946 to current year.

REVISED RECORDS.--WSP 1912: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 780.09 ft above sea level. Prior to Nov. 4, 1947, nonrecording gage at same site and datum.

REMARKS.--Records good.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	121	90	547	197	275	256	619	389	87	76	48	116
2	113	234	344	191	273	239	609	347	73	64	44	98
3	104	213	267	203	258	227	474	274	67	59	41	81
4	96	161	276	1060	231	216	388	265	66	208	72	69
5	89	133	248	1760	213	204	332	268	63	160	96	60
6	86	117	212	2400	191	193	297	225	69	97	291	54
7	83	107	189	1940	178	187	270	204	66	89	276	51
8	78	99	176	2830	169	194	309	215	62	198	180	48
9	78	97	172	3440	162	1500	1050	218	61	110	133	44
10	83	99	176	1940	158	2960	3180	196	65	80	104	41
11	77	97	198	1160	164	1450	1760	178	77	67	82	38
12	75	96	203	819	362	853	976	166	205	57	69	37
13	77	89	200	625	337	591	668	171	386	58	62	33
14	90	90	176	485	259	461	525	157	187	53	58	32
15	88	92	159	413	225	380	440	148	131	49	54	32
16	81	92	162	357	206	327	526	135	150	47	54	32
17	75	86	214	314	298	298	456	122	200	45	50	32
18	72	82	208	282	1270	610	342	113	127	43	49	31
19	71	83	224	259	1040	1920	301	110	198	41	47	31
20	68	84	263	242	694	1500	268	106	198	44	43	30
21	68	111	235	223	512	1730	241	97	124	49	42	33
22	66	250	225	208	397	1240	226	92	99	426	69	29
23	80	248	634	204	338	788	212	87	87	353	71	26
24	71	186	539	196	306	564	200	126	79	161	54	26
25	67	153	1110	185	296	456	189	134	73	103	192	27
26	64	140	934	179	269	393	198	100	87	79	826	26
27	115	128	548	184	268	350	234	92	81	68	538	25
28	134	263	385	226	275	626	203	85	71	61	345	25
29	123	506	308	282	---	1790	207	82	66	56	249	26
30	104	905	268	307	---	1010	229	76	86	52	186	26
31	90	---	234	283	---	626	---	75	---	49	143	---
TOTAL	2687	5131	10034	23394	9624	24139	15929	5053	3391	3102	4568	1259
MEAN	86.7	171	324	755	344	779	531	163	113	100	147	42.0
MAX	134	905	1110	3440	1270	2960	3180	389	386	426	826	116
MIN	64	82	159	179	158	187	189	75	61	41	41	25
CFSM	.32	.63	1.20	2.79	1.27	2.88	1.97	.60	.42	.37	.55	.16
IN.	.37	.71	1.38	3.22	1.33	3.33	2.19	.70	.47	.43	.63	.17

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 1998, BY WATER YEAR (WY)

	MEAN	112	188	286	322	398	517	466	283	212	125	87.0	85.6
MAX	805	936	908	1393	1290	1724	1131	947	1046	515	331	477	
(WY)	1955	1993	1967	1950	1959	1982	1950	1956	1981	1986	1997	1972	
MIN	19.8	24.0	24.7	25.9	28.5	146	139	68.6	44.0	35.1	22.0	20.9	
(WY)	1965	1965	1964	1963	1963	1957	1971	1958	1988	1953	1964	1964	

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

## WATER YEARS 1947 - 1998

ANNUAL TOTAL	121448	108311	
ANNUAL MEAN	333	297	256
HIGHEST ANNUAL MEAN			485
LOWEST ANNUAL MEAN			85.3
HIGHEST DAILY MEAN	3010	Feb 22	5220
LOWEST DAILY MEAN	50	Aug 10	13
ANNUAL SEVEN-DAY MINIMUM	53	Aug 6	26
INSTANTANEOUS PEAK FLOW			3700
INSTANTANEOUS PEAK STAGE			9.96
ANNUAL RUNOFF (CFSM)	1.23		1.10
ANNUAL RUNOFF (INCHES)	16.73		14.92
10 PERCENT EXCEEDS	713		603
50 PERCENT EXCEEDS	194		116
90 PERCENT EXCEEDS	82		32

## 04180500 ST. JOSEPH RIVER NEAR FORT WAYNE, IN

LOCATION.--Lat 41°10'41", long 85°03'19", in NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.3, T.31 N., R.13 E., Allen County, Hydrologic Unit 04100003, on left bank 0.8 mi downstream from Ely Run, 1.3 mi upstream from Maynew Road, 8.0 mi northeast of the Fort Wayne Court House.

DRAINAGE AREA.--1,060 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1983 to current year. July 1941 to September 1955 gage located 1.3 mi downstream at Ely Bridge.

GAGE.--Water-stage recorder. Datum of gage is 750.00 ft above sea level (levels by State of Indiana).

REMARKS.--Records fair except for estimated daily discharges, which are poor. Flow regulated by Cedarville Reservoir and some flow diverted into storage of Hurshtown Reservoir.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	566	410	2390	1470	1170	1450	2930	1590	334	225	123	1830
2	533	790	2050	1020	1150	1360	2700	1620	263	179	114	1030
3	501	1210	1680	1030	1150	1260	2350	1480	280	152	93	e760
4	403	1020	1550	3020	1100	1140	1950	1560	254	473	196	e640
5	412	989	1370	4590	1010	1130	1630	1610	248	408	413	475
6	393	953	1110	5680	906	1020	1460	1340	219	225	1150	459
7	343	867	1050	5490	842	930	1310	1220	225	191	1160	352
8	341	788	860	7450	760	926	1250	1060	213	451	1330	279
9	321	604	761	8700	723	4540	4230	1040	243	671	1380	273
10	325	602	782	7680	651	6890	7830	1040	218	279	1070	254
11	321	537	929	6480	621	5330	6490	994	281	188	1100	234
12	290	449	861	5990	1140	4330	5190	869	657	178	1090	198
13	304	383	794	5090	1630	3960	4550	825	1440	175	1110	273
14	331	437	768	3800	1550	3600	3890	698	461	168	792	200
15	331	396	716	3140	1350	3030	3370	634	397	159	496	183
16	329	426	703	2440	1290	2320	3110	544	e380	122	423	172
17	392	343	760	2010	1440	1860	2890	594	e390	131	550	145
18	311	348	820	1410	4370	2410	1930	463	400	151	312	132
19	294	348	813	1390	4530	5310	1730	416	478	154	257	140
20	262	348	933	1170	4160	4990	1350	471	638	136	291	153
21	229	417	925	1090	4020	5580	1260	316	459	130	256	148
22	241	954	965	1030	3830	4940	1070	362	344	890	234	141
23	260	1150	1860	887	3600	4070	954	323	316	966	320	134
24	213	922	2150	852	3080	3620	941	351	301	560	263	130
25	194	812	3590	816	2480	3120	883	396	239	295	463	132
26	201	705	3460	754	2020	2680	846	381	255	263	3470	143
27	249	692	2940	771	1680	2170	866	358	270	222	3910	134
28	357	969	2590	852	1540	2350	982	353	224	163	3930	124
29	449	1850	2340	982	---	4440	1090	350	219	161	3750	128
30	573	2960	2010	1130	---	3530	1230	323	233	158	3200	108
31	619	---	1840	1140	---	3060	---	315	---	144	2630	---
TOTAL	10888	23679	46370	89354	53793	97346	72262	23896	10879	8768	35876	9504
MEAN	351	789	1496	2882	1921	3140	2409	771	363	283	1157	317
MAX	619	2960	3590	8700	4530	6890	7830	1620	1440	966	3930	1830
MIN	194	343	703	754	621	926	846	315	213	122	93	108
CFSM	.33	.74	1.41	2.72	1.81	2.96	2.27	.73	.34	.27	1.09	.30
IN.	.38	.83	1.63	3.14	1.89	3.42	2.54	.84	.38	.31	1.26	.33

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1998, BY WATER YEAR (WY)

	MEAN	541	1092	1293	1508	1655	2020	1790	1071	928	481	401	377
MAX	1984	3330	2421	4615	3315	3612	2843	3675	2915	1413	1157	1258	
(WY)	1987	1993	1991	1993	1990	1985	1985	1996	1989	1986	1998	1997	
MIN	78.6	163	167	305	310	909	607	272	153	122	125	81.5	
(WY)	1995	1995	1990	1984	1995	1996	1986	1988	1988	1988	1988	1994	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1984 - 1998
ANNUAL TOTAL	492174	482615	
ANNUAL MEAN	1348	1322	1093
HIGHEST ANNUAL MEAN			1532
LOWEST ANNUAL MEAN			642
HIGHEST DAILY MEAN	8630	Feb 28	13100
LOWEST DAILY MEAN	72	Aug 3	43
ANNUAL SEVEN-DAY MINIMUM	153	Aug 6	56
INSTANTANEOUS PEAK FLOW			13400
INSTANTANEOUS PEAK STAGE		14.03	18.40
ANNUAL RUNOFF (CFSM)	1.27	1.25	1.03
ANNUAL RUNOFF (INCHES)	17.27	16.94	14.01
10 PERCENT EXCEEDS	2950	3610	2710
50 PERCENT EXCEEDS	855	794	543
90 PERCENT EXCEEDS	277	190	151

e Estimated

## STREAMS TRIBUTARY TO LAKE ERIE

04181500 ST. MARYS RIVER AT DECATUR, IN

LOCATION.--Lat 40°50'55", long 84°56'16", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.27, T.28 N., R.14 E., Adams County, Hydrologic Unit 04100004, on left bank 10 ft downstream from bridge on U.S. Highway 27, 0.5 mi upstream from Holthouse Ditch, 1.3 mi north of Decatur, and at mile 29.1.

DRAINAGE AREA.--621 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1946 to current year. Monthly discharge only for some periods, published in WSP 1307. Gage-height records collected at site 0.5 mi upstream January 1932 to November 1954, and at present site thereafter are contained in reports of National Weather Service.

REVISED RECORDS.--WSP 1174: 1948. WSP 1337: 1947. WSP 1627: 1950. WSP 1912: 1955, drainage area.

GAGE.--Water-stage recorder. Datum of gage is 760.44 ft above sea level. Prior to July 27, 1948, nonrecording gage at same site and datum.

REMARKS.--Records fair, except for estimated daily discharges, which are poor. Flow regulated by Grand Lake. Slight diversion from or into Wabash River Basin and into Miami and Erie Canal.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	57	557	219	319	264	587	237	154	164	117	39
2	36	82	413	194	271	245	445	640	163	195	92	38
3	36	79	396	209	232	220	356	549	139	152	77	36
4	37	63	399	438	206	203	306	529	142	1800	391	36
5	36	55	386	495	191	184	244	508	109	1620	3170	35
6	36	54	337	1090	172	168	203	567	85	766	3800	36
7	37	50	258	1080	155	157	179	603	72	565	3670	37
8	36	46	181	2850	144	160	476	613	68	1050	3790	35
9	35	44	140	3210	134	2290	2790	437	76	808	3450	34
10	33	42	388	2640	124	2820	5810	335	70	738	2880	36
11	33	40	945	2600	125	1530	4860	287	175	762	1900	37
12	35	41	751	2570	162	1050	3740	224	3220	524	1090	38
13	38	38	672	2020	166	931	2920	188	3980	225	513	37
14	55	41	550	1190	157	636	1800	170	3220	129	236	36
15	49	44	344	669	157	377	886	156	2280	96	155	33
16	48	44	232	414	149	278	2350	162	2380	80	118	33
17	59	44	180	313	505	244	1460	142	2610	72	98	35
18	67	43	152	264	3290	1170	688	121	1920	65	82	36
19	55	51	136	211	3530	2540	649	106	1220	61	71	36
20	48	56	123	193	3120	2410	629	125	959	e56	65	35
21	44	83	110	176	2930	3390	462	108	708	e60	61	43
22	49	378	160	164	2420	3590	315	97	385	e2000	57	38
23	43	296	502	199	1640	3180	263	107	296	e3800	51	37
24	43	205	465	260	1050	2570	230	105	335	3690	50	36
25	41	179	1860	320	652	1840	202	407	225	3500	50	42
26	49	147	1600	392	429	1160	187	334	167	3130	47	40
27	e100	109	1080	509	346	700	176	246	200	2750	44	38
28	e90	e780	993	624	295	901	156	199	129	2050	41	37
29	e66	e960	906	577	---	1490	193	149	124	1060	42	39
30	e52	e640	620	489	---	914	210	141	306	379	42	39
31	e43	---	349	385	---	689	---	148	---	173	41	---
TOTAL	1469	4791	16185	26964	23071	38301	33772	8740	25917	32520	26291	1107
MEAN	47.4	160	522	870	824	1236	1126	282	864	1049	848	36.9
MAX	100	960	1860	3210	3530	3590	5810	640	3980	3800	3800	43
MIN	33	38	110	164	124	157	156	97	68	56	41	33
CFSM	.08	.26	.84	1.40	1.33	1.99	1.81	.45	1.39	1.69	1.37	.06
IN.	.09	.29	.97	1.62	1.38	2.29	2.02	.52	1.55	1.95	1.57	.07

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 1998, BY WATER YEAR (WY)

	MEAN	124	319	573	736	886	1111	963	493	448	333	144	109
MAX	866	1988	2079	3834	2546	3263	3409	1920	2075	2674	848	1225	
(WY)	1955	1993	1991	1950	1950	1978	1957	1996	1981	1992	1998	1992	
MIN	7.52	13.7	12.8	21.0	30.5	125	79.3	55.6	28.1	20.6	15.5	12.6	
(WY)	1964	1965	1964	1961	1964	1981	1966	1988	1988	1965	1963	1963	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1947 - 1998
ANNUAL TOTAL	221375	239128	514
ANNUAL MEAN	607	655	879
HIGHEST ANNUAL MEAN			140
LOWEST ANNUAL MEAN			1993
HIGHEST DAILY MEAN	6600	5810	10600
LOWEST DAILY MEAN	33	33	5.4
ANNUAL SEVEN-DAY MINIMUM	35	35	6.2
INSTANTANEOUS PEAK FLOW		6090	11300
INSTANTANEOUS PEAK STAGE		20.56	24.40
ANNUAL RUNOFF (CFSM)	.98	1.05	.83
ANNUAL RUNOFF (INCHES)	13.26	14.32	11.24
10 PERCENT EXCEEDS	1600	2410	1510
50 PERCENT EXCEEDS	210	202	133
90 PERCENT EXCEEDS	43	38	22

e Estimated

LOCATION.--Lat 40°59'16", long 85°06'43", in A. LaFontaine Reserve, T.29 N., R.12 E., Allen County, Hydrologic Unit 04100004, on left bank 130 ft downstream from Anthony Boulevard Extension, 0.8 mi downstream from Houk Ditch, 5 mi south of Fort Wayne, and 10.8 mi upstream from mouth.

PERIOD OF RECORD.--October 1930 to current year. Monthly discharge only for some periods, published in WSP 1307. Fragmentary gage-height records for period November 1924 to October 1927 are available from the District Office.

GAGE.--Water-stage recorder. Datum of gage is 748.97 ft above sea level (levels by State of Indiana, Department of Natural Resources). Prior to Apr. 13, 1939, nonrecording gage on upstream highway bridge at same datum.

REMARKS.--Records good. The flow is sometimes regulated by Grand Lake. Slight diversion from or into Wabash River Basin and into Miami and Erie Canal. During extreme floods, some water bypasses gage and flows through Houk Ditch and Paul Trier Ditch into the Maumee River. Period of record computations do not include 1934 water year.

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 1998, BY WATER YEAR (WY)

MEAN	148	337	634	871	1034	1336	1153	646	521	357	164	116
MAX	1299	2612	2349	4897	3404	4070	4119	3866	2545	2708	1134	1453
(WY)	1955	1973	1978	1950	1959	1978	1957	1943	1981	1992	1998	1992
MIN	8.28	16.9	16.7	21.3	45.4	87.0	90.7	59.9	34.3	11.9	13.9	11.6
(WY)	1964	1965	1964	1977	1964	1941	1946	1931	1988	1936	1932	1944

ANNUAL TOTAL	280917			315570					
ANNUAL MEAN	770			865			619		
HIGHEST ANNUAL MEAN							1093		1950
LOWEST ANNUAL MEAN							174		1966
HIGHEST DAILY MEAN	7950	Mar	1	7100	Apr	10	13000		May 19 1943
LOWEST DAILY MEAN	40	Sep	7	37	Sep	10	3.4		Oct 19 1934
ANNUAL SEVEN-DAY MINIMUM	45	Sep	2	38	Sep	10	4.9		Oct 15 1934
INSTANTANEOUS PEAK FLOW				7270	Apr	11	13600		Feb 11 1959
INSTANTANEOUS PEAK STAGE				14.32	Apr	11	19.66		Mar 14 1982
ANNUAL RUNOFF (CFSM)	1.01			1.13			.81		
ANNUAL RUNOFF (INCHES)	13.71			15.41			11.03		
10 PERCENT EXCEEDS	1950			3080			1760		
50 PERCENT EXCEEDS	269			251			147		
90 PERCENT EXCEEDS	56			47			24		

## STREAMS TRIBUTARY TO LAKE ERIE

04182810 SPY RUN CREEK AT FORT WAYNE, IN

LOCATION.--Lat 41°06'18", long 85°09'12", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.26, T.31 N., R.12 E., Allen County, Hydrologic Unit 04100004, on right bank 50 ft upstream from Sherman Boulevard bridge in Fort Wayne, and at mile 2.2.

DRAINAGE AREA.--14.0 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1983 to current year.

GAGE.--Water-stage recorder. Datum of gage is 760.00 ft above sea level, (levels by City of Fort Wayne).

REMARKS.--Records good.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of March 14, 1982 reached a stage of 10.75 ft, present site and datum.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.2	22	13	5.2	8.6	6.5	53	25	3.2	7.1	3.1	2.6
2	6.0	18	9.0	5.6	8.0	6.1	19	21	3.1	4.4	2.8	2.6
3	5.3	7.0	9.8	7.1	6.4	6.4	12	110	3.6	4.0	2.7	2.6
4	4.9	5.9	13	288	5.7	6.7	9.2	100	3.3	216	108	2.4
5	4.3	4.3	8.0	157	5.0	6.0	7.1	25	2.8	17	225	2.3
6	4.5	3.7	5.9	112	4.6	5.3	6.2	13	2.7	7.3	230	2.1
7	4.8	3.9	5.0	122	4.2	4.8	5.9	28	2.4	11	41	4.2
8	4.9	3.8	4.8	321	3.8	20	28	82	2.9	7.8	16	2.7
9	8.0	3.7	4.7	69	3.7	386	484	23	4.4	4.9	8.4	2.6
10	7.7	3.7	17	26	3.5	60	109	12	4.4	3.8	6.4	2.4
11	4.8	3.9	24	15	16	22	31	9.5	45	3.3	5.1	2.5
12	4.1	4.2	15	13	25	14	17	7.7	72	2.9	4.3	2.3
13	7.4	4.5	9.0	14	9.9	12	14	16	33	2.8	3.7	2.1
14	16	6.9	6.5	9.4	6.8	10	24	7.7	7.4	3.0	3.2	2.4
15	5.5	11	7.0	11	5.4	8.0	15	6.3	5.6	3.6	5.7	2.6
16	4.0	10	11	10	7.1	7.0	40	5.6	9.5	3.7	7.0	3.3
17	3.3	5.6	14	8.1	66	13	16	4.8	5.9	3.6	4.2	3.0
18	3.0	4.0	9.4	6.8	94	118	11	4.4	3.6	3.4	3.4	2.6
19	2.3	4.1	9.2	5.7	34	136	10	4.7	28	4.9	3.2	2.7
20	2.2	5.5	8.9	5.1	21	99	9.7	4.4	5.0	5.4	2.9	18
21	2.7	34	6.5	5.0	13	107	9.4	3.8	3.2	28	2.9	35
22	3.1	42	33	4.8	9.9	38	9.5	3.9	2.9	294	2.9	5.3
23	3.1	13	39	7.2	8.2	18	8.0	3.2	3.2	25	3.0	3.4
24	3.0	7.9	48	8.7	7.6	12	7.3	11	3.2	8.6	4.6	2.9
25	2.9	6.0	124	8.4	6.8	9.8	6.8	5.2	3.2	5.9	6.3	2.8
26	6.1	5.5	30	9.0	6.3	8.7	12	3.7	20	4.7	3.3	2.7
27	20	5.0	16	19	12	7.8	8.2	4.0	4.6	4.1	2.8	4.5
28	5.4	78	11	21	8.0	83	6.3	4.2	3.1	3.9	2.8	3.2
29	3.5	64	9.1	18	---	27	17	4.0	83	3.7	3.6	2.6
30	3.2	29	8.1	14	---	14	11	3.4	31	3.5	2.9	2.6
31	3.5	---	6.7	11	---	15	---	2.9	---	3.4	2.5	---
TOTAL	165.7	420.1	535.6	1337.1	410.5	1287.1	1016.6	559.4	405.2	704.7	723.7	133.0
MEAN	5.35	14.0	17.3	43.1	14.7	41.5	33.9	18.0	13.5	22.7	23.3	4.43
MAX	20	78	124	321	94	386	484	110	83	294	230	35
MIN	2.2	3.7	4.7	4.8	3.5	4.8	5.9	2.9	2.4	2.8	2.5	2.1
CFSM	.38	1.00	1.23	3.08	1.05	2.97	2.42	1.29	.96	1.62	1.67	.32
IN.	.44	1.12	1.42	3.55	1.09	3.42	2.70	1.49	1.08	1.87	1.92	.35

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1998, BY WATER YEAR (WY)

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
MEAN	12.0	21.0	20.8	18.9	23.9	26.8	23.9	18.1	15.0	18.6	9.75	12.5			
MAX	43.7	61.3	66.2	48.9	64.6	46.6	45.7	46.9	34.3	48.3	23.3	39.8			
(WY)	1992	1993	1991	1993	1990	1984	1994	1997	1989	1986	1998	1993			
MIN	2.79	9.59	3.03	3.76	5.32	11.4	8.56	4.15	2.16	3.85	4.10	3.94			
(WY)	1988	1995	1990	1984	1989	1987	1986	1988	1988	1991	1984	1988			

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

## WATER YEARS 1984 - 1998

ANNUAL TOTAL	9642.4	7698.7	
ANNUAL MEAN	26.4	21.1	18.4
HIGHEST ANNUAL MEAN			27.5
LOWEST ANNUAL MEAN			11.5
HIGHEST DAILY MEAN	571	Jul 22	748
LOWEST DAILY MEAN	2.2	Oct 20	.93
ANNUAL SEVEN-DAY MINIMUM	2.8	Oct 19	1.1
INSTANTANEOUS PEAK FLOW			1370
INSTANTANEOUS PEAK STAGE			10.74
ANNUAL RUNOFF (CFSM)	1.89		1.31
ANNUAL RUNOFF (INCHES)	25.62		17.86
10 PERCENT EXCEEDS	50		34
50 PERCENT EXCEEDS	8.2		5.8
90 PERCENT EXCEEDS	3.7		2.6



## 04182900 MAUMEE RIVER AT FORT WAYNE, IN

LOCATION.--Lat 41°04'55", long 85°06'53", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 1, T. 30 N., R. 12 E., Allen County (FORT WAYNE EAST) on left bank at downstream side of Hosey Dam, 250 ft upstream of Anthony Boulevard, 1.2 mi below confluence of St. Joseph and St. Mary's Rivers and 1.5 mi upstream of Highway 930.

DRAINAGE AREA.--1,926 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1997 to September 1998.

GAGE.--Water-stage recorder. Datum of gage 730.07 ft above sea level. Prior to December 12, 1962, nonrecording gage on downstream side of bridge at same datum. Dec. 12, 1962 to Aug. 13, 1997 water-stage recorder at site 310 ft downstream at same datum.

EXTREMES FOR PERIOD OF RECORD.--

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 18.95 ft, Apr. 10; minimum 1.08 ft, June 26.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.95	2.10	6.91	4.08	4.00	4.31	8.21	5.88	---	---	1.58	4.06
2	1.75	2.51	5.93	3.46	3.92	4.08	7.25	5.93	---	---	1.56	---
3	1.84	3.45	5.39	3.42	3.79	3.90	6.35	8.91	1.68	---	1.48	---
4	1.68	2.98	5.16	11.98	3.58	3.79	5.40	6.11	1.88	---	5.08	---
5	1.65	2.83	4.56	12.02	3.48	3.81	4.57	5.44	1.49	---	14.29	1.87
6	1.62	2.72	4.07	12.86	3.26	3.44	4.41	5.18	1.58	---	14.24	1.83
7	1.60	2.52	3.95	13.33	3.06	3.30	3.93	5.42	1.63	---	11.08	1.67
8	1.55	2.38	3.36	17.88	2.58	3.57	4.73	5.22	1.65	4.82	11.19	1.60
9	1.55	2.05	3.11	17.63	2.64	16.39	18.34	4.43	1.95	4.43	10.25	1.60
10	1.53	2.06	3.30	15.97	2.34	15.93	18.84	3.81	1.99	3.24	9.00	1.48
11	1.54	1.90	5.31	14.31	2.55	12.20	17.44	3.59	3.42	3.20	7.38	1.48
12	1.52	1.73	4.48	13.68	4.05	10.22	15.64	3.19	11.02	2.83	5.59	1.44
13	1.70	1.62	4.12	12.05	4.68	9.47	13.44	3.00	11.09	2.05	4.38	1.58
14	1.66	1.76	3.75	9.49	4.23	8.73	11.24	2.66	9.05	1.77	3.11	1.50
15	1.64	1.71	3.40	7.77	3.90	7.50	9.15	2.43	7.07	1.63	2.56	1.44
16	1.63	1.70	3.03	5.92	3.80	5.68	13.53	2.28	7.50	1.49	2.38	1.46
17	1.69	1.63	2.94	5.51	6.89	5.73	9.92	2.24	7.52	1.43	2.21	1.43
18	1.77	1.68	3.03	3.80	14.34	10.58	6.69	2.12	6.42	1.46	1.71	1.40
19	1.68	1.72	2.92	4.12	13.96	14.36	6.17	1.87	5.40	1.74	1.59	1.49
20	1.72	1.59	3.11	3.46	13.12	14.52	5.37	2.05	4.71	1.50	1.63	1.55
21	1.45	2.52	3.02	3.62	12.33	15.39	4.91	1.80	3.84	---	1.61	1.53
22	1.52	4.23	4.29	3.40	11.52	14.26	3.83	2.39	2.82	---	1.53	1.45
23	1.60	4.08	6.77	3.20	9.81	13.02	3.57	---	2.18	10.12	1.65	1.35
24	1.57	3.08	7.35	3.56	8.41	11.48	3.77	---	2.10	9.39	1.65	1.52
25	1.53	2.80	11.95	3.33	7.18	9.88	3.37	---	1.91	8.81	1.57	1.28
26	1.60	2.65	9.37	3.51	5.88	8.22	3.23	---	1.19	8.14	7.68	1.45
27	1.61	2.44	8.55	3.89	5.12	6.45	3.20	2.11	2.39	7.52	8.01	1.53
28	1.79	7.63	7.82	4.53	4.71	10.28	3.36	1.83	1.98	6.22	8.02	1.26
29	1.88	7.68	7.69	4.62	---	11.67	3.50	1.92	3.36	3.73	7.91	1.37
30	2.04	7.86	6.31	4.55	---	9.14	3.92	1.81	3.07	2.40	6.69	1.40
31	2.20	---	5.72	4.15	---	8.28	---	1.78	---	1.74	5.66	---
TOTAL	52.06	87.61	160.67	235.10	169.13	279.58	227.28	---	---	---	164.27	---
MEAN	1.68	2.92	5.18	7.58	6.04	9.02	7.58	---	---	---	5.30	---
MAX	2.20	7.86	11.95	17.88	14.34	16.39	18.84	---	---	---	14.29	---
MIN	1.45	1.59	2.92	3.20	2.34	3.30	3.20	---	---	---	1.48	---

## STREAMS TRIBUTARY TO LAKE ERIE

04183000 MAUMEE RIVER AT NEW HAVEN, IN

LOCATION.--Lat 41°05'06", long 85°01'20", in SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.2, T.30 N., R.13 E., Allen County, Hydrologic Unit 04100005, on left bank 600 ft upstream from bridge on Landin Road, 1,400 ft upstream from the Norfolk and Western Railroad bridge, 1.1 mi northwest of New Haven, 2.8 mi upstream from Sixmile Creek and at mile 129.0.

DRAINAGE AREA.--1,967 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1946 to September 1956 (high-water records only), October 1956 to current year.

REVISED RECORDS.--WSP 2112: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 724.51 ft above sea level. Prior to Sept. 7, 1956, nonrecording gage, Sept. 7, 1956, to Sept. 14, 1965, water-stage recorder at site 500 ft downstream at same datum.

REMARKS.--Records good except for estimated daily discharges, which are poor. Flow regulated by hydro-powerplant on the St. Joseph River 10.3 mi upstream from station. Flow slightly regulated by upstream reservoirs.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	801	740	3600	e1900	1800	2020	e4400	1770	493	768	417	1960
2	696	862	2950	1560	1720	1840	3900	2300	578	467	288	1410
3	693	1210	2440	1460	1660	1780	3250	3010	418	421	308	934
4	571	1400	2180	6120	1570	1600	2740	4060	482	3130	874	e810
5	473	1230	2100	7380	1490	1560	2320	2480	337	3340	4370	e660
6	472	1180	1760	8360	1350	1530	1890	2020	232	1830	9410	529
7	412	1120	1600	8350	1280	1360	1820	2030	300	1180	8450	526
8	392	1020	1430	12100	1180	1380	e1900	2250	289	1220	6150	368
9	402	868	1220	14300	1110	8260	7820	1950	308	1820	5830	356
10	396	791	1200	13100	1040	12100	15800	1630	324	1280	4870	e340
11	370	738	1900	10800	1000	10200	15300	1480	618	1100	3920	e330
12	364	619	2220	9670	1210	6700	12800	1330	2540	1040	2780	e350
13	356	531	1860	8760	1980	6550	10200	1260	6910	686	2120	e430
14	472	545	1720	6350	1960	5630	7610	1110	5170	434	1420	343
15	428	571	1520	4740	1690	4930	5250	987	3710	321	1100	256
16	415	571	1350	3600	1650	4040	7270	864	3070	284	717	249
17	427	531	e1500	2670	2030	3230	7410	829	3610	176	930	222
18	667	472	e1600	2150	7470	2440	3740	826	3070	175	669	190
19	578	473	e1700	1770	9820	8090	2720	707	2360	188	416	187
20	339	474	e1850	1690	9130	9680	2300	672	1900	237	430	224
21	360	655	e2150	1500	8330	10900	2060	605	1510	293	370	420
22	249	1380	e2700	1460	7550	10700	1730	629	1270	5450	350	250
23	334	1960	e3700	1350	6480	9270	1410	580	922	5410	395	206
24	353	1560	e4900	1330	5130	7940	1420	379	702	4810	403	194
25	313	1330	e6600	1350	3860	6390	1330	555	693	4290	384	202
26	317	1170	e6400	1400	3040	5060	1230	703	469	3910	2340	167
27	417	1100	e5400	1530	2460	3710	1170	810	442	3450	3590	209
28	455	2030	e4500	1860	2150	4080	1200	694	534	2900	3660	e210
29	552	3610	e3600	2020	---	7210	1310	642	593	2080	3510	e190
30	650	4200	e2900	2070	---	6040	1440	583	910	1250	3170	183
31	726	---	e2400	1950	---	4550	---	503	---	692	2660	---
TOTAL	14450	34941	82950	144650	91140	170770	134740	40248	44764	54632	76301	12905
MEAN	466	1165	2676	4666	3255	5509	4491	1298	1492	1762	2461	430
MAX	801	4200	6600	14300	9820	12100	15800	4060	6910	5450	9410	1960
MIN	249	472	1200	1330	1000	1360	1170	379	232	175	288	167
CFSM	.24	.59	1.36	2.37	1.65	2.80	2.28	.66	.76	.90	1.25	.22
IN.	.27	.66	1.57	2.74	1.72	3.23	2.55	.76	.85	1.03	1.44	.24

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 1998, BY WATER YEAR (WY)

	MEAN	546	1288	2141	1983	2683	3803	3432	1892	1587	1037	588	528
MAX	3087	6523	6292	7203	7649	11460	7955	6914	6480	3988	2461	2737	
(WY)	1987	1993	1968	1993	1976	1982	1957	1996	1981	1992	1998	1992	
MIN	62.3	102	96.4	119	161	1181	789	382	122	197	99.1	91.2	
(WY)	1964	1965	1964	1963	1964	1981	1971	1988	1988	1964	1962	1963	

## SUMMARY STATISTICS FOR 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1957 - 1998

ANNUAL TOTAL	904754	902491	
ANNUAL MEAN	2479	2473	1787
HIGHEST ANNUAL MEAN			2975
LOWEST ANNUAL MEAN			669
HIGHEST DAILY MEAN	17200	Feb 28	15800
LOWEST DAILY MEAN	205	Aug 8	167
ANNUAL SEVEN-DAY MINIMUM	243	Aug 6	194
INSTANTANEOUS PEAK FLOW			16000
INSTANTANEOUS PEAK STAGE			19.52
ANNUAL RUNOFF (CFSM)	1.26		1.26
ANNUAL RUNOFF (INCHES)	17.11		17.07
10 PERCENT EXCEEDS	6040		6640
50 PERCENT EXCEEDS	1500		1420
90 PERCENT EXCEEDS	424		340

e Estimated

## 04183000 MAUMEE RIVER AT NEW HAVEN, IN -- Continued

(National Water-Quality Assessment Program, Lake Erie-Lake St. Clair Basin Study Unit)

The goal of the National Water-Quality Program (NAWQA) is to describe the status and trends in the quality of a large, representative part of the Nation's surface- and ground-water resources. The Lake Erie study unit began in October 1993. The period of record is for the 1998 water year. There are ten stream sites in the Lake Erie- Lake St. Clair Basin which are located in four States and the data are being reported in the appropriate State publication as part of the NAWQA study. The ten sites are: Maumee River at Waterville, Oh. (04193500), Auglaize River nr. Ft. Jennings, Oh. (04186500), Cuyahoga River at LTV Steel at Cleveland, Oh. (04208504), Grand River at Harpersfield, Oh. (04211820), Black River near Jeddo, Mi. (04159492), Clinton River at Sterling Heights, Mi. (04161820), River Raisin nr. Manchester, Mi. (04175600), St. Joseph River nr. Newville, In. (04178000), Maumee River at New Haven, In. (04183000), and Cattaraugus Creek at Gowanda, N.Y. (04213500).

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, (PER-CENT SATUR-ATION) (00301)	E. COLI WATER WHOLE TOTAL UREASE (COL / 100 ML) (31633)	HARD-NESS TOTAL (MG/L CAC03) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT 22...	1400	251	842	7.9	6.5	10.5	746	8.1	74	300	300	80
NOV 17...	1330	522	758	7.9	1.5	2.5	750	11.9	88	450	310	84
DEC 15...	1330	1500	642	8.0	8.0	1.5	742	13.3	97	400	270	74
JAN 08...	1230	12600	340	7.6	9.5	6.5	728	7.4	63	--	140	39
FEB 25...	1045	3800	448	7.9	7.0	4.7	745	12.9	103	980	210	59
DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HCO3) (00453)	CAR-BONATE WATER DIS IT FIELD (MG/L AS CO3) (00452)	ALKA-LINITY WAT DIS TOT IT FIELD (MG/L AS CAC03) (39086)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS ST02) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L AS C) (70300)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)
OCT 22...	25	47	6.6	271	0	222	93	78	0.6	8.3	529	<0.01
NOV 17...	24	35	5.3	284	0	232	72	59	.4	7.8	472	.01
DEC 15...	21	23	4.6	229	0	188	61	46	.3	7.7	400	.10
JAN 08...	10	8.9	4.4	124	0	102	26	20	.2	6.5	210	.02
FEB 25...	15	11	3.7	181	0	148	43	23	.2	6.4	282	.03
DATE	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	SEDI-MENT, SUS-PENDED (MG/L) (80154)
OCT 22...	3.4	0.05	1.1	0.5	0.22	0.12	0.08	17	38	6.5	1.5	25
NOV 17...	2.5	.39	0.8	.7	.08	.06	.07	80	44	7.6	0.4	8
DEC 15...	4.7	.05	.9	.8	.19	.09	.05	30	28	7.2	1.4	36
JAN 08...	2.3	.06	1.5	.7	.43	.12	.13	110	18	7.4	3.7	215
FEB 25...	3.8	.09	1.0	.6	.23	.08	.08	42	16	6.4	1.6	118
DATE	ACETO-CHLOR, WATER FLTRD REC (UG/L) (49260)	ALA-CHLOR, WATER, DISS, REC, (UG/L) (46342)	ATRA-ZINE, WATER, DISS, REC (UG/L) (39632)	DEETHYL ATRA-ZINE, WATER, DISS, REC (UG/L) (04040)	METHYL PHOS-WAT FLT 0.7 U GF, REC (UG/L) (82686)	BEN-FLUR-ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	BUTYL-ATE, WATER, DISS, REC (UG/L) (04028)	CAR-BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBO-FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	CHLOR-PYRIFOS DIS-SOLVED (UG/L) (38933)	CYANA-ZINE, WATER, DISS, REC (UG/L) (04041)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)
OCT 22...	<0.002	0.008	0.202	E0.034	<0.150	<0.002	<0.002	<0.003	<0.003	<0.004	0.050	<0.002
NOV 17...	<0.010	.006	.201	E.060	--	<.002	<.002	<.003	<.020	<.004	.053	<.002
DEC 15...	.014	.007	.132	E.036	<.200	<.002	<.002	<.003	<.010	<.004	.032	<.002
JAN 08...	.011	.014	.112	E.038	<.800	<.002	<.002	<.003	<.003	<.004	.017	<.002
FEB 25...	.009	.009	.110	E.025	<.500	<.002	<.002	<.003	<.003	<.004	.023	<.002

## STREAMS TRIBUTARY TO LAKE ERIE

04183000 MAUMEE RIVER AT NEW HAVEN, IN--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	P, P' DDE DISSOLV (UG/L) (34653)	DI- AZINON, DIS- SOLVED (UG/L) (39572)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (82660)	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (82677)	EPTC WATER FLTRD 0.7 U GF, REC (82668)	ETHAL- FLUR- ALIN WAT FLT 0.7 U GF, REC (82663)	ETHO- PROP WATER FLTRD 0.7 U GF, REC (82672)	FONOFOS WATER DISS REC (04095)	ALPHA BHC DIS- SOLVED (UG/L) (34253)	LINDANE DIS- SOLVED (UG/L) (39341)	LIN- URON WATER FLTRD 0.7 U GF, REC (82666)
OCT 22...	<0.006	<0.002	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004	<0.002
NOV 17...	<.006	E.003	<.001	<.003	<.017	<.002	<.004	<.003	<.003	<.002	<.004	<.002
DEC 15...	<.006	<.002	<.001	<.003	<.017	<.002	<.004	<.003	<.003	<.002	<.004	<.002
JAN 08...	<.006	.008	<.001	<.003	<.017	<.002	<.004	<.003	<.003	<.002	<.004	<.002
FEB 25...	<.006	<.002	<.001	<.003	<.017	<.002	<.004	<.003	<.003	<.002	<.004	<.002

DATE	MALA- THION, DIS- SOLVED (UG/L) (39532)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MOL- INATE WATER FLTRD 0.7 U GF, REC (82671)	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (82684)	PARA- THION, DIS- SOLVED (UG/L) (39542)	METHYL PARA- THION WAT FLT 0.7 U GF, REC (82667)	PEB- ULATE WATER FILTRD 0.7 U GF, REC (82669)	PENDI- METH- ALIN WAT FLT 0.7 U GF, REC (82683)	PER- METHRIN CIS WAT FLT 0.7 U GF, REC (82687)	PHORATE WATER FLTRD 0.7 U GF, REC (82664)	PRO- METON, WATER, DISS, REC (04037)
OCT 22...	<0.005	0.101	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004	<0.004	<0.005	<0.002	0.053
NOV 17...	<.005	.088	<.004	<.004	<.003	<.004	<.006	<.004	<.004	<.005	<.002	.022
DEC 15...	<.005	.190	<.004	<.004	<.003	<.004	<.006	<.004	<.004	<.005	<.002	E.009
JAN 08...	<.005	.128	.052	<.004	<.003	<.004	<.006	<.004	<.004	<.005	<.002	E.013
FEB 25...	<.005	.115	.007	<.004	<.003	<.004	<.006	<.004	<.004	<.005	<.002	<.018

DATE	PRON- AMIDE WATER FLTRD 0.7 U GF, REC (82676)	PROP- CHLOR, WATER, DISS, REC (UG/L) (04024)	PRO- PANIL WATER FLTRD 0.7 U GF, REC (82679)	PRO- PARGITE WATER FLTRD 0.7 U GF, REC (82685)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	TEBU- THIURON WATER FLTRD 0.7 U GF, REC (82670)	TER- BACIL WATER FLTRD 0.7 U GF, REC (82665)	TER- BUFOS WATER FLTRD 0.7 U GF, REC (82675)	THIO- BENCARB WATER FLTRD 0.7 U GF, REC (82681)	TRIAL- LATE WATER FLTRD 0.7 U GF, REC (82678)	TRI- FLUR- ALIN WAT FLT 0.7 U GF, REC (82661)
OCT 22...	<0.003	<0.007	<0.004	<0.013	0.021	<0.010	<0.007	<0.013	<0.002	<0.001	<0.002
NOV 17...	<.003	<.007	<.004	<.013	.030	.011	<.007	<.013	<.002	<.001	<.002
DEC 15...	<.003	<.007	<.004	<.013	.026	<.010	<.007	<.013	<.002	<.001	<.002
JAN 08...	<.003	<.007	<.004	<.013	.011	<.010	<.007	<.013	<.002	<.001	<.002
FEB 25...	<.003	<.007	<.004	<.013	.018	<.010	<.007	<.013	<.002	<.001	<.002

--= no data

&lt; = concentration or value reported is less than indicated

E = estimated value

K = value is estimated from a non-ideal colony count

ANNUAL TOTAL	63144		60109			
ANNUAL MEAN	173		165		161	1991
HIGHEST ANNUAL MEAN					245	1964
LOWEST ANNUAL MEAN					95.4	
HIGHEST DAILY MEAN	450	Feb 28	569	Jan 9	903	Mar 17 1982
LOWEST DAILY MEAN	86	Aug 9	74	Sep 19	44	Aug 4 1988
ANNUAL SEVEN-DAY MINIMUM	93	Aug 5	76	Sep 13	51	Sep 7 1964
INSTANTANEOUS PEAK FLOW			593	Jan 9	908	Mar 17 1982
INSTANTANEOUS PEAK STAGE			7.28	Jan 9	9.04	Jun 27 1968
ANNUAL RUNOFF (CFSM)	.99		.95		.93	
ANNUAL RUNOFF (INCHES)	13.50		12.85		12.57	
10 PERCENT EXCEEDS	255		253		262	
50 PERCENT EXCEEDS	158		150		140	
90 PERCENT EXCEEDS	103		88		83	



## ILLINOIS RIVER BASIN

05515500 KANKAKEE RIVER AT DAVIS, IN

LOCATION.--Lat 41°24'00", long 86°42'04", in SE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.13, T.34 N., R.3 W., Starke County, Hydrologic Unit 07120001, on left bank at downstream side of bridge on U.S. Highway 30 at Davis, 0.5 mi downstream from Mill Creek, 4 mi east of Hanna, and at mile 110.9.

DRAINAGE AREA.--537 mi<sup>2</sup>, of which 137 mi<sup>2</sup> does not contribute directly to surface runoff.

PERIOD OF RECORD.--July 1905 to July 1906 and October 1924 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1338: 1953. WSP 2115: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 664.68 ft above sea level. July 13, 1905, to July 21, 1906, nonrecording gage at site 50 ft downstream at different datum. July 28, 1925, to May 18, 1929, nonrecording gage on bridge 0.5 mi downstream at different datum. Apr. 19, 1931, to Nov. 3, 1953, nonrecording gage at present site and datum.

REMARKS.--Records good.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	314	384	605	555	708	607	1040	727	463	417	293	344
2	317	446	562	553	729	595	1100	733	453	396	290	331
3	319	459	534	618	731	587	1090	712	447	387	291	310
4	317	433	523	770	716	583	1040	702	446	542	337	297
5	315	407	503	1040	687	574	971	690	442	568	409	285
6	313	394	489	1200	658	567	917	688	439	502	459	281
7	310	388	479	1250	638	563	879	695	438	551	551	282
8	307	377	467	1320	619	581	874	853	443	882	499	283
9	311	371	461	1480	608	817	888	889	448	820	469	320
10	315	366	467	1480	599	1030	1040	809	465	668	458	337
11	312	366	474	1410	617	1050	1090	736	536	576	424	339
12	311	363	469	1300	765	1010	1030	688	705	523	392	335
13	309	359	465	1180	817	963	957	656	682	484	374	333
14	323	357	457	1060	770	936	997	634	614	453	361	336
15	323	359	448	979	731	900	1040	612	566	424	349	333
16	318	368	444	909	704	871	993	597	549	403	341	312
17	314	366	447	855	693	888	932	578	573	382	326	297
18	315	362	448	809	732	1070	870	559	548	377	304	289
19	315	366	452	769	767	1300	823	545	543	374	288	285
20	314	367	466	739	754	1330	785	536	539	383	285	287
21	311	374	480	713	725	1340	794	522	517	374	288	334
22	311	403	490	700	695	1380	815	510	492	369	312	330
23	310	422	547	687	672	1360	786	497	471	384	315	341
24	320	414	610	673	659	1290	749	501	446	364	310	332
25	325	397	693	654	641	1210	728	553	428	346	319	309
26	334	394	767	638	630	1140	718	549	413	339	335	303
27	405	390	730	635	623	1080	696	529	417	340	329	297
28	427	417	671	639	614	1070	668	518	409	336	321	289
29	409	495	628	657	---	1120	679	507	406	320	324	285
30	385	598	602	687	---	1060	707	492	433	308	315	290
31	375	---	583	695	---	1020	---	479	---	301	308	---
TOTAL	10204	11962	16461	27654	19302	29892	26696	19296	14771	13893	10976	9326
MEAN	329	399	531	892	689	964	890	622	492	448	354	311
MAX	427	598	767	1480	817	1380	1100	889	705	882	551	344
MIN	307	357	444	553	599	563	668	479	406	301	285	281
CFSM	.61	.74	.99	1.66	1.28	1.80	1.66	1.16	.92	.83	.66	.58
IN.	.71	.83	1.14	1.92	1.34	2.07	1.85	1.34	1.02	.96	.76	.65

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1926 - 1998, BY WATER YEAR (WY)

	MEAN	412	482	525	553	584	724	744	631	531	427	365	350
MAX	1162	988	1193	1275	990	1376	1218	1067	1076	983	804	718	
(WY)	1955	1991	1928	1993	1991	1985	1982	1983	1996	1996	1996	1972	
MIN	198	230	236	235	236	325	420	296	248	205	174	179	
(WY)	1964	1965	1964	1963	1964	1934	1987	1934	1934	1934	1941	1941	

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1926 - 1998

ANNUAL TOTAL	220151	210433	
ANNUAL MEAN	603	577	
HIGHEST ANNUAL MEAN			527
LOWEST ANNUAL MEAN			823
HIGHEST DAILY MEAN	1570	Feb 28	1920
LOWEST DAILY MEAN	307	Oct 8	154
ANNUAL SEVEN-DAY MINIMUM	311	Oct 7	156
INSTANTANEOUS PEAK FLOW			1500
INSTANTANEOUS PEAK STAGE			12.34
ANNUAL RUNOFF (CFSM)			1.07
ANNUAL RUNOFF (INCHES)	1.12		14.58
10 PERCENT EXCEEDS	921		898
50 PERCENT EXCEEDS	554		454
90 PERCENT EXCEEDS	323		279

## 05516500 YELLOW RIVER AT PLYMOUTH, IN

LOCATION.--Lat 41°20'25", long 86°18'16", in SE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.13, T.33 N., R.2 E., Marshall County, Hydrologic Unit 07120001, on left bank 50 ft upstream from LaPorte Street footbridge in Plymouth, 1.1 mi downstream from Elmer Seldenright (formerly Baker) Ditch, 8.1 mi upstream from Wolf Creek, and at mile 40.3.

DRAINAGE AREA.--294 mi<sup>2</sup>, of which 22 mi<sup>2</sup> does not contribute directly to surface runoff.

PERIOD OF RECORD.--July 1948 to current year.

REVISED RECORDS.--WSP 1338: 1950-51. WSP 2115: Drainage area. WDR IN-73-1: 1972(M).

GAGE.--Water-stage recorder. Datum of gage is 764.78 ft above sea level (levels by State of Indiana, Department of Natural Resources). Prior to Aug. 27, 1959, nonrecording gage at same site and datum.

REMARKS.--Records fair.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	77	119	368	251	396	246	828	479	113	109	53	63
2	75	183	274	256	412	235	1240	474	109	94	51	63
3	73	188	238	300	382	228	1260	372	106	100	52	61
4	72	151	226	774	326	220	885	432	107	236	127	59
5	70	129	205	1430	293	212	546	450	104	220	146	56
6	67	116	187	1990	262	206	430	342	103	142	602	55
7	67	111	174	2220	241	202	378	317	99	280	743	57
8	65	107	164	2350	226	248	489	476	95	870	392	58
9	67	101	160	2460	216	861	751	434	98	781	279	57
10	70	98	167	2510	208	1420	1470	339	100	359	213	55
11	69	96	172	2150	234	1680	2010	286	139	214	163	52
12	67	93	164	1570	491	1410	1910	253	454	173	129	51
13	68	91	161	1020	479	948	1380	234	529	149	111	49
14	73	92	158	597	352	632	948	221	333	133	102	50
15	73	95	154	458	302	561	779	194	235	119	94	50
16	70	96	154	394	280	528	610	179	220	110	89	74
17	68	90	161	350	294	580	480	166	251	102	86	69
18	67	89	167	317	512	905	388	157	203	95	82	61
19	65	91	180	290	592	1340	345	152	262	99	78	54
20	65	93	222	268	459	1510	317	148	254	93	74	56
21	63	104	250	252	381	1450	301	143	183	92	86	60
22	62	146	259	241	329	1560	288	136	158	96	199	57
23	62	154	396	240	300	1520	271	131	142	93	124	52
24	67	136	541	232	283	1150	253	150	130	78	96	48
25	68	122	751	221	271	706	236	166	120	70	91	46
26	84	117	936	214	256	518	234	147	117	68	83	45
27	171	112	712	214	258	442	218	135	116	66	76	43
28	184	136	442	247	261	539	197	129	107	64	73	43
29	136	250	356	333	---	888	218	124	110	61	72	43
30	114	457	320	413	---	812	246	120	114	56	67	44
31	105	---	285	388	---	565	---	118	---	55	64	---
TOTAL	2504	3963	9104	24950	9296	24322	19906	7604	5211	5277	4697	1631
MEAN	80.8	132	294	805	332	785	664	245	174	170	152	54.4
MAX	184	457	936	2510	592	1680	2010	479	529	870	743	74
MIN	62	89	154	214	208	202	197	118	95	55	51	43
CFSM	.27	.45	1.00	2.74	1.13	2.67	2.26	.83	.59	.58	.52	.18
IN.	.32	.50	1.15	3.16	1.18	3.08	2.52	.96	.66	.67	.59	.21

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 1998, BY WATER YEAR (WY)

	MEAN	150	196	279	315	374	537	497	300	256	174	110	93.3
MAX	1583	689	733	1244	1007	1586	1190	1098	850	711	494	537	
(WY)	1955	1993	1983	1993	1959	1982	1950	1996	1996	1996	1958	1972	
MIN	23.7	20.9	30.4	26.5	35.7	79.5	99.8	65.4	51.2	39.4	31.2	22.4	
(WY)	1965	1965	1954	1963	1963	1957	1971	1958	1988	1988	1949	1949	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1949 - 1998
ANNUAL TOTAL	124269	118465	
ANNUAL MEAN	340	325	273
HIGHEST ANNUAL MEAN			453
LOWEST ANNUAL MEAN			119
HIGHEST DAILY MEAN	2770	Feb 23	5310
LOWEST DAILY MEAN	62	Oct 22	13
ANNUAL SEVEN-DAY MINIMUM	64	Oct 18	15
INSTANTANEOUS PEAK FLOW		2560	5390
INSTANTANEOUS PEAK STAGE		13.24	17.13
ANNUAL RUNOFF (CFSM)	1.16	1.10	.93
ANNUAL RUNOFF (INCHES)	15.72	14.99	12.62
10 PERCENT EXCEEDS	728	776	685
50 PERCENT EXCEEDS	180	179	133
90 PERCENT EXCEEDS	79	63	39

## 05517000 YELLOW RIVER AT KNOX, IN

LOCATION.--Lat 41°18'10", long 86°37'14", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.14, T.33 N., R.2 W., Starke County, Hydrologic Unit 07120001, on right bank 40 ft upstream from bridge on U.S. Highway 35 in Knox, 1.4 mi downstream from Eagle Creek, and at mile 11.6.

DRAINAGE AREA.--435 mi<sup>2</sup>, of which 51 mi<sup>2</sup> does not contribute directly to surface runoff.

PERIOD OF RECORD.--August 1905 to July 1906, August 1943 to current year.

REVISED RECORDS.--WSP 1278: 1952. WSP 2115: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 679.93 ft above sea level (levels by State of Indiana, Department of Natural Resources). August 1905 to July 1906, nonrecording gage at same site at different datum. August 1943 to July 17, 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 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	190	258	605	450	621	466	950	610	295	338	184	165
2	192	301	518	418	e650	449	1110	780	284	295	176	158
3	188	351	435	429	e660	436	1300	747	277	281	173	152
4	187	343	395	660	596	431	1390	780	275	712	243	154
5	184	303	373	1160	547	420	1150	817	269	823	395	150
6	181	276	345	1590	508	408	853	756	263	558	525	146
7	177	260	323	2090	472	399	734	678	261	505	840	148
8	174	249	305	2500	448	413	737	815	254	840	850	145
9	178	242	294	2870	429	677	851	881	259	1010	617	145
10	181	235	301	2800	416	1120	1190	771	263	944	499	143
11	181	230	306	2740	429	1410	1580	666	293	621	418	141
12	178	223	307	2440	548	1700	2040	599	503	476	352	136
13	176	217	295	1910	733	1580	2130	554	746	412	307	134
14	183	217	286	1350	680	1190	1780	524	722	372	279	130
15	186	222	279	936	579	920	1320	498	542	340	257	129
16	183	228	278	781	531	837	1080	463	464	316	236	132
17	178	225	279	700	519	815	934	434	558	291	222	149
18	173	220	285	644	583	936	806	410	497	273	212	148
19	173	218	295	597	759	1110	721	395	458	273	200	144
20	170	219	314	562	781	1360	676	386	494	295	191	139
21	168	232	358	530	681	1670	653	373	446	280	189	144
22	167	269	388	511	609	1700	640	360	380	313	224	146
23	165	307	428	500	563	1680	613	349	343	338	307	142
24	170	307	574	490	528	1650	579	360	315	301	240	139
25	173	287	729	472	503	1370	554	387	288	268	214	136
26	189	269	870	457	484	993	544	382	270	243	199	132
27	237	261	959	449	472	814	531	355	269	231	185	126
28	314	292	838	464	471	789	503	337	261	220	188	125
29	318	393	622	516	---	949	510	325	318	208	185	123
30	269	498	543	600	---	1060	545	315	379	198	178	124
31	244	---	495	647	---	1030	---	306	---	191	169	---
TOTAL	6027	8152	13622	33263	15800	30782	29004	16413	11246	12766	9454	4225
MEAN	194	272	439	1073	564	993	967	529	375	412	305	141
MAX	318	498	959	2870	781	1700	2130	881	746	1010	850	165
MIN	165	217	278	418	416	399	503	306	254	191	169	123
CFSM	.45	.62	1.01	2.47	1.30	2.28	2.22	1.22	.86	.95	.70	.32
IN.	.52	.70	1.16	2.84	1.35	2.63	2.48	1.40	.96	1.09	.81	.36

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 1998, BY WATER YEAR (WY)

	MEAN	258	306	399	457	520	730	721	506	419	289	210	181
MAX	1939	883	1070	1580	1193	2127	1715	1154	1113	955	652	692	
(WY)	1955	1973	1967	1993	1959	1982	1950	1996	1975	1996	1958	1972	
MIN	77.5	83.3	91.6	71.3	107	194	243	169	146	115	93.6	75.9	
(WY)	1965	1965	1964	1963	1963	1957	1958	1958	1988	1971	1964	1964	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1944 - 1998
ANNUAL TOTAL	207420	190754	
ANNUAL MEAN	568	523	416
HIGHEST ANNUAL MEAN			661
LOWEST ANNUAL MEAN			180
HIGHEST DAILY MEAN	3250	Feb 25	5600
LOWEST DAILY MEAN	165	Oct 23	50
ANNUAL SEVEN-DAY MINIMUM	169	Oct 18	50
INSTANTANEOUS PEAK FLOW			5660
INSTANTANEOUS PEAK STAGE			13.75
ANNUAL RUNOFF (CFSM)	1.31	1.20	.96
ANNUAL RUNOFF (INCHES)	17.74	16.31	12.98
10 PERCENT EXCEEDS	1030	1000	898
50 PERCENT EXCEEDS	395	387	270
90 PERCENT EXCEEDS	218	172	114

e Estimated

05517500 KANKAKEE RIVER AT DUNNS BRIDGE, IN

LOCATION.--Lat 41°13'17", long 86°57'52", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.15, T.32 N., R.5 W., Jasper County, Hydrologic Unit 07120001, on left bank at downstream side of abandoned bridge at Dunns Bridge, 1.8 mi north of Tefft, 3.6 mi upstream from Davis Ditch, and at mile 90.8.

DRAINAGE AREA.--1,352 mi<sup>2</sup>, of which 192 mi<sup>2</sup> does not contribute directly to surface runoff.

PERIOD OF RECORD.--July 1948 to current year.

REVISED RECORDS.--WSP 1728: 1954(m). WSP 2115: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 649.65 ft above sea level (levels by State of Indiana, Department of Natural Resources). Prior to July 17, 1956, nonrecording gage at same site and datum.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	734	853	1410	1570	1990	1680	3340	2140	1260	1190	728	652
2	739	922	1430	1500	2020	1620	3320	2200	1200	1100	713	679
3	730	1010	1410	1530	2020	1560	3330	2270	1150	1030	683	656
4	728	1020	1370	1830	2010	1540	3360	2320	1140	1420	866	637
5	714	998	1300	2390	1940	1510	3370	2370	1130	2020	1220	614
6	706	952	1240	2890	1850	1460	3330	2390	1120	2020	1300	594
7	692	938	1180	3200	1790	1420	3200	2450	1100	1860	1540	597
8	676	919	1140	3570	1720	1450	3100	2830	1100	2060	1780	610
9	686	879	1100	3950	1650	1900	3010	3000	1130	2320	1730	602
10	720	858	1100	4190	1600	2430	3000	3010	1160	2410	1530	620
11	693	850	1100	4300	1620	2840	3080	2880	1230	2260	1380	638
12	684	835	1080	4330	1790	3000	3200	2660	1630	1900	1220	636
13	679	822	1060	e4250	1980	3090	3350	2450	1910	1600	1100	624
14	697	822	1040	e4150	2080	e3200	3560	2270	2010	1410	1030	625
15	686	835	1030	e4000	2050	e3160	3670	2130	1920	1280	967	537
16	673	858	1020	e3750	1980	3050	3660	2020	1760	1190	915	494
17	664	865	1010	e3500	1920	2950	3540	1900	1710	1110	865	480
18	659	859	1010	e3200	1960	3060	3340	1790	1720	1050	815	475
19	656	859	1010	e2950	2030	3250	3120	1700	1660	1020	772	470
20	674	856	1030	e2700	2150	3360	2900	1650	1640	1080	732	468
21	668	847	1050	2410	2150	3530	2750	1610	1600	1070	710	497
22	660	909	1090	2280	2060	3720	2690	1550	1490	1070	709	533
23	651	975	1170	2180	1980	3850	2620	1500	1380	1130	805	532
24	659	988	1290	2090	1900	3900	2520	1460	1300	1080	828	558
25	674	972	1500	1990	1840	3910	2400	1500	1200	1000	767	564
26	696	965	1750	1920	1790	3850	2320	1510	1120	939	753	552
27	817	941	1940	1850	1760	3690	2240	1470	1090	899	736	542
28	905	990	2020	1820	1710	3520	2150	1410	1080	865	718	529
29	918	1130	1960	1840	---	3420	2100	1370	1100	832	705	525
30	892	1290	1830	1890	---	3350	2100	1340	1200	797	691	526
31	854	---	1710	1940	---	3330	---	1300	---	765	665	---
TOTAL	22284	27817	40380	85960	53340	87600	89670	62450	41240	41777	29973	17066
MEAN	719	927	1303	2773	1905	2826	2989	2015	1375	1348	967	569
MAX	918	1290	2020	4330	2150	3910	3670	3010	2010	2410	1780	679
MIN	651	822	1010	1500	1600	1420	2100	1300	1080	765	665	468
CFSM	.53	.69	.96	2.05	1.41	2.09	2.21	1.49	1.02	1.00	.72	.42
IN.	.61	.77	1.11	2.37	1.47	2.41	2.47	1.72	1.13	1.15	.82	.47

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 1998, BY WATER YEAR (WY)

	MEAN	1947	1163	1392	1506	1584	2096	2225	1767	1464	1106	860	748
MAX	3378	2562	2816	3845	2874	4229	4376	3231	3360	2622	2316	1924	
(WY)	1955	1973	1983	1991	1968	1985	1950	1983	1996	1996	1990	1993	
MIN	350	398	447	449	391	719	1083	767	657	419	371	360	
(WY)	1964	1965	1964	1963	1963	1957	1958	1958	1988	1988	1964	1964	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1949 - 1998
ANNUAL TOTAL	641978	599557	
ANNUAL MEAN	1759	1643	1404
HIGHEST ANNUAL MEAN			2161
LOWEST ANNUAL MEAN			618
HIGHEST DAILY MEAN	4490	Mar 1	5850
LOWEST DAILY MEAN	651	Oct 23	280
ANNUAL SEVEN-DAY MINIMUM	661	Oct 18	283
INSTANTANEOUS PEAK FLOW			5870
INSTANTANEOUS PEAK STAGE			12.23
ANNUAL RUNOFF (CFSM)	1.30	1.21	1.04
ANNUAL RUNOFF (INCHES)	17.66	16.50	14.10
10 PERCENT EXCEEDS	3030	3200	2660
50 PERCENT EXCEEDS	1530	1410	1160
90 PERCENT EXCEEDS	799	667	540

e Estimated

05517530 KANKAKEE RIVER NEAR KOUTS, IN

LOCATION.--Lat 41°15'14", long 87°02'02", in SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.6, T.32 N., R.5 W., Jasper County, Hydrologic Unit 07120001, on left bank, 20 ft downstream from bridge on State Highway 49, 0.7 mi upstream from Cook Ditch, 4.5 mi south of Kouts, and at mile 86.7.

DRAINAGE AREA.--1,376 mi<sup>2</sup>, of which 194 mi<sup>2</sup> does not contribute directly to surface runoff.

PERIOD OF RECORD.--October 1974 to current year.

REVISED RECORDS.--WDR IN-77-1: 1975(M).

GAGE.--Water-stage recorder. Datum of gage is 645.00 ft above sea level.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	863	911	1430	1610	2070	1810	3460	2130	1240	1140	707	665
2	867	963	1480	1550	2080	1740	3450	2180	1170	1060	704	675
3	862	1050	1490	1590	2070	1660	3430	2250	1130	992	680	648
4	858	1080	1440	1900	2080	1670	3450	2290	1120	1330	904	644
5	826	1060	1360	2400	1990	1620	3430	2340	1110	1930	1260	622
6	832	999	1310	2950	1910	1540	3390	2360	1110	1960	1320	608
7	812	1030	1270	3210	1860	1480	3290	2460	1100	1850	1480	594
8	796	1020	1230	3580	1800	1520	3210	3070	1090	2050	1720	596
9	799	987	1200	3990	1750	2050	3130	3180	1130	2260	1720	602
10	823	967	1200	4150	1690	2520	3080	3120	1160	2360	1530	638
11	787	955	1190	4240	1700	2900	3100	2980	1220	2250	1380	645
12	773	945	1170	4260	1890	3050	3180	2780	1610	1920	1230	613
13	745	934	1160	4290	2050	3160	3340	2550	1890	1600	1110	603
14	758	936	1140	4210	2130	3250	3600	2360	1980	1420	1020	612
15	722	919	1130	4060	2110	3190	3740	2210	1920	1290	941	531
16	713	910	1120	3800	2060	3090	3710	2070	1770	1180	872	503
17	725	921	1110	3490	1990	3020	3590	1920	1720	1090	825	492
18	742	936	1100	3190	2030	3290	3400	1800	1710	1040	779	498
19	734	936	1080	2910	2090	3510	3180	1710	1630	1010	746	491
20	738	912	1080	2690	2190	3510	2990	1650	1600	1060	704	479
21	735	904	1110	2510	2210	3630	2840	1600	1560	1050	696	492
22	740	989	1160	2370	2140	3830	2780	1540	1460	e1040	708	537
23	733	1030	1230	2250	2070	3940	2690	1480	1350	e1100	791	e520
24	763	1030	1340	2160	1970	3960	2570	1430	1260	e1050	820	555
25	753	1050	1540	2060	1910	3950	2450	1480	1170	e980	765	553
26	774	1040	1770	2000	1900	3910	2360	1490	1060	e920	750	544
27	874	988	1950	1920	1870	3780	2260	1460	1020	e880	732	538
28	946	1080	2030	1890	1820	3640	2160	1400	1000	833	732	504
29	980	1200	1980	1930	---	3570	2110	1350	1020	803	722	510
30	966	1340	1880	1960	---	3470	2110	1300	1130	785	708	539
31	927	---	1760	1970	---	3430	---	1270	---	750	681	---
TOTAL	24966	30022	42440	87090	55430	90690	91480	63210	40440	40983	29737	17051
MEAN	805	1001	1369	2809	1980	2925	3049	2039	1348	1322	959	568
MAX	980	1340	2030	4290	2210	3960	3740	3180	1980	2360	1720	675
MIN	713	904	1080	1550	1690	1480	2110	1270	1000	750	680	479
CFSM	.59	.73	.99	2.04	1.44	2.13	2.22	1.48	.98	.96	.70	.41
IN.	.67	.81	1.15	2.35	1.50	2.45	2.47	1.71	1.09	1.11	.80	.46

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 1998, BY WATER YEAR (WY)

	MEAN	1023	1324	1640	1605	1641	2402	2482	1907	1743	1234	990	859
	MAX	2770	2392	2889	3787	2614	4613	4230	3255	3403	2642	2432	2014
	(WY)	1991	1991	1991	1991	1991	1985	1985	1983	1996	1996	1990	1993
	MIN	477	542	704	634	718	1089	1144	1113	619	411	398	479
	(WY)	1979	1979	1979	1977	1978	1996	1987	1992	1988	1988	1988	1978

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1975 - 1998
ANNUAL TOTAL	659391	613539	
ANNUAL MEAN	1807	1681	1570
HIGHEST ANNUAL MEAN			2160
LOWEST ANNUAL MEAN			1131
HIGHEST DAILY MEAN	4460	Mar 1	6410
LOWEST DAILY MEAN	713	Oct 16	292
ANNUAL SEVEN-DAY MINIMUM	730	Oct 15	309
INSTANTANEOUS PEAK FLOW			6420
INSTANTANEOUS PEAK STAGE			14.52
ANNUAL RUNOFF (CFSM)	1.31		1.22
ANNUAL RUNOFF (INCHES)	17.83		15.50
10 PERCENT EXCEEDS	3070	3290	2940
50 PERCENT EXCEEDS	1570	1420	1330
90 PERCENT EXCEEDS	864	708	620

e Estimated



05517890 COBB DITCH NEAR KOUTS, IN

LOCATION.--Lat 41°20'19", long 87°04'30", in NW¼SE¼ sec. 2, T.33 N., R.6 W., Porter County, Hydrologic Unit 07120001, on left bank 15 ft upstream from bridge on County Road 50 West, 1.6 mi upstream from mouth, and 3 mi northwest of Kouts.

DRAINAGE AREA.--30.3 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1968 to current year. Prior to October 1971, published as State Ditch near Kouts.

GAGE.--Water-stage recorder. Datum of gage is 652.00 ft above sea level (Indiana Department of Highways bench mark). Prior to Oct. 19, 1978, water-stage recorder at site 1.4 mi downstream at same datum.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	20	25	e20	33	28	108	42	27	26	18	15
2	18	20	23	22	38	27	72	37	27	25	18	15
3	18	19	22	24	34	26	53	37	27	25	18	15
4	18	19	23	125	32	26	46	33	27	34	104	15
5	18	19	22	127	29	25	44	32	27	27	59	14
6	17	19	21	217	28	25	44	32	27	26	31	14
7	24	18	20	94	27	25	42	202	26	41	25	18
8	20	19	20	266	26	47	51	320	26	45	23	16
9	18	19	20	225	25	270	45	111	29	29	21	15
10	18	18	20	99	28	156	45	76	27	26	21	14
11	18	18	19	68	56	98	41	59	76	25	20	15
12	18	18	19	57	112	e66	41	50	77	24	19	14
13	18	18	19	48	57	e56	40	45	48	24	19	14
14	18	18	18	42	44	e50	258	41	40	24	18	14
15	18	19	18	39	39	e45	99	38	36	23	18	14
16	18	19	18	36	34	53	68	39	39	21	17	14
17	18	19	19	34	42	86	53	35	36	19	17	14
18	18	19	19	33	80	509	46	34	32	19	17	14
19	18	19	19	31	55	245	43	33	33	22	17	14
20	18	19	20	30	45	137	40	32	30	22	16	15
21	18	20	20	30	39	135	76	31	30	21	15	18
22	17	22	20	29	34	150	73	30	28	21	15	15
23	17	20	24	29	33	104	51	29	28	21	15	14
24	19	20	25	28	32	79	43	30	27	20	17	14
25	18	20	48	28	31	68	40	30	27	20	17	15
26	19	21	36	27	29	63	40	28	28	19	16	15
27	26	20	28	27	29	55	42	27	25	e19	16	14
28	22	24	26	27	27	96	38	28	24	e18	16	14
29	20	30	26	27	---	79	44	28	26	17	16	14
30	20	30	25	28	---	60	42	28	28	17	15	15
31	19	---	23	29	---	57	---	28	---	18	15	---
TOTAL	581	603	705	1946	1118	2946	1768	1645	988	738	689	441
MEAN	18.7	20.1	22.7	62.8	39.9	95.0	58.9	53.1	32.9	23.8	22.2	14.7
MAX	26	30	48	266	112	509	258	320	77	45	104	18
MIN	17	18	18	20	25	25	38	27	24	17	15	14
CFSM	.62	.66	.75	2.07	1.32	3.14	1.94	1.75	1.09	.79	.73	.49
IN.	.71	.74	.87	2.39	1.37	3.62	2.17	2.02	1.21	.91	.85	.54

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1998, BY WATER YEAR (WY)

	MEAN	21.7	32.0	33.8	34.2	39.8	54.1	50.2	42.2	39.4	27.8	22.1	19.1
MAX	67.8	112	88.9	86.8	82.8	142	103	89.4	121	77.7	99.0	60.6	
(WY)	1991	1986	1991	1993	1997	1982	1975	1974	1997	1996	1990	1993	
MIN	11.5	11.0	14.4	11.0	10.6	17.9	20.8	14.9	14.6	12.0	10.8	12.0	
(WY)	1981	1981	1990	1977	1978	1996	1986	1980	1988	1988	1988	1988	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1969 - 1998
ANNUAL TOTAL	15766	14168	
ANNUAL MEAN	43.2	38.8	34.7
HIGHEST ANNUAL MEAN			53.1
LOWEST ANNUAL MEAN			19.3
HIGHEST DAILY MEAN	648	509	955
LOWEST DAILY MEAN	15	14	8.9
ANNUAL SEVEN-DAY MINIMUM	17	14	9.5
INSTANTANEOUS PEAK FLOW		593	1160
INSTANTANEOUS PEAK STAGE		13.32	17.95
ANNUAL RUNOFF (CFSM)	1.43	1.28	1.14
ANNUAL RUNOFF (INCHES)	19.36	17.39	15.54
10 PERCENT EXCEEDS	68	68	59
50 PERCENT EXCEEDS	24	26	22
90 PERCENT EXCEEDS	18	16	14

e Estimated

## ILLINOIS RIVER BASIN

05518000 KANKAKEE RIVER AT SHELBY, IN

LOCATION.--Lat 41°10'58", long 87°20'33", in SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.33, T.32 N., R.8 W., Lake County, Hydrologic Unit 07120001, on right bank 25 ft upstream from Monon Railroad bridge, 1.0 mi south of Shelby, 7.7 mi upstream from Beaver Lake Ditch, and at mile 67.9.

DRAINAGE AREA.--1,779 mi<sup>2</sup>, of which 201 mi<sup>2</sup> does not contribute directly to surface runoff.

PERIOD OF RECORD.--October 1922 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1005: 1928(M). WSP 2115: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 628.12 ft above sea level. Prior to Dec. 19, 1934, nonrecording gage at highway bridge about 400 ft upstream. Dec. 19, 1934, to Oct. 4, 1965, water-stage recorder on left bank 50 ft downstream, and Oct. 5, 1965, to Sept. 21, 1966, nonrecording gage on right bank 200 ft upstream. All at same datum.

REMARKS.--Records poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1200	1200	1730	2170	2720	2400	4750	3090	1810	1570	816	784
2	1190	1210	1770	2100	2780	2360	4750	3060	1740	1520	783	784
3	1180	1240	1810	2060	2790	2310	4700	3040	1670	1440	784	786
4	1180	1280	1820	2270	2770	2270	4650	3060	1620	1470	1230	772
5	1160	1300	1790	2870	2710	2240	4600	3080	1600	1830	2190	764
6	1150	1280	1740	3570	2630	2190	4540	3110	1580	2060	2110	743
7	1130	1280	1710	4030	2560	2110	4480	3240	1570	2300	1990	771
8	1110	1300	1670	4340	2500	2090	4420	4120	1540	2990	2120	794
9	1100	1280	1640	4940	2440	2490	4410	4610	1580	2940	2220	774
10	1100	1270	1630	5070	2380	3150	4340	4520	1610	2900	2140	800
11	1090	1240	1620	5050	2360	3550	4290	4340	1660	2820	1920	815
12	1070	1230	1600	5040	2530	3750	4240	4140	1980	2620	1710	839
13	1060	1220	1580	5070	2670	3870	4230	3870	2290	2320	1470	809
14	1050	1210	1560	5090	2720	3960	4500	3580	2480	2070	1320	790
15	1040	1210	1540	5050	2730	4010	4850	3320	2530	1870	1190	785
16	1020	1190	1530	4920	2710	3980	4920	3090	2490	1710	1090	721
17	1010	1190	1510	4720	2680	3990	4840	2880	2450	1580	1010	706
18	999	1210	1500	4480	2700	4440	4720	2680	2400	1480	961	689
19	1010	1220	1490	4220	2750	5060	4540	2560	2350	1430	891	687
20	1010	1210	1490	3950	2770	5060	4350	2560	2260	1430	836	672
21	999	1210	1490	3710	2810	5020	4240	2480	2190	1430	800	687
22	989	1220	1510	3500	2800	5110	4170	2370	2110	e1400	814	697
23	984	1270	1570	3320	2750	5210	4050	2290	2000	e1420	854	698
24	995	1280	1650	3160	2660	5200	3890	2210	1870	e1370	924	698
25	1000	1290	1810	3020	2580	5130	3700	2160	1740	e1200	949	729
26	1010	1310	1980	2900	2530	5060	3560	2130	1610	e1100	863	720
27	1110	1290	2100	2800	2490	4990	3410	2090	1530	e1020	848	712
28	1170	1360	2210	2710	2440	4960	3230	2040	1480	e994	843	683
29	1200	1500	2300	2660	---	5010	3140	1980	1470	939	862	659
30	1210	1650	2300	2660	---	4900	3100	1920	1570	894	831	692
31	1210	---	2250	2670	---	4780	---	1860	---	874	813	---
TOTAL	33736	38150	53900	114120	73960	120650	127610	91480	56780	52991	38182	22260
MEAN	1088	1272	1739	3681	2641	3892	4254	2951	1893	1709	1232	742
MAX	1210	1650	2300	5090	2810	5210	4920	4610	2530	2990	2220	839
MIN	984	1190	1490	2060	2360	2090	3100	1860	1470	874	783	659
CFSM	.61	.71	.98	2.07	1.48	2.19	2.39	1.66	1.06	.96	.69	.42
IN.	.71	.80	1.13	2.39	1.55	2.52	2.67	1.91	1.19	1.11	.80	.47

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 1998, BY WATER YEAR (WY)

	MEAN	1080	1357	1644	1845	1964	2565	2788	2310	1827	1288	989	884
MAX	3529	3413	4502	4867	3658	5570	5365	4409	4347	3228	3058	2843	
(WY)	1991	1973	1928	1991	1950	1985	1982	1943	1981	1996	1990	1993	
MIN	455	519	540	460	462	848	1226	789	569	441	402	356	
(WY)	1954	1954	1964	1940	1963	1934	1925	1934	1934	1988	1988	1941	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1924 - 1998
ANNUAL TOTAL	896766	823819	
ANNUAL MEAN	2457	2257	1710
HIGHEST ANNUAL MEAN			2767
LOWEST ANNUAL MEAN			775
HIGHEST DAILY MEAN	5830	Mar 2	7650
LOWEST DAILY MEAN	984	Oct 23	260
ANNUAL SEVEN-DAY MINIMUM	998	Oct 18	298
INSTANTANEOUS PEAK FLOW			7650
INSTANTANEOUS PEAK STAGE			12.98
ANNUAL RUNOFF (CFSM)	1.38	1.27	.96
ANNUAL RUNOFF (INCHES)	18.75	17.23	13.06
10 PERCENT EXCEEDS	4400	4490	3370
50 PERCENT EXCEEDS	2160	1920	1380
90 PERCENT EXCEEDS	1210	834	637

e Estimated

## 05519000 SINGLETON DITCH AT SCHNEIDER, IN

LOCATION.--Lat 41°12'44", long 87°26'44", in SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.22, T.32 N., R.9 W., Lake County, Hydrologic Unit 07120001, on left bank 15 ft upstream from bridge on Ackerman Avenue, 0.5 mi upstream from Bruce Ditch, 1.5 mi downstream from Cedar Creek, 1.6 mi north of Schneider, and at mile 10.1.

DRAINAGE AREA.--123 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1948 to current year.

REVISED RECORDS.--WSP 1915: 1956-59. WSP 2115: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 623.67 ft above sea level. Prior to Oct. 1, 1949, nonrecording gage at same site at datum 2.00 ft higher. Oct. 1, 1949, to Aug. 13, 1951, nonrecording gage at same site and datum.

REMARKS.--Records good.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	51	93	108	125	118	419	331	76	160	40	49
2	44	88	82	90	148	114	387	241	76	114	38	48
3	45	92	77	88	144	112	307	200	73	98	42	46
4	45	81	76	397	131	109	264	177	74	107	680	45
5	45	50	73	542	120	106	232	157	73	106	701	42
6	44	45	71	820	111	103	184	156	69	94	394	40
7	43	45	66	556	105	99	172	437	68	264	255	56
8	43	44	63	834	99	129	180	1070	67	383	291	52
9	44	44	62	993	96	508	191	688	77	187	216	52
10	44	44	62	644	92	500	213	418	75	139	174	50
11	43	43	61	423	144	436	168	303	94	119	161	48
12	43	42	61	318	390	341	156	238	249	106	140	47
13	46	42	60	260	253	287	152	182	166	94	119	46
14	45	42	58	222	206	262	274	168	132	89	104	46
15	43	44	57	177	179	238	254	156	119	82	96	47
16	42	44	56	161	162	223	216	147	151	80	87	47
17	42	43	57	151	171	272	193	134	180	76	79	46
18	42	41	58	142	322	1500	173	127	126	73	75	45
19	42	42	61	133	277	1570	148	121	120	74	71	44
20	42	42	63	126	209	1100	138	121	108	75	68	45
21	42	43	62	119	181	854	206	114	98	71	64	47
22	41	46	62	115	166	822	331	108	92	74	63	43
23	42	46	95	112	156	623	251	105	85	74	61	42
24	43	44	92	107	148	488	208	102	80	67	59	43
25	42	44	185	102	140	405	181	97	76	61	60	43
26	42	44	167	99	134	356	173	93	77	58	57	43
27	63	42	134	96	132	280	162	90	84	58	54	43
28	63	58	119	94	123	305	150	88	77	55	54	42
29	54	91	112	98	---	323	173	85	98	51	55	42
30	51	110	104	104	---	270	200	83	383	48	51	43
31	50	---	95	105	---	247	---	83	---	43	49	---
TOTAL	1405	1577	2544	8336	4664	13100	6456	6620	3323	3180	4458	1372
MEAN	45.3	52.6	82.1	269	167	423	215	214	111	103	144	45.7
MAX	63	110	185	993	390	1570	419	1070	383	383	701	56
MIN	41	41	56	88	92	99	138	83	67	43	38	40
CFSM	.37	.43	.67	2.19	1.35	3.44	1.75	1.74	.90	.83	1.17	.37
IN.	.42	.48	.77	2.52	1.41	3.96	1.95	2.00	1.01	.96	1.35	.41

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 1998, BY WATER YEAR (WY)

	MEAN	60.4	87.9	115	129	151	213	212	147	124	72.6	50.2	46.5
MAX	295	471	457	475	487	634	477	421	481	321	237	308	
(WY)	1994	1986	1991	1993	1959	1982	1950	1974	1997	1996	1990	1993	
MIN	7.54	11.8	8.13	17.5	15.6	34.3	48.6	30.6	26.3	10.6	7.09	7.78	
(WY)	1964	1957	1964	1977	1964	1957	1963	1958	1988	1988	1964	1964	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1949 - 1998	
ANNUAL TOTAL	63300		57035		117	
ANNUAL MEAN	173		156		227	
HIGHEST ANNUAL MEAN					24.0	
LOWEST ANNUAL MEAN					1993	
HIGHEST DAILY MEAN	1700	Jun 7	1570	Mar 19	2990	Mar 5 1976
LOWEST DAILY MEAN	41	Oct 22	38	Aug 2	3.6	Sep 7 1964
ANNUAL SEVEN-DAY MINIMUM	42	Oct 16	42	Oct 16	3.8	Sep 4 1964
INSTANTANEOUS PEAK FLOW			1950	Mar 18	3550	Mar 5 1976
INSTANTANEOUS PEAK STAGE			11.48	Mar 18	12.54	Nov 28 1990
ANNUAL RUNOFF (CFSM)			1.27		.95	
ANNUAL RUNOFF (INCHES)	1.41		17.25		12.93	
10 PERCENT EXCEEDS	333		322		258	
50 PERCENT EXCEEDS	96		96		62	
90 PERCENT EXCEEDS	44		43		18	

## ILLINOIS RIVER BASIN

05521000 IROQUOIS RIVER AT ROSEBUD, IN

LOCATION.--Lat 41°02'00", long 87°10'49", in NW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.24, T.30 N., R.7 W., Jasper County, Hydrologic Unit 07120002, on right bank 100 ft downstream from bridge on county road, 0.5 mi north of Rosebud, 0.5 mi downstream from confluence of Swain and Dexter Ditches, 1.5 mi upstream from Davidson Ditch, 2 mi east of Parr, and at mile 93.5.

DRAINAGE AREA.--35.6 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1948 to current year.

REVISED RECORDS.--WSP 1338: 1950-53. WSP 1728: 1959-60(M). WSP 1915: 1949-60. WSP 2115: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 661.47 ft above sea level (levels by State of Indiana, Department of Natural Resources). Prior to Oct. 1, 1953, nonrecording gage on downstream side of county road bridge at same datum.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	21	34	e21	49	30	108	135	27	27	10	6.4
2	16	21	30	e23	47	29	91	88	26	22	9.8	6.1
3	16	20	29	27	43	28	77	72	25	20	9.7	6.1
4	15	19	27	152	41	29	67	136	24	29	40	5.6
5	14	18	25	180	37	28	60	95	24	22	32	5.1
6	15	18	23	208	34	27	56	72	23	20	31	5.1
7	15	18	22	140	33	27	54	150	22	23	25	8.8
8	15	18	21	222	32	46	59	331	22	23	22	7.0
9	16	17	22	202	30	205	109	182	27	19	22	6.1
10	16	17	23	122	29	195	113	117	27	17	23	5.4
11	15	16	22	85	42	143	76	88	56	16	19	5.1
12	14	16	23	71	65	104	64	71	113	15	17	5.0
13	16	16	e21	59	50	82	59	61	68	14	15	4.9
14	15	17	e20	52	44	73	85	54	48	12	14	4.6
15	14	17	e19	50	41	69	74	50	43	12	13	5.0
16	14	16	e20	46	40	70	73	45	61	12	11	5.5
17	14	e15	28	43	43	144	60	42	115	11	11	5.1
18	14	e14	26	40	60	411	54	40	71	9.7	11	4.9
19	14	e15	26	37	51	277	51	40	79	11	9.7	4.9
20	13	17	25	35	47	213	48	44	59	10	9.2	7.3
21	13	18	23	35	43	231	70	41	47	9.3	8.7	6.4
22	13	17	26	33	40	186	69	40	40	95	9.3	5.2
23	13	17	34	34	38	134	59	39	36	69	9.0	5.0
24	14	16	36	32	36	107	53	37	33	31	8.7	5.2
25	14	16	57	31	34	91	52	36	30	23	8.5	5.3
26	20	17	46	31	34	81	60	34	26	19	7.7	5.4
27	31	16	40	31	33	72	56	33	23	17	7.3	6.5
28	26	41	35	35	31	141	49	32	21	15	7.7	7.2
29	23	48	33	47	---	132	52	31	38	13	7.5	5.7
30	21	43	30	48	---	98	103	30	35	12	6.8	5.7
31	21	---	27	47	---	85	---	29	---	11	6.4	---
TOTAL	506	595	873	2219	1147	3588	2061	2295	1289	659.0	442.0	171.6
MEAN	16.3	19.8	28.2	71.6	41.0	116	68.7	74.0	43.0	21.3	14.3	5.72
MAX	31	48	57	222	65	411	113	331	115	95	40	8.8
MIN	13	14	19	21	29	27	48	29	21	9.3	6.4	4.6
CFSM	.46	.56	.79	2.01	1.15	3.25	1.93	2.08	1.21	.60	.40	.16
IN.	.53	.62	.91	2.32	1.20	3.75	2.15	2.40	1.35	.69	.46	.16

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 1998, BY WATER YEAR (WY)

MEAN	15.5	19.8	28.6	30.6	37.3	50.8	52.1	40.6	34.0	18.3	10.5	12.4
MAX	106	68.5	96.8	113	91.1	149	141	111	111	63.2	52.1	88.9
(WY)	1994	1993	1991	1950	1959	1982	1950	1974	1981	1996	1972	1993
MIN	1.19	1.80	2.43	3.52	3.13	7.69	17.3	10.2	5.47	3.08	1.97	1.53
(WY)	1965	1965	1964	1963	1964	1957	1986	1958	1988	1988	1964	1964

### SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

## WATER YEARS 1949 - 1998

ANNUAL TOTAL	14898		15845.6			
ANNUAL MEAN	40.8		43.4		29.1	
HIGHEST ANNUAL MEAN					61.7	1993
LOWEST ANNUAL MEAN					6.38	1964
HIGHEST DAILY MEAN	404	Jun 7	411	Mar 18	621	Dec 30 1990
LOWEST DAILY MEAN	12	Jan 20	4.6	Sep 14	.50	Oct 11 1964
ANNUAL SEVEN-DAY MINIMUM	13	Oct 17	5.0	Sep 13	.77	Oct 11 1964
INSTANTANEOUS PEAK FLOW			439	Mar 18	656	Dec 30 1990
INSTANTANEOUS PEAK STAGE			5.97	Mar 18	8.86	Feb 10 1959
ANNUAL RUNOFF (CFPM)	1.15		1.22		.82	
ANNUAL RUNOFF (INCHES)	15.57		16.56		11.12	
10 PERCENT EXCEEDS	70		93		63	
50 PERCENT EXCEEDS	29		29		18	
90 PERCENT EXCEEDS	16		8.6		4.3	

e Estimated

## 05522500 IROQUOIS RIVER AT RENNELAER, IN

LOCATION.--Lat 40°56'00", long 87°07'44", in NW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.29, T.29 N., R.6 W., Jasper County, Hydrologic Unit 07120002, on right bank 20 ft downstream from bridge on State Highway 114, 0.8 mi east of Rensselaer, 1.5 mi downstream from Ryan Ditch, 5.5 mi upstream from Slough Creek, and at mile 84.9.

DRAINAGE AREA.--203 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1948 to current year.

REVISED RECORDS.--WSP 2115: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 642.29 ft above sea level (levels by State of Indiana, Department of Natural Resources). Prior to July 8, 1949, nonrecording gage at same site and datum.

REMARKS.--Records good except for estimated daily discharges, which are poor. Streamflow affected by irrigation.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51	83	311	e120	319	153	662	476	104	260	34	26
2	50	96	226	e130	320	140	703	463	98	155	33	26
3	49	87	193	146	301	143	636	410	91	120	33	30
4	53	79	177	613	268	138	545	850	90	256	282	28
5	48	75	156	1170	236	133	454	851	90	244	756	27
6	45	73	135	1470	202	134	389	683	84	142	660	26
7	43	73	122	1480	182	127	351	788	81	139	418	32
8	42	72	112	1520	170	191	382	1430	77	184	274	35
9	45	69	112	1570	161	916	427	1580	96	155	194	28
10	52	67	129	1390	154	1360	495	1460	107	117	157	29
11	45	66	124	1130	188	1350	467	1170	346	90	124	27
12	43	62	123	857	391	1160	388	876	684	75	95	25
13	44	61	121	622	391	919	340	617	622	67	76	24
14	51	65	e110	459	327	739	429	438	410	58	71	23
15	46	68	e102	377	272	638	516	345	298	52	60	27
16	47	67	e114	332	242	604	520	299	352	47	54	27
17	44	e58	160	295	250	723	468	248	676	43	49	27
18	41	e56	155	258	354	1230	388	220	692	38	47	27
19	41	e62	152	231	368	1560	328	209	681	41	43	25
20	42	71	147	207	340	1530	290	237	593	41	39	25
21	40	76	135	190	295	1570	320	223	409	38	36	27
22	38	81	135	181	263	1530	409	196	280	508	35	25
23	38	78	185	179	234	1390	409	179	217	726	36	24
24	39	71	214	168	223	1130	355	172	178	480	32	24
25	42	69	382	159	199	887	314	159	150	192	34	26
26	52	72	396	153	183	689	346	146	129	117	31	25
27	138	67	324	153	177	543	337	136	113	88	31	24
28	154	160	262	177	158	566	297	128	102	71	31	25
29	118	395	227	266	---	766	290	123	221	58	33	24
30	96	403	203	315	---	771	368	115	450	49	27	24
31	84	---	165	310	---	665	---	112	---	44	25	---
TOTAL	1761	2882	5609	16628	7168	24395	12623	15339	8521	4695	3850	792
MEAN	56.8	96.1	181	536	256	787	421	495	284	151	124	26.4
MAX	154	403	396	1570	391	1570	703	1580	692	726	756	35
MIN	38	56	102	120	154	127	290	112	77	38	25	23
CFSM	.28	.47	.89	2.64	1.26	3.88	2.07	2.44	1.40	.75	.61	.13
IN.	.32	.53	1.03	3.05	1.31	4.47	2.31	2.81	1.56	.86	.71	.15

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 1998, BY WATER YEAR (WY)

	MEAN	89.3	124	185	208	249	339	346	249	214	107	54.9	67.7
MAX	921	561	559	774	660	935	886	766	863	613	238	641	
(WY)	1994	1993	1991	1950	1997	1982	1950	1974	1958	1996	1990	1993	
MIN	5.77	7.75	7.04	14.5	13.9	40.8	87.8	47.6	22.9	12.5	4.61	5.26	
(WY)	1965	1965	1964	1963	1964	1957	1986	1958	1988	1964	1964	1964	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR			FOR 1998 WATER YEAR			WATER YEARS 1949 - 1998		
ANNUAL TOTAL	101498			104263			186		
ANNUAL MEAN	278			286			415		
HIGHEST ANNUAL MEAN							29.7		
LOWEST ANNUAL MEAN							1993		
HIGHEST DAILY MEAN	1800	Feb 22		1580	May 9		2500	Jun 11	1958
LOWEST DAILY MEAN	38	Oct 22		23	Sep 14		2.2	Sep 9	1964
ANNUAL SEVEN-DAY MINIMUM	40	Oct 18		25	Sep 23		2.8	Sep 9	1964
INSTANTANEOUS PEAK FLOW				1630	Jan 9		2550	Jun 10	1958
INSTANTANEOUS PEAK STAGE				12.84	May 9		16.54	Jun 10	1958
ANNUAL RUNOFF (CFSM)	1.37			1.41			.91		
ANNUAL RUNOFF (INCHES)	18.60			19.11			12.43		
10 PERCENT EXCEEDS	568			696			465		
50 PERCENT EXCEEDS	165			155			93		
90 PERCENT EXCEEDS	54			33			17		

e Estimated



05524500 IROQUOIS RIVER NEAR FORESMAN, IN

LOCATION.--Lat 40°52'14", long 87°18'24", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.15, T.28 N., R.8 W., Newton County, Hydrologic Unit 07120002, on right bank at downstream side of bridge on State Highway 55, 0.2 mi north of intersection of State Highways 16 and 55, 0.5 mi downstream from Mosquito Creek, 0.6 mi west of Foresman, 3 mi east of Brook, and at mile 72.7.

DRAINAGE AREA.--449 mi<sup>2</sup>.

PERIOD OF RECORD.--December 1948 to current year.

REVISED RECORDS.--WSP 1338: 1953. WSP 1438: 1955. WSP 1508: 1956. WSP 2115: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 624.00 ft above sea level. Prior to Sept. 7, 1955, nonrecording gage 2.5 mi upstream at datum 3.54 ft higher.

REMARKS.--Records good except for estimated daily discharges, which are poor. Stage may be affected by backwater.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	72	107	370	e150	521	279	1290	774	256	1620	98	56
2	67	118	287	e165	518	260	1250	827	235	1430	86	57
3	66	128	230	193	488	252	1180	817	221	1140	81	55
4	66	125	207	450	448	245	1080	1030	212	1030	161	58
5	66	114	189	815	410	233	970	1320	208	1180	680	55
6	60	104	170	1120	362	225	869	1390	201	1120	954	53
7	58	104	155	1410	320	219	772	1540	191	1040	1060	58
8	55	103	144	1710	294	262	716	2930	184	1630	1010	68
9	58	102	140	2150	276	805	809	3470	219	1580	891	61
10	64	97	152	2260	262	1510	1010	3370	e400	1280	728	54
11	64	95	161	2100	279	2000	1060	2990	e640	982	521	55
12	58	94	162	1830	480	e2000	993	2500	1060	735	331	51
13	58	92	164	e1450	584	e1800	897	2010	1370	501	233	48
14	68	97	e145	e1150	563	e1550	844	1570	1390	317	194	47
15	70	109	e130	995	497	e1400	857	1220	1230	223	167	49
16	61	112	e147	816	439	1280	886	981	1140	183	145	53
17	62	101	171	653	419	1280	934	807	1400	158	130	60
18	57	e86	190	508	534	2350	900	658	1440	140	118	57
19	54	102	186	404	626	3090	821	539	1440	129	109	53
20	54	114	182	346	620	3170	722	534	1390	129	98	51
21	53	118	172	310	574	3320	679	508	1220	117	90	55
22	51	125	167	291	512	3360	794	455	1020	359	84	53
23	50	127	199	283	460	3130	848	414	838	767	83	50
24	50	118	244	272	421	2740	822	396	667	830	80	49
25	52	108	362	256	378	2310	755	405	505	732	75	50
26	61	111	448	246	347	1890	724	370	378	497	74	53
27	121	113	417	242	336	1530	692	335	301	293	69	52
28	193	143	350	271	306	1350	627	311	259	197	69	51
29	165	356	297	375	---	1470	575	294	627	155	70	51
30	134	417	261	485	---	1490	640	279	1370	128	69	50
31	114	---	222	515	---	1380	---	268	---	114	59	---
TOTAL	2282	3840	6821	24221	12274	48180	26016	35312	22012	20736	8617	1613
MEAN	73.6	128	220	781	438	1554	867	1139	734	669	278	53.8
MAX	193	417	448	2260	626	3360	1290	3470	1440	1630	1060	68
MIN	50	86	130	150	262	219	575	268	184	114	59	47
CFSM	.16	.29	.49	1.74	.98	3.46	1.93	2.54	1.63	1.49	.62	.12
IN.	.19	.32	.57	2.01	1.02	3.99	2.16	2.93	1.82	1.72	.71	.12

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 1998, BY WATER YEAR (WY)

MEAN	181	262	410	443	560	757	774	569	493	263	106	142
MAX	1792	1218	1274	1736	1490	2266	1672	1360	2314	1099	435	1387
(WY)	1994	1993	1968	1993	1968	1982	1950	1974	1958	1993	1990	1993
MIN	9.70	16.1	15.3	27.0	31.4	81.7	199	108	39.8	17.7	12.2	11.1
(WY)	1957	1965	1964	1963	1964	1957	1986	1958	1988	1988	1988	1964

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1950 - 1998
--------------------	------------------------	---------------------	-------------------------

ANNUAL TOTAL	180668		211924				
ANNUAL MEAN	495		581			412	
HIGHEST ANNUAL MEAN						891	1993
LOWEST ANNUAL MEAN						77.6	1964
HIGHEST DAILY MEAN	3700	Feb 28	3470	May 9	5930		Jun 14 1958
LOWEST DAILY MEAN	50	Oct 23	47	Sep 14		6.3	Sep 10 1964
ANNUAL SEVEN-DAY MINIMUM	52	Oct 19	51	Sep 23		8.0	Sep 5 1964
INSTANTANEOUS PEAK FLOW			3500	May 9	5930		Jun 14 1958
INSTANTANEOUS PEAK STAGE			20.41	May 9		24.42	Jun 14 1958
ANNUAL RUNOFF (CFSM)	1.10		1.29			.92	
ANNUAL RUNOFF (INCHES)	14.97		17.56			12.48	
10 PERCENT EXCEEDS	1100		1430		1100		
50 PERCENT EXCEEDS	259		294		199		
90 PERCENT EXCEEDS	75		58		29		

e Estimated

## 05536179 HART DITCH AT DYER, IN

LOCATION.--Lat 41°30'28", long 87°30'36", in NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.12, T.35 N., R.10 W., Lake County, Hydrologic Unit 07120003, on right bank, 50 ft upstream from 213th Street in Dyer, and 0.8 mi upstream from Dyer Ditch.

DRAINAGE AREA.--37.6 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1989 to current year.

GAGE.--Water-stage recorder. Datum of gage is 607.38 ft above sea level.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Low-flow affected by sewage effluent.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e13	8.2	17	18	41	22	173	56	6.3	14	4.3	5.5
2	e8.0	7.8	11	15	141	20	142	43	6.0	8.8	4.5	5.3
3	e5.4	8.5	8.9	19	132	19	82	35	6.3	8.3	4.9	5.9
4	e3.5	7.8	8.3	304	78	20	55	39	5.9	34	571	6.2
5	e5.6	6.8	7.4	406	49	21	41	39	6.0	20	757	5.4
6	e4.0	7.2	6.2	376	37	20	34	86	6.0	12	204	5.1
7	e3.7	6.8	5.4	232	32	19	31	522	5.9	49	132	17
8	e3.5	7.0	5.0	309	29	87	67	770	5.8	130	159	28
9	e9.0	6.7	5.1	367	26	380	70	296	11	43	104	10
10	e6.2	6.3	5.9	207	25	243	62	170	8.2	30	70	6.8
11	e5.2	6.2	7.0	103	119	177	43	115	49	22	49	5.6
12	e4.7	6.1	8.0	91	329	114	34	79	153	15	37	4.9
13	e4.5	5.9	7.2	38	153	81	30	54	66	11	29	4.5
14	e7.4	5.3	6.4	38	87	63	38	40	36	8.5	22	4.3
15	e6.4	6.3	6.4	31	56	55	36	32	28	7.2	18	5.1
16	e5.6	5.9	6.1	27	43	48	30	27	21	6.4	15	4.9
17	e5.0	5.9	6.8	24	74	94	26	23	15	5.9	13	4.4
18	e4.6	5.9	7.7	20	257	619	23	19	13	5.5	9.6	4.2
19	e4.3	6.1	9.4	18	155	598	21	16	13	8.3	8.0	4.2
20	e4.1	7.4	12	16	90	280	21	14	12	14	7.2	4.1
21	e3.9	7.4	13	14	63	206	89	13	9.8	10	6.5	3.9
22	e3.8	7.4	14	13	45	173	107	12	8.5	14	6.1	3.6
23	e3.8	8.2	44	13	36	112	62	11	7.7	43	5.8	3.8
24	e5.4	8.2	44	13	34	80	41	11	7.2	18	8.0	3.7
25	e8.0	7.5	133	12	32	60	31	9.8	6.6	10	8.3	3.7
26	e14	7.5	125	11	28	50	31	8.8	22	7.6	8.0	3.9
27	38	8.0	63	11	27	42	33	8.2	22	6.4	7.0	3.8
28	26	8.7	37	12	25	41	27	7.7	14	5.6	7.9	4.1
29	13	16	31	14	---	44	56	7.4	11	5.2	6.8	3.8
30	8.2	26	26	18	---	37	69	6.8	15	4.8	6.8	4.5
31	7.1	---	23	21	---	45	---	6.7	---	4.4	6.0	---
TOTAL	244.9	239.0	710.2	2811	2243	3870	1605	2577.4	597.2	581.9	2295.7	180.2
MEAN	7.90	7.97	22.9	90.7	80.1	125	53.5	83.1	19.9	18.8	74.1	6.01
MAX	38	26	133	406	329	619	173	770	153	130	757	28
MIN	3.5	5.3	5.0	11	25	19	21	6.7	5.8	4.4	4.3	3.6
CFSM	.21	.21	.61	2.41	2.13	3.32	1.42	2.21	.53	.50	1.97	.16
IN.	.24	.24	.70	2.78	2.22	3.83	1.59	2.55	.59	.58	2.27	.18

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1998, BY WATER YEAR (WY)

	MEAN	27.4	58.2	45.2	53.9	62.2	82.2	56.4	62.7	59.0	24.9	25.2	18.8
MAX	113	195	106	136	183	169	110	140	182	92.9	74.1	106	
(WY)	1994	1991	1991	1993	1997	1991	1993	1996	1993	1996	1998	1993	
MIN	2.77	7.97	4.92	17.7	9.89	21.0	19.3	7.48	4.21	4.46	4.65	2.41	
(WY)	1996	1998	1990	1992	1993	1996	1997	1992	1992	1991	1992	1994	

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

## WATER YEARS 1990 - 1998

ANNUAL TOTAL	17058.5	17955.5	
ANNUAL MEAN	46.7	49.2	47.9
HIGHEST ANNUAL MEAN			76.6
LOWEST ANNUAL MEAN			34.4
HIGHEST DAILY MEAN	1100	770	2580
LOWEST DAILY MEAN	3.5	3.5	.61
ANNUAL SEVEN-DAY MINIMUM	4.2	3.8	.95
INSTANTANEOUS PEAK FLOW		1230	3010
INSTANTANEOUS PEAK STAGE		9.84	15.33
ANNUAL RUNOFF (CFSM)	1.24	1.31	1.27
ANNUAL RUNOFF (INCHES)	16.88	17.76	17.31
10 PERCENT EXCEEDS	120	121	122
50 PERCENT EXCEEDS	14	14	15
90 PERCENT EXCEEDS	5.4	5.0	4.1

e Estimated

## DES PLAINES RIVER BASIN

05536190 HART DITCH AT MUNSTER, IN

LOCATION.--Lat 41°33'40", long 87°28'50", in SE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.20, T.36 N., R.9 W., Lake County, Hydrologic Unit 07120003, on left bank, 0.2 mi downstream from Ridge Road, and 0.4 mi upstream from mouth.

DRAINAGE AREA.--70.7 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1942 to current year.

REVISED RECORDS.--WDR IN-72-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 591.27 ft above sea level (levels by State of Indiana, Department of Natural Resources).

REMARKS.--Records good except for daily discharges above 100 ft<sup>3</sup>/s due to possible backwater from Little Calumet River and estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e16	40	46	43	89	55	453	183	25	32	11	12
2	e13	29	40	39	192	52	366	126	23	23	10	12
3	e11	27	35	60	191	51	188	95	28	24	11	17
4	e10	25	32	721	127	54	122	96	19	98	1040	16
5	14	23	29	1080	92	54	93	95	19	43	1760	13
6	14	27	26	991	74	51	79	166	20	30	461	15
7	12	23	24	629	66	48	80	1490	19	266	276	213
8	11	21	24	993	62	242	156	2150	18	253	266	65
9	23	20	24	1160	57	1130	159	1190	62	81	163	32
10	14	20	35	703	58	868	134	644	29	55	146	22
11	e14	19	38	334	237	589	97	369	300	42	101	19
12	e13	19	38	220	706	369	80	202	379	33	69	19
13	e13	22	32	98	284	235	80	115	130	28	54	19
14	e16	22	31	83	156	175	109	83	73	22	44	19
15	e14	29	30	72	108	145	e86	68	57	18	37	24
16	e14	24	31	64	91	133	e76	57	45	17	33	21
17	e13	21	32	58	199	372	66	50	37	16	33	19
18	e13	21	45	52	581	1810	59	44	34	15	25	16
19	e13	21	48	50	335	1890	55	39	48	28	21	15
20	e12	23	40	46	189	1160	73	36	31	29	21	25
21	e12	26	37	43	133	847	248	33	28	24	20	17
22	e11	24	47	42	101	633	274	32	24	65	19	13
23	e11	24	82	44	85	400	151	31	22	69	18	11
24	e13	24	110	41	83	249	99	31	20	39	41	11
25	15	23	224	41	76	153	80	27	17	27	26	12
26	75	23	195	39	67	111	87	26	127	21	21	13
27	149	26	107	40	65	92	83	26	48	18	18	15
28	63	29	72	42	60	100	69	30	38	16	31	14
29	40	50	63	51	---	93	127	29	42	15	19	12
30	31	57	55	56	---	82	240	28	37	14	18	37
31	26	---	47	63	---	148	---	27	---	13	15	---
TOTAL	719	782	1719	7998	4564	12391	4069	7618	1799	1494	4828	768
MEAN	23.2	26.1	55.5	258	163	400	136	246	60.0	48.2	156	25.6
MAX	149	57	224	1160	706	1890	453	2150	379	266	1760	213
MIN	10	19	24	39	57	48	55	26	17	13	10	11
CFSM	.33	.37	.78	3.65	2.31	5.65	1.92	3.48	.85	.68	2.20	.36
IN.	.38	.41	.90	4.21	2.40	6.52	2.14	4.01	.95	.79	2.54	.40

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 1998, BY WATER YEAR (WY)

	MEAN	32.0	52.2	65.9	65.5	87.0	140	129	103	71.8	37.4	30.4	28.5
MAX	282	287	279	275	479	429	363	373	423	335	156	219	
(WY)	1955	1986	1983	1993	1997	1979	1947	1996	1993	1996	1998	1993	
MIN	3.95	3.54	3.07	3.77	6.32	19.1	19.2	11.9	8.78	6.11	4.73	3.91	
(WY)	1965	1972	1964	1977	1963	1957	1946	1958	1965	1965	1964	1956	

## SUMMARY STATISTICS

## FOR 1997 CALENDAR YEAR

## FOR 1998 WATER YEAR

## WATER YEARS 1943 - 1998

ANNUAL TOTAL	41058	48749	
ANNUAL MEAN	112	134	70.1
HIGHEST ANNUAL MEAN			160
LOWEST ANNUAL MEAN			19.2
HIGHEST DAILY MEAN	2410	Feb 22	2150
LOWEST DAILY MEAN	10	Oct 4	10
ANNUAL SEVEN-DAY MINIMUM	12	Oct 2	12
INSTANTANEOUS PEAK FLOW			2370
INSTANTANEOUS PEAK STAGE			7.24
ANNUAL RUNOFF (CFSM)	1.59		1.89
ANNUAL RUNOFF (INCHES)	21.60		25.65
10 PERCENT EXCEEDS	202		275
50 PERCENT EXCEEDS	42		42
90 PERCENT EXCEEDS	16		15

e Estimated

## 05536195 LITTLE CALUMET RIVER AT MUNSTER, IN

LOCATION.--Lat 41°34'07", long 87°31'18", in SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.13, T.36 N., R.10 W., Lake County, Hydrologic Unit 07120003, on left bank 200 ft upstream from Hohman Avenue bridge at north city limits of Munster, 0.4 mi upstream from Indiana-Illinois State line, and 4.6 mi upstream from Thorn Creek.

DRAINAGE AREA.--90.0 mi<sup>2</sup>. During times of floods on Deep River, flow may enter basin from eastern portion of Little Calumet River Basin; or, during times of floods on Hart Ditch, flow may leave the basin and enter eastern portion of the Little Calumet River Basin.

PERIOD OF RECORD.--June 1958 to current year.

GAGE.--Water-stage recorder. Datum of gage is 580.72 ft above sea level.

REMARKS.--Records poor. Flow from eastern portion of Little Calumet River Basin is diverted to Lake Michigan by Burns Ditch. Periods of high flow frequently are in backwater from downstream storage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	21	22	e20	39	31	143	99	25	23	12	13
2	11	18	19	e23	71	28	139	72	23	19	11	13
3	11	17	18	27	86	27	106	58	27	17	11	15
4	17	16	16	166	68	28	83	54	22	58	173	14
5	15	15	15	274	54	27	67	52	20	30	475	12
6	12	17	14	276	44	26	56	71	20	22	264	12
7	12	15	13	212	37	24	51	356	20	119	133	112
8	11	14	12	284	34	86	86	708	18	126	127	45
9	17	12	12	346	30	265	91	514	43	58	97	25
10	14	12	16	e250	29	251	84	256	26	38	83	19
11	13	12	20	e160	81	180	66	171	122	27	80	16
12	13	11	19	e110	198	142	54	131	157	23	50	14
13	14	12	18	e76	133	116	49	101	87	20	39	14
14	16	11	18	e56	92	100	67	79	54	18	31	13
15	13	13	17	e46	71	89	58	62	41	16	26	14
16	13	13	17	e39	59	81	50	49	31	15	23	16
17	12	11	17	e34	91	118	45	41	26	14	23	13
18	12	10	18	e29	190	382	40	35	23	14	21	12
19	12	10	23	e27	149	532	37	31	34	33	18	12
20	11	9.8	20	e25	104	358	39	29	23	22	17	20
21	12	11	20	e24	84	244	104	27	21	19	17	16
22	11	10	22	23	69	202	115	27	20	34	16	12
23	10	9.8	31	23	57	166	86	27	19	42	16	10
24	13	10	45	22	52	135	64	27	20	27	27	11
25	12	9.7	77	22	45	112	51	27	19	21	24	11
26	26	9.5	85	21	40	92	50	24	78	18	17	11
27	84	11	63	21	37	78	53	23	35	16	16	11
28	38	19	e48	21	34	84	42	26	26	15	24	11
29	27	22	e40	24	---	70	67	27	25	14	17	10
30	21	24	e32	27	---	62	94	26	26	13	15	23
31	18	---	e25	28	---	85	---	26	---	13	14	---
TOTAL	532	405.8	832	2736	2078	4221	2137	3256	1131	944	1917	550
MEAN	17.2	13.5	26.8	88.3	74.2	136	71.2	105	37.7	30.5	61.8	18.3
MAX	84	24	85	346	198	532	143	708	157	126	475	112
MIN	10	9.5	12	20	29	24	37	23	18	13	11	10
CFSM	.19	.15	.30	.98	.82	1.51	.79	1.17	.42	.34	.69	.20
IN.	.22	.17	.34	1.13	.86	1.74	.88	1.35	.47	.39	.79	.23

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 1998, BY WATER YEAR (WY)

	MEAN	35.7	61.2	77.3	65.0	85.6	134	131	97.7	71.9	41.3	38.3	41.0
MAX	151	212	301	199	252	386	268	266	222	185	141	217	
(WY)	1994	1973	1983	1993	1959	1979	1973	1959	1993	1996	1990	1965	
MIN	6.47	5.29	7.12	7.32	8.49	32.4	21.3	18.1	11.2	9.56	7.28	5.54	
(WY)	1969	1972	1961	1961	1963	1964	1963	1992	1965	1965	1964	1966	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1959 - 1998
ANNUAL TOTAL	17987.8	20739.8	
ANNUAL MEAN	49.3	56.8	73.2
HIGHEST ANNUAL MEAN			121
LOWEST ANNUAL MEAN			23.5
HIGHEST DAILY MEAN	746	708	1160
LOWEST DAILY MEAN	9.5	9.5	1.9
ANNUAL SEVEN-DAY MINIMUM	10	10	2.2
INSTANTANEOUS PEAK FLOW		744	1510
INSTANTANEOUS PEAK STAGE		13.89	17.03
ANNUAL RUNOFF (CFSM)	.55	.63	.81
ANNUAL RUNOFF (INCHES)	7.43	8.57	11.05
10 PERCENT EXCEEDS	98	129	186
50 PERCENT EXCEEDS	32	26	33
90 PERCENT EXCEEDS	12	12	8.8

e Estimated

## DES PLAINES RIVER BASIN

05536357 GRAND CALUMET RIVER AT HOHMAN AVE AT HAMMOND, IN

LOCATION.--Lat 41°37'28", long 87°31'04", in NE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>sec. 36, T37 N., R10 W., Lake County, Hydrologic Unit 07120003, on left bank, 20 feet upstream of Hohman Avenue, 1,000 feet east of Indiana-Illinois State line, 1,300 feet south of 173rd street, 1.0 mile north of U. S. Highway 41.

DRAINAGE AREA.--Indeterminate.

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

GAGE.--Water-stage recorder. Datum of gage is 575.00 ft above sea level.

REMARKS.--Records poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	111	71	97	30	42	53	90	88	48	37	50	48
2	74	64	77	32	52	50	80	82	49	34	45	50
3	78	58	77	43	59	57	90	83	48	34	48	48
4	83	65	72	87	79	55	103	81	42	62	74	55
5	75	65	69	86	77	57	84	70	48	49	60	41
6	87	81	68	80	61	51	81	78	42	42	56	38
7	99	80	66	107	57	58	88	199	38	71	65	100
8	100	75	64	172	53	103	104	276	39	56	60	74
9	94	68	77	113	50	262	134	141	52	48	57	60
10	84	76	118	63	55	123	102	95	52	52	66	41
11	85	63	89	52	78	84	78	81	69	51	68	33
12	80	61	62	60	75	59	74	76	49	45	67	40
13	70	59	47	61	52	43	75	78	44	42	62	46
14	65	85	53	53	59	74	90	72	45	39	56	48
15	76	78	41	73	50	71	90	68	49	42	66	47
16	86	63	40	70	63	69	111	62	45	44	68	54
17	83	36	57	64	98	86	82	57	40	46	59	47
18	72	39	48	60	111	120	68	57	41	44	72	44
19	65	55	54	55	65	150	85	68	50	53	65	39
20	71	52	63	57	59	137	88	66	41	47	50	47
21	73	75	61	62	56	121	104	69	39	44	56	47
22	76	61	71	70	54	85	96	80	37	51	63	47
23	55	51	63	69	60	64	83	78	36	49	53	39
24	69	49	68	56	55	61	78	77	37	43	58	28
25	89	35	76	47	53	58	87	67	37	48	65	26
26	120	48	49	60	60	53	114	60	47	47	60	29
27	135	51	56	62	71	48	102	57	45	35	56	31
28	57	65	47	54	62	63	87	48	46	38	54	30
29	57	81	59	68	---	63	88	51	37	46	51	28
30	57	102	69	58	---	59	87	57	37	48	52	41
31	67	---	63	47	---	91	---	59	---	61	54	---
TOTAL	2493	1912	2021	2071	1766	2528	2723	2581	1329	1448	1836	1346
MEAN	80.4	63.7	65.2	66.8	63.1	81.5	90.8	83.3	44.3	46.7	59.2	44.9
MAX	135	102	118	172	111	262	134	276	69	71	74	100
MIN	55	35	40	30	42	43	68	48	36	34	45	26

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1998, BY WATER YEAR (WY)

	MEAN	43.5	44.4	39.1	37.8	42.3	45.4	52.3	56.1	59.3	60.7	52.9	49.1
MAX	80.4	63.7	65.2	66.8	95.9	81.5	90.8	85.9	98.8	102	93.9	88.9	
(WY)	1998	1998	1998	1998	1997	1998	1998	1998	1993	1993	1997	1997	
MIN	17.7	21.5	20.8	19.6	19.0	20.1	27.2	29.6	21.1	24.2	19.1	25.3	
(WY)	1993	1993	1993	1996	1995	1995	1996	1992	1992	1992	1992	1995	

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1991 - 1998

ANNUAL TOTAL	29362	24054	48.6	
ANNUAL MEAN	80.4	65.9	76.2	1997
HIGHEST ANNUAL MEAN			24.9	1992
LOWEST ANNUAL MEAN			464	Feb 21 1997
HIGHEST DAILY MEAN	464	Feb 21	276	May 8
LOWEST DAILY MEAN	35	Feb 18	26	Sep 25
ANNUAL SEVEN-DAY MINIMUM	48	Jan 14	30	Sep 23
INSTANTANEOUS PEAK FLOW			390	Mar 9
INSTANTANEOUS PEAK STAGE			6.22	Mar 9
10 PERCENT EXCEEDS	101		85	8.76
50 PERCENT EXCEEDS	79		43	Jul 18 1996
90 PERCENT EXCEEDS	53		19	



## Special study and miscellaneous sites

Streamflow was measured at points other than continuous gaging stations from 6 sites in the St. Joseph River Basin during low flow in August 1998. They were collected as part of a regional study to characterize the habitats where diverse freshwater mussel (Unionid) populations have been found. The results of chemical and physical measurements, and algae collected from 12 sites in this basin (3 in northwest Ohio, 2 in southeast Michigan, and 7 in northeast Indiana) can be found in the annual report of the Ohio District USGS for the water year 1998.

## STREAMS TRIBUTARY TO LAKE ERIE

## Maumee River basin

Stream	Tributary to	Location	Drainage area (mi <sup>2</sup> )	Measurement date	Discharge (ft <sup>3</sup> /s)
Fish Creek	St. Joseph River	Lat 41°30'08"N, long 84°50'48"W, above Campbell Bridge on 8th Road, 5 miles south of Alvarado, Troy Township, Dekalb County, IN.	92.4	8-19-98	10.8
Fish Creek	St. Joseph River	Lat 41°33'05"N, long 84°50'16"W, at County Road 650 South, 1.5 miles south of Alvarado, Richland Township, Steuben County, IN.	42.1	8-19-98	4.08
Cedar Creek	St. Joseph River	Lat 41°12'10"N, long 85°01'40"W, below State Road 1, 0.2 miles west of Cedarville, Cedar Creek Township, Allen County, IN.	273	8-18-98	51.0
Cedar Creek	St. Joseph River	Lat 41°14'12"N, long 85°06'17"W, below Cedar Canyon Road, 2.9 miles NW of Robinson Chapel, Perry Township, Allen County, IN.	252	8-18-98	50.8
Cedar Creek	St. Joseph River	Lat 41°23'05"N, long 85°02'18"W, above Morningstar Road, 1.5 miles NE of Auburn, Union Township, Dekalb County, IN.	77.1	8-18-98	7.3
Cedar Creek	St. Joseph River	Lat 41°26'13"N, long 85°01'37"W, above 35th Road, 0.4 miles NW of Waterloo, Grant Township, Dekalb Co., IN.	48.4	8-18-98	4.23

Concentrations of trace elements and organic compounds in stream-bed  
sediments from selected sites in the Lake Erie - Lake St. Clair Basin  
(National Water-Quality Assessment Program)

Stream-bed sediment samples were collected during low-flow conditions in the Lake Erie - Lake St. Clair Basin at 5 sites in 1997 to determine concentrations of trace elements and hydrophobic organic compounds. Where more than one sample was collected on the same day, the letter after the date denotes multiple samples in the reach.

Bed sediments samples were collected from the top 1 to 2 centimeters of material taken from at least 5 different depositional areas within the stream reach. A subsample from the composite sample collected at each site was shipped to the USGS Iowa City, Iowa sediment laboratory for particle-size analysis, and the results are reported at the end of this table. In addition, subsamples from the composite were: (1) processed using a 2.0-millimeter stainless-steel mesh wet sieve for preparation of material for organic contaminant analysis, and (2) processed using a 63-micrometer nylon-cloth wet sieve for preparation of material for trace element analysis. More specific details describing the guidelines used in collection and in processing the stream-bed sediment samples can be found in Shelton and Capel (1994).

Bed sediment constituent concentrations are provided on a percent (percent of dry weight) or a dry-weight (DW) basis, based on a 25 gram sample. Constituent names are abbreviated as follows: DDD, dichlorodiphenyldichloroethane; DDE, dichlorodiphenyldichloroethene; DCPA, dimethyl tetrachloroterephthalate; DDT, dichlorodiphenyltrichloroethane; BHC, hexachlorocyclohexane (benzene hexachloride); PCB, polychlorinated biphenyls (BED SED = bottom sediment, <63U WS = less than 63-micrometer wet sieve, WS <2MM = wet seive, less than 2.0-micrometer, REC = recoverable, UG/G = micrograms per gram, UG/KG = microgram per kilogram, G/KG = gram per kilogram, MM = millimeter, (34790) = the USGS National Water-Quality Laboratory parameter code, e = Estimated). Additional surface-water and water-quality data for these sampling sites can be found in the continuous-record station sections of the Indiana and Michigan Water Resources Data Reports.

CALENDAR YEAR 1997

STATION NUMBER	STATION NAME	LATITUDE	LONGITUDE	DRAINAGE AREA (mi <sup>2</sup> )	DATE	TIME
04160900	CLINTON RIVER NEAR DRAYTON PLAINS, MI	42°39'37"N	83°23'25"W	79.2	11/03/97	1330
04161540	PAINT CREEK AT ROCHESTER, MI	42°41'18"N	83°08'35"W	70.9	11/04/97	1300
04172000	HURON RIVER NEAR HAMBURG, MI	42°27'55"N	83°48'00"W	308	10/30/97	1530
04180000	CEDAR CREEK NEAR CEDARVILLE, IN	41°13'08"N	85°04'35"W	270	10/29/97 <sup>A</sup>	1200
04180000	CEDAR CREEK NEAR CEDARVILLE, IN	41°13'08"N	85°04'35"W	270	10/29/97 <sup>B</sup>	1215
04180000	CEDAR CREEK NEAR CEDARVILLE, IN	41°13'08"N	85°04'35"W	270	10/29/97 <sup>C</sup>	1230
413101084521301	FISH CREEK NEAR HAMILTON, IN	41°31'01"N	84°52'13"W	84.6	10/30/97	0930

STATION NUMBER	DATE	SPE- CIFIC CON- DUCT- ANCE, (US/CM)	PH, WATER WHOLE (STAND- ARD UNITS)	TEMPER- ATURE, AIR (DEG C)	TEMPER- ATURE, WATER (DEG C)	BARO- METRIC PRES- SURE, (MM OF HG)	OXYGEN DIS- SOLVED (MG/L)	ALUM- INUM, BED SED <63U WS PERCENT (34790)	CALCIUM, BED SED <63U WS PERCENT (34830)	IRON, BED SED <63U WS PERCENT (34880)
04160900	11/03/97	589	8.20	9.5	8.0	729	--	2.9	14.0	2.4
04161540	11/04/97	631	8.42	9.5	5.7	744	--	4.3	6.3	3.0
04172000	10/30/97	631	8.28	11.0	8.3	743	13.2	2.8	13.0	3.2
04180000	10/29/97 <sup>A</sup>	688	7.98	11.5	6.6	744	10.5	5.6	5.7	3.6
04180000	10/29/97 <sup>B</sup>	688	7.98	11.5	6.6	744	10.5	5.4	5.5	3.5
04180000	10/29/97 <sup>C</sup>	688	7.98	11.5	6.6	744	10.5	5.8	5.7	3.8
4131010- 84521301	10/30/97	519	8.17	8.0	6.0	743	11.2	5.7	6.9	3.5

Concentrations of trace elements and organic compounds in stream-bed  
sediments from selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

STATION NUMBER	DATE	MAGNE- SIUM, BED SED <63U WS (34900)	SODIUM, BED SED <63U WS (34960)	POTAS- SIUM, BED SED <63U WS (34940)	PHOS- PHORUS, BED SED <63U WS (34935)	TITA- NIUM, BED SED <63U WS (49274)	ANTI- MONY, BED SED <63U WS (34795)	ARSENIC, BED SED <63U WS (34800)	BARIUM, BED SED <63U WS (34805)	BERYL- LIUM, BED SED <63U WS (34810)	BISMUTH, BED SED <63U WS (34816)
04160900	11/03/97	1.5	0.51	0.92	0.09	0.15	0.85	25	270	<1	<10
04161540	11/04/97	2.4	0.79	1.6	0.09	0.25	0.67	24	390	1	<10
04172000	10/30/97	1.1	0.39	0.8	0.11	0.14	0.52	21	330	<1	<10
04180000	10/29/97 <sup>A</sup>	2.4	0.68	1.9	0.16	0.30	0.71	12	440	1	<10
04180000	10/29/97 <sup>B</sup>	2.3	0.63	1.8	0.15	0.30	0.71	12	410	1	<10
04180000	10/29/97 <sup>C</sup>	2.4	0.66	2.0	0.16	0.31	0.75	12	460	1	<10
4131010- 84521301	10/30/97	2.1	0.69	1.9	0.11	0.29	0.60	14	470	1	<10
STATION NUMBER	DATE	CAD- MIUM, BED SED <63U WS (34825)	CERIUM, BED SED <63U WS (34835)	CHRO- MIUM, BED SED <63U WS (34840)	COBALT, BED SED <63U WS (34845)	COPPER, BED SED <63U WS (34850)	EURO- PIUM, BED SED <63U WS (34855)	GALLIUM, BED SED <63U WS (34860)	GOLD, BED SED <63U WS (34870)	HOL- MIUM, BED SED <63U WS (34875)	LANTHA- NIUM, BED SED <63U WS (34885)
04160900	11/03/97	1.1	32	45	6	43	<2	17	<8	<4	17
04161540	11/04/97	0.6	52	54	8	25	<2	23	<8	<4	28
04172000	10/30/97	0.6	31	35	5	26	<2	15	<8	<4	18
04180000	10/29/97 <sup>A</sup>	0.6	63	63	11	29	<2	22	<8	<4	36
04180000	10/29/97 <sup>B</sup>	0.6	64	65	12	30	<2	21	<8	<4	36
04180000	10/29/97 <sup>C</sup>	0.6	61	72	12	29	<2	18	<8	<4	35
4131010- 84521301	10/30/97	0.4	58	60	11	23	<2	21	<8	<4	33
STATION NUMBER	DATE	LEAD, BED SED <63U WS (34890)	LITHIUM, BED SED <63U WS (34895)	MANGA- NESE, BED SED <63U WS (34905)	MERCURY, BED SED <63U WS (34910)	MOLYB- DENUM, BED SED <63U WS (34915)	NEODYM- IUM, BED SED <63U WS (34920)	NICKEL, BED SED <63U WS (34925)	NIOBIUM, BED SED <63U WS (34930)	SCAN- DIUM, BED SED <63U WS (34945)	SELE- NIUM, BED SED <63U WS (34950)
04160900	11/03/97	120	18	790	0.09	3	18	17	<4	5	1.30
04161540	11/04/97	33	26	1600	0.05	<2	24	21	<4	8	0.52
04172000	10/30/97	30	17	1700	0.07	2	16	19	<4	5	1.20
04180000	10/29/97 <sup>A</sup>	27	34	1100	0.09	3	33	31	4	11	0.71
04180000	10/29/97 <sup>B</sup>	29	35	1000	0.08	4	32	32	4	11	0.69
04180000	10/29/97 <sup>C</sup>	25	36	1100	0.09	4	31	34	4	11	0.71
4131010- 84521301	10/30/97	22	34	910	0.05	3	28	28	4	10	0.74
STATION NUMBER	DATE	SILVER, BED SED <63U WS (34955)	STRON- TIUM, BED SED <63U WS (34965)	SULFUR, BED SED <63U WS (34970)	TANTA- LUM, BED SED <63U WS (34975)	THORIUM, BED SED <63U WS (34980)	TIN, BED SED <63U WS (34985)	URANIUM, BED SED <63U WS (35000)	VANA- DIUM, BED SED <63U WS (35005)	YTTR- IUM, BED SED <63U WS (35010)	YTTER- BIUM, BED SED <63U WS (35015)
04160900	11/03/97	0.2	180	0.94	<40	<3.8	<5	2.00	42	12	1
04161540	11/04/97	0.1	160	0.20	<40	<3.4	<5	2.67	66	18	2
04172000	10/30/97	0.2	170	0.60	<40	6.6	<5	2.02	41	12	1
04180000	10/29/97 <sup>A</sup>	0.3	240	0.20	<40	9.28	<5	3.96	95	24	2
04180000	10/29/97 <sup>B</sup>	0.3	240	0.19	<40	8.9	<5	4.03	97	25	2
04180000	10/29/97 <sup>C</sup>	0.4	240	0.20	<40	8.7	<5	4.13	100	25	2
4131010- 84521301	10/30/97	0.1	310	0.15	<40	7.8	<5	3.70	92	23	2

## ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

Concentrations of trace elements and organic compounds in stream-bed  
sediments from selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

STATION NUMBER	DATE	ZINC, BED SED <63U WS (UG/G) (35020)	CARBON ORG + INORG, BED SED WS, <63U DW, REC PERCENT (49267)	CARBON ORGANIC, BED SED WS, <63U DW, REC PERCENT (49266)	CARBON INORG, BED SED WS, <63U DW, REC PERCENT (49269)	CARBON ORG + INORG, BED SED WS, <2MM DW, REC (G/KG) (49272)	CARBON ORGANIC, BED SED WS, <2MM DW, REC (G/KG) (49271)	CARBON INORG, BED SED WS, <2MM DW, REC (G/KG) (49270)	PCB, BED SED WS, <2MM DW, REC (UG/KG) (49459)	ACENAPH THYLENE, BED SED WS, <2MM DW, REC (UG/KG) (49428)	ACENAPH THENE, BED SED WS, <2MM DW, REC (UG/KG) (49429)
04160900	11/03/97	180	13.5	9.27	4.23	81	60	21	99	51.1	53.3
04161540	11/04/97	120	5.98	3.48	2.50	12	6.5	5.5	<50	e14.8	e23.2
04172000	10/30/97	84	14.4	10.6	3.83	170	140	32	64	61.1	<100
04180000	10/29/97 <sup>A</sup>	140	5.02	2.80	2.22	20	10	10	e46	e4.7	<50
04180000	10/29/97 <sup>B</sup>	150	4.95	2.72	2.23	19	9.4	9.6	e35	<50	<50
04180000	10/29/97 <sup>C</sup>	160	4.92	2.74	2.18	17	7.5	9.5	e37	<50	<50
4131010- 84521301	10/30/97	120	5.31	2.93	2.38	33	23	9.6	<50	e7.4	e1.9

STATION NUMBER	DATE	ACRIDINE, BED SED, WS <2MM DW, REC (UG/KG) (49430)	ALDRIN, BED SED, WS <2MM DW, REC (UG/KG) (49319)	C8- ALKYLPHENOL, BED SED, WS <2MM DW, REC (UG/KG) (49424)	ANTHRACENE, BED SED, WS <2MM DW, REC (UG/KG) (49434)	9,10 ANTHRA- QUINONE, BED SED, WS <2MM DW, REC (UG/KG) (49437)	AZO- BENZENE, BED SED, WS <2MM DW, REC (UG/KG) (49443)	BENZO (A) ANTHRACENE, BED SED, WS <2MM DW, REC (UG/KG) (49436)
04160900	11/03/97	60.7	<1.0	<100	255	396	<100	1110
04161540	11/04/97	e37.2	<1.0	<50	87.3	170	<50	354
04172000	10/30/97	<100	<2.0	<100	78.8	e42.7	<100	182
04180000	10/29/97 <sup>A</sup>	<50	<1.0	<50	e7.9	<50	<50	e12.6
04180000	10/29/97 <sup>B</sup>	<50	<1.0	<50	e4.0	<50	<50	<50
04180000	10/29/97 <sup>C</sup>	<50	<1.0	<50	e4.4	<50	<50	<50
4131010- 84521301	10/30/97	e8.2	<1.0	<50	e10.8	e18.7	<50	e17.1

STATION NUMBER	DATE	BENZO- CINNOLINE, BED MAT, WS <2MM DW REC (UG/KG) (49468)	BENZO (B) FLUOR- ANTHENE, BED SED, WS <2MM DW, REC (UG/KG) (49458)	BENZO (K) FLUOR- ANTHENE, BED SED, WS <2MM DW, REC (UG/KG) (49397)	BENZO (G,H,I) PERYLENE, BED SED, WS <2MM DW, REC (UG/KG) (49408)	BENZO (A) PYRENE, BED SED, WS <2MM DW, REC (UG/KG) (49389)	2, 2'- BIQUINOLINE, BED SED, WS <2MM DW, REC (UG/KG) (49391)	4- BROMOPHENYL PHENYLETHER, BED SED, WS <2MM DW, REC (UG/KG) (49454)
04160900	11/03/97	<100	2220	668	428	1270	<100	<100
04161540	11/04/97	<50	663	244	176	405	<50	<50
04172000	10/30/97	<100	306	108	85.2	190	e19.2	<100
04180000	10/29/97 <sup>A</sup>	<50	e20.2	e10.7	e9.9	e17.4	<50	<50
04180000	10/29/97 <sup>B</sup>	<50	e17.0	e4.8	e8.2	e12.3	<50	<50
04180000	10/29/97 <sup>C</sup>	<50	e15.1	e5.4	e7.3	e9.3	<50	<50
4131010- 84521301	10/30/97	<50	e37.9	13.4	e24.7	e22.7	<50	<50

STATION NUMBER	DATE	BUTYL BENZYL- PHTHALATE, BED SED, WS <2MM DW, REC (UG/KG) (49427)	CARBAZOLE, BED SED, WS <2MM DW, REC (UG/KG) (49449)	CIS- CHLORDANE, BED SED, WS <2MM DW, REC (UG/KG) (49320)	TRANS- CHLORDANE, BED SED, WS <2MM DW, REC (UG/KG) (49321)	BIS 2-CHLORO- ETHOXY METHANE, BED SED, WS <2MM DW, REC (UG/KG) (49401)	4-CHLORO 3-METHYL- PHENOL, BED SED, WS <2MM DW, REC (UG/KG) (49422)	2-CHLORO- NAPH- THALENE, BED SED, WS <2MM DW, REC (UG/KG) (49407)
04160900	11/03/97	90.1	201	e0.8	<1.0	<100	<100	<100
04161540	11/04/97	e22.5	96.4	1.4	1.2	<50	<50	<50
04172000	10/30/97	e40.7	e32.0	<2.0	<2.0	<100	<100	<100
04180000	10/29/97 <sup>A</sup>	<50	e3.5	<1.0	<1.0	<50	<50	<50
04180000	10/29/97 <sup>B</sup>	e11.3	<50	<1.0	<1.0	<50	<50	<50
04180000	10/29/97 <sup>C</sup>	e10.2	<50	<1.0	<1.0	<50	<50	<50
4131010- 84521301	10/30/97	e10.7	e7.0	<1.0	<1.0	<50	<50	<50

Concentrations of trace elements and organic compounds in stream-bed  
sediments from selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

STATION NUMBER	DATE	CHLORONEB, BED SED, WS <2MM DW, REC (UG/KG) (49322)	2- CHLORO- PHENOL, BED SED, WS <2MM DW, REC (UG/KG) (49467)	4-CHLORO- PHENYL ETHER, BED SED, WS <2MM DW, REC (UG/KG) (49455)	CHRYSENE, BED SED, WS <2MM DW, REC (UG/KG) (49450)	P- CRESOL, BED SED, WS <2MM DW, REC (UG/KG) (49451)	DCPA, BED SED, WS <2MM DW, REC (UG/KG) (49324)	O, P- DDD, BED SED, WS <2MM DW, REC (UG/KG) (49325)
04160900	11/03/97	<5.0	<100	<100	1360	e36.4	<5.0	<1.0
04161540	11/04/97	<5.0	<50	<50	420	e8.4	<5.0	<1.0
04172000	10/30/97	<10.0	<100	<100	202	e44.3	<10.0	<2.0
04180000	10/29/97 <sup>A</sup>	<5.0	<50	<50	e17.9	340	<5.0	<1.0
04180000	10/29/97 <sup>B</sup>	<5.0	<50	<50	e8.9	e7.4	<5.0	<1.0
04180000	10/29/97 <sup>C</sup>	<5.0	<50	<50	e7.4	e9.3	<5.0	<1.0
4131010- 84521301	10/30/97	<5.0	<50	<50	e24.9	e11.9	<5.0	<1.0
STATION NUMBER	DATE	P, P- DDD, BED SED, WS <2MM DW, REC (UG/KG) (49326)	O, P- DDE, BED SED, WS <2MM DW, REC (UG/KG) (49327)	P, P- DDE, BED SED, WS <2MM DW, REC (UG/KG) (49328)	O, P- DDT, BED SED, WS <2MM DW, REC (UG/KG) (49329)	P, P- DDT, BED SED, WS <2MM DW, REC (UG/KG) (49330)	DIBENZ (A,H) ANTHRACENE, BED SED, WS <2MM DW, REC (UG/KG) (49461)	DIBENZO- THIOPHENE, BED SED, WS <2MM DW, REC (UG/KG) (49452)
04160900	11/03/97	e6.0	<1.0	6.7	<2.0	<2.0	163	59.1
04161540	11/04/97	e1.4	<1.0	4.4	<2.0	e1.4	57.2	e27.1
04172000	10/30/97	e11.0	<2.0	17	<4.0	<4.0	<100	<100
04180000	10/29/97 <sup>A</sup>	<1.0	<1.0	<1.0	<2.0	<2.0	<50	<50
04180000	10/29/97 <sup>B</sup>	<1.0	<1.0	<1.0	<2.0	<2.0	<50	<50
04180000	10/29/97 <sup>C</sup>	<1.0	<1.0	<1.0	<2.0	<2.0	<50	<50
4131010- 84521301	10/30/97	e0.6	<1.0	e0.5	<2.0	<2.0	<50	<50
STATION NUMBER	DATE	DI-N BUTYL PHTHALATE, BED SED, WS <2MM DW, REC (UG/KG) (49381)	1,2- DICHLORO- BENZENE, BED SED, WS <2MM DW, REC (UG/KG) (49439)	1,3- DICHLORO- BENZENE, BED SED, WS <2MM DW, REC (UG/KG) (49441)	1,4- DICHLORO- BENZENE, BED SED, WS <2MM DW, REC (UG/KG) (49442)	DIELDRIN, BED SED, WS <2MM DW, REC (UG/KG) (49331)	DIETHYL PHTHALATE, BED SED, WS <2MM DW, REC (UG/KG) (49383)	1,2-DIMETHYL- NAPH- THALENE, BED SED, WS <2MM DW, REC (UG/KG) (49403)
04160900	11/03/97	68.6	<100	<100	<100	<1.0	<100	<100
04161540	11/04/97	91.5	<50	<50	<50	<1.0	<50	<50
04172000	10/30/97	70.8	<100	<100	<100	<2.0	<100	<100
04180000	10/29/97 <sup>A</sup>	e29.2	<50	<50	<50	<1.0	e8.9	<50
04180000	10/29/97 <sup>B</sup>	e26.5	<50	<50	<50	<1.0	e1.1	<50
04180000	10/29/97 <sup>C</sup>	e23.9	<50	<50	<50	<1.0	<50	<50
4131010- 84521301	10/30/97	e37.0	<50	<50	<50	<1.0	e11.4	<50
STATION NUMBER	DATE	1,6-DIMETHYL- NAPH- THALENE, BED SED, WS <2MM DW, REC (UG/KG) (49404)	2,6-DIMETHYL- NAPH- THALENE, BED SED, WS <2MM DW, REC (UG/KG) (49406)	3,5-DIMETHYL- PHENOL, BED SED, WS <2MM DW, REC (UG/KG) (49421)	DIMETHYL PHTHALATE, BED SED, WS <2MM DW, REC (UG/KG) (49384)	2,4-DINITRO- TOLUENE, BED SED, WS <2MM DW, REC (UG/KG) (49395)	2,6- DINITRO- TOLUENE, BED SED, WS <2MM DW, REC (UG/KG) (49396)	DI-N- OCTYL PHTHALATE, BED SED, WS <2MM DW, REC (UG/KG) (49382)
04160900	11/03/97	<100	90.8	<100	150	<100	<100	130
04161540	11/04/97	<50	e17.0	<50	e5.6	<50	<50	e31.2
04172000	10/30/97	<100	134	<100	<100	<100	<100	<100
04180000	10/29/97 <sup>A</sup>	e2.0	e13.4	<50	<50	<50	<50	<50
04180000	10/29/97 <sup>B</sup>	<50	e10.9	<50	<50	<50	<50	<50
04180000	10/29/97 <sup>C</sup>	<50	e16.0	<50	<50	<50	<50	<50
4131010- 84521301	10/30/97	e3.9	e14.8	<50	<50	<50	<50	<50



## ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

Concentrations of trace elements and organic compounds in stream-bed  
sediments from selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

STATION NUMBER	DATE	ALPHA- ENDOSULFAN, BED SED, WS <2MM DW, REC (UG/KG) (49332)	ENDRIN, BED SED, WS <2MM DW, REC (UG/KG) (49335)	BIS (2- ETHYLHEXYL) PHTHALATE, BED SED, WS <2MM DW, REC (UG/KG) (49426)	2-ETHYL NAPH- THALENE, BED SED, WS <2MM DW, REC (UG/KG) (49948)	FLUOR- ANTHENE, BED SED, WS <2MM DW, REC (UG/KG) (49466)	FLUORENE, BED SED, WS <2MM DW, REC (UG/KG) (49399)	ALPHA-BHC, BED SED, WS <2MM DW, REC (UG/KG) (49338)
04160900	11/03/97	<1.0	<2.0	526	e10.7	3290	95	<1.0
04161540	11/04/97	<1.0	<2.0	122	<50	1120	e38.8	<1.0
04172000	10/30/97	<2.0	<4.0	103	<100	436	e7.2	<2.0
04180000	10/29/97 <sup>A</sup>	<1.0	<2.0	e31.2	<50	e37.5	e1.5	<1.0
04180000	10/29/97 <sup>B</sup>	<1.0	<2.0	e30.1	<50	e19.4	<50	<1.0
04180000	10/29/97 <sup>C</sup>	<1.0	<2.0	e26.2	<50	e21.8	<50	<1.0
4131010- 84521301	10/30/97	<1.0	<2.0	e22.4	<50	73.6	e7.0	<1.0

STATION NUMBER	DATA	BETA-BHC, BED SED, WS <2MM DW, REC (UG/KG) (49339)	LINDANE, BED SED, WS <2MM DW, REC (UG/KG) (49345)	HEPTACHLOR, BED SED, WS <2MM DW, REC (UG/KG) (49341)	HEPTACHLOR EPOXIDE, BED SED, WS <2MM DW, REC (UG/KG) (49342)	HEXACHLORO- BENZENE, BED SED, WS <2MM DW, REC (UG/KG) (49343)	INDENO (1,2,3- C,D) PYRENE, BED SED, WS <2MM DW, REC (UG/KG) (49390)	ISODRIN, BED SED, WS <2MM DW, REC (UG/KG) (49344)
04160900	11/03/97	<1.0	<1.0	<1.0	<1.0	<1.0	596	<1.0
04161540	11/04/97	<1.0	<1.0	<1.0	<1.0	<1.0	224	<1.0
04172000	10/30/97	<2.0	<2.0	<2.0	<2.0	<2.0	95.9	<2.0
04180000	10/29/97 <sup>A</sup>	<1.0	<1.0	<1.0	<1.0	<1.0	e10.5	<1.0
04180000	10/29/97 <sup>B</sup>	<1.8	<1.0	<1.0	<1.0	<1.0	e6.3	<1.0
04180000	10/29/97 <sup>C</sup>	<1.0	<1.0	<1.0	<1.0	<1.0	e5.3	<1.0
4131010- 84521301	10/30/97	<1.0	<1.0	<1.0	<1.0	<1.0	e15.2	<1.0

STATION NUMBER	DATE	ISOPHORONE, BED SED, WS <2MM DW, REC (UG/KG) (49400)	ISOQUINO- LINE, BED SED, WS <2MM DW, REC (UG/KG) (49394)	O,P'- METHOXY- CHLOR, BED SED, WS <2MM DW, REC (UG/KG) (49347)	P,P'- METHOXY CHLOR, BED SED, WS <2MM DW, REC (UG/KG) (49346)	2-METHYL- ANTHRACENE, BED SED, WS <2MM DW, REC (UG/KG) (49435)	4,5- METHYLENE- PHENANTH- RENE, BED SED, WS <2MM DW, REC (UG/KG) (49411)	1-METHYL- 9H-FLUORENE, BED SED, WS <2MM DW, REC (UG/KG) (49398)
04160900	11/03/97	<100	<100	<5.0	<5.0	e29.8	199	<100
04161540	11/04/97	<50	<50	<5.0	<5.0	e6.7	70.1	<50
04172000	10/30/97	e25.7	53.9	<10.0	<10.0	<100	e31.6	<100
04180000	10/29/97 <sup>A</sup>	<50	<50	<5.0	<5.0	e3.3	e4.5	<50
04180000	10/29/97 <sup>B</sup>	<50	<50	<5.0	<5.0	<50	<50	<50
04180000	10/29/97 <sup>C</sup>	<50	<50	<5.0	<5.0	<50	<50	<50
4131010- 84521301	10/30/97	<50	<50	<5.0	<5.0	e4.2	e11.2	<50

STATION NUMBER	DATE	1-METHYLENE- PHEN- ANTHRENE, BED SED, WS <2MM DW, REC (UG/KG) (49410)	1- METHYL- PYRENE, BED SED, WS <2MM DW, REC (UG/KG) (49388)	MIREX, BED SED, WS <2MM DW, REC (UG/KG) (49348)	NAPH- THALENE, BED SED, WS <2MM DW, REC (UG/KG) (49402)	NITRO- BENZENE, BED SED, WS <2MM DW, REC (UG/KG) (49444)	N-NITRO- SODIPHENY- LAMINE, BED SED, WS <2MM DW, REC (UG/KG) (49433)	N-NITROSODI- N-PROPY- LAMINE, BED SED, WS <2MM DW, REC (UG/KG) (49431)
04160900	11/03/97	67.9	63.4	<1.0	e33.8	<100	<100	<100
04161540	11/04/97	e20.4	e18.8	<1.0	e9.1	<50	<50	<50
04172000	10/30/97	e6.4	e21.2	<2.0	e13.1	<100	<100	<100
04180000	10/29/97 <sup>A</sup>	e1.7	e4.0	<1.0	e1.0	<50	<50	<50
04180000	10/29/97 <sup>B</sup>	<50	<50	<1.0	e2.6	<50	<50	<50
04180000	10/29/97 <sup>C</sup>	<50	<50	<1.0	e2.2	<50	<50	<50
4131010- 84521301	10/30/97	e5.1	e5.2	<1.0	e1.4	<50	<50	<50

Concentrations of trace elements and organic compounds in stream-bed  
sediments from selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

STATION NUMBER	DATE	CIS- NONACHLOR, BED SED, WS <2MM DW, REC (UG/KG) (49316)	TRANS- NONACHLOR, BED SED, WS <2MM DW, REC (UG/KG) (49317)	OXY- CHLORDANE, BED SED, WS <2MM DW, REC (UG/KG) (49318)	PENTA- CHLORO- ANISOLE, BED SED, WS <2MM DW, REC (UG/KG) (49460)	PENTA- CHLORO- NITRO- BENZENE, BED SED, WS <2MM DW, REC (UG/KG) (49446)	CIS- PERMETHRIN, BED SED, WS <2MM DW, REC (UG/KG) (49349)	TRANS- PERMETHRIN, BED SED, WS <2MM DW, REC (UG/KG) (49350)
		(UG/KG) (49316)	(UG/KG) (49317)	(UG/KG) (49318)	(UG/KG) (49460)	(UG/KG) (49446)	(UG/KG) (49349)	(UG/KG) (49350)
04160900	11/03/97	<1.0	<1.0	<1.0	<1.0	<100	<6.0	<30
04161540	11/04/97	<1.0	e0.4	<1.0	<1.0	<50	<5.0	<19
04172000	10/30/97	<2.0	<2.0	<2.0	<2.0	<100	<10.0	<10
04180000	10/29/97 <sup>A</sup>	<1.0	<1.0	<1.0	<0.10	<50	<5.0	<5.0
04180000	10/29/97 <sup>B</sup>	<1.0	<1.0	<1.0	<1.0	<50	<5.0	<5.0
04180000	10/29/97 <sup>C</sup>	<1.0	<1.0	<1.0	<1.0	<50	<5.0	<5.0
4131010- 84521301	10/30/97	<1.0	<1.0	<1.0	<1.0	<50	<5.0	<7.0

STATION NUMBER	DATE	PHEN- ANTHRENE, BED SED, WS <2MM DW, REC (UG/KG) (49409)	PHENANTH- RIDINE, BED SED, WS <2MM DW, REC (UG/KG) (49393)	PHENOL, BED SED, WS <2MM DW, REC (UG/KG) (49413)	PYRENE, BED SED, WS <2MM DW, REC (UG/KG) (49387)	QUINOLINE, BED SED, WS <2MM DW, REC (UG/KG) (49392)	TOXAPHENE, BED SED, WS <2MM DW, REC (UG/KG) (49351)	1,2,4-TRI- CHLORO BENZENE, BED SED, WS <2MM DW, REC (UG/KG) (49438)
		(UG/KG) (49409)	(UG/KG) (49393)	(UG/KG) (49413)	(UG/KG) (49387)	(UG/KG) (49392)	(UG/KG) (49351)	(UG/KG) (49438)
04160900	11/03/97	1300	52.4	e38.3	2480	<100	<200	<100
04161540	11/04/97	584	e17.6	e8.3	830	<50	<200	<50
04172000	10/30/97	122	<100	52.3	364	<100	<400	<100
04180000	10/29/97 <sup>A</sup>	e16.6	<50	e22.3	e35.9	<50	<200	<50
04180000	10/29/97 <sup>B</sup>	e11.0	<50	e10.0	e20.1	<50	<200	<50
04180000	10/29/97 <sup>C</sup>	e11.7	<50	e13.7	e21.1	<50	<200	<50
4131010- 84521301	10/30/97	e32.2	<50	e21.1	59.5	<50	<200	<50

STATION NUMBER	DATE	2,3,6 TRIMETHYL- NAPH- THALENE, BED SED, WS <2MM DW, REC (UG/KG) (49405)	% SAND BED MAT. <2 MM AND >.062 MM	% SILT BED MAT. <.062 MM AND >.004 MM	% CLAY BED MAT. <.004 MM
		(UG/KG) (49405)	<2 MM AND >.062 MM	<.062 MM AND >.004 MM	<.004 MM
04160900	11/03/97	e11.6	58.4	25.5	16.1
04161540	11/04/97	e4.1	91.1	6.3	2.6
04172000	10/30/97	<100	35.7	37.6	26.7
04180000	10/29/97 <sup>A</sup>	e4.8	91.6	5.4	3.0
04180000	10/29/97 <sup>B</sup>	<50	90.7	6.1	3.2
04180000	10/29/97 <sup>C</sup>	<50	91.0	5.9	3.1
4131010- 84521301	10/30/97	e6.5	87.5	6.8	5.7

## REFERENCES CITED:

Shelton, L.R., and Capel, P.D., 1994, *Guidelines for collecting and processing samples of stream bed sediment for analysis of trace elements and organic contaminants for the National Water-Quality Assessment Program*. U.S. Geological Survey Open-File Report 94-458, 20 p.

Invertebrate community results from selected sites in the Lake Erie - Lake St. Clair Basin  
(National Water-Quality Assessment Program)

Invertebrate community surveys were conducted at 10 stream sites in the Lake Erie - Lake St. Clair Basin in 1996. Two benthic invertebrate samples were collected at each stream site: (1) a semiquantitative targeted-habitat sample (richest targeted habitat, RTH), usually a fast-flowing, coarse-grained riffle; and (2) a qualitative multihabitat sample (QMH), from as many instream habitat types as were present and accessible within the sampling reach in a one-half-hour period. RTH samples consisted of five composite kick samples collected using a modified Slack sampler (425- $\mu$ m mesh) having an area of 0.5 m by 0.5 m (depth 0.1 m). QMH samples consisted of a composite of kicking, dipping, or sweeping a D-frame kick net equipped with a 210- $\mu$ m mesh net in a manner appropriate for the many instream habitat types being sampled. More details regarding collection methods can be found in Cuffney and others, 1993.

Field samples were elutriated by swirling and were sieved (425- $\mu$ m mesh sieve for RTH, 210- $\mu$ m mesh sieve for QMH) until sample volumes were less than 750 mL. Samples were preserved in the field in 10 percent buffered formalin, and within one week, they were drained and refilled with 70 percent ethanol and shipped to the USGS National Water Quality Laboratory for identification. Additional surface-water and/or water-quality data for these sites can be found in the continuous-record sections of the Indiana, Michigan, New York, and Ohio Water Resources Data Reports.

Phylum or class names are in bold uppercase and parentheses, order names in bold uppercase, suborder names in uppercase and parentheses, family names in uppercase, subfamily or tribe names in *italic* and parentheses, and genus and species names in *italics* (1.25 m<sup>2</sup> = total area sampled for richest targeted habitat sample (RTH); Q = qualitative multihabitat sample (QMH); + = at least one organism present in the QMH sample).

CALENDAR YEAR 1996

STATION NUMBER	STATION NAME	DATE	DRAINAGE AREA (mi <sup>2</sup> )	REACH - A LENGTH (meters)
04159492	BLACK RIVER NEAR JEDDO, MI	09/12/96	464	466
04161820	CLINTON RIVER AT STERLING HEIGHTS, MI	09/13/96	309	286
04175600	RIVER RAISIN NEAR MANCHESTER, MI	09/11/96	132	247
04178000	ST JOSEPH RIVER NEAR NEWVILLE, IN	09/10/96	610	300
04183000	MAUMEE RIVER AT NEW HAVEN, IN	09/19/96	1,967	352
04186500	AUGLAIZE RIVER NEAR FORT JENNINGS, OH	09/09/96	332	241
04193500	MAUMEE RIVER AT WATERVILLE, OH	09/16/96	6,330	500
04208504	CUYAHOGA RIVER AT LTV STEEL AT CLEVELAND, OH	10/09/96	788	313
04211820	GRAND RIVER AT HARPERSFIELD, OH	09/17/96	552	509
04213500	CATTARAUGUS CREEK AT GOWANDA, NY	06/25/96	436	368

REFERENCES CITED:

Cuffney, T.F., Gurtz, M.E., and Meador, M.R., 1993, *Methods for collecting benthic invertebrate samples as part of the National Water-Quality Assessment Program*: U.S. Geological Survey Open-File Report 93-406, 66 p.

Invertebrate community results from selected sites in the Lake Erie - Lake St. Clair Basin  
(National Water-Quality Assessment Program)

Invertebrate community surveys were conducted at 3 stream sites (3 reaches per stream) in the Lake Erie - Lake St. Clair Basin in 1997. Two benthic invertebrate samples were collected at each stream reach: (1) a semiquantitative targeted-habitat sample (richest targeted habitat, RTH), usually a fast-flowing, coarse-grained riffle; and (2) a qualitative multihabitat sample (QMH), from as many instream habitat types as were present and accessible within the sampling reach in a one-half-hour period. RTH samples consisted of five composite kick samples collected using a modified Slack sampler (425- $\mu$ m mesh) having an area of 0.5 m by 0.5 m (depth 0.1 m). QMH samples consisted of a composite of kicking, dipping, or sweeping a D-frame kick net equipped with a 210- $\mu$ m mesh net in a manner appropriate for the many instream habitat types being sampled. More details regarding collection methods can be found in Cuffney and others, 1993.

Field samples were elutriated by swirling and were sieved (425- $\mu$ m mesh sieve for RTH, 210- $\mu$ m mesh sieve for QMH) until sample volumes were less than 750 mL. Samples were preserved in the field in 10 percent buffered formalin, and within one week, they were drained and refilled with 70 percent ethanol and shipped to the USGS National Water Quality Laboratory for identification. Additional surface-water and/or water-quality data for these sites can be found in the continuous-record sections of the Indiana, Michigan, New York, and Ohio Water Resources Data Reports.

Phylum or class names are in bold uppercase and parentheses, order names in bold uppercase, suborder names in uppercase and parentheses, family names in uppercase, subfamily or tribe names in *italic* and parentheses, and genus and species names in *italics* (1.25 m<sup>2</sup> = total area sampled for richest targeted habitat sample (RTH); Q = qualitative multihabitat sample (QMH); + = at least one organism present in the QMH sample).

CALENDAR YEAR 1997

STATION NUMBER	STATION NAME	DATE	DRAINAGE AREA (mi <sup>2</sup> )	REACH	REACH LENGTH (meters)
04161820	CLINTON RIVER AT STERLING HEIGHTS, MI	09/08/97	309	A	286
04161820	CLINTON RIVER AT STERLING HEIGHTS, MI	09/09/97	309	B	308
04161820	CLINTON RIVER AT STERLING HEIGHTS, MI	09/26/97	309	C	298
04193500	MAUMEE RIVER AT WATERVILLE, OH	10/08/97	6,330	A	500
04193500	MAUMEE RIVER AT WATERVILLE, OH	10/09/97	6,330	B	400
04193500	MAUMEE RIVER AT WATERVILLE, OH	10/09/97	6,330	C	400
04211820	GRAND RIVER AT HARPERSFIELD, OH	09/10/97	552	A	509
04211820	GRAND RIVER AT HARPERSFIELD, OH	09/11/97	552	B	267
04211820	GRAND RIVER AT HARPERSFIELD, OH	09/11/97	552	C	291

REFERENCES CITED:

Cuffney, T.F., Gurtz, M.E., and Meador, M.R., 1993, *Methods for collecting benthic invertebrate samples as part of the National Water-Quality Assessment Program*: U.S. Geological Survey Open-File Report 93-406, 66 p.

Invertebrate community results from selected sites in the Lake Erie - Lake St. Clair Basin  
(National Water-Quality Assessment Program)

Invertebrate community surveys were conducted at 3 stream sites in the Lake Erie - Lake St. Clair Basin in 1998. Two benthic invertebrate samples were collected at each stream site: (1) a semiquantitative targeted-habitat sample (richest targeted habitat, RTH), usually a fast-flowing, coarse-grained riffle; and (2) a qualitative multihabitat sample (QMH), from as many instream habitat types as were present and accessible within the sampling reach in a one-half-hour period. RTH samples consisted of five composite kick samples collected using a modified Slack sampler (425- $\mu$ m mesh) having an area of 0.5 m by 0.5 m (depth 0.1 m). QMH samples consisted of a composite of kicking, dipping, or sweeping a D-frame kick net equipped with a 210- $\mu$ m mesh net in a manner appropriate for the many instream habitat types being sampled. More details regarding collection methods can be found in Cuffney and others, 1993.

Field samples were elutriated by swirling and were sieved (425- $\mu$ m mesh sieve for RTH, 210- $\mu$ m mesh sieve for QMH) until sample volumes were less than 750 mL. Samples were preserved in the field in 10 percent buffered formalin, and within one week, they were drained and refilled with 70 percent ethanol and shipped to the USGS National Water Quality Laboratory for identification. Additional surface-water and/or water-quality data for these sites can be found in the continuous-record sections of the Indiana, Michigan, New York, and Ohio Water Resources Data Reports.

Phylum or class names are in bold uppercase and parentheses, order names in bold uppercase, suborder names in uppercase and parentheses, family names in uppercase, subfamily or tribe names in italic and parentheses, and genus and species names in italics (1.25 m<sup>2</sup> = total area sampled for richest targeted habitat sample (RTH); Q = qualitative multihabitat sample (QMH); + = at least one organism present in the QMH sample).

CALENDAR YEAR 1998

STATION NUMBER	STATION NAME	DATE	DRAINAGE AREA (mi <sup>2</sup> )	REACH - A LENGTH (meters)
04161820	CLINTON RIVER AT STERLING HEIGHTS, MI	08/18/98	309	286
04193500	MAUMEE RIVER AT WATERVILLE, OH	09/03/98	6,330	500
04211820	GRAND RIVER AT HARPERSFIELD, OH	08/10/98	552	509

REFERENCES CITED:

Cuffney, T.F., Gurtz, M.E., and Meador, M.R., 1993, *Methods for collecting benthic invertebrate samples as part of the National Water-Quality Assessment Program*: U.S. Geological Survey Open-File Report 93-406, 66 p.



## ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

Invertebrate community results for selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

[illegible]



## ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

Invertebrate community results for selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

(PHYLUM or CLASS) ORDER (SUBORDER) FAMILY (subfamily or tribe) Genus species	04159492 Black River near Jeddo, MI 09/12/96		04161820 Clinton River at Sterling Heights, MI 09/13/96		04175600 River Raisin at Man- chester, MI 09/11/96		04178000 St. Joseph River near Newville, IN 09/10/96		04183000 Maumee River at New Haven, IN 09/19/96		04186500 Auglaize River at Fort Jennings, OH 09/09/96		04193500 Maumee River at Waterville, OH 09/16/96		04208504 Cuyahoga River at LTV Steel at Cleve- land, OH 10/09/96		04211820 Grand River at Harpers- field, OH 09/17/96		04213500 Cattar- augus Creek at Gowanda, NY 06/25/96	
	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q
CHIRONOMIDAE	536		667	+	1756		271		256		1424		7215		661	+	657		664	
<i>Ablabesmyia</i> sp.						+														
<i>Brillia</i> sp.				+																
(Chironominae)		+		+								+								
(Chironomini)		+		+		+				+		+								
<i>Chironomus</i> sp.				+										+						
<i>Cladotanytarsus</i> sp.																		+		
<i>Clinotanytus</i> sp.						+														
<i>Cricotopus</i> sp.						+										+				+
<i>C. /Orthocladius</i> sp.				+										+		+				+
<i>Cryptochironomus</i> sp.		+						+												
<i>Cryptotendipes</i> sp.						+														
(Diametinae)																				+
<i>Dicrotendipes</i> sp.		+																+		
<i>Endochironomus</i> sp.												+						+		
<i>Glyptotendipes</i> sp.												+		+						
<i>Harnischia</i> sp.								+				+								
<i>Larsia</i> sp.								+				+							+	
<i>Microtendipes</i> sp.																			+	
<i>Nilotanytus</i> sp.																			+	
(Orthocladinae)																			+	
<i>Parachironomus</i> sp.		+														+				+
<i>Paracladopelma</i> sp.								+												

## ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

Invertebrate community results for selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

(PHYLUM or CLASS) ORDER (SUBORDER) FAMILY (subfamily or tribe) Genus species	04159492 Black River near Jeddo, MI 09/12/96		04161820 Clinton River at Sterling Heights, MI 09/13/96		04175600 River Raisin at Man- chester, MI 09/11/96		04178000 St. Joseph River near Newville, IN 09/10/96		04183000 Maumee River at New Haven, IN 09/19/96		04186500 Auglaize River at Fort Jennings, OH 09/09/96		04193500 Maumee River at Waterville, OH 09/16/96		04208504 Cuyahoga River at LTV Steel at Cleve- land, OH 10/09/96		04211820 Grand River at Harpers- field, OH 09/17/96		04213500 Cattar- augus Creek at Gowanda, NY 06/25/96	
	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q
<i>Parametriocnemus</i> sp.																				+
( <i>Pentaneurini</i> )								+				+								+
<i>Phaenopsectra</i> sp.									+											+
<i>Polypedilum</i> sp.		+		+		+			+			+					+			+
<i>Procladius</i> sp.						+		+												
<i>Rheotanytarsus</i> sp.				+																
<i>Stenochironomus</i> sp.				+																
( <i>Tanytopodinae</i> )																+				
<i>Tanytus</i> sp.										+										
<i>Tanytarsus</i> sp.		+				+			+									+		
<i>Thienemannimyia</i> group sp.		+		+				+	+			+					+			
<i>Tribelos</i> sp.								+												
<i>Tvetenia</i> sp.				+																
CULICIDAE		+																		
SIMULIIDAE	16		64								1		64		56		279	8		
<i>Simulium</i> sp.									+		1				36	+	386	+		+
TIPULIDAE		+		+																+
<i>Antocha</i> sp.	16										1							4		
<i>Hexatoma</i> sp.	10	+																		
<i>Pilaria</i> sp.					3															
<i>Tipula</i> sp.	7	+																		
EPHEMEROPTERA							48				153									
BAETIDAE	280		136	+			12		2049		191		3328		4		138		20	



## ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

Invertebrate community results for selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

(PHYLUM or CLASS) ORDER (SUBORDER) FAMILY (subfamily or tribe) Genus species	04159492 Black River near Jeddo, MI 09/12/96		04161820 Clinton River at Sterling Heights, MI 09/13/96		04175600 River Raisin at Man- chester, MI 09/11/96		04178000 St. Joseph River near Newville, IN 09/10/96		04183000 Maumee River at New Haven, IN 09/19/96		04186500 Auglaize River at Fort Jennings, OH 09/09/96		04193500 Maumee River at Waterville, OH 09/16/96		04208504 Cuyahoga River at LTV Steel at Cleve- land, OH 10/09/96		04211820 Grand River at Harpers- field, OH 09/17/96		04213500 Cattar- augus Creek at Gowanda, NY 06/25/96	
	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q
<i>Acentrella</i> sp.																			9	
<i>A. turbida</i>																			9	
<i>Baetis</i> sp.													768	+					4	
<i>B. flavistriga</i>															25	+			7	
<i>B. intercalaris</i>	48	+	8	+					2562	+	6	+		+	24	+	50	+	28	+
<i>B. tricaudatus</i>																				+
<i>Callibaetis</i> sp.								+						+						
<i>Labiobaetis</i> sp.																		+		
<i>L. propinquus</i>																		+		
<i>Proclonus</i> sp.																				
BAETISCIDAE																				
<i>Baetisca</i> sp.					32															
CAENIDAE																				
<i>Caenis</i> sp.	40				130	+					1				4		256		36	
EPHEMERELLIDAE																				
<i>Serratella</i> sp.																			24	
EPHEMERIDAE													1							
<i>Ephemera</i> sp.																		+		
<i>E. simulans</i>													2				5			
HEPTAGENIIDAE	64				245		185		2306		582		1280		40		153		256	+
<i>Heptagenia</i> sp.																			4	
<i>Leucrocuta</i> sp.							8				24	+			8				199	+
<i>Stenacron</i> sp.	2	+		+			16						1							



## ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

Invertebrate community results for selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

(PHYLUM or CLASS) ORDER  (SUBORDER) FAMILY  (subfamily or tribe) Genus species	04159492 Black River near Jeddo, MI 09/12/96		04161820 Clinton River at Sterling Heights, MI 09/13/96		04175600 River Raisin at Man- chester, MI 09/11/96		04178000 St. Joseph River near Newville, IN 09/10/96		04183000 Maumee River at New Haven, IN 09/19/96		04186500 Auglaize River at Fort Jennings, OH 09/09/96		04193500 Maumee River at Waterville, OH 09/16/96		04208504 Cuyahoga River at LTV Steel at Cleve- land, OH 10/09/96		04211820 Grand River at Harpers- field, OH 09/17/96		04213500 Cattar- augus Creek at Gowanda, NY 06/25/96	
	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q
<i>S. interpunctatum</i>							1													
<i>Stenonema</i> sp.	1	+	8		1	+		+	2	+			1		28	+				
<i>S. exiguum</i>								+												
<i>S. mediopunctatum</i>																				
<i>S. merivulvanum</i>											1								5	+
<i>S. mexicanum</i>										+										
<i>S. terminatum</i>											1		1							
ISONYCHIIDAE																				
<i>Isonychia</i> sp.	1				9				2	+	27	+	86	+			8		54	+
LEPTOHYPHIDAE																				
<i>Tricorythodes</i> sp.	345	+	8		268		92		1155	+	1217	+	64	+				+	20	
POTAMANTHIDAE																				
<i>Anthopotamus</i> sp.	8						14				141	+							16	
<i>A. myops</i>							3						2						4	+
SIPHONURIDAE																				
<i>Ameletus</i> sp.											1									
HEMIPTERA																				
BELOSTOMATIDAE																				
<i>Belostoma</i> sp.										+										
<i>B. flumineum</i>				+																
CORIXIDAE		+					62	+												
<i>Palmaricixa gillettei</i>		+																		
<i>Sigara</i> sp.						+								+						

## ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

Invertebrate community results for selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

(PHYLUM or CLASS) ORDER (SUBORDER) FAMILY  (subfamily or tribe) Genus species	04159492 Black River near Jeddoh, MI 09/12/96		04161820 Clinton River at Sterling Heights, MI 09/13/96		04175600 River Raisin at Manchester, MI 09/11/96		04178000 St. Joseph River near Newville, IN 09/10/96		04183000 Maumee River at New Haven, IN 09/19/96		04186500 Auglaize River at Fort Jennings, OH 09/09/96		04193500 Maumee River at Waterville, OH 09/16/96		04208504 Cuyahoga River at LTV Steel at Cleve- land, OH 10/09/96		04211820 Grand River at Harpersfield, OH 09/17/96		04213500 Cattaraugus Creek at Gowanda, NY 06/25/96	
	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q
<i>Trichocorixa</i> sp.		+						+				+								
GERRIDAE																				
(Gerrinae)																				+
<i>Metrobates</i> sp.		+				+					1	+			4	+		+		
<i>Rheumatobates</i> sp.		+																		
<i>Trepobates</i> sp.		+										+								
NAUCORIDAE																				
NEPIDAE																				
<i>Ranatra fusca</i>		+																		
<i>R. nigra</i>																				
VELIIDAE																				
<i>Rhagovelia</i> sp.										+		+								+
LEPIDOPTERA																				
PYRALIDAE																				
<i>Petrophila</i> sp.														257						
MEGALOPTERA											53									
CORYDALIDAE																				
<i>Corydalus cornutus</i>																				
<i>Nigronia serricornis</i>				+		9	+										3			
SLALIDAE																				
<i>Sialis</i> sp.								+												
ODONATA		+															3	+		
(ANISOPTERA)																				

## ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

## Invertebrate community results for selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

(PHYLUM or CLASS) ORDER  (SUBORDER) FAMILY  (subfamily or tribe) Genus species	04159492	04161820	04175600	04178000	04183000	04186500	04193500	04208504	04211820	04213500
	Black River near Jeddo, MI 09/12/96	Clinton River at Sterling Heights, MI 09/13/96	Raisin at Manchester, MI 09/11/96	St. Joseph River near Newville, IN 09/10/96	Maumee River at New Haven, IN 09/19/96	Auglaize River at Fort Jennings, OH 09/09/96	Maumee River at Waterville, OH 09/16/96	Cuyahoga River at LTV Steel at Cleveland, OH 10/09/96	Grand River at Harpersfield, OH 09/17/96	Cattaraugus Creek at Gowanda, NY 06/25/96
	1.25m <sup>2</sup> Q	1.25m <sup>2</sup> Q	1.25m <sup>2</sup> Q	1.25m <sup>2</sup> Q	1.25m <sup>2</sup> Q	1.25m <sup>2</sup> Q	1.25m <sup>2</sup> Q	1.25m <sup>2</sup> Q	1.25m <sup>2</sup> Q	1.25m <sup>2</sup> Q
AESHNIDAE										
<i>Boyeria vinosa</i>	+		+							+
CALOPTERYGIDAE										
<i>Calopteryx</i> sp.	+	8								
<i>Hetaerina</i> sp.							+			
<i>H. americana</i>	+				+	+	+			
COENAGRIONIDAE			282	8	+	18	+		+	
<i>Argia</i> sp.			1		+	1	+			
<i>A. moesta</i>			5			4	1			
<i>Coenagrion</i> / <i>Enallagma</i> sp.	+						+			
GOMPHIDAE			10	9						
<i>Erpetogomphus</i> sp.										+
<i>Gomphus</i> sp.			3							
<i>Hagenius brevistylus</i>			+							
MACROMIIDAE										
<i>Macromia taeniolata</i>		1								
PLECOPTERA										
LEUCOTRIDAE										
<i>Leuctra</i> sp.										1
NEMOURIDAE										
<i>Amphinemura</i> sp.										+
PERLIDAE									8	
<i>Acro-neuria</i> sp.			6	+						

## ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

Invertebrate community results for selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

(PHYLUM or CLASS) ORDER (SUBORDER) FAMILY (subfamily or tribe) Genus species	04159492 Black River near Jeddo, MI 09/12/96		04161820 Clinton River at Sterling Heights, MI 09/13/96		04175600 Raisin at Manchester, MI 09/11/96		04178000 St. Joseph River near Newville, IN 09/10/96		04183000 Maumee River at New Haven, IN 09/19/96		04186500 Auglaize River at Fort Jennings, OH 09/09/96		04193500 Maumee River at Waterville, OH 09/16/96		04208504 Cuyahoga River at LTV Steel at Cleve- land, OH 10/09/96		04211820 Grand River at Harpersfield, OH 09/17/96		04213500 Cattaraugus Creek at Gowanda, NY 06/25/96	
	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q
<i>Neoperla</i> sp.																			4	+
<b>TRICHOPTERA</b>																				
GLOSSOSOMATIDAE																				
<i>Culoptila</i> sp.					24															
<i>Protophila</i> sp.											62									
<i>P. maculata</i>					8						1									
HELICOPSYCHIDAE																				
<i>Helicopsyche borealis</i>					3								1							
HYDROPSYCHIDAE	473		576		74		8		10332	+	1164		4943		36	+	420		8	+
<i>Ceratopsyche</i> sp.		+				+														+
<i>C. cheilonis</i>	2										1									
<i>C. morosa</i> group	314		288		46						132		5				18		2	
<i>Cheumatopsyche</i> sp.	84	+	8	+	67	+	+		5600	+	575	+	5298	+	61		364	+		
<i>C. campyla</i>											3		27	+						
<i>Hydropsyche</i> sp.	3	+	97	+		+		897			3		3		9		50			
<i>Hydropsyche</i> spp.	2																			
<i>H. aerata</i>													865	+						
<i>H. betteni</i>			7																	
<i>H. bidens</i>									550	+	7	+								
<i>H. bidens</i> (orris)															1					
<i>H. depravata</i> group				+		+									1	+				
<i>H. dicantha</i>		+													12			+		
<i>H. frisoni</i>													233							+



## ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

## Invertebrate community results for selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

(PHYLUM or CLASS) ORDER (SUBORDER) FAMILY (subfamily or tribe) Genus species	04159492 Black River near Jeddo, MI 09/12/96		04161820 Clinton River at Sterling Heights, MI 09/13/96		04175600 River Raisin at Manchester, MI 09/11/96		04178000 St. Joseph River near Newville, IN 09/10/96		04183000 Maumee River at New Haven, IN 09/19/96		04186500 Auglaize River at Fort Jennings, OH 09/09/96		04193500 Maumee River at Waterville, OH 09/16/96		04208504 Cuyahoga River at LTV Steel at Cleve- land, OH 10/09/96		04211820 Grand River at Harpersfield, OH 09/17/96		04213500 Cattaraugus Creek at Gowanda, NY 06/25/96	
	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q
<i>H. hageni</i>													9	+						
<i>H. orris</i>								2127							19	+				
<i>H. rossi / simulans</i>									+											
<i>H. sp. nr. frisoni</i>														+						
<i>Macrostemum sp.</i>					10												10	+		
<i>Potamyia flava</i>								5	+				335	+						
HYDROPTILIDAE											1								4	
<i>Hydrotilla angusta</i>															4					
<i>H. consimilis</i>																	1			
<i>H. spatulata</i>																				
LEPTOCERIDAE							4				1									
<i>Ceraclea sp.</i>						4														
<i>Nectopsyche sp.</i>						1			+		1									
<i>N. diarina</i>			+			4	+													
<i>Oecetis sp.</i>						4														
LIMNephilidae																				
<i>Pycnopsyche sp.</i>																			+	
PHILOPOTAMIDAE																	40			
<i>Chimarra sp.</i>	12	+															123	+		
<i>C. atterrina</i>																		+		
PHRYGANEIDAE							4													
ACARI																				
(HYDRACHNIDIA)	8	+	8		216		48				32				48				16	



# ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

Invertebrate community results for selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

(PHYLUM or CLASS) ORDER (SUBORDER) FAMILY (subfamily or tribe) Genus species	04159492 Black River near Jeddo, MI 09/12/96		04161820 Clinton River at Sterling Heights, MI 09/13/96		04175600 River Raisin at Man- chester, MI 09/11/96		04178000 St. Joseph River near Newville, IN 09/10/96		04183000 Maumee River at New Haven, IN 09/19/96		04186500 Auglaize River at Fort Jennings, OH 09/09/96		04193500 Maumee River at Waterville, OH 09/16/96		04208504 Cuyahoga River at LTV Steel at Cleve- land, OH 10/09/96		04211820 Grand River at Harpers- field, OH 09/17/96		04213500 Cattar- augus Creek at Gowanda, NY 06/25/96	
	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q
<b>AMPHIPODA</b>																				
<b>GAMMARIDAE</b>																				
<i>Gammarus</i> sp.						75	+													
<b>HYALELLIDAE</b>																				
<i>Hyalella azteca</i>		+																		
<b>(BIVALVIA)</b>	4	+			16			4			16						2			
<b>UNIONOIDA</b>																				
<b>UNIONIDAE</b>						1														
<b>VENEROIDA</b>																				
<b>CORBICULIDAE</b>																				
<i>Corbicula</i> sp.											5									
<b>DREISSENIDAE</b>																				
<i>Dreissena polymorpha</i>				+																
<b>PISIDIIDAE</b>																				
<i>Pisidium</i> sp.					8															
<b>SPHAERIIDAE</b>	74				184	+			780	+	7		255	+		60	+			
<b>(BRYOZOA)</b>		+																		
<b>DECAPODA</b>																				
<b>CAMBARIDAE</b>		+	4	+	1	+	1			+							+			+
<i>Orconectes</i> sp.	1	+		+	1								1	+						
<i>O. rusticus</i>									6				1							
<b>(HIRUDINEA)</b>										+	1									
<b>ARHYNCHOBELLIDA</b>																				

## ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

## Invertebrate community results for selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

(PHYLUM or CLASS) ORDER (SUBORDER) FAMILY (subfamily or tribe) Genus species	04159492 Black River near Jeddo, MI 09/12/96		04161820 Clinton River at Sterling Heights, MI 09/13/96		04175600 River Raisin at Man- chester, MI 09/11/96		04178000 St. Joseph River near Newville, IN 09/10/96		04183000 Maumee River at New Haven, IN 09/19/96		04186500 Auglaize River at Fort Jennings, OH 09/09/96		04193500 Maumee River at Waterville, OH 09/16/96		04208504 Cuyahoga River at LTV Steel at Cleve- land, OH 10/09/96		04211820 Grand River at Harpers- field, OH 09/17/96		04213500 Cattar- augus Creek at Gowanda, NY 06/25/96	
	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q
ERPODELLIDAE				+									9		2					
GLOSSIPHONIIDAE																				
<i>Helobdella stagnalis</i>											3									
ISOPODA																				
ASELLIDAE																				
<i>Caecidotea sp.</i>			16	+											+					
(GASTROPODA)	32																			
LYMNOPHILA																				
ANCYLIDAE	12				35															
LYMNAEIDAE																				
<i>Fossaria sp.</i>													+							
PHYSIDAE	8																			
MESOGASTROPODA																				
PLEUROCKERIDAE													17							
<i>Elimia sp.</i>														+				+		
(NEMATODA)	16		16		56										4				8	
(OLIGOCHAETA)	8			+	1		4						1		11	+	32			
LUMBRICULIDAE			26																	
NAIDIDAE			8												12					
<i>Pristina sp.</i>							4													
TUBIFICIDAE	82	+	201	+	136	+	193		256		20		330	+	169	+	26	+		
<i>Branchiura sowerbyi</i>							4			+	11						1	+		
(TURBELLARIA)	8								256		4		1							

# ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

Invertebrate community results for selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

(PHYLUM or CLASS) ORDER (SUBORDER) FAMILY (subfamily or tribe) Genus species	04161820 Clinton River at Sterling Heights, MI 09/08/97 Reach A		04161820 Clinton River at Sterling Heights, MI 09/09/97 Reach B		04161820 Clinton River at Sterling Heights, MI 09/26/97 Reach C		04193500 Maumee River at Waterville, OH 10/08/97 Reach A		04193500 Maumee River at Waterville, OH 10/09/97 Reach B		04193500 Maumee River at Waterville, OH 10/09/97 Reach C		04211820 Grand River at Harpers- field, OH 09/10/97 Reach A		04211820 Grand River at Harpers- field, OH 09/11/97 Reach B		04211820 Grand River at Harpers- field, OH 09/11/97 Reach C	
	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q
COLEOPTERA																		
DRYOPIDAE																		
<i>Helichus lithophilus</i>																		+
DYTISCIDAE																		
<i>Laccophilus maculosus</i>						+								+				
ELMIDAE																		+
<i>Ancyronyx variegata</i>	126	+	24	+	14	+												
<i>Dubiraphia</i> sp.								+		+								+
<i>Macronychus glabratus</i>	101	+	16	+		+				+								+
<i>Optioservus</i> sp.			40															
<i>Stenelmis</i> sp.	25		24			+	182	+	836	+	504	+	706	+	121	+	672	+
<i>S. crenata</i>	25									+			71		41	+	134	
<i>S. grossa</i>																		+
<i>S. sandersoni</i>																	67	
<i>S. sexlineata</i>							28		202	+	40							
GYRINIDAE																		
<i>Dineutus</i> sp.																		
<i>D. discolor</i>														+		+		+

## ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

Invertebrate community results for selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

(PHYLUM or CLASS) ORDER (SUBORDER) FAMILY (subfamily or tribe) Genus species	04161820 Clinton River at Sterling Heights, MI 09/08/97 Reach A		04161820 Clinton River at Sterling Heights, MI 09/09/97 Reach B		04161820 Clinton River at Sterling Heights, MI 09/26/97 Reach C		04193500 Maumee River at Waterville, OH 10/08/97 Reach A		04193500 Maumee River at Waterville, OH 10/09/97 Reach B		04193500 Maumee River at Waterville, OH 10/09/97 Reach C		04211820 Grand River at Harpers- field, OH 09/10/97 Reach A		04211820 Grand River at Harpers- field, OH 09/11/97 Reach B		04211820 Grand River at Harpers- field, OH 09/11/97 Reach C	
	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q
HALIPLIDAE																		
<i>Pelodytes</i> sp.																+		
HYDROPHILIDAE																		
<i>Berosus</i> sp.										+		+		+				+
<i>Sperchopsis tessellata</i>																		
<i>Tropisternus</i> sp.						+								+		+		+
PSEPHENIDAE																		
<i>Psephenus herricki</i>													72	+	125	+		+
STAPHYLINIDAE							+											
DIPTERA																		
(BRACHYCERA)											+					+		
ATHERICIDAE																		
<i>Atherix</i> sp.	4	+	2	+														
EMPIDIDAE																		
<i>Chelifera/Hemerodromia</i> sp.			40						29									
<i>Hemerodromia</i> sp.	50		16	+	42								71		121			
EPHYDRIDAE		+		+														
MUSCIDAE				+													+	
SCIOMYZIDAE						+												
TABANIDAE													2					2

# ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

Invertebrate community results for selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

(PHYLUM or CLASS) ORDER  (SUBORDER) FAMILY  (subfamily or tribe) Genus species	04161820 Clinton River at Sterling Heights, MI 09/08/97 Reach A		04161820 Clinton River at Sterling Heights, MI 09/09/97 Reach B		04161820 Clinton River at Sterling Heights, MI 09/26/97 Reach C		04193500 Maumee River at Waterville, OH 10/08/97 Reach A		04193500 Maumee River at Waterville, OH 10/09/97 Reach B		04193500 Maumee River at Waterville, OH 10/09/97 Reach C		04211820 Grand River at Harpers- field, OH 09/10/97 Reach A		04211820 Grand River at Harpers- field, OH 09/11/97 Reach B		04211820 Grand River at Harpers- field, OH 09/11/97 Reach C	
	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q
(NEMATOCERA)																		
CERATOPOGONIDAE																		+
CHIRONOMIDAE																		+
<i>Ablabesmyia</i> sp.		25	+	17	+					+			72	+	1	+		+
<i>Brillia</i> sp.		50	+	8	+	14	+											+
<i>Cardiocladius</i> sp.															40			
(Chironominae)		126	+	40	+			+		+			282	+	323	+	67	
(Chironomini)								+		+			71					
<i>Chironomus</i> sp.			+		+			+		+								
<i>Cladotanytarsus</i> sp.																+		+
<i>Corynoneura</i> sp.																+		+
<i>Cricotopus</i> sp.		50	+		+			+		+			282	+	40			
<i>Cricotopus</i> spp.				128														
<i>C. /Orthocladius</i> sp.		630	+	512	+	14	+	+		+			282		40			
<i>Cryptochironomus</i> sp.			+		+	14	+								40	+		+
<i>Dicoretendipes</i> sp.				8												+		+
<i>Eukiefferiella</i> sp.								+		+								
<i>Glyptotendipes</i> sp.								+									67	
<i>Harnischia</i> sp.			+															
<i>Larsia</i> sp.								+								+		



## ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

Invertebrate community results for selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

(PHYLUM or CLASS) ORDER (SUBORDER) FAMILY (subfamily or tribe) Genus species	04161820 Clinton River at Sterling Heights, MI 09/08/97 Reach A		04161820 Clinton River at Sterling Heights, MI 09/09/97 Reach B		04161820 Clinton River at Sterling Heights, MI 09/26/97 Reach C		04193500 Maumee River at Waterville, OH 10/08/97 Reach A		04193500 Maumee River at Waterville, OH 10/09/97 Reach B		04193500 Maumee River at Waterville, OH 10/09/97 Reach C		04211820 Grand River at Harpers- field, OH 09/10/97 Reach A		04211820 Grand River at Harpers- field, OH 09/11/97 Reach B		04211820 Grand River at Harpers- field, OH 09/11/97 Reach C	
	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q
<i>Lopescladius</i> sp.																		
<i>Microtendipes</i> sp.															40	+		+
<i>Nanocladius</i> sp.										+							67	
<i>Nilotanytus</i> sp.															40			
(Orthoclaadiinae)																	134	
<i>Paracladopelma</i> sp.	277		192	+		14		+										
<i>Parametriocnemus</i> sp.	25																	
<i>Paratanytarsus</i> sp.			8											+				+
(Pentaneurini)														71		+		
<i>Phaenopsectra</i> sp.										+				71				+
<i>Polypedium</i> sp.	50	+	72	+	14	+	+			+		+	4092	+	847	+	538	+
<i>Pseudochironomus</i> sp.															40			
<i>Rheocricotopus</i> sp.	454	+	104	+	70	+												
<i>Rheotanytarsus</i> sp.	328	+	24	+		+	+			+			2187	+	2903	+	1478	+
<i>Saetheria</i> sp.		+																
<i>Stempellinella</i> sp.																	67	
<i>Stenochironomus</i> sp.		+																
<i>Synorthocladus</i> sp.																		
(Tanypodinae)		+		+												+	67	
(Tanytarsini)			16										212		363		202	+

## ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

Invertebrate community results for selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

(PHYLUM or CLASS) ORDER (SUBORDER) FAMILY (subfamily or tribe) Genus species	04161820 Clinton River at Sterling Heights, MI 09/08/97 Reach A		04161820 Clinton River at Sterling Heights, MI 09/09/97 Reach B		04161820 Clinton River at Sterling Heights, MI 09/26/97 Reach C		04193500 Maumee River at Waterville, OH 10/08/97 Reach A		04193500 Maumee River at Waterville, OH 10/09/97 Reach B		04193500 Maumee River at Waterville, OH 10/09/97 Reach C		04211820 Grand River at Harpers- field, OH 09/10/97 Reach A		04211820 Grand River at Harpers- field, OH 09/11/97 Reach B		04211820 Grand River at Harpers- field, OH 09/11/97 Reach C	
	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q
<i>Tanytarsus</i> sp.	50		8	+					29				282	+	685	+	67	+
<i>Thienemannella</i> sp.				+		+								+	40	+	67	+
<i>Thienemannimyia</i> group sp.	50	+	48	+		+	56	+	230	+	81	+	494	+	363	+	134	+
<i>Tvetenia</i> sp.	76		16	+		+				+	20	+	4092	+	605	+	806	+
SIMULIIDAE								+					353	+	363	+	806	
<i>Prosimulium</i> sp.													141				202	
<i>Simulium</i> sp.	25	+				+	14	+		+		+	494	+	121	+	739	+
TIPULIDAE																		
<i>Antocha</i> sp.			8	+														
<i>Hexatoma</i> sp.																	1	+
<i>Tipula</i> sp.				+		+									1			+
EPHEMEROPTERA										+				+				
BAETIDAE	25	+		+			281	+	173		181		706		323	+	605	
<i>Baetis</i> sp.	76		264	+		+	140	+		+		+		+	40	+		+
<i>Baetis</i> spp.																	134	
<i>B. flavistriga</i>			16															
<i>B. intercalaris</i>	176		296				266		807		363		212		444		1882	
<i>Callibaetis</i> sp.								+										
CAENIDAE																		
<i>Caenis</i> sp.									29				494		363	+	336	



# ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

Invertebrate community results for selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

(PHYLUM or CLASS) ORDER (SUBORDER) FAMILY (subfamily or tribe) Genus species	04161820 Clinton River at Sterling Heights, MI 09/08/97 Reach A		04161820 Clinton River at Sterling Heights, MI 09/09/97 Reach B		04161820 Clinton River at Sterling Heights, MI 09/26/97 Reach C		04193500 Maumee River at Waterville, OH 10/08/97 Reach A		04193500 Maumee River at Waterville, OH 10/09/97 Reach B		04193500 Maumee River at Waterville, OH 10/09/97 Reach C		04211820 Grand River at Harpers- field, OH 09/10/97 Reach A		04211820 Grand River at Harpers- field, OH 09/11/97 Reach B		04211820 Grand River at Harpers- field, OH 09/11/97 Reach C	
	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q
<i>Ameletus</i> sp.																		+
<b>HEMIPTERA</b>																		
<b>BELOSTOMATIDAE</b>																		
<i>Belostoma</i> sp.						+												
<b>CORIXIDAE</b>				+				+										
<b>GERRIDAE</b>																		
<i>Metrobates</i> sp.		+		+		+				+								
<i>Trepobates</i> sp.								+										
<b>MESOVELIIDAE</b>																		
<i>Mesovelius</i> sp.														+				
<b>NEPIDAE</b>																		
<i>Ranatra</i> sp.														+		+		+
<b>VELIIDAE</b>														+				
<i>Rhagovelia</i> sp.		+		+				+				+						+
<b>LEPIDOPTERA</b>																		
<b>PYRALIDAE</b>																		
<i>Petrophila</i> sp.							85			30	+	302						
<b>MEGALOPTERA</b>																		
<b>CORYDALIDAE</b>																		
<i>Corydalus cornutus</i>													1	+	2	+	1	+

## ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

Invertebrate community results for selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

(PHYLUM or CLASS) ORDER (SUBORDER) FAMILY (subfamily or tribe) Genus species	04161820 Clinton River at Sterling Heights, MI 09/08/97 Reach A		04161820 Clinton River at Sterling Heights, MI 09/09/97 Reach B		04161820 Clinton River at Sterling Heights, MI 09/26/97 Reach C		04193500 Maumee River at Waterville, OH 10/08/97 Reach A		04193500 Maumee River at Waterville, OH 10/09/97 Reach B		04193500 Maumee River at Waterville, OH 10/09/97 Reach C		04211820 Grand River at Harpers- field, OH 09/10/97 Reach A		04211820 Grand River at Harpers- field, OH 09/11/97 Reach B		04211820 Grand River at Harpers- field, OH 09/11/97 Reach C	
	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q
<i>Nigronia serricornis</i>	4	+	16		3													
<b>ODONATA</b>																		
<b>AESHNIDAE</b>																		
<i>Boyeria grafiana</i>						+												
<i>B. vinosa</i>	2	+		+						+				+				
<b>CALOPTERYGIDAE</b>																		
<i>Calopteryx</i> sp.		+		+		+												+
<i>C. maculata</i>														1				
<i>Hetaerina</i> sp.		+		+						+		+						
<i>H. americana</i>	3					+		+			+							
<b>COENAGRIONIDAE</b>													71		+	67		
<i>Argia</i> sp.								+		+					+			+
<i>Coenagrion / Enallagma</i> sp.										+								
<i>Enallagma</i> sp.								+		+		+						+
<i>Ischnura</i> sp.						+												
<b>CORDULIIDAE</b>																		
<i>Neurocordulia</i> sp.															+			
<b>GOMPHIDAE</b>																		+
<i>Gomphus</i> sp.						+												
<b>MACROMIIDAE</b>															+			



# ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

Invertebrate community results for selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

(PHYLUM or CLASS) ORDER (SUBORDER) FAMILY (subfamily or tribe) Genus species	04161820 Clinton River at Sterling Heights, MI 09/08/97 Reach A		04161820 Clinton River at Sterling Heights, MI 09/09/97 Reach B		04161820 Clinton River at Sterling Heights, MI 09/26/97 Reach C		04193500 Maumee River at Waterville, OH 10/08/97 Reach A		04193500 Maumee River at Waterville, OH 10/09/97 Reach B		04193500 Maumee River at Waterville, OH 10/09/97 Reach C		04211820 Grand River at Harpers- field, OH 09/10/97 Reach A		04211820 Grand River at Harpers- field, OH 09/11/97 Reach B		04211820 Grand River at Harpers- field, OH 09/11/97 Reach C	
	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q
<i>Macromia</i> sp.																		
<b>PLECOPTERA</b>																		
PERLIDAE																		
<i>Acro-neuria</i> sp.																	605	
<i>Agneta</i> sp.																	4	+
<i>Paragnetina</i> sp.																	3	
<i>P. media</i>	1	+		+		+												
<b>TRICHOPTERA</b>																		
GLOSSOSOMATIDAE																		
<i>Glossosoma</i> sp.							14											
HELICOPSYCHIDAE																		
<i>Helicopsyche borealis</i>								+							282			
HYDROPSYCHIDAE	706		280	+	14		2618		3974	+	2480		8114		2339	+	3494	+
<i>Ceratopsyche</i> sp.			16				14	+	1	+			212	+	486	+	1076	+
<i>Cheumatopsyche</i> sp.							2144	+	2828	+	2663	+	2258	+	1373	+	1010	+
<i>Hydropsyche</i> sp.		+		+		+	28		86		+		71	+		+		
<i>Hydropsyche</i> spp.	958		200		28								2187				4507	
<i>H. aerea</i>							154	+	30		181	+						
<i>H. depravata</i> group	626	+	472	+		+												
<i>H. cf. dicantha</i>															1131			



# ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

Invertebrate community results for selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

(PHYLUM or CLASS) ORDER (SUBORDER) FAMILY (subfamily or tribe) Genus species	04161820 Clinton River at Sterling Heights, MI 09/08/97 Reach A		04161820 Clinton River at Sterling Heights, MI 09/09/97 Reach B		04161820 Clinton River at Sterling Heights, MI 09/26/97 Reach C		04193500 Maumee River at Waterville, OH 10/08/97 Reach A		04193500 Maumee River at Waterville, OH 10/09/97 Reach B		04193500 Maumee River at Waterville, OH 10/09/97 Reach C		04211820 Grand River at Harpers- field, OH 09/10/97 Reach A		04211820 Grand River at Harpers- field, OH 09/11/97 Reach B		04211820 Grand River at Harpers- field, OH 09/11/97 Reach C	
	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q
<i>Hyaella azteca</i>								+		+		+		+		+		+
(HIRUDINEA)																		
ARHYNCHOBELLIDA																		
ERPOBELLIDAE							16	+	8	+	45	+						
GLOSSIPHONIIDAE																		
<i>Placobdella montifera</i>																		
(BIVALVIA)															121			
VENEROIDA																		
DREISSENIDAE																		
<i>Dreissena polymorpha</i>		+	313	+	6	+	449	+	522	+	484	+	4	+	4	+	2	+
SPHAERIIDAE																		
COLLEMBOLA														+				
DECAPODA																		
CAMBARIDAE	1	+	4	+	2	+		+		+				+	3	+		+
<i>Cambarus sp.</i>	1																	
<i>Orconectes sp.</i>	1	+		+	2	+	3	+	11	+	3		1	+	2	+		+
ISOPODA																		
ASELLIDAE																		
<i>Caecidotea sp.</i>	126	+	40	+	14	+		+			20	+						
<i>Lirceus sp.</i>								+		+		+						

## ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

Invertebrate community results for selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

(PHYLUM or CLASS) ORDER (SUBORDER) FAMILY (subfamily or tribe) Genus species	04161820 Clinton River at Sterling Heights, MI 09/08/97 Reach A		04161820 Clinton River at Sterling Heights, MI 09/09/97 Reach B		04161820 Clinton River at Sterling Heights, MI 09/26/97 Reach C		04193500 Maumee River at Waterville, OH 10/08/97 Reach A		04193500 Maumee River at Waterville, OH 10/09/97 Reach B		04193500 Maumee River at Waterville, OH 10/09/97 Reach C		04211820 Grand River at Harpers- field, OH 09/10/97 Reach A		04211820 Grand River at Harpers- field, OH 09/11/97 Reach B		04211820 Grand River at Harpers- field, OH 09/11/97 Reach C	
	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q	1.25m <sup>2</sup>	Q
(GASTROPODA)													71					
LYMNOPHILA																		
ANCYLIDAE	25		1															
<i>Ferrissia rivularis</i>		+																
PHYSIDAE																		+
<i>Physella</i> sp.		+		+										+	1	+		
MESOGASTROPODA																		
PLEURO CERIDAE															40			
<i>Elimia</i> sp.							+	+	1	+	+	+	77	+	1	+		+
VIVIPARIDAE														+		+		
<i>Campeloma</i> sp.																		+
<i>Cipangopaludina</i> sp.																+		+
(NEMATODA)	25		72				14											
(OLIGOCHAETA)			1	+	47				+									
LUMBRICULIDAE																	134	
NAIDIDAE	101		32		14									+				
TUBIFICIDAE	302	+	40	+	448	+	140		547	+	343	+						
<i>Branchiura sowerbyi</i>										+					40	+		
(TURBELLARIA)				+					29	+			71		242			

Invertebrate community results for selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

(PHYLUM or CLASS) ORDER  (SUBORDER) FAMILY  (subfamily or tribe) Genus species	04161820 Clinton River at Sterling Heights, MI 08/18/98		04193500 Maumee River at Waterville, OH 09/03/98		04211820 Grand River at Harpersfield, OH 08/10/98	
	1.25 m <sup>2</sup>	Q	1.25 m <sup>2</sup>	Q	1.25 m <sup>2</sup>	Q
<b>COLEOPTERA</b>						
ELMIDAE	14					
<i>Ancyronyx variegata</i>	42	+				
<i>Dubiraphia minima</i>						+
<i>D. vittata</i>						+
<i>Macronychus glabratus</i>	14	+				+
<i>Stenelmis sp.</i>	28		1033	+	3175	+
<i>S. crenata</i>	56				118	+
<i>S. grossa</i>				+	118	+
<i>S. sandersoni</i>					353	+
GYRINIDAE						
<i>Dineutus sp.</i>						+
<i>D. discolor</i>						+
HYDROPHILIDAE						
<i>Berosus sp.</i>						+
PSEPHENIDAE						
<i>Psephenus herricki</i>						+
STAPHYLINIDAE	14					
<b>DIPTERA</b>					118	
(BRACHYCERA)						
ATHERICIDAE						
<i>Atherix sp.</i>	1	+				+
EMPIDIDAE						
<i>Chelifera/Hemerodromia sp.</i>	42				118	
<i>Hemerodromia sp.</i>	28					
(NEMATOCERA)						
CHIRONOMIDAE	14	+		+		+
<i>Ablabesmyia sp.</i>				+		+
<i>Brillia sp.</i>	28	+				
<i>Cardiocladius sp.</i>					470	
(Chironominae)	14				235	
(Chironomini)	28			+	118	



## ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

Invertebrate community results for selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

(PHYLUM or CLASS) ORDER  (SUBORDER) FAMILY  (subfamily or tribe) Genus species	04161820 Clinton River at Sterling Heights, MI 08/18/98		04193500 Maumee River at Waterville, OH 09/03/98		04211820 Grand River at Harpersfield, OH 08/10/98	
	1.25 m <sup>2</sup>	Q	1.25 m <sup>2</sup>	Q	1.25 m <sup>2</sup>	Q
<i>Chironomus sp.</i>		+				+
<i>Cricotopus bicinctus group</i>	14					
<i>C. /Orthocladius sp.</i>	56	+		+	470	
<i>Cryptochironomus sp.</i>		+		+		+
<i>Dicrotendipes sp.</i>	14			+		
<i>Glyptotendipes sp.</i>				+		+
<i>Labrundinia sp.</i>				+		
<i>Microtendipes sp.</i>					235	
( <i>Orthoclaadiinae</i> )	42				353	
<i>Parachironomus sp.</i>						+
<i>Polypedilum sp.</i>	182	+		+	8350	+
<i>Procladius sp.</i>		+				+
<i>Pseudochironomus sp.</i>					118	+
<i>Rheocricotopus sp.</i>	140	+				
<i>Rheotanytarsus sp.</i>	196	+	76	+	2587	
<i>Stenochironomus sp.</i>	28	+				+
<i>Synorthocladius sp.</i>					118	
( <i>Tanypodinae</i> )			25			+
( <i>Tanytarsini</i> )						+
<i>Tanytarsus sp.</i>					588	+
<i>Thienemanniella sp.</i>			25			
<i>Tienemannimyia group sp.</i>	56	+	50	+	470	+
<i>Tvetenia sp.</i>	70				3058	+
SIMULIIDAE	42		227	+	2117	+
<i>Simulium sp.</i>			126	+	118	+
TIPULIDAE						
<i>Antocha sp.</i>	14	+				
<i>Hexatoma sp.</i>						+
<i>Limonia sp.</i>	14					
EPHEMEROPTERA					588	
BAETIDAE	14		1235		706	+
<i>Acentrella turbida</i>					118	

## ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

271

Invertebrate community results for selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

(PHYLUM or CLASS) ORDER  (SUBORDER) FAMILY  (subfamily or tribe) Genus species	04161820 Clinton River at Sterling Heights, MI 08/18/98		04193500 Maumee River at Waterville, OH 09/03/98		04211820 Grand River at Harpersfield, OH 08/10/98	
	1.25 m <sup>2</sup>	Q	1.25 m <sup>2</sup>	Q	1.25 m <sup>2</sup>	Q
<i>Baetis</i> sp.	70				118	
<i>B. intercalaris</i>	70	+	2898	+	1294	+
<i>Callibaetis</i> sp.						+
<i>Labiobaetis dardanus</i>				+		
CAENIDAE						
<i>Caenis</i> sp.			50		353	
<i>C. diminuta</i> group						+
<i>C. hilaris</i>			25			
<i>C. latipennis</i>					235	+
EPHEMERELLIDAE						
<i>Serratella deficiens</i>					941	+
EPHEMERIDAE						
<i>Ephemera</i> sp.						+
HEPTAGENIIDAE			731		470	
<i>Leucrocuta</i> sp.			25	+		
<i>Stenacron</i> sp.			76			
<i>S. candidum</i>				+		
<i>S. interpunctatum</i>	14	+	101			+
<i>Stenonema</i> sp.	42		25	+	118	+
<i>S. mexicanum</i>				+		
<i>S. pulchellum</i>						+
<i>S. terminatum</i>				+		+
ISONYCHIIDAE						
<i>Isonychia</i> sp.			227	+		+
LEPTOHYPHIDAE						
<i>Tricorythodes</i> sp.				+	588	+
HEMIPTERA						
GERRIDAE						
<i>Aquarius remigis</i>		+				
<i>Metrobates hesperius</i>				+		
<i>Trepobates</i> sp.						+
NAUCORIDAE						

Invertebrate community results for selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

(PHYLUM or CLASS) ORDER  (SUBORDER) FAMILY  (subfamily or tribe) Genus species	04161820 Clinton River at Sterling Heights, MI 08/18/98		04193500 Maumee River at Waterville, OH 09/03/98		04211820 Grand River at Harpersfield, OH 08/10/98	
	1.25 m <sup>2</sup>	Q	1.25 m <sup>2</sup>	Q	1.25 m <sup>2</sup>	Q
<i>Pelocoris femoratus</i>				+		
PLEIDAE						
<i>Neoplea sp.</i>		+				
VELIIDAE						
<i>Rhagovelia sp.</i>				+		
<i>R. obesa</i>						+
<i>R. oriander</i>		+		+		
LEPIDOPTERA						
PYRALIDAE						
<i>Petrophila sp.</i>			25			
MEGALOPTERA						
CORYDALIDAE						
<i>Corydalis cornutus</i>					5	+
<i>Nigronia serricornis</i>		+				
SIALIDAE						
<i>Sialis sp.</i>						+
ODONATA						
AESHNIDAE						
<i>Boyeria vinosa</i>		+				
CALOPTERYGIDAE						
<i>Calopteryx sp.</i>		+				
<i>C. maculata</i>		+				
<i>Hetaerina sp.</i>				+		
<i>H. americana</i>		+		+		
COENAGRIONIDAE				+		+
<i>Argia translata</i>						+
GOMPHIDAE						+
MACROMIIDAE						
<i>Macromia sp.</i>						+
PLECOPTERA					235	
PERLIDAE						
<i>Acroneuria sp.</i>						+

## Invertebrate community results for selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

(PHYLUM or CLASS) ORDER  (SUBORDER) FAMILY  (subfamily or tribe) Genus species	04161820 Clinton River at Sterling Heights, MI 08/18/98		04193500 Maumee River at Waterville, OH 09/03/98		04211820 Grand River at Harpersfield, OH 08/10/98	
	1.25 m <sup>2</sup>	Q	1.25 m <sup>2</sup>	Q	1.25 m <sup>2</sup>	Q
<b>TRICHOPTERA</b>						
HELICOPSYCHIDAE						
<i>Helicopsyche</i> sp.						+
HYDROPSYCHIDAE	490		1008		8115	
<i>Ceratopsyche</i> sp.	14				589	+
<i>C. alhedra</i> / <i>sparna</i>	28					
<i>C. bronta</i>		+				+
<i>C. sparna</i>		+				
<i>Cheumatopsyche</i> sp.			908	+	6115	
<i>Hydropsyche betteni</i>	42					
<i>H. depravata</i> group	126	+				
<i>H. dicantha</i>					2352	+
<i>H. frisoni</i>			25	+		
<i>H. hageni</i>				+		
<i>Macrostemum</i> sp.					1530	+
<i>Potamyia flava</i>			101	+		
HYDROPTILIDAE					118	
<i>Hydroptila grandiosa</i>					118	
<i>H. spatulata</i>					118	
LEPTOCERIDAE						
<i>Mystacides sepulchralis</i>						+
<i>Nectopsyche diarina</i>		+				
<i>Oecetis avara</i>					118	
PHILOPOTAMIDAE					118	
<i>Chimarra</i> sp.					4940	+
POLYCENTROPODIDAE			25			
<i>Polycentropus</i> sp.		+		+		
<b>ACARI</b>						
(HYDRACHNIDIA)	252					
<b>AMPHIPODA</b>						
CRANGONYCTIDAE						
<i>Crangonyx</i> sp.				+		

## ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

Invertebrate community results for selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

(PHYLUM or CLASS) ORDER  (SUBORDER) FAMILY  (subfamily or tribe) Genus species	04161820 Clinton River at Sterling Heights, MI 08/18/98		04193500 Maumee River at Waterville, OH 09/03/98		04211820 Grand River at Harpersfield, OH 08/10/98	
	1.25 m <sup>2</sup>	Q	1.25 m <sup>2</sup>	Q	1.25 m <sup>2</sup>	Q
<b>GAMMARIDAE</b>						
<i>Gammarus sp.</i>	434	+				
<b>HYALELLIDAE</b>						
<i>Hyaella azteca</i>				+		+
<b>(HIRUDINEA)</b>						
<b>ARHYNCHOBDELLIDA</b>						
<b>ERPOBDELLIDAE</b>	14	+	27			
<b>(BIVALVIA)</b>			50		823	
<b>UNIONIDA</b>						
<b>UNIONIDAE</b>						
<i>Obliquaria reflexa</i>				+		
<i>Truncilla truncata</i>			2	+		
<b>VENEROIDA</b>						
<b>DREISSENIDAE</b>						
<i>Dreissena sp.</i>		+				
<b>SPHAERIIDAE</b>				+	823	+
<b>DECAPODA</b>						
<b>CAMBARIDAE</b>		+		+	3	+
<i>Cambarus sp.</i>	1					
<i>Orconectes sp.</i>		+		+		+
<i>O. rusticus</i>			15			
<b>ISOPODA</b>						
<b>ASELLIDAE</b>						
<i>Caecidotea sp.</i>	56	+		+		
<b>(GASTROPODA)</b>						
<b>LYMNOPHILA</b>						
<b>ANCYLIDAE</b>	28	+		+		+
<b>LYMNAEIDAE</b>						
<i>Pseudosuccinea columella</i>				+		
<b>PHYSIDAE</b>						
<i>Physella sp.</i>		+				+
<b>MESOGASTROPODA</b>						



## Invertebrate community results for selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

(PHYLUM or CLASS) ORDER  (SUBORDER) FAMILY  (subfamily or tribe) Genus species	04161820 Clinton River at Sterling Heights, MI 08/18/98		04193500 Maumee River at Waterville, OH 09/03/98		04211820 Grand River at Harpersfield, OH 08/10/98	
	1.25 m <sup>2</sup>	Q	1.25 m <sup>2</sup>	Q	1.25 m <sup>2</sup>	Q
PLEUROCERIDAE						+
<i>Elimia sp.</i>				+	236	+
<i>Leptoxis sp.</i>						+
<i>Pleurocera sp.</i>						+
VIVIPARIDAE						+
(NEMATODA)	14					
(OLIGOCHAETA)						
TUBIFICIDAE	126	+	126			+
<i>Branchiura sowerbyi</i>				+	118	+
(TURBELLARIA)					353	+

Fish community results from selected sites in the Lake Erie - Lake St. Clair Basin  
(National Water-Quality Assessment Program)

Fish community surveys were conducted at 6 stream sites in the Lake Erie - Lake St. Clair Basin in 1998. Fish were collected by electrofishing with pulsed-DC current in a mapped reach at each stream site. Two electrofishing passes were conducted at each reach on the same day. Kick seining was done briefly in riffles after completion of electrofishing. One-quarter inch mesh was used for the kick seine and the dip nets. Fish were identified, measured, weighed, and checked for external anomalies such as parasites, lesions, and skeletal deformities. Individuals were returned to the stream after processing. More details regarding collection methods can be found in Meador and others, 1993. Individual fish data (including length, weight, and anomalies) are available from the USGS, Lansing, Michigan. Additional surface-water and/or water-quality data for selected sites can be found in the continuous-record sections of the Indiana, Michigan, and Ohio Water Resources Data Reports.

Family names are in uppercase, scientific names are in italics, and common names are in parentheses. Common names follow American Fisheries Society (Robins and others, 1991). Hybridized fish are located at the end of the table.

CALENDAR YEAR 1998

STATION NUMBER	STATION NAME	DATE	DRAIN- AGE AREA (mi <sup>2</sup> )	REACH - A LENGTH (meters)	CATOSTOMIDAE		
					<i>Carpiodes cyprinus</i> (quillback)		
					Number of Fish	Batch Weight (grams)	Fish with Anoma- lies
04161820	CLINTON RIVER AT STERLING HEIGHTS, MI	07/29/98	309	286	0	0	0
414041084320700	E. BR. ST. JOSEPH RIVER AT PIONEER, OH	07/31/98	111	240	0	0	0
414101084401500	W. BR. ST. JOSEPH RIVER NEAR BRIDGEWATER CENTER, OH	07/30/98	102	240	3	22	0
04178000	ST. JOSEPH RIVER NEAR NEWVILLE, IN	10/24/98	610	300	0	0	0
04193500	MAUMEE RIVER AT WATERVILLE, OH	08/05/98	6,330	500	17	8038.1	0
04211820	GRAND RIVER AT HARPERSFIED, OH	08/04/98	552	509	0	0	0

CATOSTOMIDAE -- Continued

STATION NUMBER	<i>Catostomus commersoni</i> (white sucker)			<i>Hypentelium nigricans</i> (northern hog sucker)			<i>Minytrema melanops</i> (spotted sucker)			<i>Moxostoma anisurum</i> (silver redhorse)		
	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies
04161820	57	743	0	48	762.5	0	0	0	0	0	0	0
414041084320700	2	265.5	1	10	150	0	0	0	0	0	0	0
414101084401500	39	1641	6	53	1984	0	0	0	0	0	0	0
04178000	5	651	0	0	0	0	5	568.1	0	0	0	0
04193500	0	0	0	23	5942.3	0	0	0	0	1	984	1
04211820	8	31	0	117	666	0	0	0	0	0	0	0

CATOSTOMIDAE -- Continued

STATION NUMBER	<i>Moxostoma duquesnei</i> (black redhorse)			<i>Moxostoma erythrurum</i> (golden redhorse)			<i>Moxostoma macrolepidotum</i> (shorthead redhorse)			CENTRARCHIDAE <i>Ambloplites rupestris</i> (rock bass)		
	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies
04161820	0	0	0	0	0	0	0	0	0	5	1047	0
414041084320700	0	0	0	2	457	0	0	0	0	1	445	1
414101084401500	1	550	0	16	4147	0	0	0	0	2	140	0
04178000	2	290	0	6	1230	0	0	0	0	11	1378.6	2
04193500	0	0	0	17	3176.3	0	25	10307	0	2	108	0
04211820	0	0	0	106	342	0	0	0	0	52	927	1

## ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

Fish community results from selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

## CENTRARCHIDAE -- Continued

STATION NUMBER	<i>Lepomis cyanellus</i> (green sunfish)			<i>Lepomis gibbosus</i> (pumpkinseed)			<i>Lepomis macrochirus</i> (bluegill)			<i>Micropterus dolomieu</i> (smallmouth bass)		
	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies
04161820	2	18	0	2	36	0	0	0	0	0	0	0
414041084320700	14	82	1	0	0	0	0	0	0	0	0	0
414101084401500	19	85	0	0	0	0	0	0	0	0	0	0
04178000	4	71.5	0	2	66.4	0	9	37.6	0	0	0	0
04193500	1	13.8	0	0	0	0	0	0	0	39	3214	0
04211820	1	14	0	0	0	0	10	45	0	70	387	0

## CENTRARCHIDAE -- Continued

## CLUPEIDAE

STATION NUMBER	<i>Micropterus salmoides</i> (largemouth bass)			<i>Pomoxis annularis</i> (white crappie)			<i>Pomoxis nigromaculatus</i> (black crappie)			<i>Dorosoma cepedianum</i> (gizzard shad)		
	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies
04161820	22	130.5	0	0	0	0	0	0	0	0	0	0
414041084320700	1	1	0	0	0	0	0	0	0	0	0	0
414101084401500	1	570	0	0	0	0	2	325	0	6	49	0
04178000	1	3.8	0	7	104	0	0	0	0	0	0	0
04193500	0	0	0	1	290	0	0	0	0	8	76	0
04211820	0	0	0	0	0	0	0	0	0	0	0	0

## COTTIDAE

## CYPRINIDAE

STATION NUMBER	<i>Cottus bairdi</i> (mottled sculpin)			<i>Camptostoma anomalum</i> (central stoneroller)			<i>Cyprinella spiloptera</i> (spotfin shiner)			<i>Cyprinus carpio</i> (common carp)		
	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies
04161820	0	0	0	0	0	0	1	10	0	15	48310	0
414041084320700	0	0	0	2	2	0	0	0	0	12	24830	1
414101084401500	79	456.5	0	124	1538	1	12	50	0	7	11110	0
04178000	0	0	0	0	0	0	6	23.8	2	30	67000	0
04193500	0	0	0	2	4.3	0	41	91.1	0	59	70152	1
04211820	0	0	0	17	65	0	5	32	0	0	0	0

## CYPRINIDAE -- Continued

STATION NUMBER	<i>Luxilus chrysocephalus</i> (striped shiner)			<i>Luxilus cornutus</i> (common shiner)			<i>Nocomis micropogon</i> (river chub)			<i>Notemigonus crysoleucas</i> (golden shiner)		
	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies
04161820	0	0	0	0	0	0	0	0	0	0	0	0
414041084320700	0	0	0	1	7	0	1	21	0	0	0	0
414101084401500	0	0	0	16	137	0	58	1042	8	1	4	0
04178000	0	0	0	0	0	0	1	14.2	0	0	0	0
04193500	2	1.8	0	2	1.9	0	0	0	0	0	0	0
04211820	167	499.5	0	0	0	0	196	1732.5	1	0	0	0

## Fish community results from selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

## CYPRINIDAE -- Continued

STATION NUMBER	<i>Notropis atherinoides</i> (emerald shiner)			<i>Notropis buccatus</i> (silverjaw minnow)			<i>Notropis photogenis</i> (silver shiner)			<i>Notropis stramineus</i> (sand shiner)		
	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies
04161820	2	1	0	0	0	0	0	0	0	0	0	0
414041084320700	0	0	0	0	0	0	0	0	0	0	0	0
414101084401500	3	6	0	0	0	0	12	97	0	0	0	0
04178000	0	0	0	0	0	0	0	0	0	0	0	0
04193500	4	4.5	0	0	0	0	0	0	0	0	0	0
04211820	134	181	0	8	25	0	0	0	0	142	281.5	0

## CYPRINIDAE -- Continued

STATION NUMBER	<i>Notropis volucellus</i> (mimic shiner)			<i>Pimephales notatus</i> (bluntnose minnow)			<i>Pimephales promelas</i> (fathead minnow)			<i>Rhinichthys atratulus</i> (blacknose dace)		
	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies
04161820	0	0	0	2	4	0	0	0	0	0	0	0
414041084320700	0	0	0	5	13	0	0	0	0	0	0	0
414101084401500	1	2	0	16	67.5	0	8	22	0	11	33	0
04178000	0	0	0	17	38.7	0	0	0	0	0	0	0
04193500	0	0	0	50	41.1	0	0	0	0	0	0	0
04211820	1	2	1	501	1611	0	0	0	0	0	0	0

## CYPRINIDAE -- Continued

## ESOCIDAE

## ICTALURIDAE

STATION NUMBER	<i>Semotilus atromaculatus</i> (creek chub)			<i>Esox americanus vermiculatus</i> (grass pickerel)			<i>Ameiurus natalis</i> (yellow bullhead)			<i>Ictalurus punctatus</i> (channel catfish)		
	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies
04161820	0	0	0	0	0	0	0	0	0	0	0	0
414041084320700	19	52	3	1	46	0	0	0	0	1	830	0
414101084401500	33	212	0	1	45	0	0	0	0	4	2940	0
04178000	0	0	0	0	0	0	3	389.7	0	0	0	0
04193500	0	0	0	0	0	0	1	82.7	0	5	679.3	1
04211820	2	11	0	0	0	0	0	0	0	0	0	0

## ICTALURIDAE -- Continued

## LEPISOSTEIDAE

## PERCICHTHYIDAE

STATION NUMBER	<i>Noturus flavus</i> (stonecat)			<i>Noturus miurus</i> (brindled madtom)			<i>Lepisosteus osseus</i> (longnose gar)			<i>Morone chrysops</i> (white bass)		
	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies
04161820	0	0	0	0	0	0	0	0	0	0	0	0
414041084320700	0	0	0	0	0	0	0	0	0	0	0	0
414101084401500	0	0	0	0	0	0	0	0	0	0	0	0
04178000	0	0	0	0	0	0	0	0	0	0	0	0
04193500	0	0	0	0	0	0	3	840	0	7	668.3	0
04211820	9	221	0	2	12	0	0	0	0	0	0	0

## ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

Fish community results from selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

PERCIDAE

STATION NUMBER	<i>Ammocrypta pellucida</i> (eastern sand darter)			<i>Etheostoma blennioides</i> (greenside darter)			<i>Etheostoma caeruleum</i> (rainbow darter)			<i>Etheostoma flabellare</i> (fantail darter)		
	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies
04161820	0	0	0	17	35.5	0	0	0	0	0	0	0
414041084320700	0	0	0	0	0	0	0	0	0	0	0	0
414101084401500	0	0	0	24	57	0	0	0	0	6	15	0
04178000	0	0	0	0	0	0	0	0	0	0	0	0
04193500	0	0	0	6	9.2	0	0	0	0	0	0	0
04211820	1	0.5	0	161	577	0	16	33	0	7	12.5	0

PERCIDAE -- Continued

STATION NUMBER	<i>Etheostoma nigrum</i> (johnny darter)			<i>Perca flavescens</i> (yellow perch)			<i>Percina caprodes</i> (logperch)			<i>Percina maculata</i> (blackside darter)		
	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies
04161820	3	2	0	5	110	0	0	0	0	0	0	0
414041084320700	2	2.5	0	0	0	0	0	0	0	6	31	0
414101084401500	10	19	0	0	0	0	21	158	0	1	7	0
04178000	0	0	0	0	0	0	0	0	0	0	0	0
04193500	0	0	0	0	0	0	1	4.2	0	0	0	0
04211820	5	5.5	0	0	0	0	15	96	0	10	30	0

PERCIDAE -- ContinuedPERCOPSIDAEPETROMYZONTIDAESCIAENIDAE

STATION NUMBER	<i>Stizostedion vitreum</i> (walleye)			<i>Percopsis omiscomaycus</i> (trout-perch)			<i>Ichthyomyzon fossor</i> (northern brook lamprey)			<i>Aplodinotus grunniens</i> (freshwater drum)		
	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies	Number of Fish	Batch Weight (grams)	Fish with Anoma- lies
04161820	2	805	0	0	0	0	0	0	0	1	260	0
414041084320700	0	0	0	0	0	0	2	27	0	0	0	0
414101084401500	0	0	0	0	0	0	0	0	0	0	0	0
04178000	0	0	0	0	0	0	0	0	0	0	0	0
04193500	0	0	0	0	0	0	0	0	0	10	3191	0
04211820	0	0	0	2	14	0	0	0	0	0	0	0

UMBRIDAEHYBRIDIZED FISH

STATION NUMBER	<i>Umbra limi</i> (central mudminnow)			(hybrid sunfish)		
	Number of Fish	Batch Weight (grams)	Fish with Anomalies	Number of Fish	Batch Weight (grams)	Fish with Anomalies
04161820	0	0	0	0	0	0
414041084320700	0	0	0	0	0	0
414101084401500	4	23	0	0	0	0
04178000	0	0	0	8	80.6	0
04193500	0	0	0	0	0	0
04211820	0	0	0	0	0	0

## REFERENCES CITED:

Robins, C.R., Bailey, R.M., Bond, C.E., Brooker, J.R., Lachner, E.A., Lea, R.N., and Scott, W.B., 1991, *Common and scientific names of fishes from the United States and Canada, Fifth Edition*: American Fisheries Society Special Publication 20, Bethesda, MD, 183 p.

Meador, M.R., Cuffney, T.F., and Gurtz, M.E., 1993, *Methods for collecting samples of fish communities as part of the National Water-Quality Assessment Program*: U.S. Geological Survey Open-File Report 93-104, 40 p.



Reach-level habitat characteristic results from selected sites during  
low-flow conditions in the Lake Erie - Lake St. Clair Basin  
(National Water-Quality Assessment Program)

Reach-level habitat surveys were conducted at 10 stream sites in the Lake Erie - Lake St. Clair Basin in 1996. Habitat data collected at the stream reach included 27 riparian and instream characteristics. Data were collected by use of methods for characterizing stream habitat as described by Meador and others (1993) as part of the National Water-Quality Assessment program. Specific sampling reaches were identified with geomorphic units (riffles, runs, or pools) occurring repetitively in the selected reach and, where possible, located upstream from bridges to limit effects from roads and channel modifications.

Data describing stream geomorphic features for riffles, runs, and pools include canopy, channel, substrate, bank, and flood-plain measurements. Habitat features are abbreviated as follows: CC, concave upward; LN, linear; CV, convex upward; DA, debris avalanche; RF, rotational failure; CB, cut-bank scalloping; BR, bedrock; BO, boulder; CO, cobble; GV, gravel; SA, sand; SI, silt; HP, hardpan; DE, detritus; MU, muck; e, estimated.

Measurements were collected at six transects, one at each end of the reach and the other four at the midpoints of selected geomorphic units. At each of the transects, channel and substrate measurements were made at the thalweg and at two other stream locations equally spaced along the transect. Photos were taken to document each of the reach boundaries and the one transect that best represented the reach. A diagrammatic map of the reach was drawn to depict the location and type of geomorphic channel units, transects, habitat features, bank and flood-plain characteristics, and biotic sampling locations. Additional surface-water and/or water-quality data for these sites can be found in the continuous-record sections of the Indiana, Michigan, New York, and Ohio Water Resources Data Reports.

CALENDAR YEAR 1996

STATION NUMBER	STATION NAME	Date	Drainage Area (mi <sup>2</sup> )	Daily Discharge (ft <sup>3</sup> /s)	Reach- A Length (meters)	Percent Riffle	Percent Run	Percent Pool
04159492	BLACK RIVER NEAR JEDDO, MI	09/12/96	464	93	466	36	24	40
04161820	CLINTON RIVER AT STERLING HEIGHTS, MI	09/13/96	309	160	286	7	53	40
04175600	RIVER RAISIN NEAR MANCHESTER, MI	09/11/96	132	31	247	24	48	28
04178000	ST JOSEPH RIVER NEAR NEWVILLE, IN	09/10/96	610	e76	300	29	45	26
04183000	MAUMEE RIVER AT NEW HAVEN, IN	10/15/96	1,967	155	352	24	48	28
04186500	AUGLAIZE RIVER NEAR FORT JENNINGS, OH	09/09/96	332	26	241	19	46	35
04193500	MAUMEE RIVER AT WATERVILLE, OH	08/27/96	6,330	1450	500	40	41	19
04208504	CUYAHOGA RIVER AT LTV STEEL AT CLEVELAND, OH	08/20/96	788	950	313	22	32	46
04211820	GRAND RIVER AT HARPERSFIELD, OH	08/21/96	552	32	509	33	41	26
04213500	CATTARAUGUS CREEK AT GOWANDA, NY	08/22/96	436	307	368	42	52	6

Reach-level habitat characteristic results from selected sites during  
low-flow conditions in the Lake Erie - Lake St. Clair Basin -- Continued  
(National Water-Quality Assessment Program)

Reach-level habitat characteristic results for riffles

STATION NUMBER	Mean Channel Width (meters)	Mean Channel Depth (meters)	Mean Channel Velocity (ft/s)	Mean Channel Aspect (degrees)	Mean Canopy Angle (degrees)	Stream Bed Substrate Dominant	Stream Bed Substrate Sub- Dominant	Percent of Large Particles Embedded	Silt Present
04159492	18.9	0.30	2.00	152	104	BO	CO	15	Yes
04161820	10.4	0.98	1.97	175	30	GV	SA	100	Yes
04175600	11.6	0.38	0.64	192	30	SA	SI/GV	80	Yes
04178000	32.8	0.62	0.30	220	38	SA	GV/CO	75	Yes
04183000	47.4	0.52	0.76	100	94	CO/SA	GV	55	Yes
04186500	30.8	0.22	0.49	358	57	CO/BR	SA	50	Yes
04193500	207.0	0.29	1.88	44	165	BR	CO	<5	No
04208504	47.4	0.71	0.76	30	99	BO/SA	CO	65	Yes
04211820	33.8	0.28	0.73	238	88	BR	CO	<5	No
04213500	80.6	0.57	4.39	322	121	BR/BO	CO	<5	No

STATION NUMBER	Mean Bank Width (meters)	Mean Bank Height (meters)	Mean Bank Angle (degrees)	Bank Shape	Type of Bank Erosion	Percent of Bank Vegetated	Stream Bank Substrate Dominant	Stream Bank Substrate Sub- Dominant	Floodplain Width (meters)
04159492	2.2	1.6	27	LN/CV	DA/RF	75	SA	SI/GV	19
04161820	2.4	1.3	24	LN	DA	<25	SA	SI	36
04175600	1.8	0.9	24	LN	DA/RF	30	SI	BO/DE	26
04178000	2.6	1.4	30	LN/CV	DA	<25	SI	HP	6
04183000	2.6	2.2	54	CV	DA	<25	SA	SI	17
04186500	3.6	1.3	29	LN/CC	DA/RF	30	HP	SI	13
04193500	2.4	0.5	11	LN	DA	<25	BR/SA	SI	>50
04208504	1.4	1.3	62	LN/CC	DA/CB	35	SA/SI	BO	3
04211820	2.7	0.8	26	LN/CC	DA	50	BR/SI	GV/SA	>50
04213500	2.9	1.3	34	LN	DA	55	BR/SA	CO	31

STATION NUMBER	Woody Debris Present	Overhanging Vegetation Present	Undercut Banks Present	Boulders Present	Macrophytes Present	(Human) Rubbish Present	Channel Bars Present	Bank Shelves Present	Islands Present
04159492	No	No	Yes	Yes	Yes	No	No	Yes	No
04161820	No	No	No	No	No	No	Yes	No	No
04175600	Yes	No	No	Yes	No	No	No	No	No
04178000	Yes	No	Yes	Yes	No	No	Yes	No	No
04183000	Yes	No	No	Yes	No	Yes	Yes	No	No
04186500	Yes	No	No	Yes	Yes	No	No	No	Yes
04193500	No	Yes	No	Yes	Yes	No	Yes	Yes	No
04208504	No	No	No	Yes	No	Yes	No	No	No
04211820	No	No	No	Yes	No	No	Yes	Yes	No
04213500	No	No	No	Yes	No	No	Yes	Yes	No

Reach-level habitat characteristic results from selected sites during  
low-flow conditions in the Lake Erie - Lake St. Clair Basin -- Continued  
(National Water-Quality Assessment Program)

Reach-level habitat characteristic results for runs

STATION NUMBER	Mean Channel Width (meters)	Mean Channel Depth (meters)	Mean Channel Velocity (ft/s)	Mean Channel Aspect (degrees)	Mean Canopy Angle (degrees)	Stream Bed Substrate Dominant	Stream Bed Substrate Sub- dominant	Percent of Large Particles Embedded	Silt Present
04159492	17.4	0.51	1.54	190	116	CO	GV	50	No
04161820	17.2	0.93	1.24	166	54	SA	GV/SI	100	Yes
04175600	11.9	0.40	0.56	125	2	SA	SI	95	Yes
04178000	30.2	0.74	0.27	205	80	SA/CO	GV	70	Yes
04183000	36.1	0.82	0.54	95	70	CO	GV	45	Yes
04186500	24.2	0.51	0.13	285	59	BR/CO	SA	40	Yes
04193500	197.8	0.34	1.52	22	162	BR	CO	<5	Yes
04208504	42.2	1.80	0.92	35	104	CO/SA	SI	60	Yes
04211820	32.6	0.18	0.68	230	94	BR	CO	<5	No
04213500	54.0	0.65	2.33	350	103	BR	GV/SA	<5	Yes

STATION NUMBER	Mean Bank Width (meters)	Mean Bank Height (meters)	Mean Bank Angle (degrees)	Bank Shape	Type of Bank Erosion	Percent of Bank Vegetated	Stream Bank Substrate Dominant	Stream Bank Substrate Sub- Dominant	Floodplain Width (meters)
04159492	5.7	1.5	12	LN	DA	50	SA	SI	23
04161820	1.3	1.3	54	CV/LN	DA	75	SA/GV	SA/SI	>50
04175600	2.0	0.9	26	LN/CC	DA/CB	30	SI	SA	40
04178000	2.2	1.2	34	LN/CV	DA	30	SI	HP	6
04183000	4.7	1.5	28	LN/CV	DA	<25	SA/CO	SI	22
04186500	2.8	0.9	29	LN/CV	DA/RF	<25	SI	HP	35
04193500	12.9	0.7	14	LN/CV	DA	50	BR/SA	SI	>50
04208504	1.9	1.2	42	LN	DA	35	AR/SA	SI	3
04211820	1.9	1.0	43	LN/CC	DA/CB	50	SA/BR	GV/SA	>50
04213500	2.8	0.8	12	LN	DA	35	SA/BR	SI	3

STATION NUMBER	Woody Debris Present	Overhanging Vegetation Present	Undercut Banks Present	Boulders Present	Macrophytes Present	(Human) Rubbish Present	Channel Bars Present	Bank Shelves Present	Islands Present
04159492	No	No	No	No	No	No	No	No	Yes
04161820	Yes	Yes	Yes	No	No	Yes	Yes	No	No
04175600	Yes	No	No	No	No	No	No	No	No
04178000	Yes	Yes	Yes	No	No	No	No	No	No
04183000	No	No	No	Yes	No	No	No	No	No
04186500	Yes	No	No	Yes	No	No	No	No	No
04193500	No	No	No	Yes	Yes	No	Yes	Yes	No
04208504	No	No	No	Yes	No	Yes	Yes	No	No
04211820	No	No	No	No	No	No	Yes	Yes	No
04213500	No	No	No	Yes	No	No	Yes	Yes	No

Reach-level habitat characteristic results from selected sites during  
low-flow conditions in the Lake Erie - Lake St. Clair Basin -- Continued  
(National Water-Quality Assessment Program)

Reach-level habitat characteristic results for pools

STATION NUMBER	Mean Channel Width (meters)	Mean Channel Depth (meters)	Mean Channel Velocity (ft/s)	Mean Channel Aspect (degrees)	Mean Canopy Angle (degrees)	Stream Bed Substrate Dominant	Stream Bed Substrate Sub- Dominant	Percent of Large Particles Embedded	Silt Present
04159492	29.1	0.9	0.33	162	103	SA/GV	SI	90	Yes
04161820	17.1	1.2	1.03	164	59	SA	GV	95	Yes
04175600	16.4	0.3	0.45	142	63	SA/MU	SI/DE	100	Yes
04178000	29.0	0.5	0.66	220	81	SA	GV	65	Yes
04183000	50.0	1.6	0.22	45	96	SA/GV	SI	95	Yes
04186500	39.3	1.1	0.00	360	118	BR	SA	75	Yes
04193500	194.6	0.5	1.50	22	141	BR/CO	SI	<5	Yes
04208504	34.3	1.9	0.83	60	118	CO/SA	SI	75	Yes
04211820	38.7	0.3	0.33	180	71	BR	BR	<5	No
04213500	34.1	1.0	0.85	5	80	BR/GV	SA/SI	<5	Yes
STATION NUMBER	Mean Bank Width (meters)	Mean Bank Height (meters)	Mean Bank Angle (degrees)	Bank Shape	Type of Bank Erosion	Percent of Bank Vegetated	Stream Bank Substrate Dominant	Stream Bank Substrate Sub- Dominant	Floodplain Width (meters)
04159492	2.5	1.7	34	LN/CC	RF/DA	55	SA	SI/CO	27
04161820	1.8	1.4	48	LN/CC	DA	35	SA	SI	>50
04175600	1.9	0.9	36	CC	DA/RF	30	SI/SA	MU/HP	29
04178000	3.2	1.3	34	CV/LN	DA	<25	SI	HP	6
04183000	2.3	1.8	48	CV/LN	DA	<25	SI	SA	20
04186500	4.5	0.6	9	LN	DA	<25	BR/SI	HP	15
04193500	1.5	0.7	15	LN/CV	DA	<25	SA/CO	SI	>50
04208504	1.4	1.3	43	LN/CC	DA/CB	40	SA/AR	SI	3
04211820	1.6	1.0	60	CC	DA	<25	BR/SA	SI	>50
04213500	2.8	0.8	52	LN/CC	DA	<25	BR/MU	SA	3
STATION NUMBER	Woody Debris Present	Overhanging Vegetation Present	Undercut Banks Present	Boulders Present	Macrophytes Present	(Human) Rubbish Present	Channel Bars Present	Bank Shelves Present	Islands Present
04159492	No	No	No	Yes	No	No	Yes	No	No
04161820	Yes	Yes	Yes	No	No	Yes	Yes	No	No
04175600	Yes	No	No	No	Yes	No	No	No	No
04178000	Yes	No	No	No	No	No	Yes	No	No
04183000	Yes	No	No	No	No	No	No	No	No
04186500	Yes	No	No	No	Yes	No	No	Yes	No
04193500	Yes	No	No	Yes	Yes	No	No	No	Yes
04208504	No	No	No	Yes	No	Yes	No	No	No
04211820	No	No	No	No	No	No	No	Yes	No
04213500	Yes	No	No	No	No	No	No	Yes	No

REFERENCES CITED:

Meador, M.R., Hupp, C.R., Cuffney, T.F., Gurtz, M.E., 1993, *Methods for characterizing stream habitat as part of the National Water-Quality Assessment Program*: U.S. Geological Survey Open-File Report 93-408, 48 p.

Reach-level habitat characteristic results from selected sites during  
low-flow conditions in the Lake Erie - Lake St. Clair Basin  
(National Water-Quality Assessment Program)

Reach-level habitat surveys were conducted at 3 stream sites (3 reaches per site) in the Lake Erie - Lake St. Clair Basin in 1997. Habitat data collected at the stream reach included 27 riparian and instream characteristics. Data were collected by use of methods for characterizing stream habitat as described by Meador and others (1993) as part of the National Water-Quality Assessment program. Specific sampling reaches were identified with geomorphic units (riffles, runs, or pools) occurring repetitively in the selected reach and, where possible, located upstream from bridges to limit effects from roads and channel modifications.

Data describing stream geomorphic features for riffles, runs, and pools include canopy, channel, substrate, bank, and flood-plain measurements. Habitat features are abbreviated as follows: CC, concave upward; LN, linear; CV, convex upward; DA, debris avalanche; RF, rotational failure; CB, cut-bank scalloping; BR, bedrock; CO, cobble; GV, gravel; SA, sand; SI, silt; HP, hardpan; AR, artificial substrate (concrete).

Measurements were collected at six transects, one at each end of the reach and the other four at the midpoints of selected geomorphic units. At each of the transects, channel and substrate measurements were made at the thalweg and at two other stream locations equally spaced along the transect. Photos were taken to document each of the reach boundaries and the one transect that best represented the reach. A diagrammatic map of the reach was drawn to depict the location and type of geomorphic channel units, transects, habitat features, bank and flood-plain characteristics, and biotic sampling locations. Additional surface-water and/or water-quality data for these sites can be found in the continuous-record sections of the Indiana, Michigan, New York, and Ohio Water Resources Data Reports.

CALENDAR YEAR 1997

STATION NUMBER	STATION NAME	Date	Drainage Area (mi <sup>2</sup> )	Daily Discharge (ft <sup>3</sup> /s)	Reach	Reach Length (meters)	Percent Riffle	Percent Run	Percent Pool
04161820	CLINTON RIVER AT STERLING HEIGHTS, MI	09/25/97	309	172	A	288	22	36	42
04161820	CLINTON RIVER AT STERLING HEIGHTS, MI	09/09/97	309	127	B	308	26	54	20
04161820	CLINTON RIVER AT STERLING HEIGHTS, MI	10/06/97	309	138	C	298	12	41	47
04193500	MAUMEE RIVER AT WATERVILLE, OH	10/14/97	6,330	627	A	545	35	44	21
04193500	MAUMEE RIVER AT WATERVILLE, OH	10/15/97	6,330	484	B	400	20	40	40
04193500	MAUMEE RIVER AT WATERVILLE, OH	10/15/97	6,330	484	C	400	31	49	20
04211820	GRAND RIVER AT HARPERSFIELD, OH	09/12/97	552	61	A	515	30	44	26
04211820	GRAND RIVER AT HARPERSFIELD, OH	09/11/97	552	42	B	267	26	26	48
04211820	GRAND RIVER AT HARPERSFIELD, OH	09/11/97	552	42	C	291	25	55	20



Reach-level habitat characteristic results from selected sites during  
low-flow conditions in the Lake Erie - Lake St. Clair Basin -- Continued  
(National Water-Quality Assessment Program)

Reach-level habitat characteristic results for riffles

STATION NUMBER	Reach	Mean Channel Width (meters)	Mean Channel Depth (meters)	Mean Channel Velocity (ft/s)	Mean Channel Aspect (degrees)	Mean Canopy Angle (degrees)	Stream Bed Substrate Dominant	Stream Bed Substrate Dominant	Percent of Large Particles Embedded	Silt Present
04161820	A	16.2	0.69	1.59	140	52	GV/SA	SI	50	Yes
04161820	B	20.0	0.49	1.78	152	51	GV/SA	SI/CO	40	Yes
04161820	C	20.8	0.55	1.89	120	75	GV	SA	65	Yes
04193500	A	178	0.30	1.63	75	158	BR	CO	<5	Yes
04193500	B	150	0.23	1.49	208	160	BR	CO	<5	Yes
04193500	C	217	0.30	1.68	82	162	BR	CO	<5	Yes
04211820	A	35.5	0.29	1.10	204	88	BR/CO	GV/SI	60	Yes
04211820	B	47.1	0.55	2.19	225	103	CO	GV	40	Yes
04211820	C	30.8	0.35	2.07	278	88	BR/CO	GV	<5	Yes

STATION NUMBER	Reach	Mean Bank Width (meters)	Mean Bank Height (meters)	Mean Bank Angle (degrees)	Bank Shape	Type of Bank Erosion	Percent of Bank Vegetated	Stream Bank Substrate Dominant	Stream Bank Substrate Dominant	Floodplain Width (meters)
04161820	A	4.0	1.2	36	LN/CC	DA	40	SA/SI	CO/GV	36
04161820	B	2.1	1.4	53	LN/CC	DA	30	SI/AR	SA	25
04161820	C	5.0	1.0	56	CC/LN	CB/DA	35	SI	SA	35
04193500	A	14.0	0.8	14	LN	DA	60	BR/SI	SA	>50
04193500	B	12.4	0.6	11	LN/CV	DA	<25	BR/SI	SA/CO	>50
04193500	C	6.4	0.7	9	LN	DA	<25	BR	SI/SA	>50
04211820	A	6.4	1.8	27	LN/CC	DA/RF	45	BR/SA	GV/SI	>50
04211820	B	5.0	1.2	21	LN	DA/RF	75	SI	GV/HP	>50
04211820	C	4.0	1.1	26	LN/CC	DA/RF	40	CO	SI	>50

STATION NUMBER	Reach	Woody Debris Present	Overhanging Vegetation Present	Undercut Banks Present	Boulders Present	Macrophytes Present	(Human) Rubbish Present	Channel Bars Present	Bank Shelves Present	Islands Present
04161820	A	Yes	No	Yes	Yes	No	Yes	Yes	No	No
04161820	B	Yes	No	Yes	Yes	No	Yes	Yes	No	No
04161820	C	Yes	Yes	Yes	No	No	Yes	Yes	No	No
04193500	A	No	No	No	Yes	No	No	Yes	Yes	Yes
04193500	B	No	Yes	No	Yes	No	No	Yes	Yes	Yes
04193500	C	No	No	No	Yes	Yes	No	Yes	Yes	No
04211820	A	No	No	No	Yes	No	No	Yes	Yes	No
04211820	B	No	Yes	No	Yes	No	No	Yes	Yes	No
04211820	C	No	Yes	No	Yes	No	No	No	No	Yes

Reach-level habitat characteristic results from selected sites during  
low-flow conditions in the Lake Erie - Lake St. Clair Basin -- Continued  
(National Water-Quality Assessment Program)

Reach-level habitat characteristic results for runs

STATION NUMBER	Reach	Mean Channel Width (meters)	Mean Channel Depth (meters)	Mean Channel Velocity (ft/s)	Mean Channel Aspect (degrees)	Mean Canopy Angle (degrees)	Stream Bed Substrate Dominant	Stream Bed Substrate Sub- Dominant	Percent of Large Particles Embedded	Silt Present
04161820	A	13.7	1.16	1.18	198	44	SA/GV	SI	100	Yes
04161820	B	17.0	0.52	1.74	105	31	GV	SA	<5	Yes
04161820	C	17.0	0.74	1.67	170	76	GV	SA/HP	60	Yes
04193500	A	194	0.24	1.36	53	162	BR	CO	<5	Yes
04193500	B	153	0.51	1.65	197	136	BR	BR	<5	No
04193500	C	228	0.25	1.08	72	160	BR	BR	<5	Yes
04211820	A	37.2	0.18	0.88	215	87	BR	SI	<5	Yes
04211820	B	33.6	0.70	1.03	225	94	CO/BR	GV	75	Yes
04211820	C	35.8	0.55	1.51	288	102	BR/CO	GV/SA	10	Yes

STATION NUMBER	Reach	Mean Bank Width (meters)	Mean Bank Height (meters)	Mean Bank Angle (degrees)	Bank Shape	Type of Bank Erosion	Percent of Bank Vegetated	Stream Bank Substrate Dominant	Stream Bank Substrate Sub- Dominant	Floodplain Width (meters)
04161820	A	3.1	1.1	28	CV/LN	DA/CB	40	SA	SI	>50
04161820	B	2.7	1.0	51	LN/CV	DA/RF	30	SI/AR	SA	40
04161820	C	2.5	1.0	65	CV/CC	CB/DA	35	SA	SI	>50
04193500	A	10.0	0.8	9	LN	DA	40	BR/SI	SA	>50
04193500	B	8.8	1.0	16	LN	DA	60	SI/BR	CO/HP	>50
04193500	C	6.0	0.6	10	LN	DA	40	BR/SI	SA	>50
04211820	A	6.3	1.5	36	LN/CC	DA/RF	45	BR/CO	SA/GV	>50
04211820	B	4.8	1.4	21	LN/CC	DA	45	SI/CO	SA	>50
04211820	C	4.8	1.0	21	LN	DA	50	SI/SA	CO/HP	>50

STATION NUMBER	Reach	Woody Debris Present	Overhanging Vegetation Present	Undercut Banks Present	Boulders Present	Macrophytes Present	(Human) Rubbish Present	Channel Bars Present	Bank Shelves Present	Islands Present
04161820	A	Yes	No	Yes	No	No	Yes	Yes	No	No
04161820	B	Yes	No	Yes	No	No	Yes	No	No	No
04161820	C	Yes	No	No	No	No	Yes	No	No	No
04193500	A	No	No	No	Yes	No	No	No	Yes	Yes
04193500	B	No	No	No	Yes	No	No	Yes	Yes	Yes
04193500	C	No	No	No	Yes	Yes	No	No	Yes	No
04211820	A	No	No	No	Yes	No	No	No	Yes	No
04211820	B	Yes	No	No	Yes	No	No	No	Yes	Yes
04211820	C	No	Yes	No	Yes	No	No	Yes	Yes	Yes

Reach-level habitat characteristic results from selected sites during  
low-flow conditions in the Lake Erie - Lake St. Clair Basin -- Continued  
(National Water-Quality Assessment Program)

Reach-level habitat characteristic results for pools

STATION NUMBER	Reach	Mean Channel Width (meters)	Mean Channel Depth (meters)	Mean Channel Velocity (ft/s)	Mean Channel Aspect (degrees)	Mean Canopy Angle (degrees)	Stream Bed Substrate Dominant	Stream Bed Substrate Sub- Dominant	Percent of Large Particles Embedded	Silt Present
04161820	A	16.7	1.30	1.02	168	59	SA/GV	SI/CO	85	Yes
04161820	B	19.4	0.79	1.10	128	29	GV/SI	SA	75	Yes
04161820	C	17.8	1.38	0.94	160	15	SA	GV	85	Yes
04193500	A	176	0.43	1.50	28	148	BR	CO	<5	Yes
04193500	B	273	0.69	1.05	48	143	BR	BR	<5	No
04193500	C	227	0.27	0.96	58	159	BR	CO/GV	<5	Yes
04211820	A	39.4	0.38	0.52	172	77	BR/GV	SI/SA	25	Yes
04211820	B	28.8	0.89	1.04	222	101	BR/CO	GV	60	Yes
04211820	C	39.2	0.62	1.19	298	101	BR/SA	CO/SI	20	Yes

STATION NUMBER	Reach	Mean Bank Width (meters)	Mean Bank Height (meters)	Mean Bank Angle (degrees)	Bank Shape	Type of Bank Erosion	Percent of Bank Vegetated	Stream Bank Substrate Dominant	Stream Bank Substrate Sub- Dominant	Floodplain Width (meters)
04161820	A	3.9	0.9	37	LN/CV	DA	30	SA	SI	>50
04161820	B	1.7	1.3	59	CCLN	DA/RF	<25	SA/AR	SI	>50
04161820	C	7.0	0.7	30	LN/CC	DA/CB	30	SA	SI	>50
04193500	A	4.6	1.0	33	LN/CC	DA	40	SI	SA	>50
04193500	B	14.0	0.6	14	LN	DA	75	BR/SI	CO	>50
04193500	C	9.7	0.8	14	LN	DA	35	CO/BR	SI/SA	>50
04211820	A	2.4	1.4	50	LN/CC	DA/RF	<25	BR/SA	SI/GV	>50
04211820	B	8.1	1.2	16	LN	DA	60	GV/BR	SI/SA	>50
04211820	C	5.6	0.9	20	LN/CV	DA	75	SI/SA	HP/CO	>50

STATION NUMBER	Reach	Woody Debris Present	Overhanging Vegetation Present	Undercut Banks Present	Boulders Present	Macrophytes Present	(Human) Rubbish Present	Channel Bars Present	Bank Shelves Present	Islands Present
04161820	A	Yes	No	Yes	No	No	Yes	No	No	No
04161820	B	Yes	No	No	Yes	No	Yes	No	No	No
04161820	C	Yes	No	No	No	No	Yes	No	No	No
04193500	A	No	No	Yes	Yes	Yes	No	Yes	Yes	Yes
04193500	B	No	No	No	Yes	Yes	No	Yes	Yes	Yes
04193500	C	No	No	No	Yes	Yes	No	No	Yes	No
04211820	A	No	No	Yes	Yes	No	No	No	Yes	No
04211820	B	No	Yes	No	Yes	No	No	No	Yes	No
04211820	C	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes

REFERENCES CITED:

Meador, M.R., Hupp, C.R., Cuffney, T.F., Gurtz, M.E., 1993, *Methods for characterizing stream habitat as part of the National Water-Quality Assessment Program*: U.S. Geological Survey Open-File Report 93-408, 48 p.

Reach-level habitat characteristic results from selected sites during  
low-flow conditions in the Lake Erie - Lake St. Clair Basin  
(National Water-Quality Assessment Program)

Reach-level habitat surveys were conducted at 3 stream sites in the Lake Erie - Lake St. Clair Basin in 1998. Habitat data collected at the stream reach included 27 riparian and instream characteristics. Data were collected by use of methods for characterizing stream habitat as described by Meador and others (1993) as part of the National Water-Quality Assessment program. Specific sampling reaches were identified with geomorphic units (riffles, runs, or pools) occurring repetitively in the selected reach and, where possible, located upstream from bridges to limit effects from roads and channel modifications.

Data describing stream geomorphic features for riffles, runs, and pools include canopy, channel, substrate, bank, and flood-plain measurements. Habitat features are abbreviated as follows: CC, concave upward; LN, linear; DA, debris avalanche; RF, rotational failure; BR, bedrock; BO, boulder; CO, cobble; GV, gravel; SA, sand; SI, silt; HP, hardpan; e, estimated.

Measurements were collected at six transects, one at each end of the reach and the other four at the midpoints of selected geomorphic units. At each of the transects, channel and substrate measurements were made at the thalweg and at two other stream locations equally spaced along the transect. Photos were taken to document each of the reach boundaries and the one transect that best represented the reach. A diagrammatic map of the reach was drawn to depict the location and type of geomorphic channel units, transects, habitat features, bank and flood-plain characteristics, and biotic sampling locations. Additional surface-water and/or water-quality data for these sites can be found in the continuous-record sections of the Indiana, Michigan, New York, and Ohio Water Resources Data Reports.

CALENDAR YEAR 1998

STATION NUMBER	STATION NAME	Date	Drainage Area (mi <sup>2</sup> )	Daily Discharge (ft <sup>3</sup> /s)	Reach - A Length (meters)	Percent Riffle	Percent Run	Percent Pool
04161820	CLINTON RIVER AT STERLING HEIGHTS, MI	08/12/98	309	e107	286	16	36	48
04193500	MAUMEE RIVER AT WATERVILLE, OH	09/09/98	6,330	864	535	33	47	20
04211820	GRAND RIVER AT HARPERSFIELD, OH	08/11/98	552	15	531	20	40	40

Reach-level habitat characteristic results for riffles

STATION NUMBER	Mean Channel Width (meters)	Mean Channel Depth (meters)	Mean Channel Velocity (ft/s)	Mean Channel Aspect (degrees)	Mean Canopy Angle (degrees)	Stream Bed Substrate Dominant	Stream Bed Substrate Dominant	Percent of Large Particles Embedded	Silt Present
04161820	15.2	0.76	1.46	125	46	SA	GV	60	Yes
04193500	190.0	0.28	1.29	40	158	BR	CO	<5	Yes
04211820	41.1	0.23	0.42	220	90	BR/CO	GV/SI	15	Yes

STATION NUMBER	Mean Bank Width (meters)	Mean Bank Height (meters)	Mean Bank Angle (degrees)	Bank Shape	Type of Bank Erosion	Percent of Bank Vegetated	Stream Bank Substrate Dominant	Stream Bank Substrate Sub-Dominant	Floodplain Width (meters)
04161820	2.9	1.0	41	LN/CC	DA	50	SA/CO	SI	36
04193500	8.5	0.6	12	LN	DA	75	BR/SI	SA	>50
04211820	5.6	1.5	25	LN/CC	DA	40	BR/SA	CO/SI	>50

STATION NUMBER	Woody Debris Present	Overhanging Vegetation Present	Undercut Banks Present	Boulders Present	Macrophytes Present	(Human) Rubbish Present	Channel Bars Present	Bank Shelves Present	Islands Present
04161820	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No
04193500	No	No	No	No	Yes	No	Yes	Yes	Yes
04211820	Yes	No	No	Yes	No	No	Yes	Yes	No

Reach-level habitat characteristic results from selected sites during  
low-flow conditions in the Lake Erie - Lake St. Clair Basin -- Continued  
(National Water-Quality Assessment Program)

Reach-level habitat characteristic results for runs

STATION NUMBER	Mean Channel Width (meters)	Mean Channel Depth (meters)	Mean Channel Velocity (ft/s)	Mean Channel Aspect (degrees)	Mean Canopy Angle (degrees)	Stream Bed Substrate Dominant	Stream Bed Substrate Sub- Dominant	Percent of Large Particles Embedded	Silt Present
04161820	13.5	1.07	1.14	210	55	SA	SI/GV	75	Yes
04193500	208.0	0.31	1.62	23	163	BR	CO	<5	Yes
04211820	41.5	0.12	0.48	215	98	BR	BR	<5	Yes

STATION NUMBER	Mean Bank Width (meters)	Mean Bank Height (meters)	Mean Bank Angle (degrees)	Bank Shape	Type of Bank Erosion	Percent of Bank Vegetated	Stream Bank Substrate Dominant	Stream Bank Substrate Sub-Dominant	Floodplain Width (meters)
04161820	3.7	1.0	25	LN/CC	DA	60	SA	SI/HP	>50
04193500	5.3	0.8	18	LN	DA	70	SA/SI	BR/CO	>50
04211820	6.7	1.1	26	LN/CC	DA	50	CO/BR	GV/SA	>50

STATION NUMBER	Woody Debris Present	Overhanging Vegetation Present	Undercut Banks Present	Boulders Present	Macrophytes Present	(Human) Rubbish Present	Channel Bars Present	Bank Shelves Present	Islands Present
04161820	Yes	No	Yes	No	No	Yes	Yes	No	No
04193500	No	Yes	No	No	Yes	No	Yes	Yes	Yes
04211820	No	No	No	Yes	No	No	No	Yes	No

Reach-level habitat characteristic results for pools

STATION NUMBER	Mean Channel Width (meters)	Mean Channel Depth (meters)	Mean Channel Velocity (ft/s)	Mean Channel Aspect (degrees)	Mean Canopy Angle (degrees)	Stream Bed Substrate Dominant	Stream Bed Substrate Sub- Dominant	Percent of Large Particles Embedded	Silt Present
04161820	16.8	0.97	0.80	165	58	SA/BO	SI/GV	80	Yes
04193500	198.0	0.52	1.25	12	155	BR	CO	<5	Yes
04211820	40.4	0.26	0.19	180	73	BR	GV	25	Yes

STATION NUMBER	Mean Bank Width (meters)	Mean Bank Height (meters)	Mean Bank Angle (degrees)	Bank Shape	Type of Bank Erosion	Percent of Bank Vegetated	Stream Bank Substrate Dominant	Stream Bank Substrate Sub-Dominant	Floodplain Width (meters)
04161820	3.7	1.0	41	LN/CC	DA	60	SA	SI	>50
04193500	4.2	1.0	42	LN	DA	65	SA	SI/HP	>50
04211820	2.7	1.2	42	CC/LN	DA/RF	30	BR/CO	SA/SI	>50

STATION NUMBER	Woody Debris Present	Overhanging Vegetation Present	Undercut Banks Present	Boulders Present	Macrophytes Present	(Human) Rubbish Present	Channel Bars Present	Bank Shelves Present	Islands Present
04161820	Yes	No	Yes	No	No	Yes	Yes	No	No
04193500	Yes	No	Yes	No	Yes	No	No	Yes	Yes
04211820	Yes	No	No	Yes	No	No	No	Yes	No

REFERENCES CITED:

Meador, M.R., Hupp, C.R., Cuffney, T.F., Gurtz, M.E., 1993, *Methods for characterizing stream habitat as part of the National Water-Quality Assessment Program*: U.S. Geological Survey Open-File Report 93-408, 48 p.



## ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

Bank woody vegetation results from selected sites in the Lake Erie - Lake St. Clair Basin  
(National Water-Quality Assessment Program)

Bank woody vegetation surveys were conducted at 10 stream sites in the Lake Erie - Lake St. Clair Basin in 1996. The point-centered quarter method was used to evaluate species, distance, density, basal area, and dominance of stream-bank woody vegetation as described by Meador and others (1993) as part of the National Water-Quality Assessment program. Sampling points were established on both banks at the ends of six transects. Four quarters were established at each sampling point at the intersection of two perpendicular lines, one of which was the transect line. Only trees that were at least 2 meters high and had a diameter at breast height (dbh) of at least 3 cm were included. The sampled trees were identified to species, and the distance from the sampling point measured, along with its dbh. Individual tree transect data (including distance, dbh, right and left bank location) are available from the USGS, Lansing, Michigan. Additional biological, surface-water, and/or water-quality data for these sites can be found in the continuous-record sections of the Indiana, Michigan, New York, and Ohio Water Resources Data Reports.

Family names are in uppercase, scientific names in italics, and common names in parentheses (Barnes and Wagner, 1996). Basal area = the cross sectional area of tree trunks at breast height.

## CALENDAR YEAR 1996

STATION NUMBER	STATION NAME	DATE	REACH	Diversity	Distance	Density	Basal Area	Dominance
				Number of Tree Species Measured	Average Distance of Trees from Sampling Point (meters)	Average Number of Trees per 100 square meters	Average Basal Area per 100 square meters (cm <sup>2</sup> )	Most Dominant Species
04159492	BLACK RIVER NEAR JEDDO, MI	09/12/96	A	18	4.08	6.0	3900	Cottonwood
04161820	CLINTON RIVER AT STERLING HEIGHTS, MI	09/13/96	A	10	4.26	5.5	5300	Willow
04175600	RIVER RAISIN NEAR MANCHESTER, MI	09/11/96	A	15	3.28	9.3	10200	Willow
04178000	ST JOSEPH RIVER NEAR NEWVILLE, IN	09/10/96	A	13	4.26	5.5	15900	Silver Maple
04183000	MAUMEE RIVER AT NEW HAVEN, IN	10/15/96	A	8	3.82	6.8	10800	Silver Maple
04186500	AUGLAIZE RIVER NEAR FORT JENNINGS, OH	09/09/96	A	11	2.66	14.1	11800	White Ash
04193500	MAUMEE RIVER AT WATERVILLE, OH	08/27/96	A	9	4.31	5.4	10600	Silver Maple
04208504	CUYAHOGA RIVER AT LTV AT CLEVELAND, OH	08/20/96	A	6	2.31	18.7	11900	Cottonwood
04211820	GRAND RIVER AT HARPERSFIELD, OH	08/21/96	A	13	4.29	5.4	6700	Sycamore
04213500	CATTARAUGUS CREEK AT GOWANDA, NY	08/22/96	A	13	2.98	11.2	3100	Cottonwood

## ACERACEAE

STATION NUMBER	<i>Acer negundo</i> (boxelder)			<i>Acer rubrum</i> (red maple)			<i>Acer saccharinum</i> (silver maple)			<i>Acer saccharum</i> (sugar maple)		
	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )
04159492	12	1.50	281	0	0	0	1	0.13	2959	1	0.13	232
04161820	15	1.72	305	6	0.69	2654	1	0.11	1499	0	0	0
04175600	0	0	0	7	1.36	913	0	0	0	1	0.19	33
04178000	3	0.34	530	0	0	0	22	2.52	4057	0	0	0
04183000	4	0.57	206	0	0	0	23	3.26	2570	0	0	0
04186500	14	4.11	618	0	0	0	1	0.29	1608	0	0	0
04193500	0	0	0	2	0.23	1131	17	1.91	3371	0	0	0
04208504	5	2.31	56	0	0	0	0	0	0	1	0.43	32
04211820	0	0	0	5	0.69	701	1	0.14	767	3	0.42	482
04213500	3	0.84	39	2	0.56	502	0	0	0	5	1.4	97

## 291

Bank woody vegetation results from selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

**BETULACEAE**

[illegible]

## CORNACEAE

STATION NUMBER	<i>Ostrya virginiana</i> (hop-hornbeam)			<i>Catalpa sp.</i> (catalpa)			<i>Cornus alternifolia</i> (alternate-leaf dogwood)			<i>Cornus florida</i> (flowering dogwood)		
	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )
04159492	0	0	0	0	0	0	1	0.13	4	0	0	0
04161820	0	0	0	0	0	0	0	0	0	0	0	0
04175600	0	0	0	0	0	0	1	0.19	2	1	0.19	53
04178000	3	0.34	809	0	0	0	0	0	0	0	0	0
04183000	0	0	0	0	0	0	0	0	0	0	0	0
04186500	0	0	0	0	0	0	0	0	0	0	0	0
04193500	0	0	0	0	0	0	1	0.11	35	0	0	0
04208504	0	0	0	0	0	0	0	0	0	0	0	0
04211820	0	0	0	0	0	0	2	0.28	148	0	0	0
04213500	0	0	0	1	0.28	1206	1	0.28	1	0	0	0

**FABACEAE**

STATION NUMBER	<i>Thuja occidentalis</i> (northern white-cedar)			<i>Elaeagnus umbellata</i> (autumn-olive)			<i>Gleditsia triacanthos</i> (honeylocust)			<i>Robinia pseudoacacia</i> (black locust)		
	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )
04159492	1	0.13	7	1	0.13	26	0	0	0	0	0	0
04161820	0	0	0	0	0	0	0	0	0	0	0	0
04175600	0	0	0	0	0	0	0	0	0	2	0.39	11
04178000	0	0	0	0	0	0	1	0.11	629	0	0	0
04183000	0	0	0	0	0	0	0	0	0	0	0	0
04186500	0	0	0	0	0	0	0	0	0	0	0	0
04193500	0	0	0	0	0	0	0	0	0	0	0	0
04208504	0	0	0	0	0	0	0	0	0	0	0	0
04211820	0	0	0	0	0	0	2	0.28	5500	0	0	0
04213500	0	0	0	0	0	0	0	0	0	1	0.28	7

## ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

Bank woody vegetation results from selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

FAGACEAEJUGLANDACEAE

STATION NUMBER	<i>Quercus alba</i> (white oak)			<i>Quercus prinus</i> (chestnut oak)			<i>Quercus rubra</i> (red oak)			<i>Carya cordiformis</i> (bitternut hickory)		
	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )
04159492	1	0.13	6717	1	0.13	60	1	0.13	184	0	0	0
04161820	0	0	0	0	0	0	0	0	0	0	0	0
04175600	1	0.19	5577	0	0	0	0	0	0	0	0	0
04178000	1	0.11	660	0	0	0	0	0	0	0	0	0
04183000	0	0	0	0	0	0	0	0	0	1	0.14	54
04186500	0	0	0	0	0	0	0	0	0	0	0	0
04193500	0	0	0	0	0	0	0	0	0	0	0	0
04208504	0	0	0	0	0	0	0	0	0	0	0	0
04211820	6	0.83	1358	0	0	0	0	0	0	1	0.14	1206
04213500	5	1.40	139	0	0	0	0	0	0	0	0	0

JUGLANDACEAE - ContinuedMORACEAE

STATION NUMBER	<i>Carya ovata</i> (shagbark hickory)			<i>Juglans cinerea</i> (butternut)			<i>Juglans nigra</i> (black walnut)			<i>Morus rubra</i> (red mulberry)		
	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )
04159492	1	0.13	47	0	0	0	0	0	0	0	0	0
04161820	0	0	0	0	0	0	0	0	0	5	0.57	323
04175600	1	0.19	30	7	1.36	163	2	0.39	72	0	0	0
04178000	0	0	0	0	0	0	0	0	0	0	0	0
04183000	0	0	0	0	0	0	0	0	0	1	0.14	50
04186500	2	0.59	543	0	0	0	0	0	0	4	1.18	95
04193500	0	0	0	0	0	0	0	0	0	0	0	0
04208504	0	0	0	0	0	0	0	0	0	0	0	0
04211820	2	0.28	14	0	0	0	2	0.28	1896	0	0	0
04213500	0	0	0	0	0	0	0	0	0	0	0	0

OLEACEAEPLATANACEAEROSACEAE

STATION NUMBER	<i>Fraxinus americana</i> (white ash)			<i>Fraxinus pennsylvanica</i> (red ash)			<i>Platanus occidentalis</i> (sycamore)			<i>Crataegus sp.</i> (hawthorn)		
	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )
04159492	3	0.38	338	1	0.13	12	2	0.25	891	0	0	0
04161820	1	0.11	8	0	0	0	1	0.11	1320	0	0	0
04175600	15	2.91	1156	1	0.19	464	0	0	0	0	0	0
04178000	3	0.34	350	3	0.34	1886	2	0.23	5562	0	0	0
04183000	2	0.28	1870	0	0	0	0	0	0	0	0	0
04186500	8	2.35	1723	1	0.29	3368	4	1.18	1606	1	0.29	47
04193500	17	1.91	326	0	0	0	0	0	0	1	0.11	57
04208504	0	0	0	0	0	0	0	0	0	0	0	0
04211820	3	0.42	755	0	0	0	9	1.25	1707	0	0	0
04213500	2	0.56	630	0	0	0	3	0.84	397	0	0	0

## Bank woody vegetation results from selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

STATION NUMBER	SALICACEAE						TILIACEAE			ULMACEAE		
	Populus deltoides (eastern cottonwood)			Salix sp. (willow)			Tilia americana (basswood)			Celtis occidentalis (northern hackberry)		
	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )
04159492	5	0.63	2362	0	0	0	3	0.38	131	0	0	0
04161820	1	0.11	2164	6	0.69	2654	0	0	0	0	0	0
04175600	1	0.19	314	2	0.39	10301	0	0	0	0	0	0
04178000	3	0.34	7934	0	0	0	1	0.11	147	3	0.34	62
04183000	2	0.28	4349	0	0	0	0	0	0	9	1.28	369
04186500	0	0	0	2	0.59	532	0	0	0	8	2.35	396
04193500	4	0.45	6891	1	0.11	628	0	0	0	3	0.34	183
04208504	16	6.80	1370	0	0	0	0	0	0	0	0	0
04211820	0	0	0	0	0	0	2	0.28	108	0	0	0
04213500	7	1.96	308	1	0.28	1923	0	0	0	0	0	0

## ULMACEAE -- Continued

STATION NUMBER	<i>Ulmus americana</i> (american elm)			<i>Ulmus pumila</i> (siberian elm)		
	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )
04159492	11	1.38	242	0	0	0
04161820	11	1.26	124	0	0	0
04175600	2	0.39	84	0	0	0
04178000	2	0.23	1140	0	0	0
04183000	6	0.85	123	0	0	0
04186500	3	0.88	164	0	0	0
04193500	2	0.23	10	0	0	0
04208504	15	6.38	309	6	2.55	176
04211820	0	0	0	0	0	0
04213500	8	2.24	133	0	0	0

## REFERENCES CITED:

Barnes, B.V., Wagner, W.H., JR., 1996, *Michigan Trees: A guide to the trees of Michigan and the Great Lakes Region*: The University of Michigan Press, 383 p.

Meador, M.R., Hupp, C.R., Cuffney, T.F., Gurtz, M.E., 1993, *Methods for characterizing stream habitat as part of the National Water-Quality Assessment Program*: U.S. Geological Survey Open-File Report 93-408, 48 p.

## ANALYSIS OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

Bank woody vegetation results from selected sites in the Lake Erie - Lake St. Clair Basin  
(National Water-Quality Assessment Program)

Bank woody vegetation surveys were conducted at 3 stream sites (3 reaches per site) in the Lake Erie - Lake St. Clair Basin in 1997. The point-centered quarter method was used to evaluate species, distance, density, basal area, and dominance of stream-bank woody vegetation as described by Meador and others (1993) as part of the National Water-Quality Assessment program. Sampling points were established on both banks at the ends of six transects. Four quarters were established at each sampling point at the intersection of two perpendicular lines, one of which was the transect line. Only trees that were at least 2 meters high and had a diameter at breast height (dbh) of at least 3 cm were included. The sampled trees were identified to species, and the distance from the sampling point measured, along with its dbh. Individual tree transect data (including distance, dbh, right and left bank location) are available from the USGS, Lansing, Michigan. Additional biological, surface-water, and/or water-quality data for these sites can be found in the continuous-record sections of the Indiana, Michigan, New York, and Ohio Water Resources Data Reports.

Family names are in uppercase, scientific names in italics, and common names in parentheses (Barnes and Wagner, 1996). Basal area = the cross sectional area of tree trunks at breast height.

## CALENDAR YEAR 1997

STATION NUMBER	STATION NAME	DATE	REACH	Diversity	Distance	Density	Basal Area	Dominance
				Number of Tree Species Measured	Average Distance of Trees from Sampling Point (meters)	Average Number of Trees per 100 square meters	Average Basal Area per 100 square meters (cm <sup>2</sup> )	Most Dominant Species
04161820	CLINTON RIVER AT STERLING HEIGHTS, MI	09/25/97	A	13	4.84	5.0	4800	Willow
04161820	CLINTON RIVER AT STERLING HEIGHTS, MI	09/09/97	B	12	3.35	8.9	11200	Willow
04161820	CLINTON RIVER AT STERLING HEIGHTS, MI	10/06/97	C	10	3.55	7.9	7300	Sycamore
04193500	MAUMEE RIVER AT WATERVILLE, OH	10/14/97	A	10	5.66	3.1	6600	Silver Maple
04193500	MAUMEE RIVER AT WATERVILLE, OH	10/15/97	B	21	7.06	2.0	2800	Eastern Cottonwood
04193500	MAUMEE RIVER AT WATERVILLE, OH	10/15/97	C	10	4.11	5.9	7500	Eastern Cottonwood
04211820	GRAND RIVER AT HARPERSFIELD, OH	09/12/97	A	15	2.80	12.8	19400	Red Oak
04211820	GRAND RIVER AT HARPERSFIELD, OH	09/11/97	B	14	5.12	3.8	8000	Willow
04211820	GRAND RIVER AT HARPERSFIELD, OH	09/11/97	C	10	4.61	4.7	3900	Sycamore

## ACERACEAE

STATION NUMBER	<i>Acer negundo</i> (boxelder)			<i>Acer rubrum</i> (red maple)			<i>Acer saccharinum</i> (silver maple)			<i>Acer saccharum</i> (sugar maple)		
	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )
04161820	13	1.35	207	6	0.63	2137	1	0.10	2035	0	0	0
04161820	6	1.11	384	6	1.11	1043	1	0.19	725	1	0.19	131
04161820	9	1.48	441	7	1.15	1566	0	0	0	0	0	0
04193500	1	0.06	77	1	0.06	1134	17	1.10	3020	0	0	0
04193500	4	0.17	573	0	0	0	3	0.13	4109	0	0	0
04193500	0	0	0	1	0.12	50	17	2.09	886	0	0	0
04211820	0	0	0	9	2.62	1931	1	0.29	1293	6	1.75	525
04211820	0	0	0	2	0.16	1668	17	1.35	1194	1	0.08	240
04211820	0	0	0	5	0.57	1284	13	1.49	723	3	0.34	726



## 295

<u><b>ANACARDIACEAE</b></u>			<u><b>BETULACEAE</b></u>			<u><b>BIGNONIACEAE</b></u>			<u><b>CORNACEAE</b></u>		
<i>Rhus typhina</i> (staghorn sumac)			<i>Carpinus caroliniana</i> (blue-beech)			<i>Catalpa sp.</i> (catalpa)			<i>Cornus florida</i> (flowering dogwood)		
Number of Trees Measured	Average Number per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number per 100 square meters	Average Basal Area (cm <sup>2</sup> )
0	0	0	0	0	0	0	0	0	0	0	0
3	0.56	25	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	1	0.04	20	2	0.08	26
0	0	0	0	0	0	0	0	0	0	0	0
1	0.29	17	1	0.29	34	0	0	0	1	0.29	306
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0

**FABACEAE**

STATION NUMBER	<i>Juniperus virginiana</i> (eastern redcedar)			<i>Cercis canadensis</i> (redbud)			<i>Gleditsia triacanthos</i> (honeylocust)			<i>Robinia pseudoacacia</i> (black locust)		
	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )
04161820	0	0	0	0	0	0	0	0	0	0	0	0
04161820	0	0	0	0	0	0	0	0	0	0	0	0
04161820	0	0	0	0	0	0	0	0	0	0	0	0
04193500	0	0	0	0	0	0	1	0.06	7	0	0	0
04193500	1	0.04	123	1	0.04	24	1	0.04	5728	0	0	0
04193500	0	0	0	0	0	0	1	0.12	2836	0	0	0
04211820	0	0	0	0	0	0	0	0	0	2	0.58	653
04211820	0	0	0	0	0	0	0	0	0	0	0	0
04211820	0	0	0	0	0	0	0	0	0	1	0.11	383

[illegible]

## ANALYSIS OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

Bank woody vegetation results from selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

JUGLANDACEAELAURACEAE

STATION NUMBER	<i>Carya cordiformis</i> (bitternut hickory)			<i>Juglans cinerea</i> (butternut)			<i>Juglans nigra</i> (black walnut)			<i>Lindera benzoin</i> (spicebush)		
	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )
04161820	1	0.10	131	0	0	0	0	0	0	0	0	0
04161820	0	0	0	0	0	0	0	0	0	0	0	0
04161820	0	0	0	0	0	0	0	0	0	0	0	0
04193500	0	0	0	0	0	0	0	0	0	0	0	0
04193500	0	0	0	0	0	0	1	0.04	907	0	0	0
04193500	0	0	0	0	0	0	0	0	0	0	0	0
04211820	3	0.87	145	0	0	0	1	0.29	1534	0	0	0
04211820	2	0.16	286	3	0.24	385	0	0	0	2	0.16	34
04211820	0	0	0	1	0.11	191	0	0	0	0	0	0

LAURACEAE - ContinuedMAGNOLIACEAEMORACEAEOLEACEAE

STATION NUMBER	<i>Sassafras albidum</i> (sassafras)			<i>Liriodendron tulipifera</i> (yellow-poplar)			<i>Morus rubra</i> (red mulberry)			<i>Fraxinus americana</i> (white ash)		
	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )
04161820	0	0	0	0	0	0	0	0	0	1	0.10	2247
04161820	0	0	0	0	0	0	0	0	0	3	0.56	559
04161820	0	0	0	0	0	0	3	0.49	336	3	0.49	167
04193500	0	0	0	0	0	0	0	0	0	12	0.78	136
04193500	0	0	0	0	0	0	2	0.08	3380	2	0.08	569
04193500	0	0	0	0	0	0	1	0.12	18	15	1.84	944
04211820	0	0	0	0	0	0	0	0	0	4	1.16	1382
04211820	2	0.16	283	1	0.08	366	0	0	0	0	0	0
04211820	1	0.11	572	0	0	0	0	0	0	0	0	0

OLEACEAE -continuedPINACEAEPLATANACEAEROSACEAE

STATION NUMBER	<i>Fraxinus pennsylvanica</i> (red ash)			<i>Tsuga canadensis</i> (eastern hemlock)			<i>Platanus occidentalis</i> (sycamore)			<i>Crataegus sp.</i> (hawthorn)		
	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )
04161820	1	0.10	9	0	0	0	2	0.21	490	1	0.10	33
04161820	2	0.37	683	0	0	0	0	0	0	7	1.30	244
04161820	0	0	0	0	0	0	4	0.66	2906	10	1.65	216
04193500	0	0	0	0	0	0	1	0.06	2289	0	0	0
04193500	0	0	0	0	0	0	0	0	0	0	0	0
04193500	0	0	0	0	0	0	1	0.12	4183	0	0	0
04211820	0	0	0	0	0	0	5	1.45	2632	0	0	0
04211820	0	0	0	0	0	0	6	0.48	4612	0	0	0
04211820	0	0	0	1	0.11	135	14	1.60	1020	0	0	0

## Bank woody vegetation results from selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

## ROSACEAE - Continued

## SALICACEAE

STATION NUMBER	<i>Prunus serotina</i> (black cherry)			<i>Prunus virginiana</i> (choke cherry)			<i>Pyrus communis</i> (common pear)			<i>Populus deltoides</i> (eastern cottonwood)		
	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )
04161820	0	0	0	0	0	0	0	0	0	1	0.10	2375
04161820	0	0	0	0	0	0	0	0	0	1	0.19	4427
04161820	1	0.16	161	0	0	0	0	0	0	3	0.49	2065
04193500	0	0	0	0	0	0	0	0	0	7	0.45	6470
04193500	1	0.04	855	1	0.04	20	4	0.17	24	4	0.17	4943
04193500	0	0	0	0	0	0	0	0	0	3	0.37	5669
04211820	0	0	0	0	0	0	0	0	0	0	0	0
04211820	0	0	0	0	0	0	0	0	0	0	0	0
04211820	0	0	0	0	0	0	0	0	0	0	0	0

## SALICACEAE - Continued

## SIMAROUACEAE

## TILIACEAE

STATION NUMBER	<i>Populus tremuloides</i> (quaking aspen)			<i>Salix sp.</i> (willow)			<i>Ailanthus altissima</i> (tree-of-heaven)			<i>Tilia americana</i> (basswood)		
	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )
04161820	0	0	0	6	0.63	2742	0	0	0	1	0.10	257
04161820	0	0	0	5	0.93	7040	0	0	0	0	0	0
04161820	0	0	0	1	0.16	2595	0	0	0	0	0	0
04193500	0	0	0	2	0.13	170	0	0	0	0	0	0
04193500	2	0.08	2473	0	0	0	1	0.04	2205	1	0.04	1323
04193500	0	0	0	3	0.37	824	0	0	0	0	0	0
04211820	0	0	0	0	0	0	0	0	0	3	0.87	100
04211820	0	0	0	2	0.16	18555	0	0	0	1	0.08	628
04211820	0	0	0	1	0.11	123	0	0	0	0	0	0

## ULMACEAE

STATION NUMBER	<i>Celtis occidentalis</i> (northern hackberry)			<i>Ulmus americana</i> (american elm)		
	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )
04161820	4	0.42	300	10	1.04	482
04161820	0	0	0	11	2.04	396
04161820	0	0	0	7	1.15	720
04193500	1	0.06	189	5	0.32	92
04193500	2	0.08	1561	12	0.50	317
04193500	3	0.37	1410	3	0.37	306
04211820	0	0	0	1	0.29	18
04211820	0	0	0	4	0.32	282
04211820	0	0	0	1	0.11	19

## REFERENCES CITED:

Barnes, B.V., Wagner, W.H., JR., 1996, *Michigan Trees: A guide to the trees of Michigan and the Great Lakes Region*: The University of Michigan Press, 383 p.

Meador, M.R., Hupp, C.R., Cuffney, T.F., Gurtz, M.E., 1993, *Methods for characterizing stream habitat as part of the National Water-Quality Assessment Program*: U.S. Geological Survey Open-File Report 93-408, 48 p.

## ANALYSIS OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

Bank woody vegetation results from selected sites in the Lake Erie - Lake St. Clair Basin  
(National Water-Quality Assessment Program)

Bank woody vegetation surveys were conducted at 3 stream sites in the Lake Erie - Lake St. Clair Basin in 1998. The point-centered quarter method was used to evaluate species, distance, density, basal area, and dominance of stream-bank woody vegetation as described by Meador and others (1993) as part of the National Water-Quality Assessment program. Sampling points were established on both banks at the ends of six transects. Four quarters were established at each sampling point at the intersection of two perpendicular lines, one of which was the transect line. Only trees that were at least 2 meters high and had a diameter at breast height (dbh) of at least 3 cm were included. The sampled trees were identified to species, and the distance from the sampling point measured, along with its dbh. Individual tree transect data (including distance, dbh, right and left bank location) are available from the USGS, Lansing, Michigan. Addition biological, surface-water, and/or water-quality data for these sites can be found in the continuous-record sections of the Indiana, Michigan, New York, and Ohio Water Resources Data Reports.

Family names are in uppercase, scientific names in italics, and common names in parentheses (Barnes and Wagner, 1996).  
Basal area = the cross sectional area of tree trunks at breast height.

## CALENDAR YEAR 1998

STATION NUMBER	STATION NAME	DATE	REACH	Diversity	Distance	Density	Basal Area	Dominance
				Number of Tree Species Measured	Average Distance of Trees from Sampling Point (meters)	Average Number of Trees per 100 square meters	Average Basal Area per 100 square meters (cm <sup>2</sup> )	Most Dominant Species
04161820	CLINTON RIVER AT STERLING HEIGHTS, MI	08/12/98	A	11	4.96	4.1	4100	Willow
04193500	MAUMEE RIVER AT WATERVILLE, OH	09/09/98	A	10	4.75	4.4	7800	Silver Maple
04211820	GRAND RIVER AT HARPERSFIELD, OH	08/11/98	A	16	4.55	4.8	5800	Sycamore

## ACERACEAE

STATION NUMBER	<i>Acer negundo</i> (boxelder)			<i>Acer rubrum</i> (red maple)			<i>Acer saccharinum</i> (silver maple)			<i>Acer saccharum</i> (sugar maple)		
	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )
04161820	16	1.37	316	5	0.43	2597	2	0.17	1842	0	0	0
04193500	0	0	0	0	0	0	17	1.56	3505	0	0	0
04211820	1	0.11	292	2	0.22	528	8	0.87	1833	4	0.44	458

## ANNONACEAE

## BETULACEAE

## BIGNONIACEAE

## CORNACEAE

STATION NUMBER	<i>Asimina triloba</i> (pawpaw)			<i>Carpinus caroliniana</i> (blue-beech)			<i>Catalpa sp.</i> (catalpa)			<i>Cornus florida</i> (flowering dogwood)		
	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )
04161820	1	0.09	26	0	0	0	0	0	0	0	0	0
04193500	0	0	0	0	0	0	1	0.09	57	1	0.09	53
04211820	0	0	0	3	0.33	65	0	0	0	1	0.11	234

## FABACEAE

## FAGACEAE

## JUGLANDACEAE

STATION NUMBER	<i>Gleditsia triacanthos</i> (honeylocust)			<i>Robinia pseudoacacia</i> (black locust)			<i>Quercus rubra</i> (red oak)			<i>Carya cordiformis</i> (bitternut hickory)		
	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )
04161820	0	0	0	0	0	0	0	0	0	0	0	0
04193500	1	0.09	100	0	0	0	0	0	0	0	0	0
04211820	0	0	0	2	0.22	700	4	0.44	1844	1	0.11	133

Bank woody vegetation results from selected sites in the Lake Erie - Lake St. Clair Basin -- Continued

JUGLANDACEAE - continuedMORACEAEOLEACEAEPLATANACEAE

STATION NUMBER	<i>Juglans cinerea</i> (butternut)			<i>Morus rubra</i> (red mulberry)			<i>Fraxinus americana</i> (white ash)			<i>Platanus occidentalis</i> (sycamore)		
	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )
04161820	0	0	0	1	0.09	41	5	0.43	273	0	0	0
04193500	0	0	0	1	0.09	186	16	1.47	249	1	0.09	934
04211820	2	0.22	1671	0	0	0	4	0.44	1135	6	0.65	2736

ROSACEAESALICACEAETILIACEAE

STATION NUMBER	<i>Prunus serotina</i> (black cherry)			<i>Populus deltoides</i> (eastern cottonwood)			<i>Salix sp.</i> (willow)			<i>Tilia americana</i> (basswood)		
	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )
04161820	0	0	0	1	0.09	2506	4	0.34	4257	1	0.09	230
04193500	0	0	0	4	0.37	4856	0	0	0	0	0	0
04211820	1	0.11	656	1	0.11	467	0	0	0	2	0.22	119

ULMACEAE

STATION NUMBER	<i>Celtis occidentalis</i> (northern hackberry)			<i>Ulmus americana</i> (american elm)		
	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )	Number of Trees Measured	Average Number of Trees per 100 square meters	Average Basal Area (cm <sup>2</sup> )
04161820	3	0.26	351	9	0.77	463
04193500	3	0.28	155	3	0.28	137
04211820	0	0	0	2	0.22	214

## REFERENCES CITED:

Barnes, B.V., Wagner, W.H., JR., 1996, *Michigan Trees: A guide to the trees of Michigan and the Great Lakes Region*: The University of Michigan Press, 383 p.

Meador, M.R., Hupp, C.R., Cuffney, T.F., Gurtz, M.E., 1993, *Methods for characterizing stream habitat as part of the National Water-Quality Assessment Program*: U.S. Geological Survey Open-File Report 93-408, 48 p.



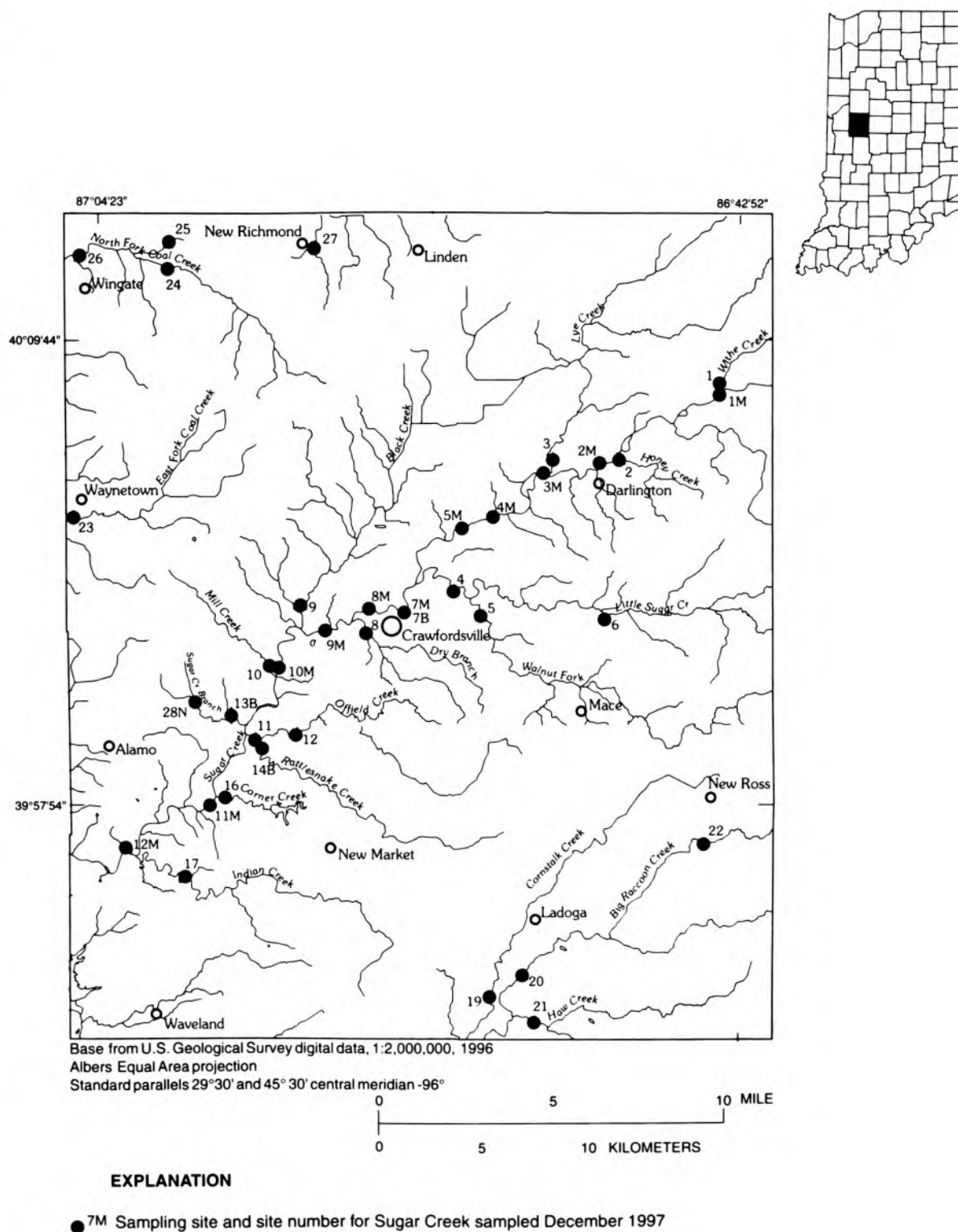


Figure 8.--Water-quality sampling-site numbers for Sugar Creek and other sampling sites in Montgomery County, Ind.

## MISCELLANEOUS WATER-QUALITY STATION ANALYSES

301

## MISCELLANEOUS STREAMS IN MONTGOMERY COUNTY

Water-quality data listed below are from water samples collected at various sites on Sugar Creek and other streams in Montgomery County, Indiana. The sampling was conducted through a cooperative agreement between the Montgomery County Commissioners and the U.S. Geological Survey. Note: Specific conductance, pH, water temperature, and dissolved oxygen measurements were determined in-stream using a multiple-parameter instrument.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	
400251086472201	SITE 6 LITTLE SUGAR CR @ CR625E nr SR32 nr SMARTSBURG, IN					(LAT 40 02 51N LONG 086 47 22W)
DEC 1997						
15...	1200	784	8.2	1.2	15.0	
400826086433001	SITE 1 WITHE CR NR CR950E & SUGAR CR NR COLFAX, IN					(LAT 40 08 26N LONG 086 43 30W)
DEC 1997						
15...	1400	716	8.3	2.8	15.1	
400824086432601	SITE 1M SUGAR CR @CR950E NR COLFAX, IN					(LAT 40 08 24N LONG 086 43 26W)
DEC 1997						
15...	1415	804	8.4	1.4	15.4	
400641086462901	SITE 2 HONEY CR @ MADISON ST. @ DARLINGTON, IN					(LAT 40 06 41N LONG 086 46 29W)
DEC 1997						
15...	1500	922	8.0	4.9	14.0	
400628086473701	SITE 2M SUGAR CR @CR550E NR DARLINGTON, IN					(LAT 40 06 28N LONG 086 47 37W)
DEC 1997						
15...	1545	730	8.6	1.8	17.0	
400643086491201	SITE 3 LYE CR @CR500N NR CR425E NR DARLINGTON, IN					(LAT 40 06 43N LONG 086 49 12W)
DEC 1997						
15...	1620	638	7.7	.6	15.0	
400626086492501	SITE 3M SUGAR CR @CR425E NR DARLINGTON, IN					(LAT 40 06 26N LONG 086 49 25W)
DEC 1997						
15...	1650	684	8.3	2.1	16.9	
03339460	SITE 5 WALNUT FORK SUGAR CREEK @SR32 NR CRAWFORDSVILLE, IN					(LAT 40 02 49N LONG 086 51 33W)
DEC 1997						
16...	1335	1250	7.9	2.1	10.6	
400329086522801	SITE 4 WALNUT FORK @SR47 NR CRAWFORDSVILLE, IN					(LAT 40 03 29N LONG 086 52 28W)
DEC 1997						
16...	1430	986	7.9	4.7	10.1	
400016087000201	SITE 28N SUGAR CR. BRANCH @FALL CR RD(BR 141)NR HIBERNIA, IN					(LAT 40 00 16N LONG 087 00 02W)
DEC 1997						
16...	1445	676	8.4	8.8	11.2	

## MISCELLANEOUS WATER-QUALITY STATION ANALYSES

## MISCELLANEOUS STREAMS IN MONTGOMERY COUNTY--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	
400459086521501	SITE 5M SUGAR CR @CR175E NR GARFIELD, IN					(LAT 40 04 59N LONG 086 52 15W)
DEC 1997 16...	1505	704	8.5	2.0	12.3	
395947086575001	SITE 12 OFFIELD CR @CR325W NR CR300S NR YOUNTSVILLE, IN					(LAT 39 59 47N LONG 086 57 50W)
DEC 1997 16...	1540	691	8.5	2.4	15.0	
400515086510801	SITE 4M SUGAR CR @CR275E NR GARFIELD, IN					(LAT 40 05 15N LONG 086 51 08W)
DEC 1997 16...	1545	707	8.4	2.0	11.4	
400131086581601	SITE 10M SUGAR CREEK @SR32 @ YOUNTSVILLE, IN					(LAT 40 01 31N LONG 086 58 16W)
DEC 1997 17...	1000	912	8.1	1.8	10.6	
395943086591501	SITE 11 OFFIELD CR @CR450W NR CR250S NR YOUNTSVILLE, IN					(LAT 39 59 43N LONG 086 59 15W)
DEC 1997 17...	1150	683	8.0	3.7	11.8	
395941086590801	SITE 14B RATTLESNAKE CR @ CR250S NR CRAWFORDSVILLE, IN					(LAT 39 59 41N LONG 086 59 08W)
DEC 1997 17...	1205	757	7.9	3.9	11.4	
395757087004701	SITE 11M SUGAR CREEK @DAVIS BRIDGE RD NR ALAMO, IN					(LAT 39 57 57N LONG 087 00 47W)
DEC 1997 17...	1300	849	8.8	2.6	17.3	
400251086540301	SITE 7M SUGAR CR @SR231 @ CRAWFORDSVILLE, IN					(LAT 40 02 51N LONG 086 54 03W)
DEC 1997 17...	1415	717	8.2	1.4	14.0	
400251086540302	SITE 7B OUTFALL TO SUGAR CR ABV. SR231 @ CRAWFORDSVILLE, IN					(LAT 40 02 51N LONG 086 54 03W)
DEC 1997 17...	1420	4280	8.0	20.0	7.5	
395646087033001	SITE 12M SUGAR CR @DEER MILL BRIDGE NR ALAMO, IN					(LAT 39 56 46N LONG 087 03 30W)
DEC 1997 17...	1455	813	9.1	2.7	19.9	
400227086564601	SITE 9M SUGAR CR CR225W NR CRAWFORDSVILLE, IN					(LAT 40 02 27N LONG 086 56 46W)
DEC 1997 17...	1515	852	8.2	3.0	16.3	

## MISCELLANEOUS WATER-QUALITY STATION ANALYSES

303

## MISCELLANEOUS STREAMS IN MONTGOMERY COUNTY--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	
400129086583501	SITE 10 MILL CR @SR32 AT YOUNTSVILLE, IN.					(LAT 40 01 29N LONG 086 58 35W)
DEC 1997						
17...	1545	699	8.5	3.7	13.1	
400305086573301	SITE 9 BLACK CR @ CR100N NR CR300W NR CRAWFORDSVILLE, IN					(LAT 40 03 05N LONG 086 57 33W)
DEC 1997						
17...	1630	793	8.4	4.8	13.6	
400221086552501	SITE 8 DRY BR @WABASH AVE @ CRAWFORDSVILLE, IN					(LAT 40 02 21N LONG 086 55 25W)
DEC 1997						
18...	1120	736	8.2	2.0	15.1	
400300086552101	SITE 8M SUGAR CR @SR136 NR CRAWFORDSVILLE, IN					(LAT 40 03 00N LONG 086 55 21W)
DEC 1997						
18...	1020	846	8.2	2.6	13.8	
395700086440001	SITE 22 BIG RACCOON CR @CR900E NR CR 600S NR NEW ROSS, IN					(LAT 39 57 00N LONG 086 44 00W)
DEC 1997						
16...	0945	749	8.1	1.6	14.4	
401204086570201	SITE 27 PHILLIP DEWEY DITCH @CR1100N NR. NEW RICHMOND, IN					(LAT 40 12 04N LONG 086 57 02W)
DEC 1997						
16...	1030	633	7.9	7.1	3.9	
395339086501101	SITE 20 BIG RACCOON CR @ CR1000N NR CR350E NR LADOGA, IN					(LAT 39 53 39N LONG 086 50 11W)
DEC 1997						
16...	1045	757	7.8	2.0	11.3	
401209087020801	SITE 25 UNNAMED TRIB TO N FK COAL CR @700W NR WINGATE, IN					(LAT 40 12 09N LONG 087 02 08W)
DEC 1997						
16...	1100	903	8.0	2.8	8.4	
395222086513901	SITE 19 CORNSTALK CR @CR1050S NR CR225E NR LADOGA, IN					(LAT 39 52 22N LONG 086 51 39W)
DEC 1997						
16...	1115	606	8.0	1.7	12.7	
401137087020801	SITE 24 N FK COAL CR @CR700W NR CR950N NR WINGATE, IN					(LAT 40 11 37N LONG 087 02 08W)
DEC 1997						
16...	1120	720	8.5	1.5	14.8	
401155087045801	SITE 26 N FK COAL CR @ CR950W NR CR1125N NR WINGATE, IN					(LAT 40 11 55N LONG 087 04 58W)
DEC 1997						
16...	1200	737	8.4	4.5	13.9	

## MISCELLANEOUS WATER-QUALITY STATION ANALYSES

## MISCELLANEOUS STREAMS IN MONTGOMERY COUNTY--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	
395228086494701	SITE 21 HAW CR @ CR350E NR CR1100S NR LADOGA, IN					(LAT 39 52 28N LONG 086 49 47W)
DEC 1997 16...	1210	721	7.4	3.1	7.3	
400524087053001	SITE 23 E FK COAL CR @ CR1000W NR SR136 NR WAYNETOWN, IN					(LAT 40 05 24N LONG 087 05 30W)
DEC 1997 16...	1300	779	8.6	3.5	14.5	
400038087011001	SITE 13B SUGAR CR BRANCH @ CR200S NR HIBERNIA, IN					(LAT 40 00 38N LONG 087 01 10W)
DEC 1997 16...	1400	618	8.4	6.9	13	
395810087002301	SITE 16 CORNER CR @ CR550W NR CR450S NR YOUNTSVILLE, IN					(LAT 39 58 10N LONG 087 00 23W)
DEC 1997 17...	1240	615	8.6	.9	14.1	
395603087013901	SITE 17 INDIAN CR @CR650W NR CR800S NR NEW MARKET, IN					(LAT 39 56 03N LONG 087 01 39W)
DEC 1997 17...	1400	603	8.4	2.8	13.2	





Base from U.S. Geological Survey digital data, 1:2,000,000, 1996  
 Albers Equal Area projection  
 Standard parallels 29°30' and 45°30' central meridian -96°

#### EXPLANATION

11 Number of lakes in designated county

Figure 9.--Number of lakes by county having 1998 water-level records.

## STREAMS TRIBUTARY TO LAKE MICHIGAN

## 04100030 ADAMS LAKE NEAR WOLCOTTVILLE, IN

LOCATION.--Lat 41°33'15", long 86°19'11", in NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.25, T.36 N., R.10 E., Lagrange County, Hydrologic Unit 04050001 (WOLCOTTVILLE, IN quadrangle). The gage is on the east side of the lake on a dredged inlet, at the public access site, and 3.1 mi northeast of Wolcottville.

SURFACE AREA.--308 acres.

DRAINAGE AREA.--5.62 mi<sup>2</sup>.

PERIOD OF RECORD.--1946 to current year.

DATUM OF GAGE.--949.90 ft above sea level, as corrected on the basis of levels of the Indiana Department of Natural Resources, 1976.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage is attached to the southwest wall of the dam on the outlet channel about 500 ft downstream from the lake.

ESTABLISHED LEGAL LEVEL.--3.59 ft gage datum or 953.59 ft above sea level as decreed on December 17, 1949, by the Lagrange County Circuit Court. Minor errors were subsequently discovered in the establishment of the datum of the gage (see "DATUM OF GAGE") and the correct elevation of the legal level should be 3.59 ft gage datum or 953.49 ft above sea level.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a concrete dam with a fixed crest "V" notch weir.

INLET AND OUTLET.--One inlet enters on the east side from Blackman Lake 2.3 mi upstream. The other inlet enters on the northeastern shore from Eve Lake. The outlet flows from the lake on the southern shore and into Little Elkhart Creek 1.7 mi downstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 5.32 ft June 15, 1981; minimum stage, 2.12 ft Jan. 8, 1954.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	4.12	4.10	4.27	4.55	4.27	4.25	4.51	---	---	---	---	---
10	4.11	4.09	4.30	4.95	4.22	4.51	---	---	---	---	---	---
15	4.10	4.11	4.27	4.82	4.22	4.43	---	---	---	---	---	---
20	4.02	4.09	4.26	4.82	4.34	4.57	---	---	---	---	---	---
25	3.96	4.10	4.33	4.82	4.30	4.54	---	---	---	---	---	---
BOM	4.05	4.22	4.30	4.34	4.30	4.61	---	---	---	---	---	---

WTR YR 1998 MEAN 4.33 MAX 5.13 MIN 3.96

## STREAMS TRIBUTARY TO LAKE ERIE

## 04177680 BALL LAKE NEAR HAMILTON, IN

LOCATION.--Lat 41°32'12", long 84°56'18", in SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.32, T.36 N., R.14 E., Steuben County, Hydrologic Unit 04100003 (HAMILTON, IN quadrangle). The gage is on the northeastern shore of the lake, south of the bridge over the outlet, and 1.3 mi west of Hamilton.

SURFACE AREA.--87 acres.

DRAINAGE AREA.--11.6 mi<sup>2</sup>.

PERIOD OF RECORD.--1961 to current year.

DATUM OF GAGE.--889.81 ft above sea level, as corrected on the basis of levels of the Indiana Department of Natural Resources in February 1972.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage is driven into the lake bed near the recording gage and a high-water staff gage is attached to the control dam.

ESTABLISHED LEGAL LEVEL.--4.95 ft gage datum or 894.76 ft above sea level as decreed on September 20, 1974, by the Steuben County Circuit Court.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a concrete sill with movable boards.

INLET AND OUTLET.--Fish Creek flows through the lake, entering at the western end and leaving at the northeastern end. Fish Creek empties into the St. Joseph River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 10.02 ft Dec. 26, 1965; minimum stage, 3.96 ft Oct. 19-31, Nov. 1-12, 1978.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	4.82	4.89	5.53	4.82	4.84	4.89	4.90	4.81	4.79	4.79	4.86
10	4.78	4.78	4.87	5.13	4.80	5.31	5.38	4.88	4.80	4.79	4.83	4.86
15	4.79	4.80	4.82	4.99	4.84	4.90	4.97	4.86	4.82	4.79	4.81	4.86
20	4.77	4.77	4.87	4.96	5.01	5.27	4.89	4.84	4.84	4.78	4.81	4.85
25	4.78	4.82	5.21	4.82	4.86	4.93	4.85	4.83	4.81	4.83	5.85	4.85
BOM	4.80	5.09	4.87	4.86	4.87	5.04	4.96	4.82	4.81	4.80	4.85	4.85

WTR YR 1998 MEAN 4.90 MAX 5.85 MIN 4.76

## 05517200 BASS LAKE AT BASS LAKE, IN

LOCATION.--Lat 41°12'28", long 86°36'07", in NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.24, T.32 N., R.2 W., Starke County, Hydrologic Unit 07120001 (BASS LAKE, IN quadrangle). The gage is on the southern shore of the lake, just north of the junction of U.S. Highway 35 and State Highway 10, at the town of Bass Lake.

SURFACE AREA.--1,400 acres.

DRAINAGE AREA.--5.18 mi<sup>2</sup>.

PERIOD OF RECORD.--1943 to current year.

DATUM OF GAGE.--699.83 ft above sea level, as corrected from the unadjusted elevations.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage in two sections is at the site.

ESTABLISHED LEGAL LEVEL.--13.65 ft gage datum or 713.65 ft above sea level as decreed on August 10, 1948, by the Starke County Circuit Court. Minor errors were subsequently discovered in the establishment of the datum of the gage (see "DATUM OF GAGE") and the correct elevation of the legal level should be 13.65 ft gage datum or 713.48 ft above sea level.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a steel sheet piling dam.

INLET AND OUTLET.--Several small unnamed ditches enter the lake at various locations. The outlet flows from the western shore, into Cedar Lake Ditch, and eventually into the Kankakee River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 15.03 ft June 18, 1981; minimum stage, 10.52 ft Nov. 12, 13, 1964.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	13.76	13.83	14.04	14.01	14.00	14.10	14.09	13.72	14.11	13.98	13.54
10	---	13.75	13.89	14.11	13.99	14.19	14.14	14.12	13.70	14.10	13.94	13.50
15	13.77	13.77	13.87	14.09	14.02	14.12	14.13	14.04	13.94	13.99	13.86	13.46
20	13.71	13.76	13.87	14.06	14.06	14.20	14.09	13.98	14.03	13.98	13.75	13.43
25	13.68	13.73	13.76	14.06	14.03	14.12	14.08	13.93	13.94	13.95	13.67	13.33
BOM	13.70	13.90	13.77	14.04	14.02	14.18	14.07	13.85	13.94	13.83	13.59	13.29

WTR YR 1998 MEAN 13.90 MAX 14.25 MIN 13.29

## STREAMS TRIBUTARY TO LAKE MICHIGAN

## 04100260 BEAR LAKE NEAR WOLFLAKE, IN

LOCATION.--Lat 41°19'07", long 85°30'49", in SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.17, T.33 N., R.9 E., Noble County, Hydrologic Unit 04050001 (ORMAS, IN quadrangle). The gage is on the southern shore of the lake on a dredged channel, at the end of the gravel lane to the Merry Lea Nature Center, 1.1 mi southwest of the town of Wolflake.

SURFACE AREA.--136 acres.

DRAINAGE AREA.--6.98 mi<sup>2</sup>.

PERIOD OF RECORD.--1943 to current year.

DATUM OF GAGE.--889.90 ft above sea level, as corrected on the basis of levels of the Indiana Department of Natural Resources, 1974-75.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well on the west side of the dredged channel.

ESTABLISHED LEGAL LEVEL.--4.60 ft gage datum or 894.60 ft above sea level as decreed on September 23, 1959, by the Noble County Circuit Court. Minor errors were subsequently discovered in the establishment of the datum of the gage (see "DATUM OF GAGE") and the correct elevation of the legal level should be 4.60 ft gage datum or 894.50 ft above sea level.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a steel sheet piling dam.

INLET AND OUTLET.--There are two inlets to the lake, one enters on the southwest shore from High Lake, 0.6 mi upstream, and the other enters from the northeast. The outlet, Carrol Creek, leaves the lake on the southeast tip, flows into Muncie Lake, 3.1 mi downstream, and eventually into the Elkhart River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 8.25 ft Dec. 30, 1942 (before dredging of the outlet channel). Maximum stage, 6.61 ft Apr. 12, 1944 (after dredging); minimum stage, 2.90 ft Oct. 31, Nov. 1-3, 7-17, 1952, Oct. 22-24, 29-31, Nov. 1-3, 6, 7, 1966.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	4.22	4.13	4.34	4.75	4.31	4.27	4.50	4.57	4.13	4.25	4.28	3.97
10	4.19	4.13	4.30	4.87	4.25	4.67	4.85	4.51	4.13	4.26	4.41	3.92
15	4.16	4.17	4.26	4.53	4.26	4.46	4.70	4.39	4.28	4.17	4.29	3.84
20	4.11	4.16	4.26	4.37	4.32	4.52	4.50	4.27	4.41	4.10	4.19	3.81
25	4.08	4.17	4.37	4.32	4.31	4.47	4.40	4.18	4.27	4.49	4.14	3.76
BOM	4.09	4.35	4.37	4.31	4.31	4.65	4.43	4.16	4.25	4.27	4.05	3.71

WTR YR 1998 MEAN 4.29 MAX 5.02 MIN 3.71

## WABASH RIVER BASIN

## 03331010 BIG CHAPMAN LAKE NEAR WARSAW, IN

LOCATION.--Lat 41°16'53", long 85°46'47", in NW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.25, T.33 N., R.6 E., Kosciusko County, Hydrologic Unit 05120106 (LEESBURG, IN quadrangle). The gage is on the southeastern shore of the lake, at the public access site, 4.9 mi northeast of Warsaw.

SURFACE AREA.--581 acres.

DRAINAGE AREA.--4.17 mi<sup>2</sup>.

PERIOD OF RECORD.--1945-68, 1971, 1976 to current year.

DATUM OF GAGE.--820.00 ft above sea level.

GAGE.--A water-stage recorder and an electric tape gage (ETG) are installed in an aluminum shelter over a 15-inch diameter stilling well.

ESTABLISHED LEGAL LEVEL.--7.75 ft gage datum or 827.75 ft above sea level as established on October 18, 1949, by the Kosciusko County Circuit Court. Little Chapman Lake has the same control structure and established level and hence the same lake levels for the period of record.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a concrete dam with a fixed crest at the outlet channel downstream from Little Chapman Lake.

INLET AND OUTLET.--Several small ditches enter the lake at various points. The outlet flows into Little Chapman Lake to the south, then into Deeds Creek, and eventually into the Tippecanoe River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 9.37 ft Oct. 11, 1954; minimum stage, 6.75 ft Oct. 20, 1953.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	7.35	7.45	7.76	8.30	7.64	7.64	8.05	---	---	7.56	---	---
10	7.37	7.46	7.79	8.22	7.60	7.96	8.35	---	---	---	---	---
15	7.41	7.51	7.75	7.94	7.65	7.86	7.90	---	---	---	---	---
20	7.39	7.57	7.77	7.74	7.68	8.13	7.62	---	7.92	---	---	---
25	7.35	7.58	8.01	7.71	7.63	7.98	7.53	---	7.60	---	---	7.27
EOM	7.43	7.82	7.70	7.71	7.67	8.18	7.65	---	7.51	---	---	7.43

WTR YR 1998 MEAN 7.71 MAX 8.54 MIN 7.27

## WABASH RIVER BASIN

## 03330040 BIG LAKE NEAR WOLFLAKE, IN

LOCATION.--Lat 41°16'33", long 85°30'43", in NW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.32, T.33 N., R.9 E., Noble County, Hydrologic Unit 05120106 (ORMAS, IN quadrangle). The gage is at the head of the outlet channel, approximately 20 feet north of the control structure and 4 mi southwest of the town of Wolflake.

SURFACE AREA.--228 acres.

DRAINAGE AREA.--8.89 mi<sup>2</sup>.

PERIOD OF RECORD.--1943-74, 1978 to current year.

DATUM OF GAGE.--890.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well.

ESTABLISHED LEGAL LEVEL.--8.40 ft gage datum or 898.40 ft above sea level as decreed on July 18, 1956, by the Noble County Circuit Court.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a steel sheet piling dam with a fixed crest.

INLET AND OUTLET.--The main inlet enters from Crooked Lake to the east. Three other inlets flow from Crane Lake to the east, Green Lake to the north, and Sell Brook to the south. The outlet leaves the lake at the extreme west end and forms the headwaters of the Tippecanoe River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 12.76 ft Apr. 4, 1950; minimum stage, 7.12 ft Aug. 24, 1987.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	8.07	8.09	8.24	9.03	8.23	8.24	8.39	8.27	8.07	8.27	8.20	7.90
10	8.06	8.09	8.22	9.74	8.20	8.98	9.21	8.23	8.05	8.23	8.21	7.83
15	8.05	8.13	8.17	8.68	8.30	8.42	8.66	8.18	8.24	8.15	8.14	7.79
20	8.01	8.11	8.18	8.27	8.36	8.72	8.30	8.13	8.29	8.11	8.08	7.75
25	7.97	8.14	8.38	8.24	8.27	8.47	8.23	8.12	8.17	8.37	8.05	7.68
EOM	8.02	8.32	8.25	8.26	8.28	8.78	8.29	8.11	8.36	8.15	7.97	7.69

WTR YR 1998 MEAN 8.25 MAX 9.91 MIN 7.67

## STREAMS TRIBUTARY TO LAKE MICHIGAN

309

## 04099600 BIG LONG LAKE NEAR STROH, IN

LOCATION.--Lat 41°33'17", long 85°13'47", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.26, T.36 N., R.11 E., Lagrange County, Hydrologic Unit 04050001 (STROH, IN quadrangle). The gage is on the northeast shore near the east end of the Shady Nook Addition in the vicinity of the Shady Nook Tavern, 2.4 mi southwest of Stroh.

SURFACE AREA.--388 acres.

DRAINAGE AREA.-- 4.77 mi<sup>2</sup>.

PERIOD OF RECORD.--1954 to current year.

DATUM OF GAGE.--950.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well.

ESTABLISHED LEGAL LEVEL.--6.21 ft gage datum or 956.21 ft above sea level as decreed on July 22, 1965, by the Lagrange County Circuit Court.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a concrete dam with a fixed sill and removable boards.

INLET AND OUTLET.--The one inlet is a small ditch that enters at the extreme western tip. The outlet flows from the extreme northern tip, northeastward to Mud and Little Turkey Lakes, thence to Turkey Creek.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 7.49 ft Mar. 31, 1978; minimum stage, 4.58 ft Nov. 27, 1964.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	6.29	6.30	6.45	6.74	6.27	6.30	6.40	6.36	6.12	6.19	6.29	6.37
10	6.27	6.29	6.55	6.71	6.25	6.54	6.63	6.35	6.07	6.14	6.08	6.23
15	6.25	6.29	6.55	6.42	6.29	6.37	6.57	6.29	6.19	6.06	6.02	6.17
20	6.21	6.27	6.53	6.31	6.39	6.55	6.35	6.22	6.28	6.00	5.94	6.27
25	6.17	6.29	6.66	6.29	6.34	6.43	6.31	6.22	6.21	5.99	6.49	6.10
EOM	6.27	6.42	6.53	6.29	6.36	6.51	6.35	6.18	6.23	5.88	6.50	6.18

WTR YR 1998 MEAN 6.30 MAX 6.83 MIN 5.83

## STREAMS TRIBUTARY TO LAKE MICHIGAN

## 04100140 BIXLER LAKE AT KENDALLVILLE, IN

LOCATION.--Lat 41°26'13", long 85°15'10", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.4, T.34 N., R.11 E., Noble County, Hydrologic Unit 04050001 (KENDALLVILLE, IN quadrangle). The gage is on the south bank of the outlet channel on the southwest shore of the lake and 0.7 mi southeast of City Hall in Kendallville.

SURFACE AREA.--120 acres.

DRAINAGE AREA.--5.28 mi<sup>2</sup>.

PERIOD OF RECORD.--1946 to current year.

DATUM OF GAGE.--960.10 ft above sea level, as corrected on the basis of levels of the Indiana Department of Natural Resources, 1974-75.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage is bolted to a concrete pier 20 ft upstream from the control dam.

ESTABLISHED LEGAL LEVEL.--3.65 ft gage datum or 963.65 ft above sea level as decreed on April 25, 1952, by the Noble County Circuit Court. Minor errors were subsequently discovered in the establishment of the datum of the gage (see "DATUM OF GAGE") and the correct elevation of the legal level should be 3.65 ft gage datum or 963.75 ft above sea level.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a fixed deep-notch concrete dam with two flood gates.

INLET AND OUTLET.--Riddle Ditch enters the lake from the north, Sherman Ditch from the east, Shaffer Ditch from the southeast, and an unnamed ditch from the southwest. The outlet leaves at the southwest corner and flows into Henderson Lake 1.9 mi downstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 6.26 ft Feb. 24, 1985; minimum stage, 1.24 ft Jan. 13-15, 18, 1954.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	3.74	3.65	4.09	4.94	3.39	3.36	3.42	3.28	3.06	3.21	3.04	3.68
10	3.67	3.62	4.16	4.98	3.48	4.49	4.05	3.39	3.03	3.18	3.25	3.57
15	3.63	3.63	4.16	4.00	3.35	3.94	3.59	3.38	3.15	3.09	3.18	3.49
20	3.54	3.61	4.18	3.22	3.31	4.14	3.19	3.30	3.29	3.00	3.17	3.43
25	3.47	3.71	4.52	3.05	3.21	3.91	3.03	3.22	3.21	3.11	3.76	3.32
EOM	3.54	3.98	4.38	3.23	3.28	4.21	3.13	3.16	3.18	2.99	3.78	3.29

WTR YR 1998 MEAN 3.55 MAX 5.45 MIN 2.92



## WABASH RIVER BASIN

## 03327600 BLUE LAKE NEAR CHURUBUSCO, IN

LOCATION.--Lat 41°14'30", long 85°21'04", in SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.10, T.32 N., R.10 E., Whitley County, Hydrologic Unit 05120104 (CHURUBUSCO, IN quadrangle). Gage is located on a dredged channel at the extreme east end of the lake, approximately 2.0 mi west of Churubusco.

SURFACE AREA.--239 acres.

DRAINAGE AREA.--3.58 mi<sup>2</sup>.

PERIOD OF RECORD.--1946-68, 1976 to current year.

DATUM OF GAGE.--840.00 ft above sea level.

GAGE.--A water-stage recorder installed in an aluminum shelter over a 15-inch diameter stilling well.

ESTABLISHED LEGAL LEVEL.--10.28 ft gage datum or 850.28 ft above sea level as decreed on July 23, 1948, by the Whitley County Circuit Court.

LAKE-LEVEL CONTROL.--A concrete dam with a fixed crest is located in the outlet channel about 300 ft downstream from the lake.

INLET AND OUTLET.--Maloney Ditch enters at the eastern tip of the lake. The outlet flows from the lake at the northwest end and joins Carter Creek (Blue River) 0.2 mi downstream. Carter Creek eventually flows into Eel River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 15.80 ft Dec. 10, 1966; minimum stage, 7.64 ft Nov. 19, 20, 1952.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	9.58	9.56	9.90	10.24	9.72	9.73	10.09	9.88	9.51	9.90	10.04	9.88
10	9.57	9.54	9.86	11.01	9.66	10.14	10.34	9.85	9.44	9.92	10.22	9.78
15	9.58	9.54	9.87	10.51	9.69	10.11	10.33	9.78	9.67	9.84	10.16	9.71
20	9.53	9.55	9.87	10.10	9.85	10.23	10.07	9.72	9.78	9.76	10.11	9.66
25	9.48	9.59	10.03	9.88	9.79	10.23	9.85	9.65	9.74	10.13	10.05	9.58
EOM	9.49	9.87	9.93	9.77	9.77	10.27	9.75	9.58	9.81	10.05	9.97	9.55

WTR YR 1998 MEAN 9.86 MAX 11.01 MIN 9.44

## STREAMS TRIBUTARY TO LAKE MICHIGAN

## 04099250 BOWER LAKE NEAR PLEASANT LAKE, IN

LOCATION.--Lat 41°36'03", long 85°03'24", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.5, T.36 N., R.13 E., Steuben County, Hydrologic Unit 04050001 (ASHLEY, IN quadrangle). The gage is located at the public access site on the northwestern edge of the lake, 3.9 mi southwest of Angola.

SURFACE AREA.--25 acres.

DRAINAGE AREA.--84.6 mi<sup>2</sup>.

PERIOD OF RECORD.--1946-1970, 1977 to current year.

DATUM OF GAGE.--940.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary wire-weight gage is attached to the bridge over the outlet.

ESTABLISHED LEGAL LEVEL.--8.50 ft gage datum or 948.50 ft above sea level, as decreed on October 28, 1959, by Steuben County Circuit Court. Golden Lake near Pleasant Lake has the same established level and hence the same lake levels for the period of record.

LAKE-LEVEL CONTROL.--The lake level is controlled by the outlet channel or the outlet of Golden Lake.

INLET AND OUTLET.--Pigeon Creek flows through the lake, entering at the southern shore and leaving at the western end to flow into Golden Lake and eventually into the St. Joseph River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 17.13 ft Mar. 22, 1982; minimum stage, 7.88 ft Sept. 14, 15, 1964.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	8.75	9.07	9.56	10.82	9.59	9.60	10.49	9.65	8.68	8.59	8.51	9.01
10	8.65	8.88	9.21	13.20	9.33	11.62	11.63	9.61	8.66	8.53	9.51	8.65
15	8.65	8.76	9.04	12.59	9.75	10.81	11.00	9.27	8.81	8.45	8.82	8.49
20	8.56	8.67	9.08	10.03	11.10	11.47	10.01	8.99	9.36	8.48	8.51	8.47
25	8.51	8.94	10.37	9.59	10.15	11.08	9.58	8.93	8.85	8.74	10.33	8.40
EOM	8.79	9.93	9.88	9.63	9.88	11.35	9.65	8.80	8.75	8.42	10.01	8.37

WTR YR 1998 MEAN 9.49 MAX 13.20 MIN 8.35

## STREAMS TRIBUTARY TO LAKE MICHIGAN

311

04099810 CASS LAKE NEAR SHIPSEWANA, IN

LOCATION.--Lat 41°41'42", long 85°38'18", in SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.5, T.37 N, R.8 E., Lagrange County, Hydrologic Unit 04050001 (MIDDLEBURY, IN quadrangle). The gage is on the northeast shore of the lake, at the beach area in the Foxwood Hills Addition, and 3.3 mi northwest of Shipshewana.

SURFACE AREA.--89 acres.

DRAINAGE AREA.--0.68 mi<sup>2</sup>.

PERIOD OF RECORD.--1971 to current year.

DATUM OF GAGE.--840.95 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well.

ESTABLISHED LEGAL LEVEL.--Not established.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by the outlet channel.

INLET AND OUTLET.--A small unnamed ditch enters on the northwestern shore. The outlet leaves the lake at the southwest and flows into Mather Ditch 1.0 mi downstream. Mather Ditch eventually empties into the Little Elkhart River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 3.89 ft June 14, 1993; minimum stage, 1.80 ft May 15, 1971.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	2.89	2.93	3.01	3.22	---	---	---	3.11	2.73	2.69	2.87	3.08
10	2.85	2.92	3.05	3.18	---	---	3.16	3.07	2.71	2.66	3.17	2.98
15	2.81	2.93	3.02	---	---	---	3.08	3.02	2.82	2.63	3.04	2.93
20	2.77	2.92	3.00	---	---	---	3.02	2.94	2.86	2.63	2.96	2.93
25	2.76	2.92	3.09	---	---	---	2.99	2.91	2.76	2.67	3.28	2.82
EOM	2.89	3.00	3.06	---	---	---	3.06	2.83	2.73	2.60	3.18	2.78

WTR YR 1998 MEAN 2.93 MAX 3.28 MIN 2.57

## ILLINOIS RIVER BASIN

05518700 CEDAR LAKE AT CEDAR LAKE, IN

LOCATION.--Lat 41°21'58", long 87°25'36", in NE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.26, T.34 N., R.9 W., Lake County, Hydrologic Unit 07120001 (LOWELL, IN quadrangle). The gage is on the south bank of outlet channel on the east shore of the lake, upstream from the first bridge over the outlet, and 0.5 mi east of the town of Cedar Lake.

SURFACE AREA.--781 acres.

DRAINAGE AREA.--8.14 mi<sup>2</sup>.

PERIOD OF RECORD.--1943 to current year.

DATUM OF GAGE.--690.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 24-inch diameter stilling well. An auxiliary staff gage is driven into the channel bed.

ESTABLISHED LEGAL LEVEL.--Not established.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a fixed-crest concrete dam.

INLET AND OUTLET.--Several small ditches enter the lake at various points. The outlet, Cedar Creek, flows from the lake on the eastern shore of the center lobe, into Dalecarlia Lake, 1.5 mi downstream, and eventually into the Kankakee River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 4.30 ft May 15, 1970; minimum stage not determined, below 1.22 ft during July, Aug., Sept., Oct. 1988, and Sept. 1991.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	2.60	2.65	2.80	3.12	3.08	3.08	3.33	3.19	2.89	2.95	3.39	2.77
10	2.65	2.65	2.79	3.43	3.05	3.21	3.25	3.63	2.79	2.94	3.30	2.82
15	2.60	2.69	2.83	3.40	3.10	3.26	3.21	3.49	3.07	2.83	3.08	2.78
20	2.55	2.64	2.84	3.28	3.15	3.43	3.17	3.34	3.09	2.82	2.92	2.77
25	2.56	2.66	2.92	3.18	3.16	3.46	3.17	3.18	3.05	2.77	2.92	2.71
EOM	2.61	2.76	2.97	3.11	3.13	3.38	3.15	3.01	3.02	2.64	2.84	2.68

WTR YR 1998 MEAN 3.00 MAX 3.70 MIN 2.52

## WABASH RIVER BASIN

## 03331160 CENTER LAKE AT WARSAW, IN

LOCATION.--Lat 41°15'02", long 85°51'32", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.5, T.32 N., R.6 E., Kosciusko County, Hydrologic Unit 05120106 (LEESBURG, IN quadrangle). The gage is on the northwestern side of the lake, mounted on a sea wall behind the house at 300 Gilliam Drive, 0.8 mi north of the court house, Warsaw.

SURFACE AREA.--120 acres.

DRAINAGE AREA.--0.73 mi<sup>2</sup>.

PERIOD OF RECORD.--1943-1968, 1971 to current year.

DATUM OF GAGE.--800.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage is attached to the control dam at the outlet.

ESTABLISHED LEGAL LEVEL.--3.86 ft gage datum or 803.86 ft above sea level as decreed on December 3, 1963, by the Kosciusko County Circuit Court.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a concrete dam at the western end of the lake.

INLET AND OUTLET.--The one inlet flows through a 24-inch diameter tile from Pike Lake and enters the lake on the southeastern side. The outlet flows from the western shore and joins Walnut Creek 0.65 mi downstream, which in turn flows into the Tippecanoe River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 7.24 ft Oct. 15, 1954; minimum stage, 0.17 ft Oct. 4, 1955.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	4.26	4.25	4.47	4.81	4.85	4.30	5.37	5.08	4.28	4.62	4.71	4.30
10	4.21	4.25	4.55	5.50	4.62	4.54	5.78	5.04	4.29	4.61	4.93	4.24
15	4.20	4.18	4.55	5.88	4.54	4.62	5.93	4.71	4.68	4.38	4.68	4.23
20	4.13	4.10	4.50	5.96	4.49	4.84	5.93	4.58	5.12	4.30	4.49	4.24
25	4.08	4.11	4.53	5.70	4.38	4.95	5.53	4.51	4.93	4.67	4.53	4.18
EOM	4.16	4.37	4.47	5.15	4.37	5.28	5.18	4.39	4.65	4.43	4.41	4.22

WTR YR 1998 MEAN 4.67 MAX 5.96 MIN 4.08

## STREAMS TRIBUTARY TO LAKE ERIE

## 04177200 CLEAR LAKE AT CLEAR LAKE, IN

LOCATION.--Lat 41°44'52", long 84°50'25", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.17, T.38 N., R.15 E., Steuben County, Hydrologic Unit 04100003 (CLEAR LAKE, IN-OH-MI quadrangle). The gage is on the northern shore of the lake, at the channel between Clear and Round Lakes, and 4.75 mi northeast of Fremont.

SURFACE AREA.--800 acres.

DRAINAGE AREA.--6.86 mi<sup>2</sup>.

PERIOD OF RECORD.--1943 to current year.

DATUM OF GAGE.--1030.00 ft above sea level.

GAGE.--A water-stage recorder is installed in a wooden shelter over a 24-inch stilling well. An auxiliary staff gage is attached to the north end of the upstream culvert.

ESTABLISHED LEGAL LEVEL.--7.38 ft gage datum or 1037.38 ft above sea level as decreed on June 1, 1950, by the Steuben County Circuit Court. Round Lake at Clear Lake has the same established level and hence the same lake levels for the period of record.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a fixed-crest concrete dam with an auxiliary slide gate at the outlet of Round Lake.

INLET AND OUTLET.--Two unnamed ditches enter the lake on the southern shore. The outlet is a short channel connecting Clear and Round Lakes. The outlet of Round Lake flows from the northeast end and eventually into the West Branch of the St. Joseph River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 9.24 ft May 20, 1943 (from high-water mark); maximum recorded stage, 8.58 ft Jan. 5, 1993; minimum stage, 6.24 ft Sept. 30, 1962.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	7.83	7.85	7.89	8.08	7.93	7.99	8.09	8.01	7.72	7.71	7.51	7.88
10	7.82	7.83	7.92	8.31	7.90	8.17	8.23	7.98	7.72	7.68	8.05	7.80
15	7.81	7.84	7.89	8.16	7.96	8.07	8.14	7.93	7.80	7.61	7.92	7.76
20	7.76	7.81	7.87	8.07	8.14	8.18	8.04	7.85	7.87	7.58	7.83	7.80
25	7.72	7.82	7.99	8.05	8.06	8.13	7.98	7.83	7.81	7.59	8.17	7.72
EOM	7.81	7.90	7.96	7.96	8.05	8.18	8.01	7.80	7.75	7.50	7.99	7.72

WTR YR 1998 MEAN 7.90 MAX 8.35 MIN 7.46

## 05515240 CLEAR LAKE AT LAPORTE, IN

LOCATION.--Lat 41°37'25", long 86°43'11", in NE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.26, T.37 N., R.3 W., LaPorte County, Hydrologic Unit 07120001 (LAPORTE EAST, IN quadrangle). The gage is on the northeast shore of the lake, 100 ft south of the entrance to Fox Memorial Park, in LaPorte.

SURFACE AREA.--106 acres.

DRAINAGE AREA.--0.65 mi<sup>2</sup>.

PERIOD OF RECORD.--1942-49, 1952-75, 1979 to current year.

DATUM OF GAGE.--790.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage is attached to the north wingwall of the inlet culvert on the west side of the lake.

ESTABLISHED LEGAL LEVEL.--8.20 ft gage datum or 798.20 ft above sea level as decreed on August 31, 1949, by the LaPorte County Circuit Court.

LAKE-LEVEL CONTROL.--During periods of high water, water may be released through the main sewer system of the city of LaPorte and diverted into the Kankakee River.

INLET AND OUTLET.--A small ditch enters on the west shore. There is no outlet during periods of low and medium water levels. When water levels are high, water may flow from the lake into the city sewer system.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 11.36 ft June 6, 1993; minimum stage, 3.98 ft Nov. 27, 1964.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	8.60	8.49	8.55	9.06	8.77	8.72	9.42	9.60	9.16	9.26	8.95	8.29
10	8.58	8.47	8.60	9.14	8.69	9.11	9.47	9.67	9.15	9.28	9.04	8.18
15	8.54	8.48	8.61	9.03	8.85	9.13	9.60	9.62	9.30	9.06	8.86	8.13
20	8.48	8.51	8.57	8.97	8.97	9.28	9.58	9.48	9.28	8.92	8.59	8.15
25	8.45	8.47	8.74	8.95	8.86	9.28	9.60	9.42	9.11	8.96	8.63	8.04
BOM	8.51	8.60	8.70	8.85	8.86	9.46	9.60	9.32	9.07	8.78	8.50	8.05

WTR YR 1998 MEAN 8.91 MAX 9.71 MIN 7.97

## STREAMS TRIBUTARY TO LAKE MICHIGAN

## 04097850 CROOKED LAKE AT CROOKED LAKE, IN

LOCATION.--Lat 41°40'14", long 85°02'04", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.16, T.37 N., R.13 E., Steuben County, Hydrologic Unit 04050001 (ANGOLA WEST, IN quadrangle). The gage is on an inlet channel on the lower eastern shore of the lake, 3.1 mi northwest of Angola.

SURFACE AREA.--828 acres.

DRAINAGE AREA.--10.4 mi<sup>2</sup>.

PERIOD OF RECORD.--1946-70, 1972 to current year.

DATUM OF GAGE.--980.26 ft above sea level, as corrected on the basis of levels of Indiana Department of Natural Resources, 1977-78.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage is driven into the channel bed between the Second and Third Basins under County Road 400 West.

ESTABLISHED LEGAL LEVEL.--8.17 ft gage datum or 988.17 ft above sea level as decreed on June 17, 1948, by the Steuben County Circuit Court. Minor errors were subsequently discovered in the establishment of the datum of the gage (see "DATUM OF GAGE") and the correct elevation of the legal level should be 8.17 ft gage datum or 988.43 ft above sea level.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a fixed-crest dam with an adjustable gate at the western end of the Third Basin.

INLET AND OUTLET.--The principal inlets enter the lake from the south, from Loon and Buck Lakes, and the southeast, from Center Lake. Another ditch enters from the east. The outlet flows from the western end of the Third Basin into Lake Gage 1.4 mi downstream and eventually into the St. Joseph River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 10.30 ft May 19, 1996; minimum stage, 7.05 ft Nov. 13-15, 1964.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	9.01	9.09	9.04	9.23	9.07	9.04	9.24	9.22	9.16	9.20	9.10	9.10
10	8.97	9.08	9.01	9.46	9.01	9.29	9.35	9.27	9.14	9.13	9.37	8.94
15	9.00	9.10	9.01	9.38	9.03	9.24	9.31	9.25	9.19	9.05	9.20	8.89
20	8.99	9.09	9.03	9.27	9.15	9.36	9.21	9.23	9.28	9.03	9.12	8.97
25	8.99	9.06	9.11	9.22	9.10	9.28	9.13	9.26	9.21	9.15	9.53	8.89
BOM	9.05	9.10	9.01	9.16	9.10	9.33	9.19	9.20	9.28	9.03	9.27	8.88

WTR YR 1998 MEAN 9.15 MAX 9.53 MIN 8.86

## STREAMS TRIBUTARY TO LAKE MICHIGAN

04100470 DEWART LAKE NEAR LEESBURG, IN

LOCATION.--Lat 41°22'27", long 85°47'07", in NW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.25, T.34 N., R.6 E., Kosciusko County, Hydrologic Unit 04050001 (LEESBURG, IN quadrangle). The gage is on the west shore of the lake, 0.1 mi east of County Road 300 East at the public access site, and 4.5 mi northeast of Leesburg.

SURFACE AREA.--551 acres.

DRAINAGE AREA.--8.05 mi<sup>2</sup>.

PERIOD OF RECORD.--1945 to current year.

DATUM OF GAGE.--859.897 ft above sea level, as corrected on the basis of levels of Indiana Department of Natural Resources, 1973-74.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 24-inch diameter stilling well.

ESTABLISHED LEGAL LEVEL.--7.70 ft gage datum or 867.70 ft above sea level as decreed on October 18, 1949, by the Kosciusko County Circuit Court. Minor errors were subsequently discovered in the establishment of the datum of the gage (see "DATUM OF GAGE") and the correct elevation of the legal level should be 7.70 ft gage datum or 867.597 ft above sea level.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a steel sheet piling dam.

INLET AND OUTLET.--Cable Run enters the lake on the southeastern tip, and an unnamed ditch enters on the eastern shore. The outlet, Hammond Ditch, flows from the lake on the northwestern shore and into Wabsee Lake 2.3 mi downstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 9.57 ft June 14, 1981; minimum stage, 3.95 ft Dec. 21-24, 1964.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	8.54	8.51	8.60	9.08	8.89	8.85	9.09	9.12	8.64	8.74	8.63	8.46
10	8.51	8.49	8.64	9.41	8.84	9.10	9.39	9.04	8.61	8.73	8.95	8.39
15	8.49	8.51	8.61	9.16	8.86	9.02	9.30	8.98	8.76	8.63	8.82	8.34
20	8.44	8.49	8.59	9.04	8.91	9.16	9.16	8.85	8.85	8.57	8.69	8.33
25	8.40	8.49	8.72	8.99	8.88	9.10	9.07	8.80	8.75	8.64	8.64	8.27
EOM	8.48	8.61	8.69	8.94	8.88	9.19	9.06	8.72	8.79	8.53	8.54	8.24

WTR YR 1998 MEAN 8.77 MAX 9.48 MIN 8.24

## WABASH RIVER BASIN

03331320 DIAMOND LAKE NEAR SILVER LAKE, IN

LOCATION.--Lat 41°06'23", long 85°56'05", in SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.26, T.31 N., R.5 E., Kosciusko County, Hydrologic Unit 05120106 (SILVER LAKE, IN quadrangle). The gage is on the inlet channel on the northern shore of the lake, 2.2 mi northwest of the town of Silver Lake.

SURFACE AREA.--79 acres.

DRAINAGE AREA.--3.92 mi<sup>2</sup>.

PERIOD OF RECORD.--1954-72, 1975 to current year.

DATUM OF GAGE.--849.90 ft above sea level, as corrected on the basis of levels of Indiana Department of Natural Resources, 1976.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well.

ESTABLISHED LEGAL LEVEL.--Not established.

LAKE-LEVEL CONTROL.--The lake level is controlled by Yellow Creek Lake, 0.3 mi downstream.

INLET AND OUTLET.--There are two inlets. One enters from the north and east from Hill Lake, one enters from the southeast. The one outlet flows from the western shore and into Yellow Creek Lake, 0.3 mi downstream. Yellow Creek Lake flows into Yellow Creek, which eventually discharges into the Tippecanoe River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 13.47 July 9, 1964; minimum stage, 9.78 ft Sept. 18-19, 23, 27-30, Oct. 10-12, 1988.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	10.57	10.53	10.75	11.67	10.69	10.62	10.96	11.11	10.61	11.21	10.95	10.47
10	10.54	10.52	10.70	11.89	10.67	11.09	11.80	11.19	10.59	10.80	11.24	10.45
15	10.58	10.55	10.64	11.19	10.69	10.82	11.26	10.94	11.10	10.63	10.91	10.45
20	10.56	10.52	10.66	10.84	10.72	11.12	10.92	10.80	11.30	10.60	10.67	10.46
25	10.52	10.55	10.80	10.74	10.66	10.88	10.80	10.81	10.81	11.37	10.59	10.43
EOM	10.52	10.80	10.79	10.74	10.65	11.20	10.87	10.67	10.70	10.79	10.51	10.42

WTR YR 1998 MEAN 10.82 MAX 12.23 MIN 10.42



## STREAMS TRIBUTARY TO LAKE MICHIGAN

315

## 04100350 DIAMOND LAKE NEAR WAWAKA, IN

LOCATION.--Lat 41°26'15", long 85°31'05", in NE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>, sec.5, T.34 N., R.9 E., Noble County, Hydrologic Unit 04050001 (LIGONIER, IN quadrangle). The gage is located on the southeastern edge of the lake at a public access site, 2.5 mi southwest of the town of Wawaka.

SURFACE AREA.--105 acres.

DRAINAGE AREA.--4.80 mi<sup>2</sup>.

PERIOD OF RECORD.--1946 to current year.

DATUM OF GAGE.--870.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage is mounted on a piling driven into the lake bed on the northern edge of the lake.

ESTABLISHED LEGAL LEVEL.--Not established.

LAKE-LEVEL CONTROL.--The lake level is controlled by a riffle at the head of the outlet channel.

INLET AND OUTLET.--Willets Ditch enters at the southwestern tip of the lake from Eagle Lake, 0.6 mi upstream. One unnamed ditch enters the lake from the south. The outlet flows from the lake at the southeastern edge and joins the South Branch of the Elkhart River 0.8 mi downstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 7.83 ft Mar. 20, 1982; minimum stage, 2.29 ft Oct. 17, 1946.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	4.91	5.12	5.06	5.76	5.29	5.32	5.72	5.30	4.91	5.05	4.94	4.62
10	4.88	5.11	5.06	6.53	5.16	5.75	5.99	5.28	4.90	5.01	5.07	4.57
15	4.81	5.09	5.05	6.32	5.15	5.68	5.94	5.20	5.02	4.83	4.94	4.52
20	4.72	5.04	5.04	5.93	5.40	5.80	5.63	4.99	5.22	4.71	4.79	4.68
25	4.88	5.03	5.26	5.52	5.32	5.66	5.36	5.00	5.11	4.89	4.87	4.51
EOM	4.91	5.18	5.29	5.39	5.29	5.83	5.33	5.05	5.08	4.78	4.73	4.54

WTR YR 1998 MEAN 5.17 MAX 6.53 MIN 4.50

## STREAMS TRIBUTARY TO LAKE MICHIGAN

## 04100370 ENGLE LAKE NEAR LIGONIER, IN

LOCATION.--Lat 41°26'08", long 85°34'30", in SE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.2, T.34 N., R.8 E., Noble County, Hydrologic Unit 04050001 (LIGONIER, IN quadrangle). The gage is located at a public access site on the eastern side of the lake, 2.2 mi south of the town of Ligonier.

SURFACE AREA.--48 acres.

DRAINAGE AREA.--4.19 mi<sup>2</sup>.

PERIOD OF RECORD.--1956-67, 1977 to current year.

DATUM OF GAGE.--870.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well.

ESTABLISHED LEGAL LEVEL.--8.90 ft gage datum or 878.90 ft above sea level as decreed on October 23, 1984, by the Noble County Circuit Court.

LAKE-LEVEL CONTROL.--The lake level is controlled by the outlet channel at low water and the first culvert downstream at higher stages.

INLET AND OUTLET.--Sparta Lake Ditch feeds the lake from the south, flowing from Sparta Lake. The outlet flows from the northern shore through Indian Lake and into the Elkhart River 1.7 mi downstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage 10.53 ft Mar. 29, 1985; minimum stage, 7.48 ft Nov. 17, 1964.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	---	---	---	---	9.18	8.76	---	---	---
10	---	---	---	---	---	---	9.45	9.10	8.75	---	---	---
15	---	---	---	---	---	---	9.28	8.99	8.84	---	---	---
20	---	---	---	---	---	---	9.15	8.90	---	---	---	---
25	---	---	---	---	---	---	9.09	8.96	---	---	---	8.52
EOM	---	---	---	---	---	---	9.49	8.83	---	---	---	8.50

WTR YR 1998 MEAN 8.99 MAX 9.61 MIN 8.50

## STREAMS TRIBUTARY TO LAKE MICHIGAN

## 04099670 FISH LAKE NEAR PLATO, IN

LOCATION.--Lat 41°37'27", long 85°19'56", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.35, T.37 N., R.10 E., Lagrange County, Hydrologic Unit 04050001 (WOLCOTTVILLE, IN quadrangle). The gage is on the northeast bank of the outlet channel, approximately 15 ft downstream of the lake on the northwest side, and 1.2 mi south of Plato.

SURFACE AREA.--100 acres.

DRAINAGE AREA.--10.6 mi<sup>2</sup>.

PERIOD OF RECORD.--1945 to current year.

DATUM OF GAGE.--930.75 ft above sea level, as corrected on the basis of levels of the U.S. Geological Survey, 1966.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage is mounted on a tree stump on the northern bank of the outlet channel at the same site.

ESTABLISHED LEGAL LEVEL.--6.50 ft gage datum or 936.50 ft above sea level as decreed on May 7, 1959, by the Lagrange County Circuit Court. Minor errors were subsequently discovered in the establishment of the datum of the gage (see "DATUM OF GAGE") and the correct elevation of the legal level should be 6.50 ft gage datum or 937.25 ft above sea level.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by the outlet channel.

INLET AND OUTLET.--One inlet enters at the extreme southern tip from Royer Lake 700 ft upstream. The other enters on the north shore of the east lobe from Grass Lake, approximately 1.4 mi upstream. The outlet, East Fly Creek, flows from the lake on the northwest shore and joins Fly Creek, which empties into Pigeon River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 9.23 ft June 14, 15, 1981; minimum stage, 5.32 ft Nov. 17-20, 1953.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	6.50	6.70	6.92	7.35	6.95	6.90	7.19	7.24	6.62	6.56	6.60	6.77
10	6.47	6.67	6.84	8.06	6.87	7.61	7.85	7.19	6.62	6.52	6.97	6.61
15	6.48	6.67	6.75	7.57	6.91	7.24	7.46	6.98	6.74	6.45	6.70	6.56
20	6.46	6.61	6.74	7.62	7.13	7.53	7.15	6.79	6.75	6.43	6.56	6.55
25	6.47	6.66	6.99	7.64	7.01	7.39	7.01	6.77	6.63	6.49	7.46	6.48
EOM	6.64	6.95	6.89	6.98	6.98	7.35	7.04	6.70	6.61	6.40	7.07	6.49

WTR YR 1998 MEAN 6.89 MAX 8.23 MIN 6.37

## STREAMS TRIBUTARY TO LAKE MICHIGAN

## 04099760 FISH LAKE NEAR SCOTT, IN

LOCATION.--Lat 41°45'25", long 85°38'54", in NW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.7, T.38 N., R.8 E., Lagrange County, Hydrologic Unit 04050001 (MIDDLEBURY, IN quadrangle). The gage is on the northwest shore of the lake, on the north side of the outlet channel, 4.8 mi northwest of Scott.

SURFACE AREA.--139 acres.

DRAINAGE AREA.--6.21 mi<sup>2</sup>.

PERIOD OF RECORD.--1954-69, 1978 to current year.

DATUM OF GAGE.--809.84 ft above sea level, as corrected on the basis of levels of Indiana Department of Natural Resources, 1975.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage is attached to the dam at the same site.

ESTABLISHED LEGAL LEVEL.--4.42 ft gage datum or 814.42 ft above sea level as decreed on September 11, 1959, by the Lagrange County Circuit Court. Minor errors were subsequently discovered in the establishment of the datum of the gage (see "DATUM OF GAGE") and the correct elevation of the legal level should be 4.42 ft gage datum or 814.26 ft above sea level.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a fixed concrete sill with removable boards.

INLET AND OUTLET.--The inlet, Fetch Ditch, enters on the southeastern shore. The outlet flows from the lake at the lower west shore and empties into Pigeon River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 5.61 ft Feb. 26, 1985; minimum stage, 1.54 ft Nov. 26, 1964.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	4.36	4.41	4.41	4.36	4.65	4.85	4.85	4.52	4.67	4.11	4.39
10	---	4.32	4.40	4.62	4.34	4.87	5.01	4.73	4.51	4.62	4.45	4.28
15	---	4.33	4.25	4.45	4.65	4.76	4.94	4.64	4.79	4.50	4.37	4.26
20	4.34	4.34	4.21	4.37	4.72	4.88	4.80	4.58	4.78	4.39	4.26	4.26
25	4.33	4.33	4.28	4.37	4.68	4.83	4.72	4.60	4.73	4.32	4.49	4.20
EOM	4.39	4.39	4.26	4.37	4.69	4.92	4.74	4.57	4.72	4.14	4.48	4.10

WTR YR 1998 MEAN 4.51 MAX 5.02 MIN 4.05

## ILLINOIS RIVER BASIN

317

## 05517700 FLINT LAKE NEAR VALPARAISO, IN

LOCATION.--Lat 41°30'41", long 87°02'23", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.6, T.35 N., R.5 W., Porter County, Hydrologic Unit 07120001 (CHESTERTON, IN quadrangle). The gage is on the southeast shore of the lake, at the outlet and the Valparaiso Water Works, 3.2 mi northeast of Valparaiso.

SURFACE AREA.--86 acres.

DRAINAGE AREA.--3.80 mi<sup>2</sup>, revised.

PERIOD OF RECORD.--1946 to current year. From Jan. 1, 1911, to Aug. 14, 1946, readings of the lake level were taken approximately once per week by Water Works personnel. These data are available upon request.

DATUM OF GAGE.--780.00 ft above sea level.

GAGE.--A water-stage recorder is installed inside the Valparaiso Water Works. An auxiliary staff gage is located lakeward of the concrete block pumping station.

ESTABLISHED LEGAL LEVEL.--17.66 ft gage datum or 797.66 ft above sea level as decreed on August 19, 1963, by the Porter County Circuit Court.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by the outlet channel and two 30-inch corrugated metal pipes under the road, 600 ft downstream.

INLET AND OUTLET.--There are three inlets. One drains Long Lake to the northwest and another drains Loomis Lake to the west and Listenberger drain enters from the south. The outlet flows from the lake at the southeast corner and into the West Branch of Crooked Creek approximately 5.0 mi downstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 21.18 ft July 2, 1983 as recorded by the Valparaiso Water Company; minimum stage, 12.59 ft Dec. 29, 1948.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	19.04	19.11	19.19	19.71	19.57	19.77	20.23	19.87	19.38	19.60	19.38	19.12
10	19.04	19.12	19.23	19.96	19.59	20.30	20.12	20.09	19.36	19.64	19.34	19.07
15	19.03	19.16	19.22	19.81	19.73	20.21	20.13	19.91	19.53	19.50	19.25	19.01
20	19.00	19.13	19.23	19.67	19.80	20.60	20.01	19.75	19.46	19.41	19.16	19.12
25	19.00	19.13	19.33	19.61	19.74	20.49	20.01	19.64	19.36	19.32	19.26	19.07
EOM	19.09	19.20	19.35	19.59	19.74	20.32	19.97	19.49	19.40	19.19	19.19	19.10

WTR YR 1998 MEAN 19.52 MAX 20.61 MIN 18.97

## WABASH RIVER BASIN

## 03330160 GILBERT LAKE NEAR WASHINGTON CENTER, IN

LOCATION.--Lat 41°19'50", long 85°35'48", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.9, T.33 N., R.8 E., Noble County, Hydrologic Unit 05120106 (ORMAS, IN quadrangle). The gage is at the extreme west end of the lake on the east side of County Road 925 West, approximately 400 ft south of Gilbert Lake Road, and 0.4 mi north of Washington Center.

SURFACE AREA.--28 acres.

DRAINAGE AREA.--0.37 mi<sup>2</sup>.

PERIOD OF RECORD.--1954-59, 1961 to current year.

DATUM OF GAGE.--884.85 ft above sea level, as corrected on the basis of levels of the Indiana Department of Natural Resources, 1974-75.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage in one section is driven into the lake bed approximately 100 ft south of the primary gage.

ESTABLISHED LEGAL LEVEL.--Not established.

LAKE-LEVEL CONTROL.--The level is controlled by the outlet through the swamp, east of the lake.

INLET AND OUTLET.--The lake has no inlet. The outlet leaves from the southeastern side and flows into Stump Lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 6.81 ft Dec. 4-5, 1987; minimum stage, 3.53 ft Nov. 1, 1963.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	4.81	5.08	5.26	5.12	4.23	4.31	4.38	4.62	4.68	5.08	5.64	5.80
10	4.91	5.04	5.40	4.34	4.12	4.39	4.56	4.55	4.73	5.22	5.75	5.81
15	5.04	5.07	5.43	4.07	4.24	4.25	4.32	4.62	4.82	5.25	5.66	5.84
20	5.12	5.05	5.56	3.97	4.30	4.41	4.37	4.64	4.80	5.30	5.68	5.87
25	5.21	5.07	5.84	3.96	4.09	4.33	4.50	4.67	4.70	5.38	5.76	5.88
EOM	5.15	5.17	5.90	4.17	4.18	4.45	4.66	4.69	4.91	5.42	5.79	5.06

WTR YR 1998 MEAN 4.94 MAX 5.93 MIN 3.96

## STREAMS TRIBUTARY TO LAKE MICHIGAN

04100110 HACKENBURG LAKE NEAR WOLCOTTVILLE, IN

LOCATION.--Lat 41°33'25", long 85°26'17", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.24, T.36 N., R.9 E., Lagrange County, Hydrologic Unit 04050001 (OLIVER LAKE, IN quadrangle). The gage is on the north shore of the outlet channel at the bridge on County Road 75 West, and 4.2 mi northwest of Wolcottville.

SURFACE AREA.--42 acres.

DRAINAGE AREA.--55.4 mi<sup>2</sup>.

PERIOD OF RECORD.--1945 to current year.

DATUM OF GAGE.--890.00 ft above sea level.

GAGE.--A water-stage recorder is installed in a wooden shelter over a 24-inch diameter stilling well. An auxiliary staff gage is bolted to the downstream side of the bridge at the same site.

ESTABLISHED LEGAL LEVEL.--7.36 ft gage datum or 897.36 ft above sea level as decreed on February 2, 1954, by the Lagrange County Circuit Court. Witmer, Westler, Dallas, and Messick Lakes, all near Wolcottville, have the same established level and hence the same lake levels for the period of record.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a concrete sill with removable stop logs located at the outlet of Messick Lake.

INLET AND OUTLET.--One inlet enters on the north shore from Oliver Lake 1.6 mi upstream. The other inlet enters on the east shore from Dallas Lake 0.5 mi upstream, which is part of a chain of lakes including Westler and Witmer Lakes. The outlet flows from the lake on the southwest shore and into Messick Lake about 0.5 mi downstream. Messick Lake empties into the North Branch of the Elkhart River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 11.17 ft Apr. 7, 1978; minimum stage, 6.34 ft Oct. 10, 1953.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	7.70	7.61	7.83	8.53	8.19	8.07	8.80	8.24	7.50	7.65	7.63	8.21
10	7.50	7.58	7.85	9.59	8.02	8.57	9.06	8.09	7.50	7.69	7.95	7.81
15	7.41	7.54	7.78	9.42	8.03	8.67	9.11	7.86	7.62	7.58	7.73	7.52
20	7.30	7.48	7.73	8.93	8.23	8.84	8.78	7.58	7.85	7.49	7.50	7.37
25	7.24	7.50	7.99	8.55	8.25	8.91	8.43	7.46	7.72	7.51	8.15	7.24
EOM	7.44	7.71	8.11	8.31	8.20	8.92	8.27	7.53	7.66	7.38	8.57	7.19

WTR YR 1998 MEAN 7.98 MAX 9.62 MIN 7.18

## STREAMS TRIBUTARY TO LAKE ERIE

04177700 HAMILTON LAKE AT HAMILTON, IN

LOCATION.--Lat 41°32'10", long 84°54'45", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.34, T.36 N., R.14 E., Steuben County, Hydrologic Unit 04100003 (HAMILTON, IN quadrangle). The gage is on the eastern shore of the southern lobe at the outlet, in the town of Hamilton.

SURFACE AREA.--802 acres.

DRAINAGE AREA.--16.5 mi<sup>2</sup>.

PERIOD OF RECORD.--1943 to current year.

DATUM OF GAGE.--890.12 ft above sea level, as corrected on the basis of levels of Indiana Department of Natural Resources, 1978.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well.

ESTABLISHED LEGAL LEVEL.--8.83 ft gage datum or 898.83 ft above sea level as decreed on July 3, 1947, by the Steuben County Circuit Court. Minor errors were subsequently discovered in the establishment of the datum of the gage (see "DATUM OF GAGE") and the correct elevation of the legal level should be 8.83 ft gage datum or 898.95 ft above sea level.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by two dams. The northernmost dam is concrete and steel sheet piling with a fixed crest. The southern dam has a fixed concrete sill.

INLET AND OUTLET.--Black Creek enters the lake on the northeast shore. Two small ditches enter from the east and the north. There are two outlets, both on the southern lobe, that flow into Fish Creek thence into the St. Joseph River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 10.14 ft Dec. 30, 1965; minimum stage, 7.27 ft Jan. 4-9, 1953.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	8.54	8.59	8.69	8.98	8.61	8.64	8.71	8.67	8.48	8.46	8.52	8.55
10	8.55	8.56	8.66	9.07	8.59	9.09	9.14	8.68	8.51	8.45	8.61	8.48
15	8.53	8.57	8.60	8.72	8.67	8.73	8.77	8.60	8.58	8.40	8.52	8.46
20	8.51	8.54	8.62	8.64	8.91	9.00	8.66	8.54	8.59	8.40	8.48	8.48
25	8.50	8.58	8.88	8.62	8.70	8.76	8.63	8.52	8.52	8.57	9.18	8.43
EOM	8.56	8.84	8.68	8.63	8.69	8.85	8.70	8.53	8.52	8.48	8.68	8.45

WTR YR 1998 MEAN 8.63 MAX 9.35 MIN 8.36

## STREAMS TRIBUTARY TO LAKE MICHIGAN

319

04099860 HEATON LAKE NEAR ELKHART, IN

LOCATION.--Lat 41°44'14", long 85°54'42", in NW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.23, T.38 N., R.5 E., Elkhart County, Hydrologic Unit 04050001 (ELKHART, IN quadrangle). The gage is on the east bank of the inlet on the north shore of the lake, 4.7 mi northeast of the main Post Office in Elkhart.

SURFACE AREA.--87 acres.

DRAINAGE AREA.--9.33 mi<sup>2</sup>.

PERIOD OF RECORD.--1946-53, 1970-75, 1977 to current year.

DATUM OF GAGE.--760.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well.

ESTABLISHED LEGAL LEVEL.--7.30 ft gage datum or 767.30 ft above sea level as decreed on September 25, 1950, by the Elkhart County Circuit Court.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a fixed-crest concrete dam.

INLET AND OUTLET.--The one inlet enters the lake at the extreme northern point of the lake. The outlet, Puterbaugh Creek, flows from the west end of the lake and enters the St. Joseph River approximately 4.0 mi downstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 9.73 ft Feb. 26, 1985; minimum stage, 4.55 ft Nov. 12-18, 1971.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	7.94	8.00	8.11	8.38	8.25	8.20	8.37	8.29	7.95	7.63	6.66	8.19
10	7.89	7.98	8.14	8.51	8.22	8.43	8.47	8.25	7.91	7.46	8.09	8.13
15	7.85	7.97	8.12	8.52	8.25	8.29	8.39	8.17	8.02	7.23	8.09	8.07
20	7.81	7.96	8.12	8.33	8.28	8.42	8.32	8.12	7.94	7.07	7.95	8.03
25	7.79	7.96	8.23	8.27	8.23	8.34	8.27	8.14	7.75	6.92	8.49	7.98
EOM	7.95	8.09	8.19	8.25	8.23	8.39	8.29	8.07	7.72	6.63	8.28	7.90

WTR YR 1998 MEAN 8.04 MAX 8.55 MIN 6.50

## STREAMS TRIBUTARY TO LAKE MICHIGAN

04100258 HIGH LAKE NEAR WOLFLAKE, IN

LOCATION.--Lat 41°18'51", long 85°31'49", in SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.18, T.33 N., R.9 E., Noble County, Hydrologic Unit 04050001 (ORMAS, IN quadrangle). The gage is on a dredged channel on the west shore of the east lobe, 2.1 mi southwest of Wolflake.

SURFACE AREA.--123 acres.

DRAINAGE AREA.--4.43 mi<sup>2</sup>.

PERIOD OF RECORD.--1961-68, 1970 to current year.

DATUM OF GAGE.--890.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage is driven into the lake bed at the same site.

ESTABLISHED LEGAL LEVEL.--6.35 ft gage datum or 896.35 ft above sea level as decreed on February 25, 1963, by the Noble County Circuit Court.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a concrete, fixed-crest dam with a rectangular notch.

INLET AND OUTLET.--The one inlet, Beal Branch, enters the lake on the southeast shore. The outlet flows from the east side of the north lobe, through Bear Lake, 0.6 mi downstream, into Carrol Creek, and eventually into the Elkhart River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 7.70 ft June 28, 1968; minimum stage, 5.30 ft Nov. 15, 25-28, 1964, Oct. 13, 26-31, Nov. 1-3, 1966.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	6.59	6.68	6.73	7.14	6.72	6.75	6.95	6.96	6.58	6.67	6.69	6.49
10	6.57	6.65	6.71	7.18	6.69	7.11	7.20	6.88	6.60	6.64	6.82	6.45
15	6.58	6.65	6.66	6.91	6.72	6.86	7.09	6.83	6.73	6.60	6.65	6.40
20	6.56	6.61	6.66	6.75	6.81	6.99	6.93	6.76	6.78	6.55	6.57	6.38
25	6.54	6.64	6.83	6.73	6.76	6.94	6.88	6.70	6.65	6.85	6.56	6.31
EOM	6.61	6.81	6.74	6.75	6.78	7.11	6.93	6.62	6.68	6.65	6.53	6.27

WTR YR 1998 MEAN 6.73 MAX 7.20 MIN 6.27



## WABASH RIVER BASIN

## 03331300 HILL LAKE NEAR SILVER LAKE, IN

LOCATION.--Lat 41°06'16", long 85°54'35", in SE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.25, T.31 N., R.5 E., Kosciusko County, Hydrologic Unit 05120106 (SILVER LAKE, IN quadrangle). The gage is located on the northern shore of the southwestern lobe of the lake, 2.5 mi northwest of the town of Silver Lake.

SURFACE AREA.--67 acres.

DRAINAGE AREA.--0.85 mi<sup>2</sup>.

PERIOD OF RECORD.--1952 to current year.

DATUM OF GAGE.--860.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage is located on the southernmost tip of the lake. The staff is mounted on a board driven into the lake bed.

ESTABLISHED LEGAL LEVEL.--11.50 ft gage datum or 871.50 ft above sea level as decreed on September 10, 1959, by the Kosciusko County Circuit Court.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a concrete fixed sill with removable boards.

INLET AND OUTLET.--There are no surface inlets. The one outlet flows from the western edge of the lake and empties into Diamond Lake 1.5 mi downstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 12.54 ft July 21, 1963; minimum stage, 9.86 ft Jan. 18, 19, 1954.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	11.36	11.41	11.47	11.86	---	---	---	11.55	11.25	11.68	11.44	11.17
10	11.34	11.43	11.48	11.98	---	---	11.88	11.51	11.25	11.44	11.54	11.13
15	11.34	11.48	11.53	---	---	---	11.59	11.41	11.53	11.33	11.39	11.09
20	11.31	11.48	11.40	---	---	---	11.46	11.35	11.68	11.32	11.29	11.07
25	11.28	11.54	11.44	---	---	---	11.44	11.34	11.44	11.65	11.26	11.01
EOM	11.34	11.79	11.42	---	---	---	11.47	11.33	11.38	11.38	11.21	10.98

WTR YR 1998 MEAN 11.42 MAX 12.09 MIN 10.98

## STREAMS TRIBUTARY TO LAKE MICHIGAN

## 04099500 HOGBACK LAKE NEAR ANGOLA, IN

LOCATION.--Lat 41°37'39", long 85°04'59", in SE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.25, T.37 N., R.12 E., Steuben County, Hydrologic Unit 04050001 (ANGOLA WEST, IN quadrangle). The gage is on the northeast shore, 0.5 mi south of the Tri-State Airport, on County Road 500 West, and 4.4 mi southwest of Angola.

SURFACE AREA.--146 acres.

DRAINAGE AREA.--103 mi<sup>2</sup>.

PERIOD OF RECORD.--1946-73, 1977 to current year.

DATUM OF GAGE.--940.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage in one section is attached to a tree at the same site.

ESTABLISHED LEGAL LEVEL.--8.50 ft gage datum or 948.50 ft above sea level as decreed on October 28, 1959, by the Steuben County Circuit Court.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by the outlet channel (Pigeon Creek).

INLET AND OUTLET.--There are three inlets to the lake. One unnamed ditch enters from the north. A small tributary enters on the eastern tip from Silver Lake, 0.7 mi upstream. Pigeon Creek flows through the lake, entering at the southeastern shore from Golden Lake, 1.2 mi upstream and leaving at the north end of the western lobe. Pigeon Creek joins Turkey Creek to become Pigeon River and eventually empties into the St. Joseph River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 17.07 ft Mar. 22, 1982; minimum stage, 7.24 ft Sept. 9, 10, 1953.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	9.19	9.37	9.81	10.58	---	---	10.69	9.91	9.04	8.97	8.96	9.36
10	9.05	9.23	9.53	---	---	11.21	11.32	9.86	9.01	8.91	9.68	9.06
15	9.04	9.15	9.38	---	---	11.02	11.20	9.58	9.14	8.82	9.18	8.93
20	8.97	9.07	9.36	---	---	11.29	10.27	9.31	9.50	8.85	8.94	8.90
25	8.93	9.25	10.24	---	---	11.26	9.88	9.24	9.20	9.06	9.60	8.85
EOM	9.16	9.89	10.29	---	---	11.44	9.88	9.14	9.10	8.82	10.25	8.81

WTR YR 1998 MEAN 9.61 MAX 12.45 MIN 8.76

## 05514741 HUDSON LAKE AT HUDSON LAKE, IN

LOCATION.--Lat 41°42'42", long 86°32'13", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.28, T.38 N., R.1 W., LaPorte County, Hydrologic Unit 07120001 (NEW CARLISLE, IN quadrangle). The gage is on the southeast shore of lake, and 0.7 mi west of the town line of New Carlisle.

SURFACE AREA.--432 acres.

DRAINAGE AREA.--7.92 mi<sup>2</sup>.

PERIOD OF RECORD.--1946-76, 1978 to 1995.

DATUM OF GAGE.--750.00 ft above sea level. Prior to Oct. 1, 1965, the datum of the gage was 760.00 ft above sea level. All levels listed below are at the present datum.

GAGE.--A water-stage recorder is installed in a wooden shelter over a 24-inch diameter stilling well. An auxiliary staff gage is driven into the lake bed.

ESTABLISHED LEGAL LEVEL.--13.09 ft gage datum or 763.09 ft above sea level as decreed on August 31, 1949, by the St. Joseph County Circuit Court.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a 24-inch reinforced concrete pipe with a gate chamber and slide gate.

INLET AND OUTLET.--The one inlet flows into the lake at the extreme northeast tip from Saugany Lake, approximately 1.7 mi upstream. The outlet flows from the lake on the east shore to Geyer Ditch and eventually into the Kankakee River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 16.90 ft May 3, 1983; minimum stage, 7.60 ft Nov. 15, 1964.

(NO DATA COLLECTED DUE TO CONSTRUCTION)

## STREAMS TRIBUTARY TO LAKE MICHIGAN

## 04097680 JIMMERSON LAKE AT NEVADA MILLS, IN

LOCATION.--Lat 41°43'31", long 85°04'55", in SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.30, T.38 N., R.13 E., Steuben County, Hydrologic Unit 04050001 (ANGOLA WEST, IN quadrangle). The gage is at the extreme west end of the lake on the abutment of the concrete spillway structure and dam in the town of Nevada Mills, 4.6 mi east of Orland.

SURFACE AREA.--434 acres.

DRAINAGE AREA.--51.6 mi<sup>2</sup>.

PERIOD OF RECORD.--1937-44, 1946 to current year. (Lake level readings were made once a week by employees of Northern Indiana Public Service Company from 1937 to 1944.)

DATUM OF GAGE.--960.27 ft above sea level, as corrected on the basis of levels of Indiana Department of Natural Resources in June 1972.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 24-inch diameter stilling well attached to the control structure. An auxiliary staff gage is bolted to the same wall.

ESTABLISHED LEGAL LEVEL.--4.66 ft gage datum or 964.66 ft above sea level as decreed on July 3, 1947, by the Steuben County Circuit Court. Minor errors were subsequently discovered in the establishment of the datum of the gage (see "DATUM OF GAGE") and the correct elevation of the legal level should be 4.66 ft gage datum or 964.93 ft above sea level.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a concrete fixed-crest dam.

INLET AND OUTLET.--Crooked Creek flows through the lake, entering from Lake James at the extreme southeast end, and leaving from the northwest. Crooked Creek flows through Tamarack Lake and becomes Fawn River, which eventually empties into the St. Joseph River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 6.22 ft May 27, 1943; minimum stage, 3.71 ft Feb. 16, 17, 1948.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	5.08	5.07	5.10	5.34	5.24	5.28	5.45	5.34	4.87	4.88	4.83	5.02
10	5.02	5.03	5.13	5.71	5.19	5.49	5.57	5.28	4.84	4.82	5.22	4.92
15	5.00	5.03	5.10	5.58	5.25	5.48	5.57	5.19	4.94	4.75	5.09	4.87
20	4.94	5.00	5.09	5.43	5.39	5.57	5.41	5.05	5.06	4.71	4.98	4.89
25	4.91	5.02	5.21	5.35	5.37	5.55	5.34	5.02	4.99	4.79	5.17	4.83
EOM	5.01	5.11	5.17	5.29	5.33	5.55	5.36	4.94	4.93	4.71	5.16	4.81

WTR YR 1998 MEAN 5.14 MAX 5.72 MIN 4.69

## WABASH RIVER BASIN

## 03331438 KING LAKE NEAR DELONG, IN

LOCATION.--Lat 41°07'48", long 86°25'23", in NW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.16, T.31 N., R.1 E., Fulton County, Hydrologic Unit 05120106 (CULVER, IN quadrangle). The gage is located on the northern shore of the lake, on the lake access road, 0.6 mi southwest of Delong.

SURFACE AREA.--18 acres.

DRAINAGE AREA.--1.98 mi<sup>2</sup>.

PERIOD OF RECORD.--1970-72, 1975 to current year.

DATUM OF GAGE.--730.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well.

ESTABLISHED LEGAL LEVEL.--Not established.

LAKE-LEVEL CONTROL.--The lake level is normally controlled by the outlet channel bed. At high stages the control changes to the outlet culvert under old State Highway 17. The culvert is located about 700 ft north of the lake.

INLET AND OUTLET.--The inlet is an unnamed ditch which enters the lake from the southeastern side. The outlet exits the lake on the northern side and flows north approximately 1.5 mi to the Tippecanoe River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 8.69 ft June 14, 1981; minimum stage, 3.60 ft Oct. 23-26, 28-31, Nov. 1, 2, 1974.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	7.03	7.05	6.45	6.89	5.51	6.23	6.81	6.32	5.87	6.77	6.87	6.62
10	7.02	5.59	6.50	6.65	5.67	6.71	7.15	5.96	5.86	6.54	6.98	6.56
15	6.99	5.72	6.42	5.90	5.86	6.46	7.10	6.15	6.32	6.52	6.93	6.49
20	6.95	5.76	6.41	5.78	6.05	6.71	6.71	6.19	6.48	6.55	6.84	6.44
25	6.92	5.92	6.55	5.33	6.14	6.59	6.72	6.21	6.39	6.68	6.78	6.39
EOM	6.99	6.34	6.31	5.39	6.18	6.68	6.92	6.18	6.42	6.59	6.67	6.32

WTR YR 1998 MEAN 6.43 MAX 7.15 MIN 5.32

## STREAMS TRIBUTARY TO LAKE MICHIGAN

## 04100390 KNAPP LAKE NEAR WASHINGTON CENTER, IN

LOCATION.--Lat. 41°20'36", long 85°36'17", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.4, T.33 N., R.8 E., Noble County, Hydrologic Unit 04050001 (ORMAS, IN quadrangle). The gage is at a public access site on the east side of the lake, and 5.8 mi west of the town of Wolflake.

SURFACE AREA.--88 acres.

DRAINAGE AREA.--6.02 mi<sup>2</sup>.

PERIOD OF RECORD.--1946-74, 1976 to current year.

DATUM OF GAGE.--870.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well.

ESTABLISHED LEGAL LEVEL.--8.25 ft gage datum or 878.25 ft above sea level as decreed on October 7, 1954, by the Noble County Circuit Court. Harper Lake, Moss Lake, and Hindman Lake, all near Washington Center, have the same established level as Knapp Lake and hence the same lake levels for the period of record.

LAKE-LEVEL CONTROL.--The lake level is controlled by the outlet channel.

INLET AND OUTLET.--There are three inlets. The outlet of Little Knapp Lake enters at the southeastern corner, the outlet of Harper Lake enters at the southernmost tip, and Galloway Ditch enters on the eastern shore. The outlet flows from the lake on the western shore, through a series of lakes, into Turkey Creek and eventually into the Elkhart River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 11.10 ft June 27, 1968; minimum stage, 6.14 ft Mar. 26, 1994.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	7.60	7.89	7.57	8.65	7.49	7.48	8.02	7.88	7.34	7.32	7.38	7.06
10	7.75	7.64	7.46	9.17	7.39	8.58	9.11	7.88	7.31	7.31	7.88	7.16
15	7.89	7.54	7.35	8.28	7.45	8.04	8.49	7.92	7.39	7.24	7.45	7.28
20	7.99	7.52	7.37	7.75	7.62	8.38	7.96	7.77	7.65	7.21	7.20	7.40
25	8.09	7.70	7.73	7.53	7.50	8.13	7.71	7.64	7.40	7.59	7.12	7.06
EOM	7.99	7.82	7.49	7.56	7.53	8.41	7.72	7.46	7.37	7.34	7.01	6.96

WTR YR 1998 MEAN 7.67 MAX 9.57 MIN 6.94

## ILLINOIS RIVER BASIN

323

## 05515600 KOONTZ LAKE AT KOONTZ LAKE, IN

LOCATION.--Lat 41°24'42", long 86°29'18", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.11, T.34 N., R.1 W., Starke County, Hydrologic Unit 07120001 (WALKERTON, IN quadrangle). The gage is on the western tip of the lake, at the control dam on State Highway 23, at the town of Koontz Lake.

SURFACE AREA.--346 acres.

DRAINAGE AREA.--6.25 mi<sup>2</sup>.

PERIOD OF RECORD.--1943 to current year.

DATUM OF GAGE.--710.12 ft above sea level, as corrected on the basis of levels of Indiana Department of Natural Resources, 1978.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well.

ESTABLISHED LEGAL LEVEL.--4.56 ft gage datum or 714.56 ft above sea level as decreed on September 15, 1948, by the Starke County Circuit Court. Minor errors were subsequently discovered in the establishment of the datum of the gage (see "DATUM OF GAGE") and the correct elevation of the legal level should be 4.56 ft gage datum or 714.68 ft above sea level.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a steel sheet piling dam with a fixed crest.

INLET AND OUTLET.--Lawrence Pontius Ditch and Rose Ditch enter the lake on the south shore of the east lobe. The outlet flows from the lake at the western tip and into Robbins Ditch 1400 ft downstream. Robbins Ditch empties into the Kankakee River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 6.10 ft Oct. 11, 1954; minimum stage, 3.10 ft Oct. 12, 1970.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	4.47	4.57	4.57	4.88	4.59	4.60	4.66	4.65	4.49	4.60	4.67	4.41
10	4.50	4.55	4.61	4.85	4.58	4.81	4.76	4.65	4.51	4.61	4.58	4.38
15	4.50	4.57	4.56	4.66	4.62	4.67	4.71	4.58	4.57	4.51	4.50	4.37
20	4.48	4.56	4.57	4.61	4.63	4.79	4.63	4.53	4.59	4.52	4.45	4.43
25	4.51	4.55	4.68	4.60	4.60	4.67	4.62	4.53	4.50	4.46	4.49	4.41
BOM	4.55	4.65	4.61	4.62	4.59	4.69	4.63	4.51	4.48	4.41	4.45	4.43

WTR YR 1998 MEAN 4.57 MAX 4.99 MIN 4.36

## ILLINOIS RIVER BASIN

## 05517800 LAKE ELIZA NEAR BEATRICE, IN

LOCATION.--Lat 41°25'55", long 87°10'33", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.1, T.34 N., R.7 W., Porter County, Hydrologic Unit 07120001 (PALMER, IN quadrangle). The gage is on the east bank of a boat channel off the northernmost end of the lake, south of the bridge over the channel, and at the town of Lake Eliza.

SURFACE AREA.--45 acres.

DRAINAGE AREA.--1.70 mi<sup>2</sup>.

PERIOD OF RECORD.--1954-74, 1976 to current year.

DATUM OF GAGE.--735.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage is attached to the bridge piling.

ESTABLISHED LEGAL LEVEL.--3.70 ft gage datum or 738.70 ft above sea level as decreed on February 7, 1982, by the Porter County Circuit Court.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a reinforced concrete dam with fixed crest.

INLET AND OUTLET.--Two small inlets enter the lake from the northwest and the northeast. The outlet flows from the lake on the south side through a dredged channel, forms the head waters of Wolf Creek, and eventually joins the Kankakee River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 7.24 ft June 14, 1981; minimum stage, 2.45 ft Oct. 13-15, 1988.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	3.98	3.99	4.20	4.93	4.17	4.39	4.40	4.51	4.01	4.13	4.26	3.90
10	3.95	3.99	4.24	4.71	4.17	4.84	4.54	4.69	4.00	4.30	4.26	3.98
15	3.92	4.03	4.25	4.19	4.19	4.21	4.50	4.37	4.24	4.20	4.18	3.91
20	3.84	4.02	4.28	4.16	4.21	4.85	4.33	4.30	4.23	4.14	4.08	3.94
25	3.83	4.05	4.60	4.15	4.30	4.24	4.59	4.22	4.13	4.07	4.05	3.86
BOM	3.98	4.19	4.19	4.18	4.35	4.38	4.43	4.10	4.14	3.92	3.97	3.86

WTR YR 1998 MEAN 4.21 MAX 5.30 MIN 3.81

## STREAMS TRIBUTARY TO LAKE MICHIGAN

## 04097950 LAKE GAGE AT PANAMA, IN

LOCATION.--Lat 41°42'32", long 85°06'53", in SE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.35, T.38 N., R.12 E., Steuben County, Hydrologic Unit 04050001 (ANGOLA WEST, IN quadrangle). The gage is at the bridge over the outlet on the northern tip of the lake, 0.4 mi northwest of Panama, and 3.3 mi southeast of Orland.

SURFACE AREA.--332 acres.

DRAINAGE AREA.--17.3 mi<sup>2</sup>.

PERIOD OF RECORD.--1946 to current year.

DATUM OF GAGE.--950.00 ft above sea level.

GAGE.--A water-stage recorder is installed in a wooden shelter over a 24-inch diameter stilling well at the downstream side of the bridge. An auxiliary staff gage is at the same site.

ESTABLISHED LEGAL LEVEL.--4.25 ft gage datum or 954.25 ft above sea level as decreed on July 3, 1947, by the Steuben County Circuit Court. Lime Lake at Panama has the same established level and hence the same lake levels for the period of record.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a concrete dam with a fixed crest and one adjustable gate at the outlet of Lime Lake.

INLET AND OUTLET.--The one inlet flows into the lake on the extreme eastern shore from the Third Basin of Crooked Lake, 1.4 mi upstream. The outlet flows from the northern tip into Lime Lake approximately 600 ft downstream, then eventually into the St. Joseph River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 5.55 ft Apr. 25, 1950; minimum stage, 3.41 ft Nov. 13, 15-20, 1953.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	4.35	4.36	4.49	4.68	4.56	4.43	4.68	4.46	4.31	4.43	4.43	4.42
10	4.45	4.23	4.51	4.79	4.47	4.56	4.77	4.40	4.32	4.37	4.69	4.33
15	4.45	4.31	4.33	4.82	4.47	4.56	4.75	4.36	4.46	4.33	4.48	4.36
20	4.41	4.36	4.27	4.77	4.53	4.70	4.65	4.32	4.49	4.33	4.35	4.36
25	4.40	4.47	4.53	4.72	4.49	4.68	4.57	4.37	4.44	4.43	4.62	4.31
BOM	4.51	4.56	4.40	4.65	4.50	4.76	4.62	4.37	4.48	4.33	4.55	4.30

WTR YR 1998 MEAN 4.48 MAX 4.82 MIN 4.21

## STREAMS TRIBUTARY TO LAKE MICHIGAN

## 04092990 LAKE GEORGE AT HOBART, IN

LOCATION.--Lat 41°32'07", long 87°15'30", in NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.32, T.36 N., R.7 W., Lake County, Hydrologic Unit 04040001 (GARY, IN quadrangle). The gage is on the northeast end of the lake, 70 ft northwest of the dam and 400 ft upstream of the Ridge Road bridge, in Hobart.

SURFACE AREA.--282 acres.

DRAINAGE AREA.--124 mi<sup>2</sup>.

PERIOD OF RECORD.--1947 to current year.

DATUM OF GAGE.--600.00 ft above sea level.

GAGE.--A water-stage recorder is installed in a steel shelter over an 18-inch diameter clay stilling well.

ESTABLISHED LEGAL LEVEL.--2.23 ft gage datum or 602.23 ft above sea level as decreed on September 18, 1959, by the Lake County Circuit Court.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a concrete dam with removable boards.

INLET AND OUTLET.--The two principal inlets are Turkey Creek, entering from the extreme southwestern tip, and Deep River, entering on the northeastern shore of the southern lobe. Three unnamed tributaries enter from the northwest, south, and southeast. The outlet, Deep River, flows from the lake at the northeast end and eventually joins the Calumet River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 7.14 ft Oct. 11, 1954; minimum stage, below .08 ft Aug. 2, 1997 (while the lake was being drained).

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	2.03	2.14	2.19	2.98	2.24	2.26	2.19	2.41	2.06	2.28	3.19	2.03
10	2.11	2.10	2.18	3.22	2.04	3.22	2.65	2.83	2.15	2.21	2.01	2.12
15	2.06	2.13	2.17	2.45	1.99	1.85	2.23	2.41	2.15	2.16	2.16	1.99
20	2.01	2.12	2.26	2.26	2.01	3.72	1.82	2.18	2.21	2.19	2.04	1.98
25	2.06	2.15	2.76	2.20	2.30	2.20	2.22	2.12	2.04	2.09	2.10	1.98
EOM	2.16	2.35	2.28	2.33	2.17	1.36	2.46	2.05	1.73	2.02	2.01	2.05

WTR YR 1998 MEAN 2.23 MAX 4.48 MIN 1.36



## STREAMS TRIBUTARY TO LAKE MICHIGAN

325

## 04097550 LAKE GEORGE AT JAMESTOWN, IN

LOCATION.--Lat 41°44'58", long 85°01'01", in SE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.15, T.38 N., R.13 E., Steuben County, Hydrologic Unit 04050001 (ANGOLA WEST, IN quadrangle). The gage is 25 ft east of the outlet dam on the southwest end of the lake at Jamestown, 8.0 mi north of Angola.

SURFACE AREA.--488 acres.

DRAINAGE AREA.--14.7 mi<sup>2</sup>.

PERIOD OF RECORD.--1946 to current year.

DATUM OF GAGE.--980.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well.

ESTABLISHED LEGAL LEVEL.--5.28 ft gage datum or 985.28 ft above sea level as decreed on October 12, 1945, by the Steuben County Circuit Court.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a concrete dam with removable boards.

INLET AND OUTLET.--The inlet flows from Silver Lake, 0.8 mi upstream, and enters on the north shore. The outlet flows from the southwest end of the lake and forms Crooked Creek. Crooked Creek flows into Mud Lake 0.8 mi downstream, then enters Snow Lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 6.20 ft Apr. 4, 25, 1950; minimum stage, 4.20 ft Dec. 6, 7, 1946; Oct. 23-31, 1948.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	5.78	5.76	5.79	5.97	5.85	5.86	5.94	5.95	5.66	5.70	5.63	5.78
10	5.75	5.74	5.82	6.03	5.83	5.98	6.02	5.88	5.66	5.68	5.88	5.74
15	5.74	5.75	5.78	5.98	5.86	5.93	5.98	5.83	5.74	5.64	5.78	5.74
20	5.70	5.73	5.78	5.98	5.92	6.02	5.91	5.76	5.83	5.63	5.73	5.76
25	5.70	5.74	5.85	5.90	5.89	5.96	5.88	5.76	5.77	5.64	6.00	5.70
EOM	5.75	5.82	5.81	5.88	5.90	6.00	5.93	5.72	5.73	5.56	5.83	5.71

WTR YR 1998 MEAN 5.82 MAX 6.11 MIN 5.53

## WABASH RIVER BASIN

## 03331380 LAKE MANITOU AT ROCHESTER, IN

LOCATION.--Lat 41°03'00", long 86°10'06", NW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.14, T.30 N., R.3 E., Fulton County, Hydrologic Unit 05120106 (ROCHESTER, IN quadrangle). The gage is located at the public access site on the eastern side of the lake, and 2.6 mi southeast of the courthouse in Rochester.

SURFACE AREA.--1,158 acres.

DRAINAGE AREA.--44.2 mi<sup>2</sup>.

PERIOD OF RECORD.--1943 to current year.

DATUM OF GAGE.--770.00 ft above sea level.

GAGE.--A water-stage recorder is installed in a aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage is located at the northwest end of the lake at the fish hatchery.

ESTABLISHED LEGAL LEVEL.--8.41 ft gage datum or 778.41 ft above sea level as decreed on September 27, 1948, by the Fulton County Circuit Court.

LAKE-LEVEL CONTROL.--The lake level is controlled by a concrete dam and the gate of a feeder canal at the lake outlet.

INLET AND OUTLET.--Rain Creek is the main inlet and enters at the southeastern edge of the lake. The other inlet is located on the eastern shore of the lake at the site of the gage. The outlet is Mill Creek, which exits at the northwestern tip of the lake and flows 3.5 mi to the Tippecanoe River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 10.87 ft Aug. 19, 1990; minimum stage, 6.48 ft Nov. 14, 25-27, 1964.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	9.45	9.43	9.53	10.04	9.60	9.54	9.86	9.94	9.56	10.13	9.85	9.37
10	9.44	9.42	9.52	10.24	9.57	9.94	10.41	9.94	9.59	9.65	9.72	9.36
15	9.44	9.44	9.49	9.81	9.60	9.72	9.99	9.78	9.91	9.46	9.50	9.35
20	9.40	9.42	9.47	9.68	9.65	10.01	9.86	9.77	9.84	9.42	9.41	9.35
25	9.38	9.46	9.59	9.65	9.57	9.79	9.83	9.72	9.55	10.03	9.38	9.33
EOM	9.42	9.66	9.52	9.67	9.55	10.03	9.86	9.62	9.46	9.56	9.35	9.35

WTR YR 1998 MEAN 9.64 MAX 10.45 MIN 9.33

## WABASH RIVER BASIN

## 03331440 LAKE MAXINKUCKEE AT CULVER, IN

LOCATION.--Lat 41°11'48", long 86°25'00", in NE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.28, T.32 N., R.1 E., Marshall County, Hydrologic Unit 05120106 (CULVER, IN quadrangle). The gage is on the lower west side of the lake, at the public access site, 1.4 mi south of the center of Culver.

SURFACE AREA.--1,864 acres.

DRAINAGE AREA.--13.7 mi<sup>2</sup>.

PERIOD OF RECORD.--1943 to current year.

DATUM OF GAGE.--730.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage is attached to the upstream side of the north abutment of the outlet dam.

ESTABLISHED LEGAL LEVEL.--3.12 ft gage datum or 733.12 ft above sea level as decreed on August 9, 1948, by the Marshall County Circuit Court.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a concrete dam with a fixed crest at the outlet channel.

INLET AND OUTLET.--Wilson Ditch enters the lake at the northeast corner, Curtiss Ditch enters at the east center, and Norris Inlet enters at the southeast corner. The outlet leaves the lake at the western shore, north of the point, and flows into Lost Lake 1,600 ft downstream, thence into the Tippecanoe River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 5.48 ft June 14, 15, 1981; minimum stage, 2.12 ft Nov. 19, 1953 and Nov. 19, 1956.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	3.36	3.36	3.36	3.84	3.70	3.59	4.05	4.02	3.47	4.03	3.67	3.21
10	3.37	3.27	3.41	4.13	3.63	3.82	4.17	4.06	3.43	4.08	3.65	3.13
15	3.38	3.26	3.36	4.03	3.67	3.76	4.16	3.94	3.59	3.90	3.54	3.10
20	3.33	3.21	3.36	3.93	3.70	3.90	4.04	3.84	3.74	3.81	3.42	3.13
25	3.31	3.20	3.44	3.85	3.66	3.90	3.98	3.72	3.63	3.72	3.34	3.03
EOM	3.30	3.37	3.45	3.78	3.63	4.08	3.95	3.61	3.63	3.54	3.28	3.04

WTR YR 1998 MEAN 3.61 MAX 4.17 MIN 3.01

## ILLINOIS RIVER BASIN

## 05516200 LAKE OF THE WOODS NEAR BREMEN, IN

LOCATION.--Lat 41°025'04", long 86°013'44", in SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.7, T.34 N., R.3 E., Marshall County, Hydrologic Unit 07120001 (BREMAN, IN quadrangle). The gage is on the southwest shore of the lake, at the public fishing site, and 4.7 mi southwest of Bremen.

SURFACE AREA.--416 acres.

DRAINAGE AREA.--9.45 mi<sup>2</sup>.

PERIOD OF RECORD.--1945 to current year.

DATUM OF GAGE.--800.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage is driven into the outlet channel.

ESTABLISHED LEGAL LEVEL.--3.85 ft gage datum or 803.85 ft above sea level as decreed on August 9, 1948, by the Marshall County Circuit Court.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a concrete dam with a 13 ft by 1 ft notch. The dam is equipped with a lift gate.

INLET AND OUTLET.--Three ditches, Kimble, Martin, and Seltenright, enter the lake on the northwest shore. Scofield Ditch enters at the west lobe. The outlet, Clark Ditch, flows from the lake at the southern end and eventually into Yellow River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 7.68 ft Oct. 12, 1954; minimum stage, 2.75 ft Nov. 18-20, 1953.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	3.00	3.20	3.32	4.33	3.49	3.47	3.86	3.70	3.73	3.94	4.09	3.76
10	3.03	3.12	3.27	4.24	3.38	4.06	4.18	3.70	3.77	3.97	3.91	3.72
15	2.97	3.09	3.20	3.77	3.58	3.86	4.01	3.55	4.03	3.89	3.85	3.68
20	2.92	3.10	3.20	3.52	3.72	4.28	3.70	3.57	3.96	3.85	3.79	3.42
25	2.93	3.13	3.86	3.43	3.59	3.92	3.56	3.73	3.89	3.81	3.89	3.15
EOM	3.15	3.47	3.49	3.53	3.54	4.08	3.71	3.74	3.89	3.73	3.82	3.13

WTR YR 1998 MEAN 3.63 MAX 4.56 MIN 2.90

## STREAMS TRIBUTARY TO LAKE MICHIGAN

327

## 04099580 LAKE OF THE WOODS NEAR HELMER, IN

LOCATION.--Lat 41°32'30", long 85°11'42", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.25, T.36 N., R.11 E., Lagrange County, Hydrologic Unit 04050001 (STROH, IN quadrangle). The gage is on the west shore of Duck Pond, a basin connecting Lake of the Woods and McClish Lake, approximately 100 ft south of the bridge over the channel, and 1.5 mi northwest of Helmer.

SURFACE AREA.--136 acres.

DRAINAGE AREA.--5.25 mi<sup>2</sup>.

PERIOD OF RECORD.--1951-74, 1977 to current year.

DATUM OF GAGE.--940.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well.

ESTABLISHED LEGAL LEVEL.--11.09 ft gage datum or 951.09 ft above sea level as decreed on July 21, 1960, by the Lagrange County Circuit Court. McClish Lake near Helmer has the same established level and hence the same lake levels for the period of record.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a concrete dam with a fixed sill.

INLET AND OUTLET.--There are four inlets to the lake. Spectacle Lake drains into the west shore, Maumee Ditch enters from the south, Goose Pond flows through a short channel to the southwest shore, and McClish Lake drains into the lake on the southeast shore. The outlet flows to the north from the east end of the lake and through Taylor, Mud, and Little Turkey Lakes to Turkey Creek, thence into Pigeon River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 13.00 ft Dec. 24, 25, 1967; minimum stage, 9.81 ft Nov. 17-20, 1953.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	11.39	11.66	11.55	12.14	11.58	11.62	11.72	11.60	11.36	11.40	11.24	11.40
10	11.38	11.52	11.53	12.26	11.52	12.05	12.07	11.59	11.36	11.36	11.32	11.30
15	11.40	11.46	11.47	12.03	11.56	11.72	11.78	11.52	11.49	11.28	11.26	11.26
20	11.40	11.39	11.48	11.71	11.73	11.98	11.62	11.45	11.58	11.23	11.20	11.27
25	11.40	11.43	11.74	11.67	11.65	11.80	11.55	11.43	11.48	11.25	11.76	11.21
EOM	11.54	11.59	11.63	11.63	11.65	11.89	11.61	11.41	11.46	11.15	11.58	11.21

WTR YR 1998 MEAN 11.53 MAX 12.50 MIN 11.10

## STREAMS TRIBUTARY TO LAKE MICHIGAN

## 04097520 LAKE PLEASANT NEAR NEVADA MILLS, IN

LOCATION.--Lat 41°45'18", long 85°06'10", in NW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.13, T.38 N., R.12 E., Steuben County, Hydrologic Unit 04050001 (KINDERHOOK, MI-IN quadrangle). The gage is at a bridge over a boat channel on the south shore of the lake, 2.3 mi northwest of Nevada Mills.

SURFACE AREA.--424 acres.

DRAINAGE AREA.--3.18 mi<sup>2</sup>.

PERIOD OF RECORD.--1954-69, 1971, 1976 to current year.

DATUM OF GAGE.--960.40 ft above sea level as corrected on the basis of levels of Indiana Department of Natural Resources, 1977-78.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage is attached to the southwest bridge abutment at the site.

ESTABLISHED LEGAL LEVEL.--1.10 ft gage datum or 961.50 ft above sea level as decreed on April 11, 1986, by the Steuben County Circuit Court.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a metal plate welded across the bottom of a corrugated metal pipe.

INLET AND OUTLET.--The one inlet enters the lake on the west side. The outlet flows from the northern shore, enters Michigan, and eventually empties into Prairie River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 2.04 ft Mar. 17, 1980; minimum stage, -0.14 ft Nov. 6-14, 1964.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	1.53	1.53	1.53	1.49	1.34	1.36	1.43	1.41	1.04	1.00	.85	1.16
10	1.48	1.50	1.57	1.58	1.32	1.50	1.52	1.35	1.01	.99	1.27	1.10
15	1.46	1.50	1.52	1.48	1.35	1.43	1.46	1.28	1.10	.91	1.19	1.08
20	1.40	1.48	1.51	1.46	1.42	1.55	1.40	1.18	1.13	.86	1.13	1.09
25	1.40	1.47	1.37	1.41	1.40	1.49	1.36	1.17	1.06	.91	1.34	1.03
EOM	1.50	1.56	1.34	1.38	1.40	1.51	1.41	1.12	1.05	.82	1.23	1.03

WTR YR 1998 MEAN 1.31 MAX 1.64 MIN .78

## STREAMS TRIBUTARY TO LAKE MICHIGAN

## 04100160 LITTLE LONG LAKE AT KENDALLVILLE, IN

LOCATION.--Lat 41°27'49", long 85°15'27", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.28, T.35 N., R.11 E., Noble County, Hydrologic Unit 04050001 (KENDALLVILLE, IN quadrangle). The gage is on the south side of the lake at the bridge over the dredged channel in Wakeville Village, 1.6 mi northeast of City Hall in Kendallville.

SURFACE AREA.--71 acres.

DRAINAGE AREA.--4.55 mi<sup>2</sup>.

PERIOD OF RECORD.--1954 to current year.

DATUM OF GAGE.--950.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage in one section is attached to the west wingwall on the south side of the bridge.

ESTABLISHED LEGAL LEVEL.--4.50 ft gage datum or 954.50 ft above sea level as decreed on March 26, 1970. Round Lake at Kendallville has the same established level and hence the same lake levels for the period of record.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a fixed-crest concrete dam.

INLET AND OUTLET.--The one inlet enters on the east side from Round Lake. The outlet, Waterhouse Ditch, flows from the lake at the southwest end and into Henderson Lake Ditch, thence into Sylvan Lake 4.8 mi downstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 6.75 ft Jan. 31, 1969; minimum stage, 3.33 ft Nov. 17, 18, 1964.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	4.68	4.82	4.93	5.34	4.81	4.81	4.89	4.82	4.58	4.67	4.63	4.62
10	4.69	4.81	4.90	5.50	4.78	5.26	5.25	4.79	4.58	4.64	4.70	4.55
15	4.70	4.86	4.83	4.96	4.81	4.91	4.96	4.73	4.68	4.57	4.61	4.50
20	4.68	4.86	4.84	4.83	4.98	5.18	4.83	4.67	4.75	4.50	4.57	4.47
25	4.68	4.94	5.10	4.81	4.88	4.95	4.78	4.64	4.66	4.62	4.99	4.42
EOM	4.80	5.04	4.88	4.83	4.87	5.09	4.83	4.63	4.62	4.53	4.71	4.40

WTR YR 1998 MEAN 4.79 MAX 5.83 MIN 4.40

## WABASH RIVER BASIN

## 03328100 LONG LAKE AT LAKETON, IN

LOCATION.--Lat 40°59'08", long 85°50'20", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.10, T.29 N., R.6 E., Wabash County, Hydrologic Unit 05120104 (NORTH MANCHESTER SOUTH, IN quadrangle). The gage is located on the north shore of the lake, 0.3 mi west of Crill Road, and 0.8 mi north of Laketon.

SURFACE AREA.--48 acres.

DRAINAGE AREA.--0.55 mi<sup>2</sup>.

PERIOD OF RECORD.--1946-51, 1959 to current year.

DATUM OF GAGE.--740.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage, driven into the lake bed, is located 50 ft lakeward of the primary gage.

ESTABLISHED LEGAL LEVEL.--11.19 ft gage datum or 751.19 ft above sea level as decreed on July 26, 1951, by the Wabash County Circuit Court.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by an 18-inch corrugated metal pipe draining into a clay tile.

INLET AND OUTLET.--Two tile ditches flow into the lake. The outlet flows from the west end of the lake, joins the outlet of Mud Lake, continues through Round Lake, then into Eel River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 13.66 ft Mar. 22, 1982; minimum stage, 8.68 ft Dec. 1-3, 1964.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	11.66	11.46	11.48	11.93	11.97	11.89	12.40	12.49	11.85	12.08	12.82	11.89
10	11.62	11.43	11.49	12.29	11.94	12.07	12.68	12.54	11.81	12.01	12.71	11.77
15	11.58	11.41	11.47	12.27	11.92	12.02	12.70	12.42	12.09	11.87	12.53	11.66
20	11.51	11.37	11.46	12.21	11.98	12.24	12.61	12.29	12.13	11.78	12.35	11.61
25	11.44	11.37	11.56	12.16	11.97	12.22	12.52	12.12	11.98	13.20	12.20	11.54
EOM	11.46	11.49	11.53	12.07	11.95	12.46	12.47	11.96	11.88	12.87	12.02	11.50

WTR YR 1998 MEAN 12.00 MAX 13.31 MIN 11.36

## STREAMS TRIBUTARY TO LAKE MICHIGAN

329

04099200 LONG LAKE AT MOONLIGHT, IN

LOCATION.--Lat 41°35'01", long 85°01'43", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.16, T.36 N., R.13 E., Steuben County, Hydrologic Unit 04050001 (ASHLEY, IN quadrangle). The gage is located on the northern shore, 0.4 mi east of the lake outlet and 2.5 mi north of Steubenville.

SURFACE AREA.--92 acres.

DRAINAGE AREA.--67.9 mi<sup>2</sup>.

PERIOD OF RECORD.--1946 to current year.

DATUM OF GAGE.--940.10 ft above sea level as corrected on the basis of levels of Indiana Department of Natural Resources, 1977.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage is located near the gage in two sections. One section is mounted on a post which is driven into the lake bed. The other section is mounted to a tree near the gage.

ESTABLISHED LEGAL LEVEL.--Not established.

LAKE-LEVEL CONTROL.--The lake level is controlled by the downstream channel.

INLET AND OUTLET.--Pigeon Creek flows into Long Lake at the eastern end of the lake and exits at the western end.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 17.42 ft Mar. 22, 1982; minimum stage, 8.58 ft Sept. 22 and 23, 1994.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	9.50	9.91	10.28	11.89	---	10.30	11.18	---	9.23	9.12	9.09	9.32
10	9.44	9.67	9.92	---	---	12.83	12.79	---	9.22	9.10	9.92	9.13
15	9.48	9.58	9.78	---	---	11.41	---	---	9.30	9.03	9.22	9.04
20	9.40	9.50	9.90	---	---	12.43	---	---	9.84	9.04	9.04	9.06
25	9.39	9.78	11.48	---	---	11.71	---	---	9.27	9.18	11.48	9.03
EOM	9.64	11.03	10.52	---	---	12.05	---	9.31	9.20	9.00	10.28	9.04

WTR YR 1998 MEAN 9.93 MAX 12.91 MIN 8.96

## WABASH RIVER BASIN

03331460 LOST LAKE AT CULVER, IN

LOCATION.--Lat 41°12'01", long 86°25'19", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.28, T.32 N., R.1 E., Marshall County, Hydrologic Unit 05120106 (CULVER, IN quadrangle). The gage is on the northern shore of the lake at the east end of West 19th Road (lake access road), 1.1 mi south of the center of Culver.

SURFACE AREA.--40 acres.

DRAINAGE AREA.--14.2 mi<sup>2</sup>.

PERIOD OF RECORD.--1954-64, 1963-74, 1976 to current year. (Formerly published as Hawks Lake near Culver.)

DATUM OF GAGE.--720.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well.

ESTABLISHED LEGAL LEVEL.--12.00 ft gage datum or 732.00 ft above sea level as decreed on February 17, 1960, by the Marshall County Circuit Court.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a concrete dam and sill with removable boards in the outlet channel approximately 850 ft downstream from the main body of the lake.

INLET AND OUTLET.--The one inlet flows into the lake from Maxinkuckee Lake and enters on the north shore. The outlet flows from the south end of the lake to the Tippecanoe River 3.7 mi downstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 13.05 ft June 15, 1981; minimum stage, 10.12 ft July 9, 1959.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	11.71	11.50	11.60	12.26	12.19	12.10	12.33	12.33	12.06	12.41	12.22	11.81
10	11.54	11.50	11.73	12.36	12.16	12.22	12.35	12.36	12.03	12.38	12.16	11.66
15	11.50	11.53	11.70	12.33	12.17	12.20	12.35	12.31	12.15	12.30	12.09	11.53
20	11.35	11.53	11.69	12.28	12.18	12.24	12.30	12.26	12.24	12.24	12.02	11.62
25	11.24	11.54	11.75	12.25	12.15	12.26	12.33	12.20	12.20	12.20	11.96	11.80
EOM	11.37	11.68	11.75	12.22	12.14	12.34	12.30	12.13	12.21	12.09	11.88	11.79

WTR YR 1998 MEAN 12.01 MAX 12.53 MIN 11.24



## WABASH RIVER BASIN

## 03328400 LUKENS LAKE NEAR DISKO, IN

LOCATION.--Lat 40°58'09", long 85°56'06", in SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.14, T.29 N., R.5 E., Wabash County, Hydrologic Unit 05120104 (ROANN, IN quadrangle). The gage is 25 ft north of the outlet on the southwest side of the lake, 4.1 mi north of Roann.

SURFACE AREA.--46 acres.

DRAINAGE AREA.--1.76 mi<sup>2</sup>.

PERIOD OF RECORD.--1948-49, 1959 to current year.

DATUM OF GAGE.--760.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage in one section is driven into the lake bed about 5 ft upstream from the outlet culvert.

ESTABLISHED LEGAL LEVEL.--3.60 ft gage datum or 763.60 ft above the sea level as decreed on March 29, 1978, by the Wabash County Circuit Court.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by two 18-inch corrugated metal culverts at the outlet.

INLET AND OUTLET.--The principal inlet is a tile drain from McColley Lake, 0.5 mi to the north. The outlet flows from the southwestern shore, into Bolley Ditch 0.7 mi downstream, thence into Squirrel Creek, and eventually into Eel River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 5.10 ft May 16, 1968; minimum stage, 2.32 ft Oct. 12, 1983.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	3.72	3.76	4.06	4.33	3.94	4.01	4.19	4.04	3.81	4.17	4.42	3.94
10	3.72	3.75	4.07	4.25	3.89	4.21	4.31	4.11	3.76	4.18	4.22	3.87
15	3.73	3.74	4.02	4.14	3.89	4.12	4.17	3.95	3.97	3.82	4.15	3.83
20	3.71	3.77	3.97	4.08	3.95	4.20	4.05	4.07	3.93	3.80	4.08	3.80
25	3.67	3.87	4.05	4.07	4.06	4.10	4.16	3.95	3.83	4.30	3.97	3.75
EOM	3.72	4.10	4.01	4.03	4.07	4.27	4.09	3.86	3.87	4.18	3.92	3.73

WTR YR 1998 MEAN 3.99 MAX 4.73 MIN 3.66

## STREAMS TRIBUTARY TO LAKE MICHIGAN

## 04100280 MUNCIE LAKE NEAR BURR OAK, IN

LOCATION.--Lat 41°19'37", long 85°27'28", in NE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.11, T.33 N., R.9 E., Noble County, Hydrologic Unit 04050001 (MERRIAM, IN quadrangle). The gage is on the southwest shore of the lake, just north of the gravel road on the Addis farm, and 1.3 mi northwest of Burr Oak.

SURFACE AREA.--47 acres.

DRAINAGE AREA.--42.8 mi<sup>2</sup>.

PERIOD OF RECORD.--1954 to current year.

DATUM OF GAGE.--880.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well.

ESTABLISHED LEGAL LEVEL.--Not established.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by the outlet channel.

INLET AND OUTLET.--There are three inlets to the lake. Forker Creek flows into the lake from the east, Brown Ditch from the southeast, and Carrol Creek from the west. The outlet flows from the northwest shore into Williams Lake, then into the South Branch of the Elkhart River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 9.47 ft Mar. 24, 25, 1978, Feb. 25, 26, 1985; minimum stage, 1.88 ft Aug. 8, 1988.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	2.93	3.11	3.58	5.93	3.66	3.62	5.06	4.14	3.09	3.52	3.26	2.80
10	2.92	3.07	3.34	7.90	3.40	6.34	6.69	3.90	3.05	4.30	3.46	2.78
15	2.98	3.09	3.22	6.63	3.66	5.18	5.66	3.60	3.72	3.55	3.13	2.76
20	3.00	3.10	3.30	4.15	4.45	5.77	4.56	3.40	4.19	3.20	2.93	2.76
25	2.90	3.20	4.27	3.60	3.90	5.26	3.91	3.30	3.55	4.74	2.91	2.74
EOM	2.94	3.86	3.85	3.74	3.77	6.08	3.82	3.22	3.41	3.56	2.86	2.78

WTR YR 1998 MEAN 3.82 MAX 8.10 MIN 2.74

## STREAMS TRIBUTARY TO LAKE MICHIGAN

331

## 04099700 NORTH TWIN LAKE NEAR HOWE, IN

LOCATION.--Lat 41°43'45", long 85°27'49", in SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.23, T.38 N., R.9 E., Lagrange County, Hydrologic Unit 04050001 (LAGRANGE, IN quadrangle). The gage is in the channel between North and South Twin Lakes, 100 ft upstream from the county road bridge, and 2.2 mi northwest of Howe.

SURFACE AREA.--135 acres.

DRAINAGE AREA.--1.54 mi<sup>2</sup>.

PERIOD OF RECORD.--1953 to current year.

DATUM OF GAGE.--840.00 ft above sea level.

GAGE.--A staff gage is attached to the east concrete retaining wall of the control dam.

ESTABLISHED LEGAL LEVEL.--3.56 ft gage datum or 843.56 ft above sea level as decreed on September 11, 1959, by the Lagrange County Circuit Court. South Twin Lake near Howe has the same established level and hence the same lake levels for the period of record.

LAKE-LEVEL CONTROL.--Prior to October 1, 1982, the low water control was a fixed-crest dam with removable boards at the upstream end of the channel between the two lakes. At high stages the outlet channel of South Twin Lake was the control. After October 1, 1982, a concrete dam with a fixed crest was installed in the outlet of South Twin Lake. This is now the control structure for both North and South Twin Lakes, although the original structure is still in place.

INLET AND OUTLET.--There are two inlets to the lake. One enters at the southeast shore from Still Lake 0.9 mi upstream, and the other, which drains the adjacent marsh land, enters on the northwest shore. The outlet flows from the southwest shore and into South Twin Lake approximately 200 ft downstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 5.20 ft Feb. 26, 1985; minimum stage, 2.97 ft Aug. 20, 1964.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	3.47	3.52	3.58	3.62	3.54	3.50	3.54	3.68	3.44	3.48	3.68	3.48
10	3.46	3.50	3.56	3.82	3.54	3.50	3.68	3.65	3.44	3.44	3.78	---
15	3.44	3.44	3.56	3.70	3.54	3.54	3.60	3.50	3.56	3.42	3.62	3.44
20	3.42	3.42	3.55	3.58	3.54	3.56	3.54	3.54	3.54	3.40	3.48	3.42
25	3.42	3.52	3.60	3.54	3.54	3.58	3.54	3.54	3.50	3.50	3.68	3.42
BOM	3.42	3.56	3.56	3.54	3.54	3.58	3.62	3.48	3.58	3.44	3.50	3.42

WTR YR 1998 MEAN 3.53 MAX 3.86 MIN 3.40

## WABASH RIVER BASIN

## 03331400 NYONA LAKE NEAR GREENOAK, IN

LOCATION.--Lat 40°57'40", long 86°11'20", in SE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.16, T.29 N., R.3 E., Fulton County, Hydrologic Unit 05120106 (MACY, IN quadrangle). The gage is on the northwest shore of the southern lobe of the lake, at the public access site, and 2.4 mi south of Greenoak.

SURFACE AREA.--104 acres.

DRAINAGE AREA.--7.59 mi<sup>2</sup>.

PERIOD OF RECORD.--1946 to current year.

DATUM OF GAGE.--790.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well.

ESTABLISHED LEGAL LEVEL.--3.91 ft gage datum or 793.91 ft above sea level as decreed on September 27, 1948, by the Fulton County Circuit Court.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a concrete dam with a fixed crest.

INLET AND OUTLET.--The lake is fed by two small ditches entering from the east and northeast. The outlet flows from the lake at the southwest corner and into Mud Creek, which eventually joins the Tippecanoe River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 6.13 ft Aug. 18, 1990; minimum stage, 2.98 ft Oct. 12-19, 25, 26, 1953.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	3.66	3.72	3.80	4.54	3.84	3.80	4.00	3.92	3.71	4.97	4.62	3.81
10	3.67	3.71	3.82	4.36	3.80	4.21	4.65	3.96	3.73	4.13	4.13	3.75
15	3.68	3.74	3.79	4.00	3.86	3.95	4.10	3.84	4.05	3.88	3.91	3.73
20	3.67	3.72	3.77	3.88	3.91	4.38	3.95	3.81	4.05	3.80	3.81	3.75
25	3.67	3.75	3.94	3.87	3.84	4.00	3.94	3.78	3.80	4.30	3.79	3.74
BOM	3.72	3.93	3.82	3.90	3.82	4.19	3.95	3.76	3.82	3.94	3.75	3.76

WTR YR 1998 MEAN 3.92 MAX 5.53 MIN 3.66

## 03371700 OGLE LAKE NEAR NASHVILLE, IN

LOCATION.--Lat 39°09'35", long 86°14'54", in NE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.1, T.8 N., R.2 E., Brown County, Hydrologic Unit 05120208 (NASHVILLE, IN quadrangle). The gage is on the dam, near the concrete intake structure on the west side of the lake, 3.3 mi south of Nashville.

SURFACE AREA.--20 acres.

DRAINAGE AREA.--1.03 mi<sup>2</sup>.

PERIOD OF RECORD.--1954 to current year.

DATUM OF GAGE.--710.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well.

ESTABLISHED LEGAL LEVEL.--Not established.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a concrete flood spillway with a fixed crest.

INLET AND OUTLET.--Two ditches enter the lake, one from the east and one from the southeast. The outlet flows into Upper Schooner Creek, which joins Lower Schooner Creek, then flows into the North Fork of Salt Creek. The North Fork of Salt Creek empties into Monroe Reservoir.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 6.80 ft June 23, 1960; minimum stage, -2.70 ft Feb. 12, 13, 1977.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	3.24	2.70	2.65	2.13	3.39	4.56	4.58	4.59	4.55	4.49	4.09	3.47
10	3.12	2.65	2.43	3.04	3.44	4.63	4.68	4.61	4.60	4.51	4.16	3.30
15	3.02	2.67	1.99	3.15	3.97	4.56	5.81	4.54	4.73	4.43	4.05	3.16
20	2.89	2.64	1.98	3.18	4.44	4.86	4.59	4.62	4.63	4.42	3.91	3.08
25	2.79	2.64	2.07	3.27	4.56	4.57	4.59	4.67	4.57	4.29	3.77	2.95
EOM	2.69	2.65	2.06	3.34	4.56	4.74	4.90	4.56	4.53	4.23	3.60	2.82

WTR YR 1998 MEAN 3.73 MAX 5.81 MIN 1.98

## STREAMS TRIBUTARY TO LAKE MICHIGAN

## 04100100 OLIVER LAKE NEAR VALENTINE, IN

LOCATION.--Lat 41°34'37", long 85°24'44", in SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.18, T.36 N., R.10 E., Lagrange County, Hydrologic Unit 04050001 (OLIVER LAKE, IN quadrangle). The gage is at the public access site on the northwest side of the lake, and 1.6 mi southwest of Valentine.

SURFACE AREA.--362 acres.

DRAINAGE AREA.--11.1 mi<sup>2</sup>.

PERIOD OF RECORD.--1945 to current year.

DATUM OF GAGE.--889.78 ft above sea level as corrected on the basis of levels of Indiana Department of Natural Resources, 1975-76.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage is attached to the dam in the outlet.

ESTABLISHED LEGAL LEVEL.--9.45 ft gage datum or 899.45 ft above sea level as decreed on September 29, 1952, by the Lagrange County Circuit Court. Minor errors were subsequently discovered in the establishment of the datum of the gage (see "DATUM OF GAGE") and the correct elevation of the legal level should be 9.45 ft gage datum or 899.23 ft above sea level. Martin and Olin Lakes near Valentine have the same established level as Oliver Lake and hence the same lake levels for the period of record.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a fixed sill and dam with movable boards.

INLET AND OUTLET.--The lake has several inlets. Dove Creek enters on the northwest, the outlet of Holsinger Hole on the north, Hart Ditch on the east, and the channel between Oliver and Olin Lakes on the southeast shore. The Oliver Lake outlet flows from the southwest lobe of the lake, through a wetland, into Hackenburg Lake 1.6 mi downstream, and eventually into the North Branch of the Elkhart River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 11.77 ft June 14, 1981; minimum stage, 8.42 ft Jan. 18, 19, and Feb. 3-5, 1961.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	9.56	9.61	9.62	10.00	9.62	9.60	9.67	9.62	9.44	9.49	9.56	9.59
10	9.55	9.55	9.61	10.28	9.59	9.94	10.09	9.59	9.45	9.45	9.69	9.49
15	9.57	9.55	9.57	9.85	9.62	9.69	9.82	9.54	9.53	9.39	9.55	9.47
20	9.55	9.53	9.58	9.65	9.71	9.87	9.65	9.47	9.56	9.34	9.46	9.50
25	9.55	9.55	9.73	9.62	9.64	9.74	9.61	9.53	9.46	9.40	10.34	9.44
EOM	9.67	9.65	9.62	9.65	9.64	9.77	9.63	9.48	9.48	9.34	9.85	9.47

WTR YR 1998 MEAN 9.61 MAX 10.44 MIN 9.32

## 03331180 PALESTINE LAKE AT PALESTINE, IN

LOCATION.--Lat 41°10'48", long 85°56'54", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.33, T.32 N., R.5 E., Kosciusko County, Hydrologic Unit 05120106 (BURKET, IN quadrangle). The gage is near the extreme northwestern corner of the lake, at the public access site, in the town of Palestine.

SURFACE AREA.--290 acres.

DRAINAGE AREA.--32.4 mi<sup>2</sup>.

PERIOD OF RECORD.--1954 to current year.

DATUM OF GAGE.--815.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage in one section is driven into the lake bed just north of the public access site.

ESTABLISHED LEGAL LEVEL.--1.62 ft gage datum or 816.62 ft above sea level as decreed on August 5, 1965, by the Kosciusko County Circuit Court.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by an old mill dam of stone and concrete (fixed crest) at the west lobe of the far northern shore.

INLET AND OUTLET.--There are four inlets to the lake. Magee Ditch enters from the north, Williamson Ditch from the west and the confluence of Adams and Sloan Ditches from the southeast. Trimble Creek flows through the lake, entering on the extreme southeastern end, leaving at the northwestern lobe and flowing into the Tippecanoe River 7.5 mi downstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 4.35 ft June 13, 1981; minimum stage, below -0.90 ft, lake drained, 1988.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	1.86	1.88	1.94	2.67	1.93	1.89	2.08	2.21	1.84	2.32	2.09	1.85
10	1.86	1.86	1.92	2.51	1.91	2.26	2.79	2.11	1.83	2.01	2.20	1.78
15	1.87	1.86	1.88	2.12	1.92	2.03	2.24	1.99	2.06	1.90	1.97	1.79
20	1.85	1.85	1.90	1.98	1.96	2.31	2.06	1.89	2.15	1.88	1.91	1.81
25	1.84	1.87	2.08	1.94	1.92	2.07	2.03	1.92	1.92	2.14	1.88	1.80
BOM	1.87	2.07	1.92	1.98	1.90	2.22	2.08	1.86	1.96	1.94	1.85	1.80

WTR YR 1998 MEAN 2.00 MAX 3.06 MIN 1.77

## WABASH RIVER BASIN

## 03331040 PIKE LAKE AT WARSAW, IN

LOCATION.--Lat 41°15'44", long 85°51'00", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.5, T.32 N., R.6 E., Kosciusko County, Hydrologic Unit 05120106 (LEESBURG, IN quadrangle). The gage is on the extreme northwestern point of the lake at the bridge over the outlet, 1.6 mi north of Warsaw.

SURFACE AREA.--203 acres.

DRAINAGE AREA.--41.5 mi<sup>2</sup>.

PERIOD OF RECORD.--1954 to current year.

DATUM OF GAGE.--800.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well attached to the upstream abutment of the control structure.

ESTABLISHED LEGAL LEVEL.--5.64 ft gage datum or 805.64 ft above sea level as decreed on December 12, 1963, by the Kosciusko County Circuit Court.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a concrete dam with a fixed crest and removable boards.

INLET AND OUTLET.--The one inlet, Deeds Creek, flows from Little Chapman Lake 3.4 mi upstream, and enters the lake on the lower northern shore. The outlet flows to the west from the extreme northern end of the lake through Lones Ditch and enters the Tippecanoe River 0.9 mi downstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 10.79 ft Oct. 15, 1954; minimum stage, 3.71 ft Sept. 21, 22, 1955.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	5.80	4.97	5.13	6.84	5.51	5.30	6.57	6.11	5.78	6.03	6.12	5.75
10	5.78	4.88	5.16	8.51	5.35	6.55	8.08	6.02	5.80	5.92	6.22	5.73
15	5.78	4.89	5.07	7.73	5.37	5.98	7.46	6.01	5.92	5.83	5.94	5.72
20	5.77	4.87	5.04	6.69	5.44	6.47	6.66	5.88	6.13	5.79	5.85	5.72
25	5.80	4.94	5.40	6.00	5.37	6.38	5.98	5.89	5.90	6.05	5.85	5.72
BOM	5.85	5.36	5.33	5.74	5.41	6.80	5.83	5.84	5.88	5.85	5.78	5.75

WTR YR 1998 MEAN 5.89 MAX 8.66 MIN 4.86

## ILLINOIS RIVER BASIN

05515220 PINE LAKE AT LAPORTE, IN

LOCATION.--Lat 41°37'01", long 86°44'58", in NE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.34, T.37 N., R.3 W., LaPorte County, Hydrologic Unit 07120001 (LAPORTE EAST, IN quadrangle). The gage is at the highway bridge over the channel connecting Pine and Stone Lakes, on Waverly Beach Road, in LaPorte.

SURFACE AREA.--564 acres.

DRAINAGE AREA.--10.7 mi<sup>2</sup>.

PERIOD OF RECORD.--1946-75, 1980 to current year.

DATUM OF GAGE.--780.00 ft above sea level. Prior to Oct. 1, 1964, the datum of the gage was 790.00 ft. All levels given below are at the present datum.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage is driven into the channel bed at the same site.

ESTABLISHED LEGAL LEVEL.--16.20 ft gage datum or 796.20 ft above sea level, as decreed on August 31, 1949, by the LaPorte County Circuit Court. Stone Lake at LaPorte has the same established level and hence the same lake levels during the periods of record when the channel between the two lakes is open and flowing, water years 1946-63 and 1968-85.

LAKE-LEVEL CONTROL.--Pine and Stone Lakes form a closed basin; however, there is a capability of pumping water from the lakes into the Little Kankakee River during times of high water.

INLET AND OUTLET.--Kabelin Ditch enters Pine Lake from the northwest through a large drain tile. Pine Lake is connected to Stone Lake by a channel on the southern tip.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 20.98 ft June 2, 3, 1993; minimum stage, 9.00 ft Nov. 14, 1964.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	18.90	18.68	18.63	18.92	19.31	19.34	19.89	20.07	19.72	19.73	19.39	18.98
10	18.89	18.66	18.69	19.12	19.28	19.59	19.93	20.14	19.68	19.74	19.44	18.88
15	18.84	18.66	18.65	19.14	19.34	19.57	20.07	20.09	19.79	19.63	19.34	18.83
20	18.75	18.63	18.63	19.14	19.41	19.73	20.07	20.00	19.77	19.52	19.22	18.83
25	18.69	18.59	18.69	19.14	19.39	19.73	20.08	19.93	19.67	19.46	19.22	18.74
EOM	18.71	18.67	18.72	19.14	19.38	19.91	20.07	19.83	19.62	19.30	19.11	18.73

WTR YR 1998 MEAN 19.30 MAX 20.16 MIN 18.58

## ILLINOIS RIVER BASIN

05516600 PRETTY LAKE NEAR PLYMOUTH

LOCATION.--Lat 41°19'39", long 86°22'15", in NW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec. 11, T. 33 N., R. 1 E., Marshall County, Hydrologic Unit 07120001, the gage is on the north shore of the lake, 3.3 mi southwest of Plymouth.

SURFACE AREA.--97 acres.

DRAINAGE AREA.--0.85 mi<sup>2</sup>.

PERIOD OF RECORD.--1954-66. 1989 to current year.

DATUM OF GAGE.--780.00 ft above sea level.

GAGE.--A staff gage in one section is driven into the lake bed near house at 10099 Pretty Lake Trail.

ESTABLISHED LEGAL LEVEL.--7.36 ft gage datum or 787.36 ft above sea level as decreed on July 16, 1965, by the Marshall County Circuit Court.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by the banks. At times of very high water levels, water overflows the southeastern shore.

INLET AND OUTLET.--There are no inlets. There is no well-defined outlet.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 10.10 ft June 1, 1991; minimum stage, 4.90 ft Nov. 26, 27, 1964.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	8.90	---	---	---	---	---	---	---	8.99	9.30	9.20	8.93
10	8.88	---	---	---	---	---	---	---	9.00	9.26	9.23	8.86
15	8.85	---	---	---	---	---	---	---	9.14	9.15	9.18	8.79
20	8.79	---	---	---	---	---	---	---	9.18	9.16	9.09	8.76
25	8.75	---	---	---	---	---	---	---	9.13	9.14	9.09	8.69
EOM	8.77	---	---	---	---	---	---	---	9.13	9.01	9.02	8.66

WTR YR 1998 MEAN 9.00 MAX 9.32 MIN 8.66



## 05515800 RIDDLES LAKE NEAR LAKEVILLE, IN

LOCATION.--Lat 41°30'19", long 86°15'31", in NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.11, T.35 N., R.2 E., St. Joseph County, Hydrologic Unit 07120001 (LAKEVILLE, IN quadrangle). The gage is on the east side of the lake, about 1.4 mi southeast of Lakeville.

SURFACE AREA.--77 acres.

DRAINAGE AREA.--11.7 mi<sup>2</sup>.

PERIOD OF RECORD.--1946-71, 1976 to current year.

DATUM OF GAGE.--810.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage is attached to a wingwall of the control dam.

ESTABLISHED LEGAL LEVEL.--7.50 ft gage datum or 817.50 ft above sea level as decreed on July 3, 1953, by the St. Joseph County Circuit Court.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a steel and concrete dam with a fixed crest. Boards may be added to raise the water level.

INLET AND OUTLET.--Heston Ditch flows through the lake, entering on the northern shore and leaving on the southern. The outflow eventually enters Yellow River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 11.49 ft Apr. 5, 1950; minimum stage, 6.40 ft July 25-31, Aug. 1-9, 22-31, Sept. 1-30, 1971.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	7.09	7.14	7.17	7.59	7.18	7.15	7.29	7.21	7.11	7.13	7.12	6.96
10	7.08	7.13	7.20	7.46	7.15	7.41	7.49	7.22	7.13	7.16	7.13	6.92
15	7.07	7.18	7.16	7.27	7.22	7.22	7.32	7.17	7.13	7.10	7.07	6.89
20	7.05	7.17	7.18	7.20	7.22	7.45	7.21	7.14	7.14	7.08	7.02	6.97
25	7.09	7.19	7.41	7.17	7.17	7.30	7.19	7.14	7.10	7.05	7.06	6.96
EOM	7.12	7.32	7.21	7.20	7.18	7.33	7.29	7.11	7.10	7.00	7.01	6.95

WTR YR 1998 MEAN 7.17 MAX 7.79 MIN 6.87

## WABASH RIVER BASIN

## 03330300 RIDINGER LAKE NEAR PIERCETON, IN

LOCATION.--Lat 41°15'07", long 85°39'34", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.1, T.32 N., R.7 E., Kosciusko County, Hydrologic Unit 05120106 (NORTH WEBSTER, IN quadrangle). The gage is on the inlet channel, attached to the Adams Road bridge, 0.4 mi upstream from the lake and 4.4 mi northeast of Pierceton.

SURFACE AREA.--136 acres.

DRAINAGE AREA.--34.6 mi<sup>2</sup>.

PERIOD OF RECORD.--1943 to current year.

DATUM OF GAGE.--840.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well attached to the right downstream wingwall of the bridge. An auxiliary staff gage in two sections is at the control dam.

ESTABLISHED LEGAL LEVEL.--3.12 ft gage datum or 843.12 ft above sea level, as decreed on April 11, 1949, by the Kosciusko County Circuit Court.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a concrete dam with a fixed crest and a sluice-way with a steel gate for controlling high water. The dam is located in the outlet, 300 ft downstream from the lake.

INLET AND OUTLET.--Grassy Creek flows through the lake, entering at the southwestern end. Grassy Creek is formed 1.5 mi upstream by the outlet of Robinson Lake and Cedar Lake Branch. Grassy Creek leaves the lake at the northwestern end and flows into Big Barbee Lake, 3.5 mi downstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 9.01 ft Feb. 24, 1985; minimum stage, 1.35 ft Jan. 17-19, 1944.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	2.59	2.70	3.09	---	---	---	2.97	3.49	3.07	---	---	---
10	2.70	2.66	3.09	3.35	---	---	5.05	3.21	3.12	---	---	---
15	2.63	2.65	3.10	3.35	---	2.94	3.24	3.07	3.17	---	---	---
20	2.57	2.66	3.10	3.35	---	3.47	3.03	3.04	2.94	---	---	2.52
25	2.56	2.68	3.17	3.32	---	3.00	2.96	3.04	2.72	---	---	2.52
EOM	2.61	3.13	---	---	---	3.30	3.09	3.03	2.70	---	---	2.59

WTR YR 1998 MEAN 3.00 MAX 5.05 MIN 2.50

## WABASH RIVER BASIN

## 03330460 SAWMILL LAKE NEAR NORTH WEBSTER, IN

LOCATION.--Lat 41°17'22", long 85°42'52", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.28, T.33 N., R.7 E., Kosciusko County, Hydrologic Unit 05120106 (NORTH WEBSTER, IN quadrangle). The gage is near the southeastern corner of the county road bridge over the channel between Big Barbee Lake and Little Barbee Lake, 2.6 mi southwest of North Webster.

SURFACE AREA.--36 acres.

DRAINAGE AREA.--51.8 mi<sup>2</sup>.

PERIOD OF RECORD.--1945-1970, 1972 to current year.

DATUM OF GAGE.--830.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage is attached to the stilling well.

ESTABLISHED LEGAL LEVEL.--7.50 ft gage datum or 837.50 ft above sea level as decreed on October 18, 1949, by the Kosciusko County Circuit Court. All lakes in the Barbee Chain have the same established level and hence the same lake levels for the period of record. The lakes are as follows: Kuhn, Big Barbee, Little Barbee, Irish, Banning, Sechrist and Sawmill.

LAKE-LEVEL CONTROL.--The level of the lakes is controlled by a concrete dam with a fixed crest, located 600 ft upstream of the County Road 500 North bridge over the outlet of Sawmill Lake.

INLET AND OUTLET.--There are four inlets to the Barbee Chain. Grassy Creek flows into Big Barbee Lake at the southeastern side. The outlet of Heron Lake flows into Kuhn Lake from the north. Puntney Ditch enters Little Barbee Lake from the south. The outlet from Shoe Lake flows into Banning Lake on the northeastern shore. The outlet, Grassy Creek, leaves Sawmill Lake at the northwestern tip and flows into Tippecanoe Lake 1.7 mi downstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 10.53 ft Mar. 20, 1982; minimum stage, 5.45 ft Jan. 29-31, Feb. 1-28, Mar. 1, 2, 1978.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	7.15	7.14	7.47	8.09	7.34	7.07	8.05	7.97	6.98	7.51	7.36	6.89
10	7.06	7.08	7.41	9.39	7.21	7.92	8.72	7.77	6.92	7.34	7.99	6.86
15	7.06	7.06	7.31	8.75	7.21	7.78	8.65	7.52	7.22	7.11	7.58	6.85
20	7.00	7.03	7.29	8.07	7.26	7.98	8.12	7.27	7.47	7.01	7.26	6.85
25	6.98	7.09	7.39	7.59	7.15	7.94	7.64	7.14	7.17	7.60	7.13	6.84
EOM	7.10	7.53	7.29	7.48	7.13	8.36	7.49	7.03	7.22	7.25	6.98	6.84

WTR YR 1998 MEAN 7.42 MAX 9.39 MIN 6.84

## WABASH RIVER BASIN

## 03331120 SHERBURN LAKE NEAR PIERCETON, IN

LOCATION.--Lat 41°09'40", long 85°44'43", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.4, T.31 N., R.7 E., Kosciusko County, Hydrologic Unit 05120106 (PIERCETON, IN quadrangle). The gage is at the extreme northern end of the lake on the outlet channel just south of County Road 500 South, 3.4 mi southwest of Pierceton.

SURFACE AREA.--15 acres.

DRAINAGE AREA.--5.51 mi<sup>2</sup>.

PERIOD OF RECORD.--1954 to current year. (Formerly published as Johnson Lake near Pierceton.)

DATUM OF GAGE.--870.00 ft above sea level. Prior to Oct. 1, 1980, the datum of the gage was 880.00 ft. All levels listed below are at the present datum.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage is driven into the lake bed just south of the western lobe of the lake, 400 ft south of County Road 500 South on the first drive west of the outlet.

ESTABLISHED LEGAL LEVEL.--11.00 ft gage datum or 881.00 ft above sea level as decreed on December 19, 1974, by the Kosciusko County Circuit Court.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by the invert of the culvert under the first east-west road north of the lake.

INLET AND OUTLET.--The one inlet flows from Sellers Lake 0.35 mi upstream. The outlet flows from the northern shore through Wyland Ditch and into Winona Lake 6.7 mi downstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 15.34 ft Dec. 30, 1990; minimum stage, 8.86 ft Sept. 11, 26, 1998.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	9.37	9.62	9.61	12.33	9.55	9.49	9.72	9.86	8.98	9.54	9.28	8.92
10	9.39	9.52	9.57	11.63	9.48	11.17	11.83	9.58	8.98	9.31	9.61	8.90
15	9.52	9.50	9.54	9.94	9.55	9.81	10.01	9.44	9.90	9.16	9.16	8.92
20	9.52	9.44	9.52	9.63	9.65	10.48	9.63	9.33	9.83	9.06	9.03	8.95
25	9.51	9.54	10.13	9.58	9.50	9.81	9.51	9.23	9.35	9.41	9.02	8.93
EOM	9.65	10.06	9.56	9.67	9.55	10.33	9.56	9.10	9.28	9.12	8.96	8.96

WTR YR 1998 MEAN 9.58 MAX 12.87 MIN 8.89

## STREAMS TRIBUTARY TO LAKE MICHIGAN

337

## 04099740 SHIPSEWANA LAKE NEAR SHIPSEWANA, IN

LOCATION.--Lat 41°40'53", long 85°36'03", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.9, T.37 N., R.8 E., Lagrange County, Hydrologic Unit 04050001 (SHIPSEWANA, IN quadrangle). The gage is on the south shore of the lake at the public access site, 1.1 mi northwest of Shipshewana.

SURFACE AREA.--202 acres.

DRAINAGE AREA.--6.74 mi<sup>2</sup>.

PERIOD OF RECORD.--1951 to current year.

DATUM OF GAGE.--850.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage is attached to a wingwall of the control dam at the extreme eastern end of the lake.

ESTABLISHED LEGAL LEVEL.--2.04 ft gage datum or 852.04 ft above sea level as decreed on March 8, 1956, by the Lagrange County Circuit Court.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a sheet piling dam with a fixed crest at three elevations.

INLET AND OUTLET.--The principal inlet enters on the southern shore from Cotton Lake 2.0 mi upstream. Another small ditch enters on the western shore. The outlet is on the extreme eastern tip of the lake and flows to the northeast through Page Ditch, which empties into Pigeon River, 6.1 mi downstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 3.33 ft Mar. 20, 1982; minimum stage, 1.39 ft Sept. 19-22, 1955.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	2.34	2.44	2.49	2.68	2.49	2.47	2.61	2.87	2.31	2.27	2.53	2.48
10	2.31	2.39	2.49	2.90	2.47	2.70	2.87	2.69	2.32	2.25	2.81	2.37
15	2.29	2.40	2.43	2.66	2.49	2.61	2.74	2.54	2.45	2.19	2.56	2.35
20	2.27	2.36	2.41	2.54	2.59	2.73	2.59	2.50	2.48	2.21	2.41	2.37
25	2.27	2.36	2.55	2.51	2.53	2.66	2.51	2.47	2.36	2.22	2.81	2.30
EOM	2.42	2.48	2.52	2.50	2.52	2.68	2.58	2.37	2.29	2.15	2.64	2.30

WTR YR 1998 MEAN 2.48 MAX 2.94 MIN 2.12

## WABASH RIVER BASIN

## 03330380 SHOE LAKE NEAR OSWEGO, IN

LOCATION.--Lat 41°18'32", long 85°45'10", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.18, T.33 N., R.7 E., Kosciusko County, Hydrologic Unit 05120106 (LEESBURG, IN quadrangle). The gage is on the extreme western end of the lake on County Road 475 East, 2.0 mi southeast of Oswego.

SURFACE AREA.--40 acres.

DRAINAGE AREA.--0.34 mi<sup>2</sup>.

PERIOD OF RECORD.--1946-52, 1972-74, 1977 to current year.

DATUM OF GAGE.--830.00 ft above sea level. Prior to 1972, the datum of the gage was 840.00 ft above sea level. All levels listed below are at the present datum.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well.

ESTABLISHED LEGAL LEVEL.--11.57 ft gage datum or 841.57 ft above sea level as decreed on October 18, 1948, by the Kosciusko County Circuit Court.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by removable boards placed in wooden support posts in the outlet channel, upstream of the culvert under County Road 450 North.

INLET AND OUTLET.--There is no inlet except for small drainage ditches. The outlet leaves the lake at the southeastern end and flows into Banning Lake 0.3 mi downstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 12.95 ft Dec. 13-15, 1972; minimum stage, 10.50 ft Oct. 15, 16, 1988.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	11.97	11.83	11.82	12.09	12.26	12.18	12.24	12.32	12.06	12.41	12.60	12.49
10	11.94	11.80	11.85	12.21	12.25	12.27	12.39	12.29	12.05	12.42	12.79	12.43
15	11.91	11.81	11.82	12.22	12.26	12.21	12.34	12.27	12.16	12.35	12.74	12.35
20	11.84	11.77	11.79	12.25	12.25	12.31	12.29	12.20	12.26	12.31	12.68	12.31
25	11.77	11.74	11.87	12.28	12.20	12.24	12.29	12.17	12.19	12.56	12.65	12.24
EOM	11.84	11.84	11.85	12.29	12.21	12.30	12.32	12.12	12.31	12.47	12.57	12.24

WTR YR 1998 MEAN 12.20 MAX 12.80 MIN 11.74

## WABASH RIVER BASIN

## 03327650 SHRINER LAKE AT TRI-LAKES, IN

LOCATION.--Lat 41°14'37", long 85°26'24", in SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.12, T.32 N., R.9 E., Whitley County, Hydrologic Unit 05120104 (COLUMBIA CITY, IN quadrangle). The gage is at the head of outlet channel at the east end of the lake, 6.2 mi northeast of Columbia City.

SURFACE AREA.--111 acres.

DRAINAGE AREA.--0.94 mi<sup>2</sup>.

PERIOD OF RECORD.--1943-74, 1976-78, 1980 to current year.

DATUM OF GAGE.--900.19 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage in one section is attached to the concrete head wall at the outlet.

ESTABLISHED LEGAL LEVEL.--7.04 ft gage datum or 907.04 ft above sea level as decreed on May 22, 1949, by the Whitley County Circuit Court. Minor errors were subsequently discovered in the establishment of the datum of the gage (see "DATUM OF GAGE") and the correct elevation of the legal level should be 7.04 ft gage datum or 907.23 ft above sea level.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a concrete dam in the outlet channel 300 ft downstream of the lake.

INLET AND OUTLET.--A ditch from Catfish Lake, 650 ft upstream, enters at the extreme western end of the lake. Two small ditches enter on the southern shore. The outlet is a dredged channel at the eastern edge of the lake that empties into Round Lake 930 ft downstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 8.26 ft Dec. 31, 1990; minimum stage, 5.44 ft Dec. 9-11, 23-30, 1944.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	6.74	6.70	7.00	7.49	---	6.89	7.07	6.91	6.55	6.95	6.90	6.50
10	6.73	6.70	7.01	---	---	7.31	7.41	6.90	6.50	7.04	6.97	6.44
15	6.71	6.69	7.04	---	---	7.06	7.19	6.83	6.69	6.98	6.81	6.36
20	6.68	6.69	7.05	---	---	7.23	7.02	6.77	6.78	6.87	6.72	6.31
25	6.60	6.71	7.20	---	---	7.10	6.92	6.69	6.77	7.19	6.68	6.26
BOM	6.63	6.96	7.06	---	---	7.22	6.90	6.62	6.89	6.96	6.58	6.21

WTR YR 1998 MEAN 6.84 MAX 7.51 MIN 6.21

## WABASH RIVER BASIN

## 03328350 SILVER LAKE AT SILVER LAKE, IN

LOCATION.--Lat 41°04'49", long 85°54'29", in SE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.1, T.30 N., R.5 E., Kosciusko County, Hydrologic Unit 05120104 (SILVER LAKE, IN quadrangle). The gage is located at the outlet channel on the east side of the lake, on the upstream side of the control structure and 1.1 mi northwest of the town of Silver Lake.

SURFACE AREA.--102 acres.

DRAINAGE AREA.--6.31 mi<sup>2</sup>.

PERIOD OF RECORD.--1947 to current year.

DATUM OF GAGE.--859.85 ft above sea level, as corrected on the basis of levels of Indiana Department of Natural Resources, 1974.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage in one section is attached to the dam.

ESTABLISHED LEGAL LEVEL.--1.73 ft gage datum or 861.73 ft above sea level as decreed on September 20, 1948, by the Kosciusko County Circuit Court. Minor errors were subsequently discovered in the establishment of the datum of the gage (see "DATUM OF GAGE") and the correct elevation of the legal level should be 1.73 ft gage datum or 861.58 ft above sea level. North Little Lake at Silver Lake has the same established level and hence the same lake levels for the period of record.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a steel sheet piling dam with a fixed crest.

INLET AND OUTLET.--The outlet from North Little Lake enters from the north and two ditches enter from the east and southeast. The outlet leaves from the western side and flows into South Little Lake, then into Silver Creek, which joins El River 12 mi downstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 3.80 ft Dec. 10, 1966; minimum stage, -0.20 ft Sept. 21, 1959.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	1.49	1.54	1.60	2.29	1.61	1.57	1.69	1.87	1.44	1.79	1.65	1.37
10	1.49	1.52	1.62	2.12	1.59	1.85	2.15	1.74	1.46	1.58	1.59	1.35
15	1.49	1.53	1.57	1.71	1.61	1.68	1.78	1.65	1.73	1.49	1.50	1.32
20	1.47	1.52	1.57	1.65	1.64	1.91	1.65	1.61	1.81	1.50	1.45	1.32
25	1.46	1.54	1.71	1.63	1.59	1.71	1.64	1.59	1.59	1.80	1.43	1.28
BOM	1.53	1.73	1.60	1.66	1.59	1.83	1.72	1.48	1.54	1.58	1.40	1.29

WTR YR 1998 MEAN 1.62 MAX 2.63 MIN 1.27

## STREAMS TRIBUTARY TO LAKE MICHIGAN

339

## 04099880 SIMONTON LAKE NEAR ELKHART, IN

LOCATION.--Lat 41°45'05", long 85°57'28", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.16, T.38 N., R.5 E., Elkhart County, Hydrologic Unit 04050001 (ELKHART, IN quadrangle). The gage is on the southern shore between the two large lobes of the lake, at the public access site, 4.5 mi north of the main Post Office in Elkhart.

SURFACE AREA.--303 acres.

DRAINAGE AREA.--7.44 mi<sup>2</sup>.

PERIOD OF RECORD.--1946 to current year.

DATUM OF GAGE.--770.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well.

ESTABLISHED LEGAL LEVEL.--2.19 ft gage datum or 772.19 ft above sea level as decreed on September 25, 1950, by the Elkhart County Circuit Court.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by the outlet channel.

INLET AND OUTLET.--Two small drainage ditches enter the lake on the eastern shore. The outlet, Osolo Township Ditch, flows from the lake at the southeastern tip and into the St. Joseph River, 4.0 mi downstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 3.42 ft Feb. 24, 1985; minimum stage, 1.36 ft Sept. 7, 1946.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	2.52	2.65	2.71	2.90	2.83	2.76	2.91	2.87	2.51	2.45	---	---
10	---	2.62	2.76	2.99	2.80	2.94	2.96	2.79	2.49	2.40	---	---
15	---	2.64	2.72	2.95	2.80	2.88	2.96	2.75	2.57	2.32	---	---
20	2.56	2.62	2.71	2.91	2.83	2.96	2.88	2.66	2.55	---	---	---
25	2.56	2.60	2.75	2.90	2.79	2.90	2.85	2.66	2.47	---	---	2.50
EOM	2.64	2.67	2.75	2.86	2.80	2.98	2.89	2.58	2.46	---	---	2.46

WTR YR 1998 MEAN 2.72 MAX 3.02 MIN 2.25

## STREAMS TRIBUTARY TO LAKE MICHIGAN

## 04100300 SKINNER LAKE NEAR ALBION, IN

LOCATION.--Lat 41°24'12", long 85°22'37", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.16, T.34 N., R.10 E., Noble County, Hydrologic Unit 04050001 (ALBION, IN quadrangle). The gage is on the upstream side of the bridge over the outlet channel on the northwest lobe of the lake, and 2.5 mi northeast of Albion.

SURFACE AREA.--125 acres.

DRAINAGE AREA.--14.0 mi<sup>2</sup>.

PERIOD OF RECORD.--1945-72, 1976 to current year.

DATUM OF GAGE.--920.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage is driven into the channel bed at the same site.

ESTABLISHED LEGAL LEVEL.--7.74 ft gage datum or 927.74 ft above sea level, as decreed on August 31, 1955, by the Noble County Circuit Court.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a steel sheet piling dam with a fixed crest.

INLET AND OUTLET.--Rimmell Branch enters the lake on the southern shore, a small ditch enters on the southeast tip, and the outlet channel of Sweet Lake flows into the lake from the northeast. The outlet, Croft Ditch, flows from the lake on the south shore of the northwest lobe, and into the South Branch of the Elkhart River 5.6 mi downstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 12.60 ft Apr. 5, 1950; minimum stage, 6.14 ft Oct. 16, 17, 1946.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	7.75	7.82	7.92	8.93	7.91	7.92	8.01	8.00	7.75	7.95	7.81	7.67
10	7.78	7.80	7.89	8.67	7.87	8.84	8.89	7.94	7.77	7.84	7.80	7.64
15	7.79	7.81	7.85	8.00	7.92	8.02	8.09	7.85	7.81	7.78	7.74	7.61
20	7.74	7.79	7.92	7.90	8.10	8.45	7.96	7.81	7.87	7.76	7.72	7.61
25	7.76	7.83	8.26	7.87	7.96	8.07	7.95	7.80	7.76	7.81	7.82	7.56
EOM	7.81	8.07	7.91	7.97	7.96	8.21	7.95	7.78	7.80	7.73	7.72	7.59

WTR YR 1998 MEAN 7.91 MAX 9.83 MIN 7.56



## 03330140 SMALLEY LAKE NEAR WASHINGTON CENTER, IN

LOCATION.--Lat 41°18'52", long 85°35'04", in SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.15, T.33 N., R.8 E., Noble County, Hydrologic Unit 05120106 (ORMAS, IN quadrangle). The gage is located on the north side of the outlet channel, 300 ft upstream from the first bridge over the outlet, and 0.9 mi southeast of Washington Center.

SURFACE AREA.--69 acres.

DRAINAGE AREA.--27.1 mi<sup>2</sup>.

PERIOD OF RECORD.--1943 to current year.

DATUM OF GAGE.--880.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 24-inch diameter stilling well. An auxiliary staff gage is driven into the channel bed.

ESTABLISHED LEGAL LEVEL.--Not established.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a riffle in the outlet channel 500 ft below the lake.

INLET AND OUTLET.--The Tippecanoe River flows through the lake, entering at the south end from Big Lake, 4.2 mi upstream, and flowing from the lake at the northwestern end into Baugher Lake, 1.2 mi downstream. Another inlet enters on the north shore from Gilbert Lake 0.9 mi upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 7.00 ft Mar. 24, 1978; minimum stage, 1.10 ft Aug. 7, 1963.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	1.48	1.87	2.43	3.89	2.19	2.15	3.01	2.35	1.35	2.08	1.60	1.30
10	1.56	1.83	2.11	4.86	2.01	3.64	4.23	2.17	1.34	1.77	2.10	1.34
15	1.63	1.79	1.94	3.61	2.24	3.08	3.61	1.93	1.98	1.43	1.66	1.36
20	1.61	1.80	1.96	2.52	2.58	3.34	2.67	1.66	2.17	1.31	1.38	1.45
25	1.62	1.90	2.34	2.27	2.29	3.25	2.14	1.48	1.68	2.82	1.31	1.45
EOM	1.77	2.28	2.34	2.28	2.25	3.84	2.16	1.40	2.06	1.62	1.28	1.73

WTR YR 1998 MEAN 2.14 MAX 5.04 MIN 1.27

## STREAMS TRIBUTARY TO LAKE MICHIGAN

## 04099780 STONE LAKE NEAR SCOTT, IN

LOCATION.--Lat 41°44'32", long 85°39'03", in SE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.18, T.38 N., R.8 E., Lagrange County, Hydrologic Unit 04050001 (MIDDLEBURY, IN quadrangle). The gage is on the southeast shore of the lake approximately 200 ft west of the intersection of County Road 1150 West and the lake access road, and 5.4 mi northeast of Middlebury.

SURFACE AREA.--152 acres.

DRAINAGE AREA.--1.51 mi<sup>2</sup>.

PERIOD OF RECORD.--1954-71, 1975-76, 1978 to current year.

DATUM OF GAGE.--810.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well.

ESTABLISHED LEGAL LEVEL.--8.76 ft gage datum or 818.76 ft above sea level as decreed on July 28, 1966, by the Lagrange County Circuit Court.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a fixed-crest concrete sill.

INLET AND OUTLET.--The inlet enters on the eastern end of the south shore from Brokesha Lake 0.2 mi upstream. The outlet flows from the lake at the northern shore.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 9.60 ft Apr. 16-30, 1969; minimum stage, 5.34 ft Nov. 26, 1964.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	8.87	8.87	8.89	9.19	8.95	8.84	8.87	8.92	8.66	8.70	8.52	8.60
10	8.86	8.84	8.93	9.21	8.94	8.93	8.96	8.85	8.64	8.66	8.70	8.54
15	8.84	8.85	8.91	9.19	8.96	8.84	8.89	8.82	8.78	8.58	8.61	8.50
20	8.78	8.84	8.89	9.19	8.96	8.98	8.84	8.75	8.82	8.54	8.58	8.54
25	8.77	8.82	9.03	8.93	8.88	8.87	8.80	8.79	8.73	8.57	8.83	8.49
EOM	8.87	8.90	8.95	8.97	8.86	8.96	8.94	8.70	8.73	8.42	8.67	8.46

WTR YR 1998 MEAN 8.81 MAX 9.29 MIN 8.38

## STREAMS TRIBUTARY TO LAKE MICHIGAN

341

## 04100180 SYLVAN LAKE AT ROME CITY, IN

LOCATION.--Lat 41°29'53", long 85°22'38", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.9, T.35 N., R.10 E., Noble County, Hydrologic Unit 04050001 (ALBION, IN quadrangle). The gage is on the lake outlet on the extreme western end of the lake, and at the northern edge of Rome City.

SURFACE AREA.--669 acres.

DRAINAGE AREA.--33.8 mi<sup>2</sup>.

PERIOD OF RECORD.--1943 to current year.

DATUM OF GAGE.--907.00 ft above sea level. Prior to Oct. 1, 1978, the datum of the gage was 910.00 ft. All levels listed below are at the present datum.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage is attached to the north downstream wall of the footbridge.

ESTABLISHED LEGAL LEVEL.--9.20 ft present gage datum or 916.20 ft above sea level as decreed on June 14, 1951, by the Noble County Circuit Court.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a concrete dam with movable gates.

INLET AND OUTLET.--Barr Lake, 0.2 mi upstream, empties into Sylvan Lake on the southeast shore of the northwest lobe. Oviatt Ditch and Henderson Lake Ditch both enter the lake on the extreme eastern end. The outlet flows from the lake at the western tip, into Jones Lake 2.8 mi downstream and eventually into the North Branch of the Elkhart River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 11.14 ft Aug. 22 and 23, 1996; minimum stage, below -.30 ft Oct. 3-9, and 16-18, 1994.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	9.29	9.34	9.50	10.29	9.46	9.49	9.86	9.53	9.19	9.25	9.21	9.20
10	9.27	9.27	---	10.86	9.40	10.05	10.15	9.49	9.19	9.20	9.30	9.12
15	9.26	9.28	---	10.30	9.49	9.86	9.98	9.39	9.27	9.12	9.17	9.09
20	9.23	9.24	---	9.71	9.74	10.03	9.69	9.27	9.45	9.07	9.10	9.11
25	9.22	9.27	10.15	9.56	9.65	9.93	9.55	9.27	9.27	9.18	9.57	9.07
EOM	9.31	9.50	9.85	9.51	9.56	10.09	9.53	9.24	9.21	9.09	9.37	9.07

WTR YR 1998 MEAN 9.47 MAX 10.95 MIN 9.05

## STREAMS TRIBUTARY TO LAKE MICHIGAN

## 04100460 SYRACUSE LAKE AT SYRACUSE, IN

LOCATION.--Lat 41°25'26", long 85°44'59", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.5, T.34 N., R.7 E., Kosciusko County, Hydrologic Unit 04050001 (LAKE WAWASEE, IN quadrangle). The gage is at the southwestern end of the lake, on the south abutment of the dam, and just west of the State Road 13 bridge in the town of Syracuse.

SURFACE AREA.--414 acres.

DRAINAGE AREA.--38.2 mi<sup>2</sup>.

PERIOD OF RECORD.--1943 to current year.

DATUM OF GAGE.--849.85 ft above sea level as corrected on the basis of levels of Indiana Department of Natural Resources, 1973-74.

GAGE.--A water-stage recorder is installed in a concrete shelter over a stilling well in the south abutment of the control structure. Two auxiliary staff gages are at the site. One is attached to the upstream side of the south abutment and the other is bolted to the seawall just west of the bridge over the outlet.

ESTABLISHED LEGAL LEVEL.--8.87 ft gage datum or 858.87 ft above sea level as decreed on September 20, 1948, by the Kosciusko County Circuit Court. Minor errors were subsequently discovered in the establishment of the datum of the gage (see "DATUM OF GAGE") and the correct elevation of the legal level should be 8.87 ft gage datum or 858.72 ft above sea level.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a concrete dam with two steel lift gates.

INLET AND OUTLET.--The one inlet is the outlet channel from Lake Wawasee on the southern shore of the lake. The outlet, Turkey Creek, flows from the lake at the southwest end and eventually into the Elkhart River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 10.15 ft Jan. 27, 28, 1950; minimum stage, 7.00 ft Nov. 19-21, 1953.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	8.59	8.78	9.24	8.63	8.54	8.72	8.71	8.66	9.03	9.02	8.73
10	---	8.59	8.84	9.43	8.64	8.71	8.84	8.58	8.65	9.04	9.02	8.67
15	---	8.64	8.84	9.29	8.65	8.70	8.87	8.65	8.83	8.97	8.88	8.62
20	---	8.66	8.84	9.07	8.71	8.74	8.87	8.64	9.04	8.89	8.73	8.63
25	8.40	8.65	8.94	8.89	8.72	8.72	8.77	8.70	9.00	8.97	8.83	8.55
EOM	8.51	8.75	8.96	8.68	8.62	8.81	8.71	8.72	9.03	8.89	8.78	8.52

WTR YR 1998 MEAN 8.79 MAX 9.44 MIN 8.40

## 03330480 TIPPECANOE LAKE AT OSWEGO, IN

LOCATION.--Lat 41°19'15", long 85°47'20", in NW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.14, T.33 N., R.6 E., Kosciusko County, Hydrologic Unit 05120106 (LEESBURG, IN quadrangle). The gage is on the south side of the dam at the extreme southwest end of the lake, in the outlet channel, at Oswego.

SURFACE AREA.--768 acres.

DRAINAGE AREA.--113 mi<sup>2</sup>.

PERIOD OF RECORD.--1943 to current year.

DATUM OF GAGE.--830.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage is attached to the upstream side of the south abutment of the dam.

ESTABLISHED LEGAL LEVEL.--6.40 ft gage datum or 836.40 ft above sea level as decreed on October 18, 1949, by the Kosciusko County Circuit Court. James Lake at Oswego and Oswego Lake at Oswego have the same established level and hence the same lake levels for the period of record.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a concrete dam with multiple slide gates on the outlet channel of the lake.

INLET AND OUTLET.--The lake has two principal inlets. The Tippecanoe River flows from Webster Lake, enters James Lake, and flows into Tippecanoe Lake on the eastern side. The outlet from the Barbee Chain of Lakes enters from the southeast. The outlet, the Tippecanoe River, leaves the lake on the southwestern side.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 9.43 ft May 21, 1943; minimum stage, 4.90 ft Feb. 13-17, 1963.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	6.59	5.87	6.12	6.72	6.30	6.09	7.43	6.75	6.58	6.71	6.68	6.61
10	6.51	5.81	6.10	8.24	6.15	6.44	7.65	6.75	6.66	6.55	6.82	6.65
15	6.67	5.86	5.92	8.10	6.11	7.01	7.96	6.51	6.45	6.69	6.52	6.65
20	6.44	5.75	5.68	7.55	6.19	7.24	7.54	6.61	6.67	6.65	6.61	6.66
25	6.60	5.74	5.87	6.90	6.23	7.35	6.96	6.67	6.70	6.74	6.56	6.64
EOM	6.08	5.93	6.09	6.52	6.20	7.52	6.64	6.64	6.61	6.66	6.63	6.67

WTR YR 1998 MEAN 6.61 MAX 8.31 MIN 5.67

## STREAMS TRIBUTARY TO LAKE MICHIGAN

## 04100320 UPPER LONG LAKE NEAR WOLFLAKE, IN

LOCATION.--Lat 41°21'33", long 85°29'09", in NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.33, T.34 N., R.9 E., Noble County, Hydrologic Unit 04050001 (MERRIAM, IN quadrangle). The gage is on the northeast shore of the lake, at the northernmost boat slip, and 1.8 mi north-northeast of the town of Wolflake.

SURFACE AREA.--86 acres.

DRAINAGE AREA.--2.08 mi<sup>2</sup>.

PERIOD OF RECORD.--1956 to current year.

DATUM OF GAGE.--880.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage is also located in the boat slip.

ESTABLISHED LEGAL LEVEL.--11.19 ft gage datum or 891.19 ft above sea level as decreed on February 20, 1968, by Noble County Circuit Court.

LAKE-LEVEL CONTROL.--The lake level is controlled by a fixed-sill concrete dam.

INLET AND OUTLET.--There is one inlet that enters the lake from the eastern side. The outlet flows to the north through Dollar Lake, and eventually into the South Branch Elkhart River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 13.40 ft June 27, 1968; minimum stage, 9.95 ft May 11, 1970.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	11.57	11.65	11.65	12.18	12.24	11.84	11.68	11.57	11.41	11.89	11.73	11.45
10	11.59	11.66	11.55	12.23	12.32	12.38	12.19	11.53	11.43	11.81	11.86	11.43
15	11.61	11.71	11.46	11.77	12.01	11.94	11.86	11.51	11.60	11.56	11.83	11.43
20	11.57	11.72	11.47	11.88	11.66	11.92	11.83	11.43	11.78	11.49	11.77	11.43
25	11.57	11.77	11.69	11.95	11.63	11.72	11.74	11.41	11.78	11.68	11.57	11.41
EOM	11.64	11.94	11.66	12.14	11.73	11.90	11.60	11.42	11.84	11.65	11.49	11.42

WTR YR 1998 MEAN 11.71 MAX 12.45 MIN 11.40

## 03276800 VERSAILLES LAKE NEAR VERSAILLES, IN

LOCATION.--Lat 39°04'50", long 85°14'02", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.6, T.7 N., R.12 E., Ripley County, Hydrologic Unit 05090203 (MILAN, IN quadrangle). The gage is on the eastern side of the lake, on the downstream side of the bridge over Falling Timber Creek in Versailles State Park.

SURFACE AREA.--232 acres.

DRAINAGE AREA.--168 mi<sup>2</sup>.

PERIOD OF RECORD.--1958 to current year.

DATUM OF GAGE.--760.74 ft above sea level.

GAGE.--A water-stage recorder installed in an aluminum shelter over a 12-inch diameter stilling well.

ESTABLISHED LEGAL LEVEL.--Not established.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a concrete spillway dam with a movable gate.

INLET AND OUTLET.--The inlets are Laughery Creek, Falling Timber Creek, and Cedar Creek. The outlet is Laughery Creek, which flows southeasterly and empties into the Ohio River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 36.43 ft Jan. 21, 1959, as determined by the U.S. Geological Survey from high-water marks during an indirect measurement of discharge; minimum stage, 18.05 ft Apr. 12, 1970.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	29.05	29.19	29.34	29.29	29.28	29.31	29.41	29.44	29.23	29.40	29.15	29.08
10	29.04	29.16	29.62	29.55	29.44	29.80	30.07	29.53	29.56	29.21	29.27	29.02
15	29.03	29.24	29.26	29.33	29.44	29.39	30.32	29.36	29.72	29.19	29.18	28.97
20	29.12	29.18	29.22	29.28	29.63	30.54	29.54	29.31	29.61	30.60	29.15	28.99
25	29.13	29.22	29.83	29.39	29.38	29.47	29.40	29.90	29.51	29.25	29.14	29.17
EOM	29.16	29.51	29.28	29.27	29.34	29.37	31.64	29.28	29.41	29.18	29.10	29.10

WTR YR 1998 MEAN 29.42 MAX 35.03 MIN 28.96

## STREAMS TRIBUTARY TO LAKE MICHIGAN

## 04100220 WALDRON LAKE NEAR COSPERVILLE, IN

LOCATION.--Lat 41°29'34", long 85°26'55", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.14, T.35 N., R.9 E., Noble County, Hydrologic Unit 04050001 (ALBION, IN quadrangle). The gage is on a dredged channel at the public access site west of County Road 125 West at Dukes Bridge, and 6.8 mi northwest of Albion.

SURFACE AREA.--216 acres.

DRAINAGE AREA.--134 mi<sup>2</sup>.

PERIOD OF RECORD.--1948 to current year.

DATUM OF GAGE.--880.00 ft above sea level.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary wire-weight gage is attached to the upstream side of Dukes Bridge.

ESTABLISHED LEGAL LEVEL.--5.55 ft gage datum or 885.55 ft above sea level as decreed on May 6, 1968, by the Noble County Circuit Court. Jones, Steinbarger and Tamarack Lakes, all near Cosperville, have the same established level as Waldron Lake and hence the same lake levels for the period of record.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a fixed-crest concrete dam with removable boards.

INLET AND OUTLET.--The North Branch of the Elkhart River flows through the lake, entering through Jones Lake at the north and leaving at the west end of Waldron Lake. Another inlet enters at the southeast from Steinbarger Lake, 0.1 mi upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 10.16 ft Mar. 22, 1982; minimum stage, 4.44 ft Aug. 9-11, Sept. 14-17, 1964.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	5.70	5.67	6.14	7.27	6.73	6.52	7.79	6.68	5.15	5.66	5.57	6.18
10	5.49	5.67	6.12	9.02	6.43	7.35	8.17	6.48	5.27	5.69	5.93	5.87
15	5.40	5.61	6.04	8.76	6.42	7.43	8.09	6.12	5.63	5.47	5.72	5.68
20	5.27	5.54	6.01	8.01	6.73	7.73	7.63	5.77	5.99	5.28	5.64	5.65
25	5.19	5.61	6.48	7.37	6.76	7.86	7.11	5.60	5.74	5.56	6.26	5.57
EOM	5.46	5.99	6.59	6.96	6.69	7.96	6.80	5.29	5.68	5.52	6.42	5.20

WTR YR 1998 MEAN 6.30 MAX 9.04 MIN 5.11

## ILLINOIS RIVER BASIN

05517600 WAUHOE LAKE NEAR VALPARAISO, IN

LOCATION.--Lat 41°32'02", long 87°02'42", in NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.31, T.36 N., R.5 W., Porter County, Hydrologic Unit 07120001 (CHESTERTON, IN quadrangle). The gage is on the northwest shore of the lake, 4.7 mi north of Valparaiso.

SURFACE AREA.--21 acres.

DRAINAGE AREA.--0.40 mi<sup>2</sup>.

PERIOD OF RECORD.--1946 to current year.

DATUM OF GAGE.--790.00 ft above sea level.

GAGE.--A staff gage in one section is driven into the lake bed, 75 ft from Arthur J. Knoblich's cottage. An auxiliary staff gage is 20 ft lakeward of the main gage.

ESTABLISHED LEGAL LEVEL.--Not established.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by the outlet channel.

INLET AND OUTLET.--The lake has one inlet entering on the northeast side from Mink Lake 0.3 mi upstream. The outlet flows from the southeast shore, southwesterly through a swamp to Canada Lake 0.3 mi downstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 11.40 Mar. 22, 23, 1998; minimum stage, 6.58 ft Sept. 17, 1964.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	9.88	9.92	10.00	10.37	10.39	10.57	11.07	10.70	10.22	10.41	10.16	9.97
10	9.88	9.91	10.00	10.79	10.39	11.08	10.95	10.96	10.19	10.49	10.18	9.92
15	9.86	9.92	10.04	10.65	10.55	11.03	10.96	10.79	10.36	10.36	10.10	9.85
20	9.82	9.95	10.05	10.51	10.60	11.33	10.80	10.61	10.28	10.27	10.05	9.80
25	9.81	9.94	10.12	10.45	10.57	11.34	10.84	10.48	10.20	10.17	10.06	9.89
EOM	9.90	9.99	10.13	10.41	10.55	11.16	10.78	10.34	10.22	10.06	10.03	9.85

WTR YR 1998 MEAN 10.33 MAX 11.40 MIN 9.79

## WABASH RIVER BASIN

03330240 WEBSTER LAKE AT NORTH WEBSTER, IN

LOCATION.--Lat 41°19'09", long 85°41'20", in NE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.14, T.33 N., R.7 E., Kosciusko County, Hydrologic Unit 05120106 (NORTH WEBSTER, IN quadrangle). The gage is on the southwest side of the lake at the outlet, 0.3 mi northeast of the intersection of State Road 13 and County Road 550 North and approximately 0.6 mi southeast of the center of North Webster.

SURFACE AREA.--774 acres.

DRAINAGE AREA.--49.2 mi<sup>2</sup>.

PERIOD OF RECORD.--1943 to current year.

DATUM OF GAGE.--839.93 ft above sea level, as corrected on the basis of levels of Indiana Department of Natural Resources, 1973-74.

GAGE.--A water-stage recorder is installed in an aluminum shelter over a 15-inch diameter stilling well. An auxiliary staff gage in one section is bolted to the southeast face of the concrete wall of the approach channel to the control dam.

ESTABLISHED LEGAL LEVEL.--12.75 ft gage datum or 852.75 ft above sea level as decreed July 2, 1945, by the Kosciusko County Circuit Court. Minor errors were subsequently discovered in the establishment of the datum of the gage (see "DATUM OF GAGE") and the correct elevation of the legal level should be 12.75 ft gage datum or 852.68 ft above sea level.

LAKE-LEVEL CONTROL.--The level of the lake is controlled by a concrete notch dam with seven adjustable gates at the head of the outlet channel. North of this dam is another which used to serve as a mill race. This dam has one metal gate.

INLET AND OUTLET.--The Tippecanoe River flows through Webster Lake, entering at the southeast end and leaving at the southwest side. The Tippecanoe River enters James Lake, 2.1 mi downstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 15.15 ft Feb. 11, 1984; minimum stage, 9.79 ft (during repair of the dam) Oct. 5, 1962.

LAKE LEVEL, IN FEET ABOVE GAGE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	13.01	13.10	12.99	13.21	12.92	12.76	13.04	13.17	13.20	13.38	13.37	13.12
10	13.05	13.00	12.83	13.69	12.83	13.23	13.43	13.21	13.27	13.32	13.28	13.07
15	13.10	12.85	12.79	13.29	12.85	13.35	13.35	13.23	13.30	13.36	13.30	13.07
20	13.11	12.85	12.91	13.28	12.91	13.09	12.99	13.38	13.30	13.34	13.34	13.11
25	13.04	12.87	13.07	13.21	12.81	12.89	13.04	13.12	13.36	13.33	13.21	13.08
EOM	12.97	13.03	13.13	12.87	12.78	13.21	13.13	13.16	13.30	13.32	13.11	13.10

WTR YR 1998 MEAN 13.13 MAX 13.69 MIN 12.75



## 345

LOCATION.--Lat 41°36'11", long 86°18'36", in NW¼SW¼NW¼, sec.4, T.36 N., R.2 E., St. Joseph County, Hydrologic Unit 07120001 (LAKEVILLE, IN quadrangle). The gage is on the east side of the lake, in a channel west of a storage shed at the Calvert Rod and Gun Club property, and 5.7 mi northwest of Lakeville.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 8.51 ft Jan. 8, 9, 10, 1989; minimum stage, 4.90 ft Oct. 2, 1991.

[illegible]

## 03331140 WINONA LAKE AT WARSAW. IN

LOCATION.--Lat 41°13'34", long 85°50'46", in NW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.17, T.32 N., R.6 E., Kosciusko County, Hydrologic Unit 05120106 (WARSAW, IN quadrangle). The gage is on the western side of the lake, 20 ft east of the dam on the northern side of the outlet channel, 1.0 mi south of Warsaw.

**INLET AND OUTLET.**--There are three inlets to the lake. Wyland Ditch enters on the eastern shore from Sherburn Lake 6.7 mi upstream. Keefer-Evans Ditch enters on the southeastern shore and Paterson Ditch on the southwestern shore. The outlet, Eagle Creek, flows from the western lobe of the lake into Walnut Creek 1.4 mi downstream, thence into the Tippecanoe River.

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 13.31 ft June 14, 1981; minimum stage, 9.40 ft Feb. 15, 1982.

[illegible]

## RECORDS AVAILABLE ON LAKES

For many years, records of the water-surface elevations of many of the lakes in Indiana have been collected by the Geological Survey under cooperative agreement with the Indiana Department of Natural Resources. Basic data for a few selected lakes have been published in WSP 1363, entitled "Hydrology of Indiana Lakes." Records which have not been published are available in the files of the District Office of the Geological Survey in Indianapolis, Indiana. In general, the records before 1976 were based on once-daily readings of a staff gage by a local observer and consist of daily, monthly, and yearly mean water-surface elevations. Starting in 1976, water-stage recorders were installed at many stations which had previously been nonrecording gages. Discharge measurements, made at the outflow, are also available in some instances.

The lakes for which records have been collected are listed by downstream order number in the following table. The established level, sometimes referred to as the legal level, is that elevation set by the courts to which the average level of the lake is to be held; it is normally set at about the average level that has prevailed for a number of years prior to the establishment of the level. Surface area and capacity of the lake is that surface area and capacity at the established level. Depth contour maps are only those surveyed by the Water Resources Division of the Geological Survey. The inclusive years that records of stage have been collected at a lake are shown in the last column. If records are still being collected on a current basis, there is no closing date shown.

## Lakes in the Ohio River basin for which records are available

Station number	Lake	County	Drainage (square miles)	Surface area (acres)	Established level*	Capacity (acre-feet)	Contour map available	Records available
LAUGHERY CREEK BASIN								
03276800	Versailles Lake near Versailles	Ripley	168.0	232	-----	-----	-	1957-
BAYOU DRAIN BASIN								
03322300	Hovey Lake near Mount Vernon	Posey	6.36	253	-----	-----	-	1950-69
WABASH RIVER BASIN								
03327550	Everett Lake at Levert	Allen	1.07	43	835.13	650	+	1946-66
03327600	Blue Lake near Churubusco	Whitley	3.58	239	850.28	5,010	+	1946-69, 1976-
03327650	Shriner Lake at Tri-Lakes	Whitley	.94	111	907.04	-----	-	1943-
03327700	Cedar Lake at Tri-Lakes	Whitley	.79	131	901.90	-----	-	1943-49
03327750	Round Lake at Tri-Lakes	Whitley	3.36	125	901.90	-----	-	1943-63
03327800	Wilson Lake near Larwill	Whitley	.46	29	865.39	390	+	1946-52
03327850	Little Wilson Lake near Larwill	Whitley	.52	8	865.39	130	+	1946-52
03328100	Long Lake at Laketon	Wabash	.55	48	751.19	760	+	1946-51, 1959-
03328250	North Little Lake at Silver Lake	Kosciusko	2.89	12	861.73	170	+	1947-
03328350	Silver Lake at Silver Lake	Kosciusko	6.31	102	861.73	1,520	+	1947-
03328400	Lukens Lake near Disko	Wabash	1.76	46	763.60	1,010	+	1948-49, 1959-
03330020	Crooked Lake near Wolflake	Noble	1.51	206	905.69	9,040	+	1943-53
03330040	Big Lake near Wolflake	Noble	8.89	228	898.18	5,630	+	1943-75, 1976-
03330060	Goose Lake near Lorane	Whitley	1.51	84	910.96	2,180	+	1945-53
03330080	Loon Lake at Ormas	Whitley	11.1	222	895.14	5,730	+	1943-66
03330100	New Lake near Etna	Whitley	.29	50	903.91	880	+	1945-53
03330120	Old Lake near Etna	Whitley	2.81	32	898.07	620	+	1949-66
03330140	Smalley Lake near Washington Center	Noble	27.1	69	-----	1,520	+	1943-
03330160	Gilbert Lake near Washington Center	Noble	.37	28	-----	490	+	1954-
03330180	Horseshoe Lake nr Washington Center	Noble	1.62	18	901.80	250	+	1945-66
03330200	Baughner Lake near Washington Center	Noble	31.0	32	878.52	390	+	1945-51
03330220	Wilmot Pond at Wilmot <sup>1</sup>	Noble	35.2	10	-----	-----	-	1945-51
03330240	Webster Lake at North Webster	Kosciusko	49.2	774	862.75	7,170	+	1943-
03330243	James Lake at Oswego	Kosciusko	55.9	282	836.40	7,580	+	1943-
03330260	Robinson Lake near Pierceton	Kosciusko	7.15	59	851.09	1,170	+	1946-51
03330280	Troy Cedar Lake near Lorane	Whitley	5.33	93	905.41	2,540	+	1945-52
03330300	Ridinger Lake near Pierceton	Kosciusko	34.6	136	843.12	2,900	+	1943-
03330320	Kuhn Lake near North Webster	Kosciusko	3.85	137	837.50	1,290	+	1945-
03330340	Big Barbee Lake near North Webster	Kosciusko	44.7	304	837.50	5,640	+	1945-
03330360	Little Barbee Lake nr North Webster	Kosciusko	49.0	74	837.50	960	+	1945-
03330380	Shoe Lake near Oswego	Kosciusko	.34	40	841.57	-----	-	1946-53, 1972, 74, 1976-
03330400	Banning Lake near North Webster	Kosciusko	.48	12	837.50	110	+	1945-
03330420	Irish Lake near North Webster	Kosciusko	50.9	182	837.50	2,330	+	1945-
03330440	Sechrist Lake near North Webster	Kosciusko	.58	105	837.50	2,490	+	1945-
03330460	Sawmill Lake near North Webster	Kosciusko	51.8	36	837.50	370	+	1945-
03330480	Tippecanoe Lake at Oswego	Kosciusko	113	768	836.40	28,380	+	1943-
03330495	Oswego Lake at Oswego	Kosciusko	113	83	836.40	780	+	1943-
03331010	Big Chapman Lake near Warsaw <sup>2</sup>	Kosciusko	4.17	581	827.75	6,080	+	1945-72, 1976-
03331020	Little Chapman Lake near Warsaw	Kosciusko	7.13	77	827.75	1,990	+	1945-72, 1976-
03331040	Pike Lake at Warsaw	Kosciusko	41.5	203	805.64	2,830	+	1954-
03331060	Fish Lake near Warsaw	Kosciusko	4.93	15	845.52	-----	-	1951-66
03331080	Muskellunge Lake near Warsaw	Kosciusko	11.8	32	842.67	300	+	1943-53, 1959-71
03331100	Carr Lake near Claypool	Kosciusko	2.27	79	848.88	1,340	+	1947-53
03331120	Sherburn Lake near Pierceton <sup>3</sup>	Kosciusko	5.51	15	881.00	230	+	1954-
03331140	Winona Lake at Warsaw	Kosciusko	32.1	562	811.06	16,680	+	1943-

## RECORDS AVAILABLE ON LAKES--Continued

Lakes in the Ohio River basin for which records are available--Continued

Station number	Lake	County	Drainage (square miles)	Surface area (acres)	Established level*	Capacity (acre-feet)	Contour map available	Records available
WABASH RIVER BASIN--Continued								
03331160	Center Lake at Warsaw	Kosciusko	0.73	120	803.86	2,060	+	1945-
03331180	Palestine Lake at Palestine	Kosciusko	32.4	290	-----	1,170	+	1954-
03331200	Crystal Lake near Atwood	Kosciusko	.45	76	789.69	930	+	1945-61
03331220	Hoffman Lake at Atwood	Kosciusko	8.07	180	785.85	3,160	+	1945-63
03331240	Beaver Dam Lake near Silver Lake	Kosciusko	2.83	146	868.95	3,280	+	1947-53
03331260	Loon Lake near Silver Lake	Kosciusko	3.59	40	865.74	670	+	1947-53
03331280	McClures Lake near Silver Lake	Kosciusko	1.29	32	865.85	410	+	1945-52
03331300	Hill Lake near Silver Lake	Kosciusko	.85	67	871.50	1,300	+	1952-
03331320	Diamond Lake near Silver Lake	Kosciusko	3.92	79	-----	1,280	+	1954-
03331340	Yellow Creek Lake near Silver Lake	Kosciusko	11.1	151	860.50	4,730	+	1945-53
03331360	Rock Lake near Akron	Kosciusko	2.74	56	847.29	360	+	1946-66
03331370	Town Lake near Akron	Fulton	2.77	23	-----	220	+	1949-50
03331380	Lake Manitou at Rochester	Fulton	44.2	1,158	778.41	10,165	+	1943-
03331390	Zink Lake near Rochester	Fulton	1.11	19	810.68	-----	-	1952-55
03331400	Nyona Lake near Greenoak	Fulton	7.59	104	793.91	1,340	+	1946-
03331420	South Mud Lake near Fulton	Fulton	4.53	94	793.42	1,020	+	1946-66
03331438	King Lake near Delong	Fulton	1.98	18	-----	180	+	1971-
03331440	Maxinkuckee Lake at Culver	Marshall	13.7	1,864	733.12	45,600	+	1943-
03331460	Lost Lake near Culver	Marshall	14.2	40	732.00	-----	-	1954-
03331480	Langenbaum Lake near Monterey	Starke	.72	48	717.96	260	+	1954-66
03331700	Bruce Lake at Bruce Lake	Pulaski	6.38	245	723.69	1,790	+	1943-53
03332200	Fletcher Lake at Fletcher	Fulton	.67	45	783.20	880	+	1946-53
03370900	Starve Hollow Lake near Vallonia	Jackson	6.67	145	-----	980	+	1946-61
03371700	Ogle Lake near Nashville	Brown	1.03	20	-----	250	+	1963-71
								1954-

Lakes in the St. Lawrence River basin for which records are available

## STREAMS TRIBUTARY TO LAKE MICHIGAN

04092500	Wolf Lake at Hammond <sup>6</sup>	Lake	5.72	999	-----	-----	-	1946-49
04092990	Lake George at Hobart	Lake	124	282	602.23	-----	-	1946-
04097520	Lake Pleasant near Nevada Mills	Steuben	3.18	24	961.50	3,490	+	1954-69, 1971, 1976-
04097550	Lake George at Jamestown	Steuben	<sup>a</sup> 14.7	488	985.28	-----	-	1946-
04097596	Marsh Lake near Fremont	Steuben	14.9	-----	-----	-----	-	1967-69
04097600	Little Otter Lake near Fremont	Steuben	15.7	34	965.18	740	+	1946-53
04097640	Big Otter Lake near Fremont	Steuben	21.3	69	965.18	1,780	+	1946-53
04097650	Snow Lake at Lake James	Steuben	<sup>a</sup> 40.2	310	964.96	7,998	+	1943-49
04097660	Lake James at Lake James	Steuben	<sup>a</sup> 47.8	1,034	964.96	33,585	+	1943-49
04097680	Jimmerson Lake at Nevada Mills <sup>6</sup>	Steuben	<sup>a</sup> 51.6	434	964.66	4,394	+	1946-
04097780	Loon Lake near Angola	Steuben	2.13	138	1,011.98	630	+	1954-66
04097850	Crooked Lake at Crooked Lake	Steuben	10.4	828	988.17	10,555	+	1946-
04097950	Lake Gage at Panama	Steuben	<sup>a</sup> 17.3	332	954.25	10,140	+	1946-
04097960	Lime Lake at Panama	Steuben	<sup>a</sup> 17.5	57	954.25	427	+	1946-
04098100	Wall Lake near Orland	Lagrange	1.61	141	942.25	1,640	+	1953-54
04098110	Mud Lake near Orland	Steuben	1.85	25	939.01	-----	-	1956-67
04098300	Cedar Lake near Ontario	Lagrange	1.60	120	871.90	1,020	+	1948-51
04099050	Pigeon Lake near Angola	Steuben	<sup>a</sup> 35.2	61	988.24	930	+	1954-63
04099100	Fox Lake near Angola	Steuben	<sup>a</sup> 1.25	142	1,018.83	3,150	+	1946-53
04099190	Pleasant Lake at Pleasant Lake	Steuben	<sup>a</sup> 1.12	53	963.52	1,190	+	1946-66
04099200	Long Lake at Moonlight	Steuben	<sup>a</sup> 67.9	92	-----	1,540	+	1946-
04099250	Bower Lake near Pleasant Lake	Steuben	<sup>a</sup> 84.6	25	948.50	280	+	1946-71, 1976-
04099260	Golden Lake near Pleasant Lake	Steuben	<sup>a</sup> 88.8	119	948.50	1,810	+	1946-71, 1976-
04099400	Silver Lake near Angola	Steuben	<sup>a</sup> 3.79	238	959.40	2,540	+	1945-53
04099430	Bass Lake near Angola	Steuben	<sup>a</sup> .39	61	979.68	450	+	1954-66
04099440	Howard Lake near Angola	Steuben	<sup>a</sup> 3.90	27	977.34	130	+	1954-63
04099500	Hogback Lake near Angola	Steuben	<sup>a</sup> 103	146	948.50	1,450	+	1946-
04099520	Otter Lake near Flint	Steuben	<sup>a</sup> 6.91	118	934.15	1,960	+	1954-66
04099540	Story Lake near Hudson	DeKalb	3.16	77	942.20	1,020	+	1946, 1954-66
04099560	Big Turkey Lake at Stroh	Lagrange	35.8	450	926.61	7,300	+	1945-66
04099575	McClish Lake near Helmer	Lagrange	1.28	35	951.09	1,210	+	1951-74, 1976-
04099580	Lake of the Woods near Helmer	Lagrange	5.25	136	951.09	5,470	+	1951-74, 1976-
04099600	Big Long Lake near Stroh	Lagrange	4.77	388	956.2	-----	-	1954-
04099620	Pretty Lake near Stroh	Lagrange	2.89	184	965.50	4,720	+	1949-53, 1963-65
04099640	Little Turkey Lake at Elmira	Lagrange	56.5	135	925.72	1,550	+	1945-66
04099660	Royer Lake near Plato	Lagrange	4.69	69	936.50	1,630	+	1952-
04099670	Fish Lake near Plato	Lagrange	<sup>a</sup> 10.6	100	936.50	4,050	+	1945-
04099700	North Twin Lake near Howe	Lagrange	1.54	135	843.56	2,120	+	1953-
04099710	South Twin Lake near Howe	Lagrange	2.22	116	843.56	3,600	+	1953-70
04099740	Shipshewana Lake near Shipshewana	Lagrange	<sup>a</sup> 6.74	202	852.04	1,350	+	1951-

## RECORDS AVAILABLE ON LAKES--Continued

Lakes in the St. Lawrence River basin for which records are available

Station Number	Lake	County	Drainage (square miles)	Surface area (acres)	Established level*	Capacity (acre-feet)	Contour map available	Records available
STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued								
04099760	Fish Lake near Scott	Lagrange	<sup>a</sup> 6.21	139	814.42	2,560	+	1954-73, 1976-
04099780	Stone Lake near Scott	Lagrange	1.51	152	818.76	2,060	+	1954-73, 1976-
04099800	Emma Lake near Emma	Lagrange	13.6	42	880.87	700	+	1954-66
04099810	Cass Lake near Shipshewana	Lagrange	.68	89	-----	873	+	1970-
04099820	Hunter Lake near Middlebury	Elkhart	.51	99	856.90	1,120	+	1946-53
04099840	Wolf Lake near Goshen	Elkhart	<sup>a</sup> 1.29	100	813.00	-----	-	1947-57
04099860	Heaton Lake near Elkhart	Elkhart	9.33	87	767.30	640	+	1946-53, 1969-74, 1976-
04099880	Simonton Lake near Elkhart	Elkhart	7.44	303	772.19	1,560	+	1946-
04099950	Indiana Lake near Bristol	Elkhart	.62	122	759.73	3,400	+	1946-53
04100010	Cree Lake near Kendallville	Noble	4.85	58	945.23	910	+	1949-66
04100020	Blackman Lake near Wolcottville	Lagrange	.98	67	974.20	1,210	+	1953-59
04100030	Adams Lake near Wolcottville	Lagrange	5.62	308	953.59	7,690	+	1946-
04100040	Atwood Lake near Wolcottville	Lagrange	1.23	170	899.99	1,560	+	1948-53
04100050	Witmer Lake near Wolcottville	Lagrange	36.1	204	897.36	7,040	+	1945-
04100060	Westler Lake near Wolcottville	Lagrange	37.8	88	897.36	1,770	+	1945-
04100070	Dallas Lake near Wolcottville	Lagrange	39.8	283	897.36	9,970	+	1945-
04100080	Martin Lake near Valentine	Lagrange	4.93	26	899.45	890	+	1945-
04100090	Olin Lake near Valentine	Lagrange	5.81	103	899.45	9,180	+	1945-
04100100	Oliver Lake near Valentine	Lagrange	11.1	362	899.45	15,358	+	1945-
04100110	Hackenburg Lake near Wolcottville	Lagrange	55.4	42	897.36	510	+	1945-
04100120	Messick Lake near Wolcottville	Lagrange	56.4	68	897.36	1,450	+	1945-
04100130	Jones Lake near Cosperville	Noble	70.3	114	885.55	960	+	1948-
04100140	Bixler Lake at Kendallville	Noble	5.28	120	963.65	2,090	+	1945-
04100150	Round Lake at Kendallville	Noble	3.47	99	954.50	2,140	+	1954-
04100160	Little Long Lake at Kendallville	Noble	4.55	71	954.50	1,750	+	1954-
04100170	Latta Lake near Rome City	Noble	2.52	42	918.71	900	+	1954-66
04100180	Sylvan Lake at Rome City	Noble	33.8	669	916.20	5,986	+	1943-
04100190	Sacarider Lake near Kendallville	Noble	1.43	33	-----	740	+	1954-63
04100200	Tamarack Lake near Cosperville	Noble	15.9	50	885.55	880	+	1948-
04100210	Steinbarger Lake near Cosperville	Noble	24.3	73	885.55	1,590	+	1948-
04100220	Waldron Lake near Cosperville	Noble	134	216	885.55	3,120	+	1948-
04100230	Long Lake near Burr Oak	Noble	12.0	40	895.82	630	+	1954-71
04100240	Sand Lake near Burr Oak	Noble	14.9	47	893.56	1,270	+	1946-51
04100250	Rivir Lake near Burr Oak	Noble	18.6	24	-----	380	+	1954-65
04100258	High Lake near Wolflake	Noble	4.43	123	896.35	1,240	+	1961-
04100260	Bear Lake near Wolflake	Noble	6.98	136	894.60	3,030	+	1943-
04100280	Muncie Lake near Burr Oak	Noble	42.8	47	-----	580	+	1954-
04100290	Silver Lake near Wolflake	Noble	.28	34	-----	220	+	1953-63
04100300	Skinner Lake near Albion	Noble	14.0	125	927.74	1,750	+	1945-72, 1977-
04100310	Pleasant Lake near Wolflake	Noble	.29	20	-----	540	+	1952-53
04100320	Upper Long Lake near Wolflake	Noble	2.08	86	891.19	1,900	+	1956-
04100330	Lower Long Lake near Albion	Noble	4.35	66	889.81	1,560	+	1946-52
04100340	Eagle Lake near Kimmel	Noble	3.22	81	-----	1,050	+	1946-48
04100350	Diamond Lake near Wawaka	Noble	4.80	105	-----	2,580	+	1946-
04100360	Sparta Lake at Kimmel	Noble	.69	31	888.50	170	+	1946-51
04100370	Engle Lake near Ligonier	Noble	<sup>a</sup> 4.19	48	878.90	670	+	1956-71, 1977-
04100380	Harper Lake near Washington Center	Noble	2.76	11	878.25	160	+	1946-
04100390	Knapp Lake near Washington Center	Noble	6.02	88	878.25	3,040	+	1946-
04100400	Moss Lake near Washington Center	Noble	6.12	9	878.25	80	+	1946-
04100410	Hindman Lake near Washington Center	Noble	8.66	13	878.25	140	+	1946-
04100420	Gordy Lake near Cromwell	Noble	9.40	31	876.68	680	+	1953-66
04100425	Rider Lake near Cromwell	Noble	10.9	5	876.68	30	+	1953-66
04100430	Duely Lake near Cromwell <sup>8</sup>	Noble	11.2	21	876.68	180	+	1953-66
04100440	Village Lake near Cromwell	Noble	12.0	12	876.68	160	+	1953-66
04100446	Flatbelly Lake near Syracuse	Kosciusko	4.66	326	-----	-----	-	1964-69
04100448	Papakeechie Lake near Syracuse	Kosciusko	5.52	300	-----	-----	-	1964-69
04100450	Wawasee Lake at Wawasee	Kosciusko	36.9	3,060	858.89	67,210	+	1943-66
04100460	Syracuse Lake at Syracuse	Kosciusko	38.2	414	858.87	5,360	+	1943-
04100470	Dewart Lake near Leesburg	Kosciusko	<sup>a</sup> 8.05	551	867.70	9,000	+	1945-
04100480	Wabee Lake near Milford	Kosciusko	<sup>a</sup> 14.6	187	829.79	4,750	+	1946-53
STREAMS TRIBUTARY TO LAKE ERIE								
04177200	Clear Lake at Clear Lake	Steuben	6.86	800	1,037.38	24,990	+	1943-
04177210	Round Lake at Clear Lake	Steuben	7.25	30	1,037.38	340	+	1943-
04177300	Long Lake near Ray	Steuben	2.80	154	-----	1,840	+	1961-63
04177680	Ball Lake near Hamilton	Steuben	11.6	87	894.76	3,520	+	1961-
04177700	Hamilton Lake at Hamilton	Steuben	16.5	802	898.83	16,600	+	1943-
04179200	Indian Lake near Corunna	DeKalb	3.76	56	-----	1,220	+	1957
04179300	Cedar lake near Waterloo	DeKalb	23.4	28	896.76	230	+	1943-66



## RECORDS AVAILABLE ON LAKES--Continued

Lakes in the Upper Mississippi River basin for which records are available--Continued

Station Number	Lake	County	Drain-age (square miles)	Surface area (acres)	Established level*	Capacity (acre-feet)	Contour map available	Records available
ILLINOIS RIVER BASIN								
05514740	Saugany Lake near Rolling Prairie	LaPorte	<sup>a</sup> 2.34	74	781.21	2,190	+	1946-50
05514741	Hudson Lake at Hudson Lake	LaPorte	7.92	432	763.09	5,060	+	1946-
05514750	North Chain Lake at Lydick	St. Joseph	<sup>a</sup> 3.89	88	721.17	1,400	+	1946-53
05514760	South Chain Lake at Westfield	St. Joseph	<sup>a</sup> 6.32	90	717.04	270	-	1946-53
05514770	Wharton Lake near South Bend	St. Joseph	<sup>a</sup> 1.85	---	---	---	-	1960-
05514900	Silver Lake near Rolling Prairie	LaPorte	1.72	54	795.20	---	-	1946-66
05515200	Upper Fish Lake near Stillwell	LaPorte	<sup>a</sup> 9.65	139	688.22	1,040	+	1946-53
05515210	Lower Fish Lake near Stillwell	LaPorte	<sup>a</sup> 10.4	134	688.22	870	+	1946-53
05515220	Pine Lake at LaPorte	LaPorte	<sup>a</sup> 10.7	564	796.20	---	-	1946-75
05515230	Stone Lake at LaPorte	LaPorte	<sup>a</sup> 10.7	140	796.20	---	-	1980- 1946-75
05515240	Clear Lake at LaPorte	LaPorte	.65	106	798.20	760	+	1980- 1942-49, 1952-75
05515600	Koontz Lake at Koontz Lake	Starke	<sup>a</sup> 6.25	346	714.56	3,170	+	1980- 1943-
05515800	Riddles Lake near Lakeville	St. Joseph	<sup>a</sup> 11.7	77	817.50	640	+	1946-73, 1976-
05516200	Lake of the Woods near Bremen	Marshall	<sup>a</sup> 9.45	416	803.85	6,810	+	1945-
05516600	Pretty Lake near Plymouth	Marshall	.85	97	787.36	2,140	+	1954-66
05516700	Myers Lake near Twin Lakes	Marshall	1.41	96	768.69	2,000	+	1945-53
05516800	Mill Pond and Kreighbaum Lake near Twin Lakes	Marshall	<sup>a</sup> 5.34	168	767.75	1,020	+	1945-53
05516900	Eagle Lake near Ober	Starke	<sup>a</sup> 25.5	24	713.25	160	+	1946-53
05517100	Skitz Lake near Knox	Starke	---	1,000	---	---	-	1949-53
05517200	Bass Lake at Bass Lake	Starke	5.18	1,400	713.65	---	-	1943-
05517600	Waubob Lake near Valparaiso	Porter	.40	21	---	---	-	1946-
05517650	Long Lake near Valparaiso	Porter	1.31	65	797.66	520	+	1947-52
05517670	Spectacle Lake near Valparaiso	Porter	.53	62	812.82	540	+	1946-53
05517700	Flint Lake near Valparaiso	Porter	2.62	86	797.66	---	-	1946-
05517800	Lake Eliza near Beatrice	Porter	1.70	45	738.70	---	-	1954-74, 1976-
05518700	Cedar Lake at Cedar Lake	Lake	8.14	781	---	6,750	+	1943-
05518800	Dalecarlia Lake near Creston	Lake	20.1	193	---	---	-	1947-52
05521300	Ringneck Lake near Medaryville	Jasper	1.94	1,400	---	---	-	1949-55
05525700	J.C. Murphy Lake near Morocco	Newton	13.0	1,515	---	---	-	1952-61

+ Depth contour maps available for sale by Indiana Department of Natural Resources, State Office Building, Indianapolis, Indiana.

\* Elevation, in feet, above mean sea level.

<sup>1</sup> Formerly published as Rider Lake at Wilmot.<sup>2</sup> Formerly published as Chapman Lake near Warsaw.<sup>3</sup> Formerly published as Johnson Lake near Pierceton.<sup>4</sup> Formerly published as Hawks Lake near Culver.<sup>5</sup> Same as Wolf Lake at Chicago, Illinois WRD District.<sup>6</sup> Formerly published as Jimerson Lake at Nevada Mills.<sup>7</sup> Formerly published as Sanford Lake near Cosperville.<sup>8</sup> Formerly published as Duley Lake near Cromwell, and Druley Lake near Cromwell, and Druley Lake near Cromwell.<sup>a</sup> Contains drainage area (5 percent or greater) that does not contribute directly to surface-water runoff.



## OTHER LAKE MAPS AVAILABLE

The lakes in Indiana which are not included in the cooperative stabilization program but which have been mapped for recreational purposes are shown in the following table. Surface area and capacities are related to reference mean sea level elevation at time of mapping. Additional data is shown on map, which are available for sale by the Indiana Department of Natural Resources, State Office Building, Indianapolis, Indiana.

Lake	County	Surface area (acres)	Capacity (acre-feet)	Lake	County	Surface area (acres)	Capacity (acre-feet)
OHIO RIVER BASIN							
Barr Lake	Fulton	22	470	Lake 16	Fulton	27	220
Bischoff Reservoir	Ripley	200	1,920	Larwill Lake	Whitley	9	170
Black Lake	Whitley	24	400	Lenape Lake	Greene	36	330
Bowen Lake	Scott	7	60	Lincoln Park Lake	Spencer	58	520
Brown Lake	Whitley	23	580	Little Pike Lake	Kosciusko	25	140
Caldwell Lake	Kosciusko	45	800	McColley Lake	Wabash	28	410
Crane Lake	Noble	28	360	Round Lake	Wabash	48	540
Crosley Lake	Jennings	14	130	Scales Lake	Warrick	66	520
Ferdinand Lake	Dubois	42	440	Schlam Lake	Clark	19	170
Frank Lake	Clark	9	70	Sellers Lake	Kosciusko	32	340
Hartz Lake	Starke	28	370	Shakamak Lake	Sullivan	56	610
Kunkel Lake	Wells	25	150	Twin Lakes	Wabash	18	190
Lake Freeman	Carroll	1,547	26,000	Whitewater Lake	Union	199	3,650
Lake Shafer	White	1,291	13,120	Yellowwood Lake	Brown	133	1,890
STREAMS TRIBUTARY TO LAKE MICHIGAN							
Appleman Lake	Lagrange	52	590	Mateer Lake	Lagrange	18	150
Bartley Lake	Noble	34	430	Miller Lake	Noble	11	160
Barton Lake	Steuben	94	1,340	Millers Lake	Noble	28	410
Bell Lake	Steuben	38	510	Mud Lake	Noble	8	70
Boner Lake	Kosciusko	40	370	Norman Lake	Noble	14	280
Bowen Lake	Noble	30	1,080	Pigeon Lake	Lagrange	61	1,160
Bristol Lake	Noble	27	740	Port Mitchell Lake	Noble	15	180
Buck Lake	Lagrange	18	150	Rainbow Lake	Lagrange	16	250
Center Lake	Steuben	46	390	Schockopee Lake	Noble	21	280
Cline Lake	Lagrange	20	350	Shock Lake	Kosciusko	37	1,210
Deer Lake	Noble	36	420	Smith Hole	Lagrange	2	10
Dock Lake	Noble	16	230	Still Lake	Lagrange	30	620
Eve Lake	Lagrange	31	670	Sweet Lake	Noble	16	210
Fish Lake	Steuben	59	750	Tamarack Lake	Noble	84	1,340
Hog Lake	LaPorte	59	690	Walters Lake	Steuben	53	550
Hog Lake	Steuben	48	570	Weir Lake	Lagrange	6	70
Lime Lake	Steuben	30	330	Wible Lake	Noble	49	650
Little Turkey Lake	Steuben	58	780	Williams Lake	Noble	46	1,070
Marl Lake	Noble	30	510	Wyland Lake	Kosciusko	6	100
STREAMS TRIBUTARY TO LAKE ERIE							
Dunton Lake	DeKalb	21	340	Mirror Lake	Steuben	9	120
Handy Lake	Steuben	16	290	Terry Lake	DeKalb	17	160
Lake Anne	Steuben	17	280				
UPPER MISSISSIPPI RIVER BASIN							
Cook Lake	Marshall	93	1,650	Gilbert Lake	Marshall	37	490
Dixon Lake	Marshall	33	480	Holem Lake	Marshall	40	390
Flat Lake	Marshall	26	210	Lawrence Lake	Marshall	69	1,580



Base from U.S. Geological Survey digital data, 1:2,000,000, 1996  
 Albers Equal Area projection  
 Standard parallels 29°30' and 45°30' central meridian -96°

#### EXPLANATION

2 Number of ground-water wells in designated county.

Figure 10.--Number of ground-water wells by county having 1998 water-level records.

## ALLEN COUNTY

410426084495201. Local number, AL 5.

LOCATION.--Lat 41°04'26", long 84°49'52", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.9, T.30 N., R.15 E., Allen County, Hydrologic Unit 04100005, 1.3 mi west of Edgerton.

Owner: Noel Gerig.

AQUIFER.--Limestone of Salina Formation of Silurian age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 4 in., depth 97 ft, cased to 40 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 760 ft above sea level, from topographic map. Measuring point: Top of floor of shelter, 0.00 ft above land-surface datum.

REMARKS.--Nearby quarry operations were shut down in 1980, and since that time water levels have been rising. Quarry operations no longer affect water levels in this well, however, nearby pumping (domestic) creates a daily drawdown of about 0.70 ft, which may affect the mean.

PERIOD OF RECORD.--July 1962 to December 1971, January 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 10.04 ft below land-surface datum, July 8, 9, 1962; lowest, 38.41 ft below land-surface datum, May 4, 1967.

HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

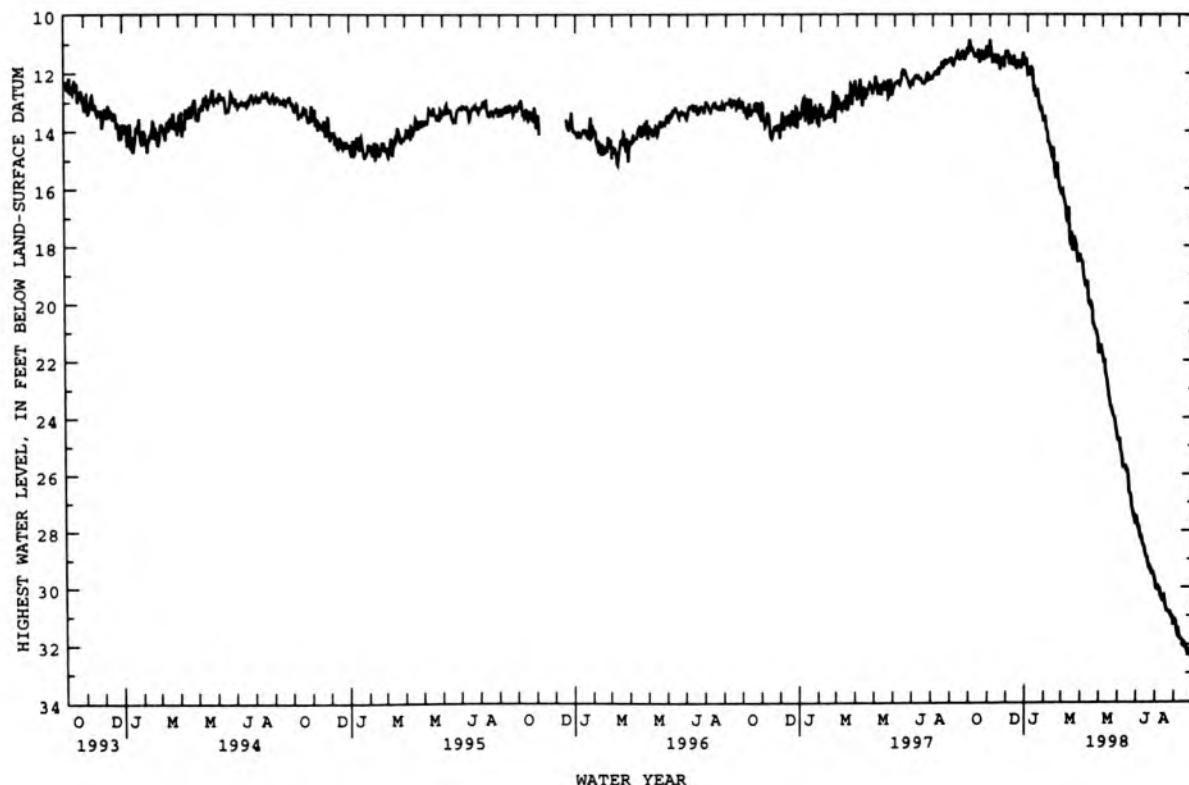
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	11.27	11.66	11.49	11.89	14.40	16.94	19.33	21.92	25.25	28.01	29.99	31.55
10	11.47	11.42	11.38	12.38	14.91	17.35	19.67	22.51	25.73	28.39	30.26	31.79
15	11.64	11.47	11.74	12.66	15.55	18.08	20.08	23.28	25.87	28.80	30.32	31.89
20	11.32	11.50	11.68	13.13	15.68	17.88	20.79	23.74	26.69	29.14	30.83	32.02
25	11.34	11.46	11.32	13.46	16.20	18.52	21.11	24.07	27.47	29.46	30.86	32.20
EOM	11.09	11.21	11.80	13.93	16.25	18.51	21.52	24.76	27.45	29.77	31.25	32.26

WTR YR 1998 HIGH 10.84 NOV 1

LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	11.34	12.09	11.93	12.43	14.85	17.39	19.82	22.11	25.42	28.91	30.67	32.09
10	11.72	11.86	11.82	12.99	15.61	17.98	20.25	22.63	25.91	29.08	30.81	32.26
15	12.04	11.87	12.17	13.14	15.90	18.51	20.50	23.92	26.11	29.45	30.95	32.47
20	11.81	12.02	12.15	13.54	16.15	18.27	21.37	24.51	27.20	29.82	31.38	32.60
25	11.86	12.22	11.85	13.96	16.72	19.07	21.71	24.25	28.06	30.25	31.49	32.53
EOM	11.65	11.69	12.66	14.40	16.66	18.66	22.02	25.48	28.18	30.42	31.92	32.71

WTR YR 1998 LOW 33.04 SEP 26



## ALLEN COUNTY

410932084561101. Local number, AL 6.

LOCATION.--Lat 41°09'32", long 84°56'11", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.10, T.31 N., R.14 E., Allen County, Hydrologic Unit 04100005, at the intersection of Ehle and Thimler Roads, 10 mi northeast of New Haven.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 84 ft, cased to 81.5 ft, screened to 83.5 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 760 ft above sea level, from topographic map. Measuring point: Top of floor of shelter, 2.50 ft above land-surface datum.

REMARKS.--Water level affected by pumpage.

PERIOD OF RECORD.--December 1966 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 7.86 ft below land-surface datum, Jan. 9, 1998; lowest, 15.10 ft below land-surface datum, Nov. 26, 1994.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

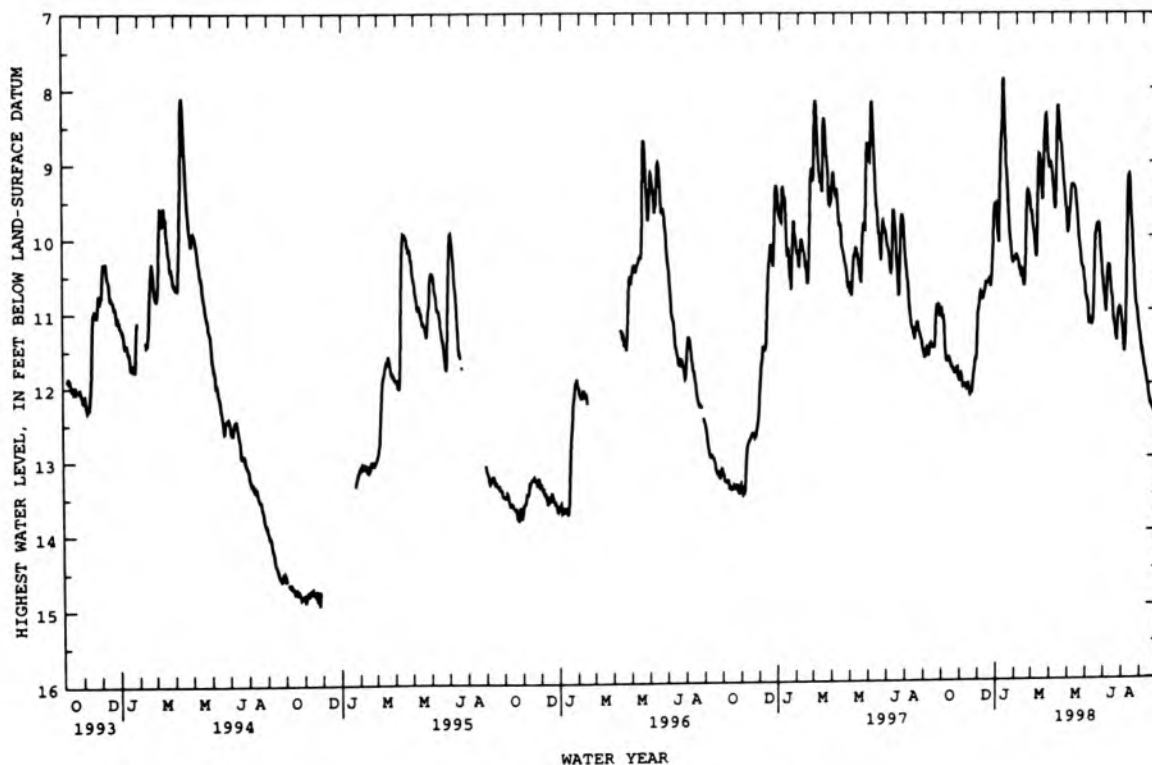
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	11.31	12.02	10.77	8.86	10.32	10.14	9.49	9.30	11.18	10.43	11.13	11.75
10	11.65	12.02	10.74	8.06	10.55	8.89	8.27	9.34	11.17	10.60	9.21	11.95
15	11.69	12.03	10.63	9.09	10.67	9.28	8.69	9.77	9.93	11.09	9.93	12.21
20	11.79	12.11	10.61	9.81	9.37	8.54	9.11	10.19	9.84	11.37	10.70	12.35
25	11.85	11.69	9.75	10.28	9.62	8.85	9.59	10.43	10.41	10.97	11.06	12.38
EOM	11.93	11.02	9.76	10.30	9.77	9.05	9.89	10.81	10.80	11.28	11.46	12.49

WTR YR 1998 HIGH 7.86 JAN 9

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	11.53	12.17	10.82	9.27	10.45	10.30	9.68	9.43	11.18	10.59	11.47	11.91
10	11.73	12.13	10.89	8.39	10.69	9.11	8.61	9.46	11.33	10.78	9.42	12.14
15	11.82	12.09	10.73	9.29	10.76	9.49	8.87	9.93	10.09	11.29	10.19	12.31
20	11.91	12.21	10.71	10.04	9.44	8.83	9.31	10.43	10.03	11.58	10.89	12.48
25	11.98	11.80	10.15	10.38	9.82	9.06	9.75	10.53	10.61	11.07	11.21	12.47
EOM	12.03	11.23	10.06	10.47	9.96	9.20	10.03	10.89	10.99	11.50	11.62	12.67

WTR YR 1998 LOW 12.68 SEP 28



## ALLEN COUNTY

410335085190701. Local number, AL 8.

LOCATION.--Lat 41°03'35", long 85°19'07", in SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec. 8, T.30 N., R.11 E., Allen County, Hydrologic Unit 05120101, on Covington Rd about 5 mi west of I-69 on the northeast corner of the United Telephone Co. property.

Owner: U.S. Geological Survey.

AQUIFER.--Limestone.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 193 ft, cased to 173 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 850.60 ft above sea level. Measuring point: Top of casing, 3.50 ft above land-surface datum.

REMARKS.--Water level data is affected by nearby pumpage. Daily fluctuations greater than 3 ft are common.

PERIOD OF RECORD.--July 1988 to current year. Records for WY1988, WY1989, WY1990 published as AL 7.

REVISED RECORDS.--WDR IN 94-1: 1993.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 55.70 ft below land-surface datum, Apr. 26, 1989; lowest, 75.63 ft below land-surface datum, Aug. 18, 1996.

#### HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

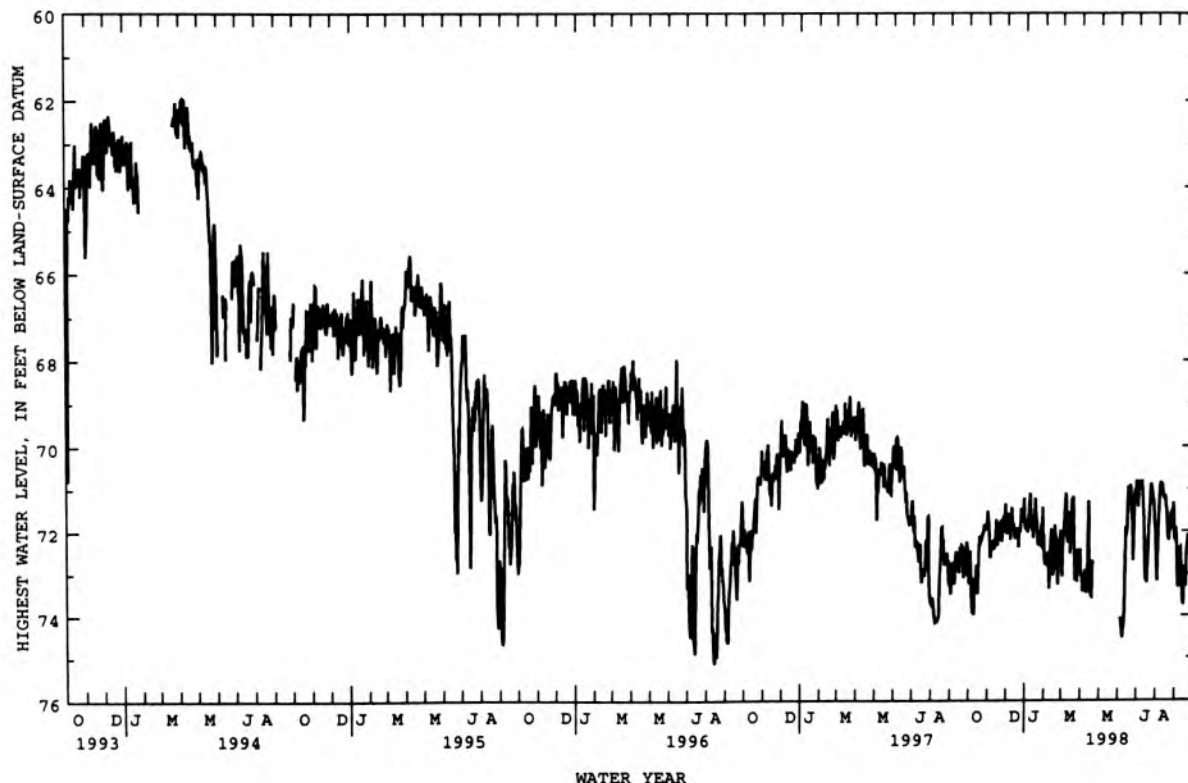
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	73.03	72.60	71.63	72.03	72.58	71.87	73.43	---	74.05	70.84	71.71	73.06
10	73.98	72.35	71.44	71.54	72.63	72.14	73.46	---	74.25	71.04	70.96	72.40
15	72.89	71.72	72.18	71.77	73.04	72.53	73.15	---	71.93	73.15	71.18	73.75
20	72.33	72.17	71.92	71.91	72.17	71.19	72.70	---	70.91	71.96	72.11	72.39
25	72.07	72.07	71.47	72.25	72.54	73.16	---	---	72.70	70.98	71.60	72.10
EOM	71.82	71.35	71.82	72.07	72.05	72.43	---	---	70.84	72.02	72.17	72.17

WTR YR 1998 HIGH 70.84 JUN 30

#### LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	73.65	73.69	72.95	72.94	73.28	73.13	73.82	---	74.47	71.65	72.28	73.58
10	74.51	73.55	73.11	73.06	73.59	73.58	73.95	---	74.67	72.39	71.76	73.25
15	73.81	73.13	73.20	73.01	73.58	73.21	73.65	---	72.34	73.72	72.18	74.15
20	73.52	73.31	73.33	73.44	73.31	72.42	73.92	---	72.55	72.63	72.99	73.79
25	73.06	73.26	72.71	73.35	73.56	73.38	---	---	73.83	72.42	72.46	73.70
EOM	72.96	72.89	73.53	73.40	73.33	73.24	---	---	71.58	73.43	73.07	72.93

WTR YR 1998 LOW 75.05 JUN 8





## BARTHOLOMEW COUNTY

391627085534401. Local number, BA 4.

LOCATION.--Lat 39°16'27", long 85°53'44", in NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.31, T.10 N., R.6 E., Bartholomew County, Hydrologic Unit 05120205, by a cemetery on the north side of Bakalar AFB at the northern city limits of Columbus.

Owner: Bartholomew County.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 6 in., depth 93 ft, cased to 85 ft, screened to 90 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 654.04 ft above sea level. Measuring point: Top of floor of shelter, 2.60 ft above land-surface datum.

REMARKS.--Water level affected by agricultural withdrawals during May - August growing season.

PERIOD OF RECORD.--January 1965 to current year.

REVISED RECORDS.--WDR IN-80-1: 1979.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 11.58 ft below land-surface datum, June 21, 22, 23, 24, 1996; lowest, 21.18 ft below land-surface datum, July 2, 1992.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

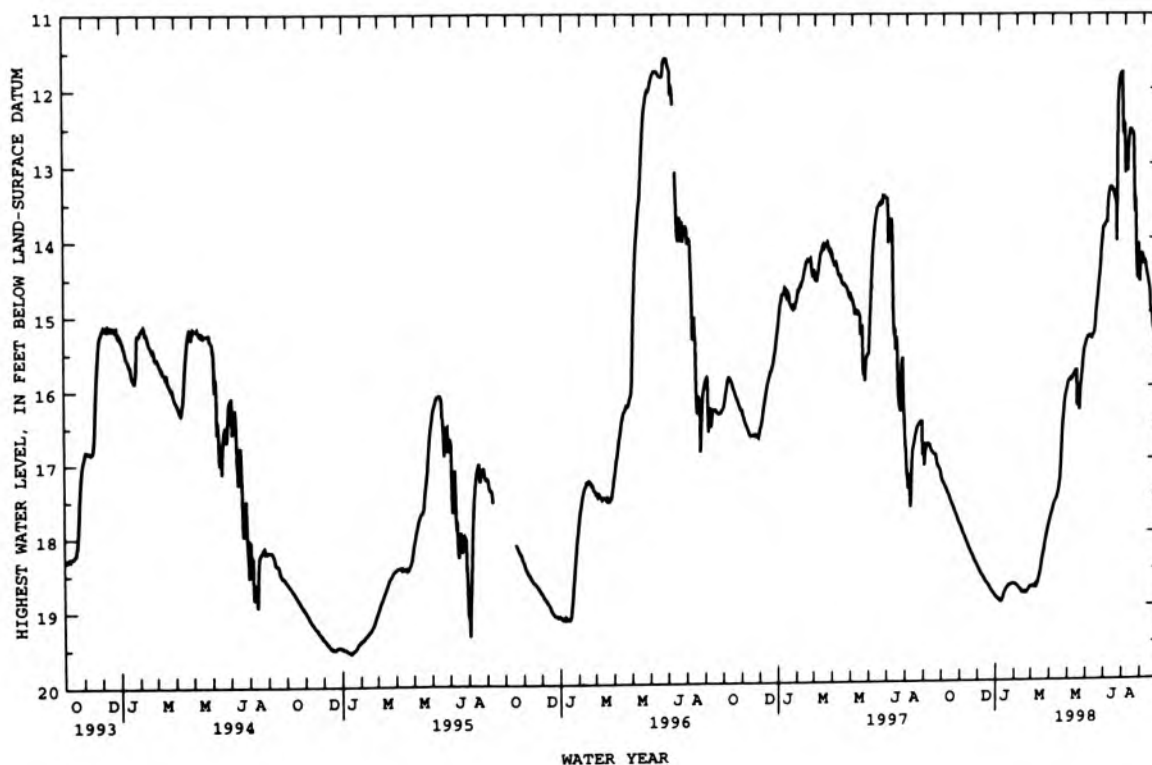
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	17.35	17.99	18.52	18.90	18.72	18.73	17.69	15.91	15.31	13.42	12.92	14.31
10	17.44	18.08	18.59	18.94	18.77	18.73	17.57	15.83	15.31	13.31	12.54	14.54
15	17.55	18.18	18.67	18.81	18.82	18.58	17.41	16.27	14.97	13.43	12.60	14.99
20	17.64	18.27	18.73	18.74	18.82	18.32	16.74	16.10	14.53	12.25	13.69	15.21
25	17.75	18.37	18.79	18.71	18.77	18.08	16.15	15.59	13.97	11.80	14.06	15.36
EOM	17.88	18.44	18.86	18.70	18.74	17.84	15.94	15.36	13.80	12.45	14.21	15.53

WTR YR 1998 HIGH 11.78 JUL 26

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	17.36	18.01	18.55	18.91	18.73	18.74	17.72	15.92	15.33	13.51	13.18	14.36
10	17.46	18.10	18.62	18.95	18.78	18.73	17.58	15.85	15.31	13.33	12.58	14.59
15	17.57	18.20	18.68	18.84	18.83	18.62	17.46	16.57	15.15	13.46	12.65	15.11
20	17.67	18.29	18.74	18.75	18.83	18.37	16.94	16.33	14.63	14.40	14.12	15.23
25	17.77	18.38	18.81	18.71	18.78	18.13	16.24	15.70	14.06	11.81	14.47	15.42
EOM	17.89	18.47	18.88	18.70	18.74	17.88	15.99	15.38	13.83	12.64	14.23	15.55

WTR YR 1998 LOW 18.95 JAN 9



## BARTHOLOMEW COUNTY

39095008553501. Local number, BA 8.

LOCATION.--Lat 39°09'50", long 85°55'35", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.1, T.8 N., R.5 E., Bartholomew County, Hydrologic Unit 05120206, on property of Meadows Metal Products Co., 4 mi south of Columbus.

Owner: Meadows Metal Products Co., Inc.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 6 in., depth 49 ft, casing length unknown.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 615.48 ft above sea level. Measuring point: Top of floor of shelter, 3.00 ft above land-surface datum.

PERIOD OF RECORD.--February 1967 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 8.06 ft below land-surface datum, June 3, 1968; lowest, 24.13 ft below land-surface datum, Dec. 27, 1988.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

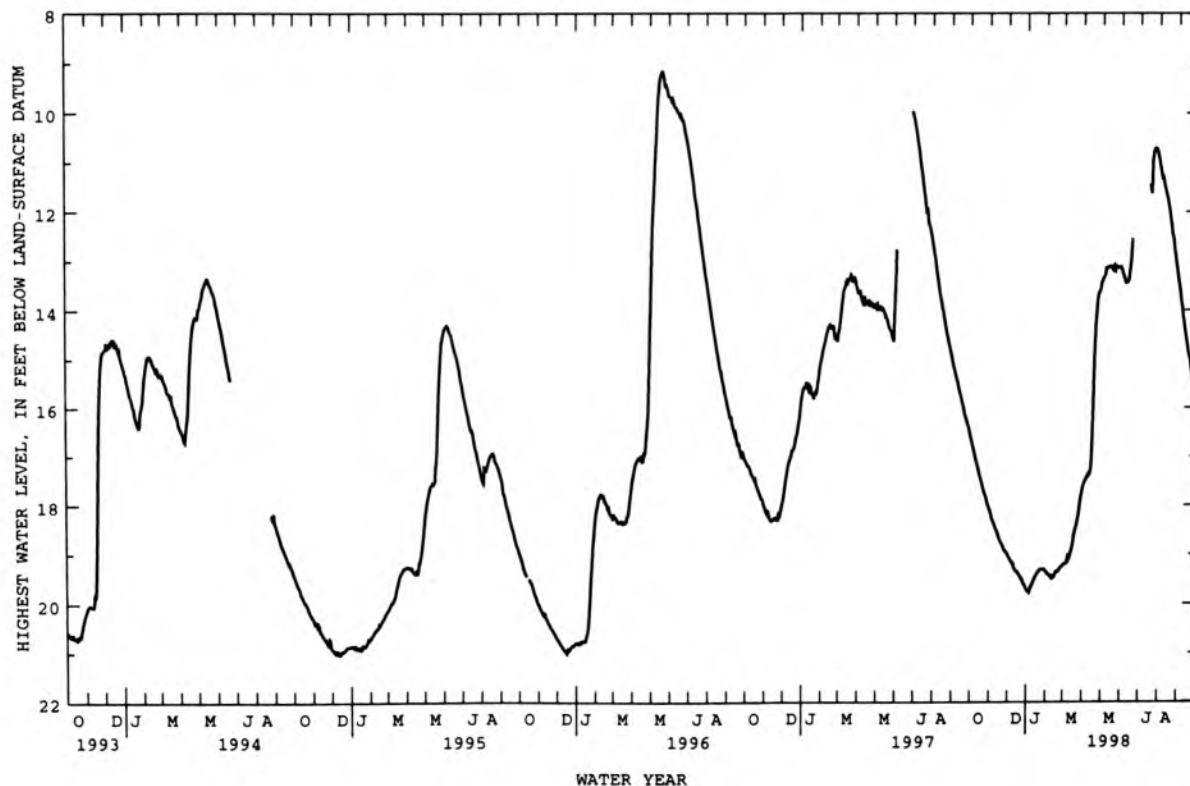
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	16.78	18.25	19.10	19.77	19.40	19.19	17.49	13.30	13.31	---	11.35	13.78
10	17.06	18.43	19.18	19.62	19.48	19.10	17.40	13.13	13.44	---	11.54	14.25
15	17.32	18.59	19.35	19.46	19.43	18.87	16.94	13.11	13.12	---	11.83	14.66
20	17.55	18.76	19.42	19.35	19.35	18.51	14.64	13.10	---	10.97	12.29	14.99
25	17.78	18.90	19.53	19.31	19.27	18.21	13.68	13.12	---	10.71	12.72	15.47
EOM	18.04	18.98	19.69	19.34	19.23	17.69	13.43	13.12	---	10.94	13.30	15.80

WTR YR 1998 HIGH 10.71 JUL 24

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	16.84	18.35	19.16	19.79	19.49	19.19	17.52	13.39	13.41	---	11.42	13.88
10	17.11	18.46	19.27	19.66	19.50	19.13	17.47	13.15	13.52	---	11.63	14.33
15	17.42	18.63	19.37	19.55	19.46	18.92	17.22	13.19	13.22	---	11.90	14.76
20	17.66	18.78	19.51	19.38	19.44	18.60	14.99	13.18	---	11.75	12.42	15.12
25	17.83	18.97	19.57	19.32	19.36	18.32	13.78	13.14	---	10.79	12.82	15.54
EOM	18.08	19.00	19.75	19.36	19.24	17.79	13.56	13.16	---	11.08	13.41	15.87

WTR YR 1998 LOW 19.83 JAN 6



## BARTHOLOMEW COUNTY

391035085560401. Local number, BA 9.

LOCATION.--Lat 39°10'35", long 85°56'04", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.35, T.9 N., R.5 E., Bartholomew County, Hydrologic Unit 05120206, at the Bartholomew County Home on the 4-H Fairgrounds, 3.0 mi south of Columbus.

Owner: City of Columbus.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 6 in., depth 115 ft, cased to 106 ft, screened to 111 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 621.58 ft above sea level. Measuring point: Top of floor of shelter, 1.65 ft above land-surface datum.

REMARKS.--Water level affected by pumpage from municipal supply well field.

PERIOD OF RECORD.--April 1970 to current year.

REVISED RECORDS.--WDR IN-80-1: 1979.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 12.75 ft below land-surface datum, Apr. 27-30, 1973; lowest, 42.01 ft below land-surface datum, Nov. 14, 1992.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

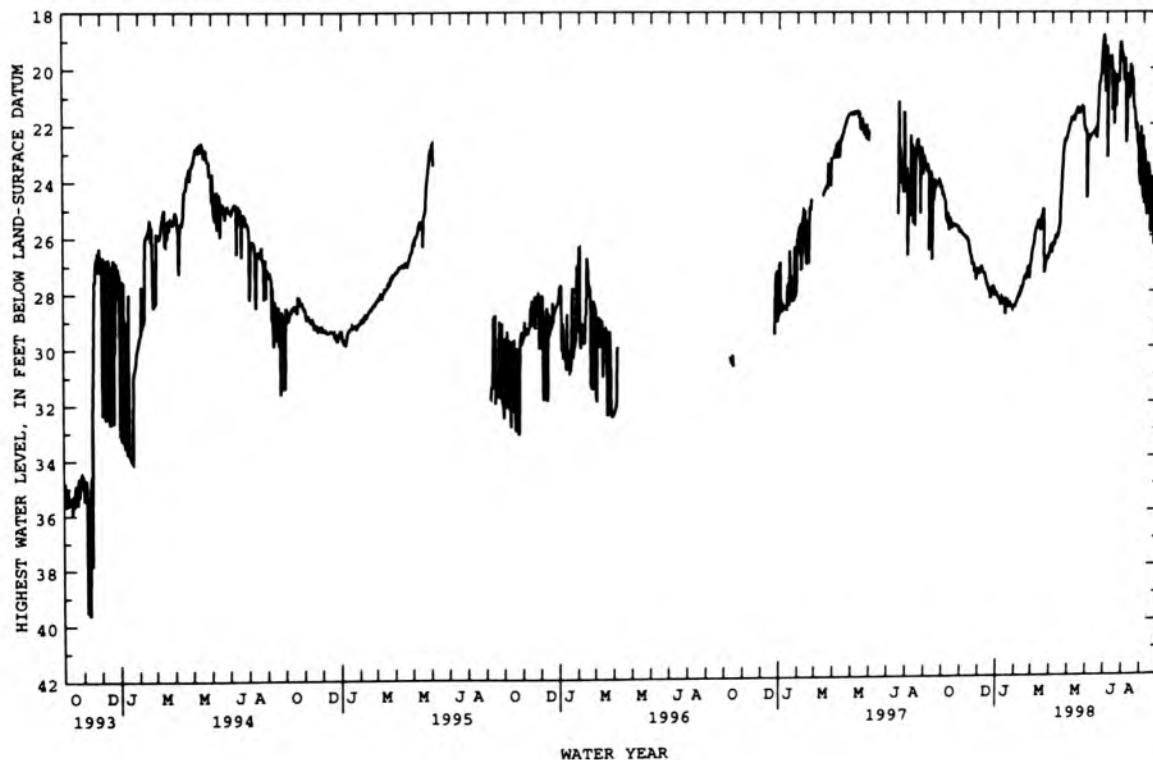
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	24.78	25.95	27.09	28.33	28.24	25.86	26.27	21.76	22.42	19.97	20.38	24.93
10	25.25	26.05	27.33	28.30	27.95	25.43	26.11	21.60	22.30	19.80	19.84	23.51
15	25.52	26.47	27.77	28.30	27.47	25.33	25.54	21.45	22.47	20.38	21.16	24.00
20	25.61	26.93	28.26	28.50	27.15	27.34	23.00	21.40	20.48	20.43	21.95	24.41
25	25.67	27.18	27.80	28.56	27.02	26.72	22.54	22.05	18.99	19.08	23.88	24.75
EOM	25.81	27.21	28.08	28.48	26.50	26.46	22.06	22.58	19.26	19.70	24.64	24.98

WTR YR 1998 HIGH 18.78 JUN 26

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	25.30	26.45	29.92	30.95	30.53	27.24	28.68	23.57	22.87	22.06	22.35	27.11
10	27.85	26.57	30.02	30.92	30.12	28.19	28.51	23.27	22.79	23.45	20.89	27.48
15	25.99	29.93	31.21	30.92	29.74	28.09	27.96	23.04	24.86	23.37	23.29	27.99
20	26.12	30.20	31.15	31.07	29.51	29.84	25.49	23.38	22.87	22.95	24.33	26.47
25	26.19	30.45	30.34	31.10	29.41	29.40	24.93	24.40	20.30	21.78	25.84	26.86
EOM	26.39	30.53	30.79	30.90	28.79	28.68	24.15	24.89	23.30	21.49	26.60	27.13

WTR YR 1998 LOW 31.24 DEC 19



## BARTHOLOMEW COUNTY

390317085523701. Local number, BA 10.

LOCATION.--Lat 39°03'17", long 85°52'08", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.16, T.17 N., R.6 E., Bartholomew County, Hydrologic Unit 05120206, 0.8 mi east of State Highway 11 and 1.0 mi southeast of Jonesville.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 6 in., depth 85 ft, cased to 80 ft, screened to 85 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 580 ft above sea level, from topographic map. Measuring point: Top of floor of shelter, 3.50 ft above land-surface datum.

REMARKS.--Hourly record indicates water level is affected by domestic pumpage. Not significant in monthly-annual report.

PERIOD OF RECORD.--October 1978 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 0.66 ft below land-surface datum, Nov. 17, 1993; lowest, 12.65 ft below land-surface datum, Oct. 29, Nov. 2, 1988.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

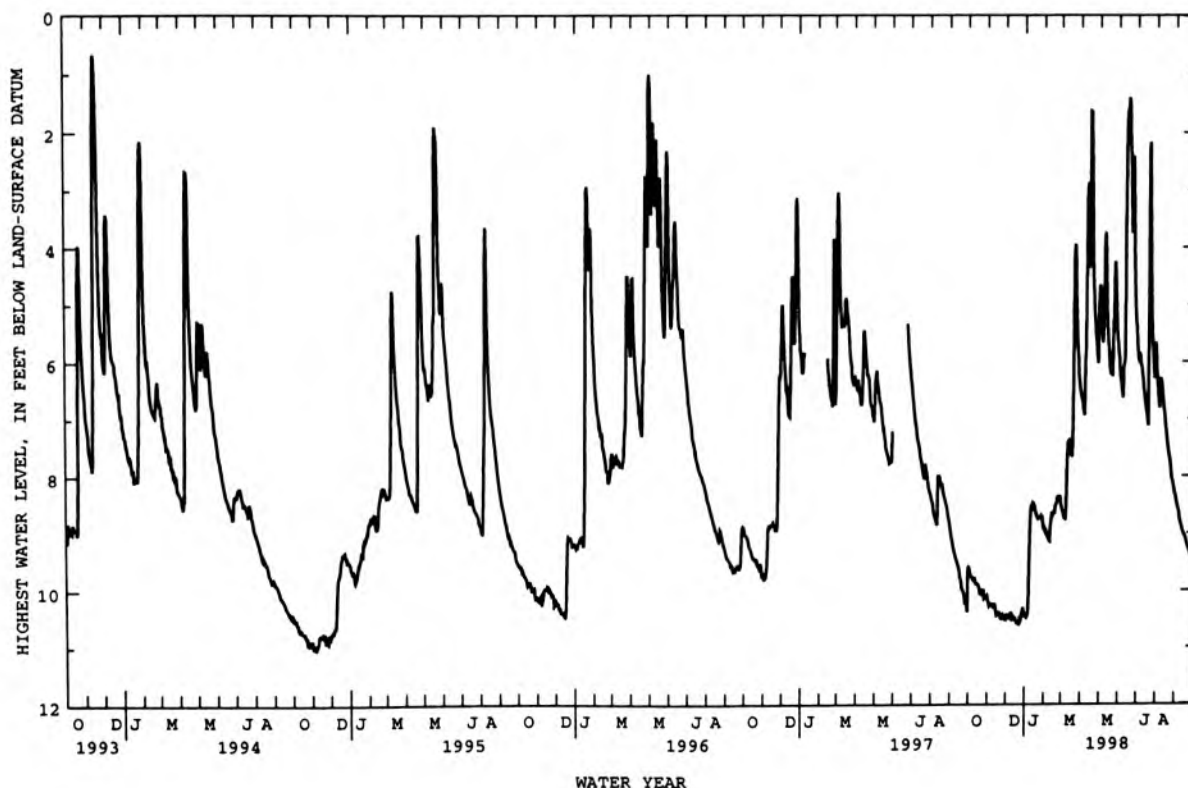
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	9.73	10.25	10.49	10.45	9.00	8.73	6.85	5.51	6.33	5.85	6.70	8.55
10	9.83	10.29	10.38	8.67	9.14	7.80	4.24	3.74	6.05	6.27	6.40	8.82
15	9.89	10.36	10.48	8.48	8.68	7.57	4.36	5.66	1.60	6.78	6.98	9.01
20	10.03	10.43	10.58	8.71	8.49	6.26	4.15	6.04	2.39	2.30	7.48	9.16
25	10.10	10.43	10.57	8.73	8.40	5.21	5.53	4.32	3.23	5.49	7.87	9.33
EOM	10.12	10.43	10.47	8.90	8.49	6.50	4.99	5.66	5.37	5.69	8.30	9.43

WTR YR 1998 HIGH 1.40 JUN 17

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	9.81	10.35	10.55	10.50	9.13	8.81	6.92	5.70	6.50	6.02	6.86	8.71
10	9.94	10.44	10.67	9.09	9.27	8.26	5.80	4.06	6.22	6.43	6.56	8.91
15	10.03	10.55	10.64	8.59	8.78	7.69	5.12	5.81	1.89	6.88	7.12	9.13
20	10.07	10.50	10.67	8.75	8.56	7.40	4.66	6.28	3.14	7.28	7.64	9.28
25	10.19	10.52	10.64	8.87	8.59	5.58	5.71	5.26	4.15	5.74	8.02	9.39
EOM	10.24	10.67	10.59	9.00	8.63	6.61	6.03	5.83	5.62	5.98	8.37	9.55

WTR YR 1998 LOW 10.71 DEC 22



## BARTHOLOMEW COUNTY

390658085572201. Local number, BA 13.

LOCATION.--Lat 39°06'58", long 85°57'22", in SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.22, T.8 N., R.5 E., Bartholomew County, Hydrologic Unit 05120206, at the end of farm access road, 0.3 mi north of County Road 600 South at its intersection with Interstate Highway 65.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 6 in., depth 55.6 ft, cased to 50.6 ft, screened to 55.6 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 633.91 ft above sea level. Measuring point: Top of floor of shelter, 3.40 ft above land-surface datum.

PERIOD OF RECORD.--July 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 19.26 ft below land-surface datum, Apr. 30, 1997; lowest, 24.17 ft below land-surface datum, Feb. 16, 1989.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

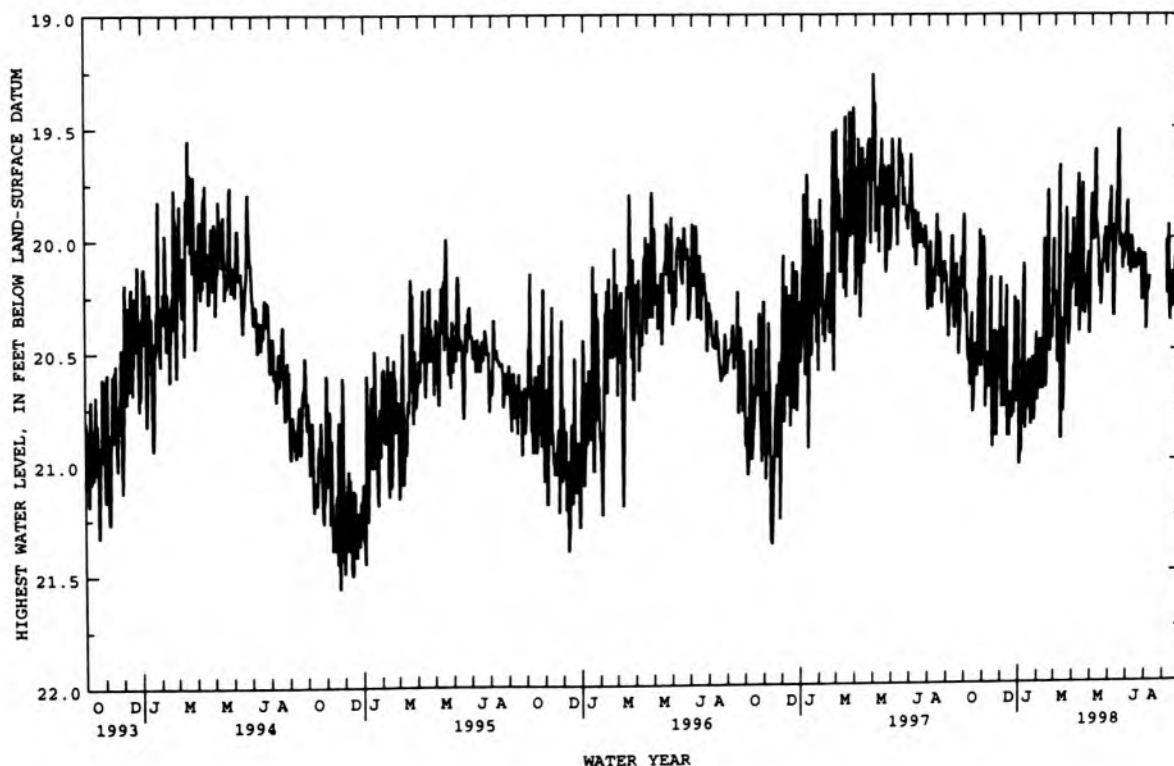
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	20.42	20.76	20.46	20.77	20.45	20.52	20.31	20.01	19.94	20.16	20.22	20.25
10	20.66	20.54	20.21	20.76	20.51	20.48	19.98	19.93	20.07	20.09	---	20.37
15	20.78	20.52	20.89	20.60	20.64	20.78	19.85	20.15	19.51	20.14	---	20.19
20	20.49	20.57	20.78	20.84	20.33	19.86	20.34	20.10	20.00	20.06	---	20.08
25	20.31	20.63	20.35	20.82	20.45	20.43	20.10	20.07	20.06	20.28	---	20.27
BOM	20.21	20.17	20.66	20.73	20.23	19.91	19.92	19.84	19.83	20.19	---	20.16

WTR YR 1998 HIGH 19.51 JUN 15

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	20.53	20.86	20.69	20.96	20.57	20.64	20.45	20.10	20.21	20.24	20.29	20.36
10	20.81	20.66	20.59	20.98	20.75	20.93	20.42	20.01	20.16	20.18	---	20.47
15	20.85	20.73	20.98	20.70	20.88	20.90	20.17	20.28	19.72	20.19	---	20.34
20	20.64	20.73	21.02	20.92	20.51	20.09	20.44	20.23	20.06	20.19	---	20.17
25	20.50	21.00	20.74	20.91	20.65	20.66	20.26	20.17	20.16	20.33	---	20.35
BOM	20.46	20.45	21.28	20.85	20.30	20.09	20.32	20.02	19.95	20.41	---	20.26

WTR YR 1998 LOW 21.28 DEC 31





## BENTON COUNTY

402851087213501. Local number, BE 4.

LOCATION.--Lat 40°28'51", long 87°21'35", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.31, T.24 N., R.8 W., Benton County, Hydrologic Unit 05120108, on north side of county road, 3.6 mi southeast of Boswell.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 310 ft, cased to 300 ft, screened to 305 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 710 ft above sea level, from topographic map. Measuring point: Top of floor of shelter, 2.19 ft above land-surface datum.

PERIOD OF RECORD.--November 1978 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 9.57 ft below land-surface datum, May 4, 1993; lowest, 16.55 ft below land-surface datum, Dec. 4, 1988.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

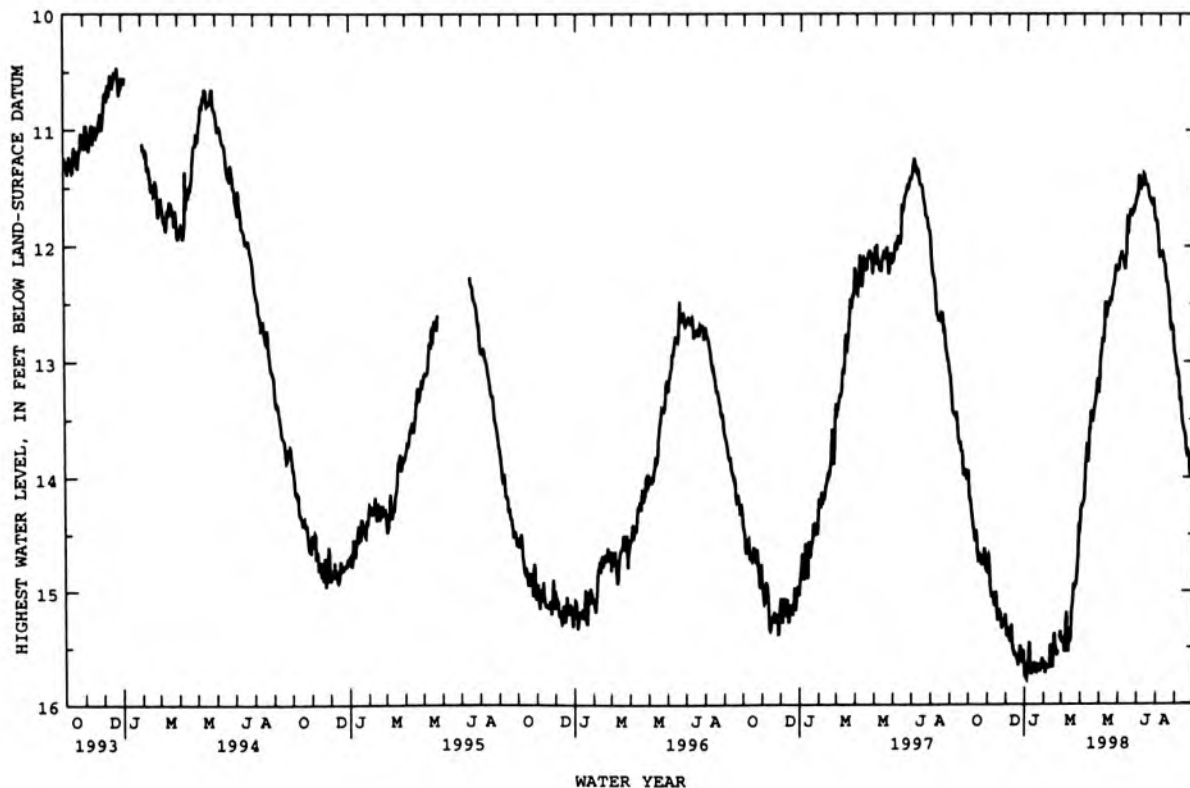
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	14.28	14.96	15.33	15.71	15.66	15.49	14.20	12.81	12.09	11.48	12.07	13.27
10	14.51	15.03	15.29	15.64	15.66	15.35	13.79	12.59	12.08	11.44	12.14	13.51
15	14.66	15.05	15.57	15.68	15.68	15.45	13.44	12.45	11.73	11.53	12.31	13.63
20	14.69	15.20	15.62	15.73	15.50	14.94	13.42	12.34	11.69	11.62	12.64	13.78
25	14.72	15.31	15.49	15.69	---	14.85	13.18	12.19	11.60	11.73	12.72	13.99
BOM	14.76	15.20	15.63	15.68	15.43	14.28	13.00	12.09	11.39	11.92	13.03	14.10

WTR YR 1998 HIGH 11.37 JUL 7

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	14.33	15.00	15.39	15.78	15.69	15.55	14.25	12.82	12.14	11.51	12.10	13.34
10	14.59	15.09	15.40	15.75	15.71	15.51	13.87	12.62	12.11	11.47	12.15	13.55
15	14.73	15.15	15.60	15.71	15.71	15.48	13.58	12.52	11.75	11.57	12.35	13.72
20	14.75	15.24	15.70	15.74	15.55	15.06	13.48	12.37	11.72	11.68	12.70	13.81
25	14.79	15.39	15.59	15.72	---	14.96	13.27	12.22	11.63	11.77	12.82	13.99
BOM	14.83	15.28	15.81	15.70	15.44	14.39	13.16	12.11	11.43	12.03	13.09	14.13

WTR YR 1998 LOW 15.85 JAN 14



## BOONE COUNTY

400532086183901. Local number, BO 17.

LOCATION.--Lat 40°05'32", long 86°18'39", in SW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.16, T.19 N., R.2 E., Boone County, Hydrologic Unit 05120201, 0.6 mi north along U.S. Highway 421 from the intersection of U.S. Highway 421 and County Road 300 North at Waugh on the west side of the highway at the residence of John Sheets.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 171.8 ft, cased to 166.8 ft, screened to 171.8 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 956.50 ft above sea level. Measuring point: Mark on top of casing, 3.50 ft above land-surface datum.

PERIOD OF RECORD.--July 1986 to current year.

REVISED RECORDS.--WDR IN-94-1: 1993.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 45.87 ft below land-surface datum, July 11-13, 1986; lowest, 53.23 ft below land-surface datum, Sept. 30, 1998.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

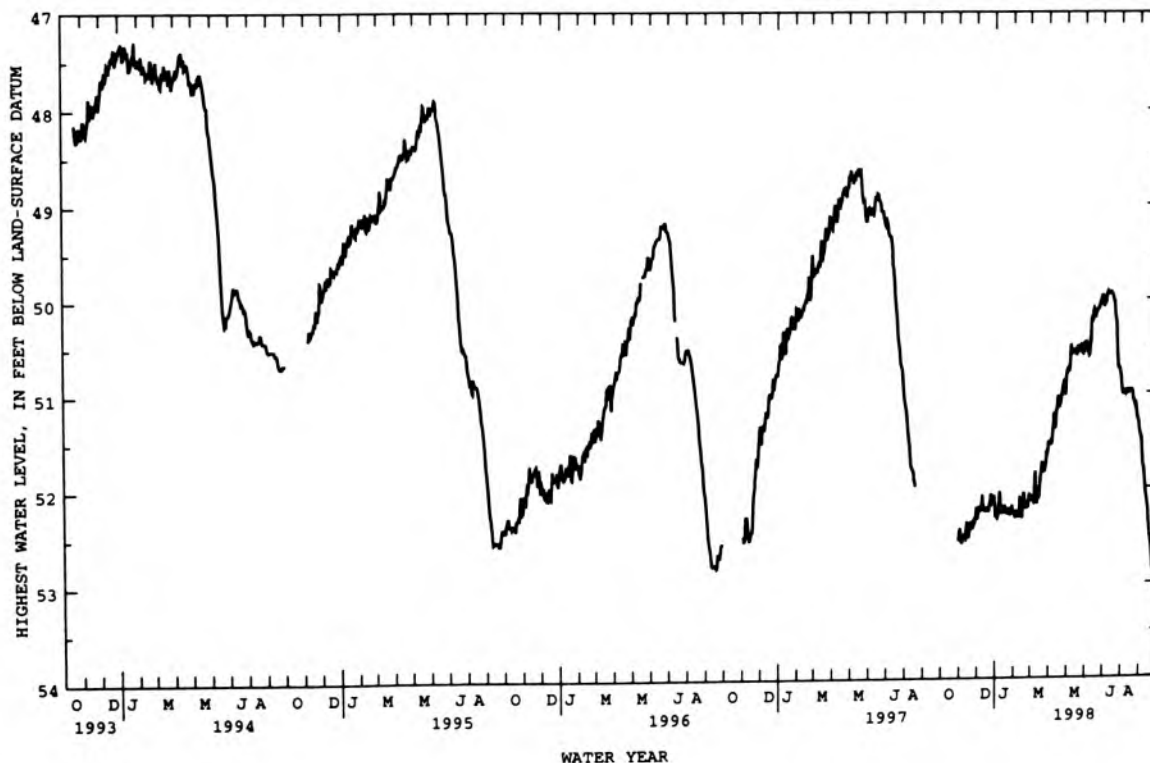
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	52.57	52.20	52.30	52.25	52.14	51.55	50.75	50.55	50.01	50.99	51.67
10	---	52.49	52.07	52.20	52.28	52.02	51.26	50.58	50.46	49.95	50.97	51.98
15	---	52.40	52.25	52.21	52.32	52.11	51.09	50.56	50.11	49.94	50.97	52.21
20	---	52.42	52.23	52.27	52.17	51.74	51.12	50.51	50.14	50.03	51.03	52.60
25	---	52.39	52.07	52.27	52.21	51.81	50.91	50.54	50.07	50.59	51.11	52.86
EOM	52.55	52.20	52.16	52.27	52.13	51.52	50.83	50.46	49.97	50.83	51.39	53.14

WTR YR 1998 HIGH 49.93 JUL 8

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	52.58	52.23	52.36	52.26	52.18	51.57	50.77	50.58	50.05	51.01	51.77
10	---	52.54	52.17	52.28	52.33	52.16	51.38	50.61	50.51	49.97	51.00	52.05
15	---	52.43	52.26	52.24	52.36	52.13	51.20	50.59	50.14	49.95	50.97	52.35
20	---	52.44	52.28	52.30	52.20	51.83	51.15	50.55	50.16	50.15	51.08	52.61
25	---	52.49	52.16	52.31	52.25	51.88	50.98	50.60	50.13	50.75	51.17	52.91
EOM	52.64	52.29	52.34	52.28	52.15	51.60	50.98	50.50	50.00	50.93	51.42	53.23

WTR YR 1998 LOW 53.23 SEP 30



## CASS COUNTY

403407086175701. Local number, CS 3.

LOCATION.--Lat 40°34'07", long 86°17'57", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.33, T.25 N., R.2 E., Cass County, Hydrologic Unit 05120105, at intersection of State Highway 18 and County Road 400 East, 2.5 mi east of Young America.

Owner: U.S. Geological Survey.

AQUIFER.--Dolomitic limestone of Devonian-Silurian age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 130 ft, cased to 78 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 781.74 ft above sea level. Measuring point: Top of floor of shelter, 2.65 ft above land-surface datum.

PERIOD OF RECORD.--August 1967 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 3.85 ft below land-surface datum, Feb. 2, 1968; lowest, 10.15 ft below land-surface datum, Jan. 1, 1998.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

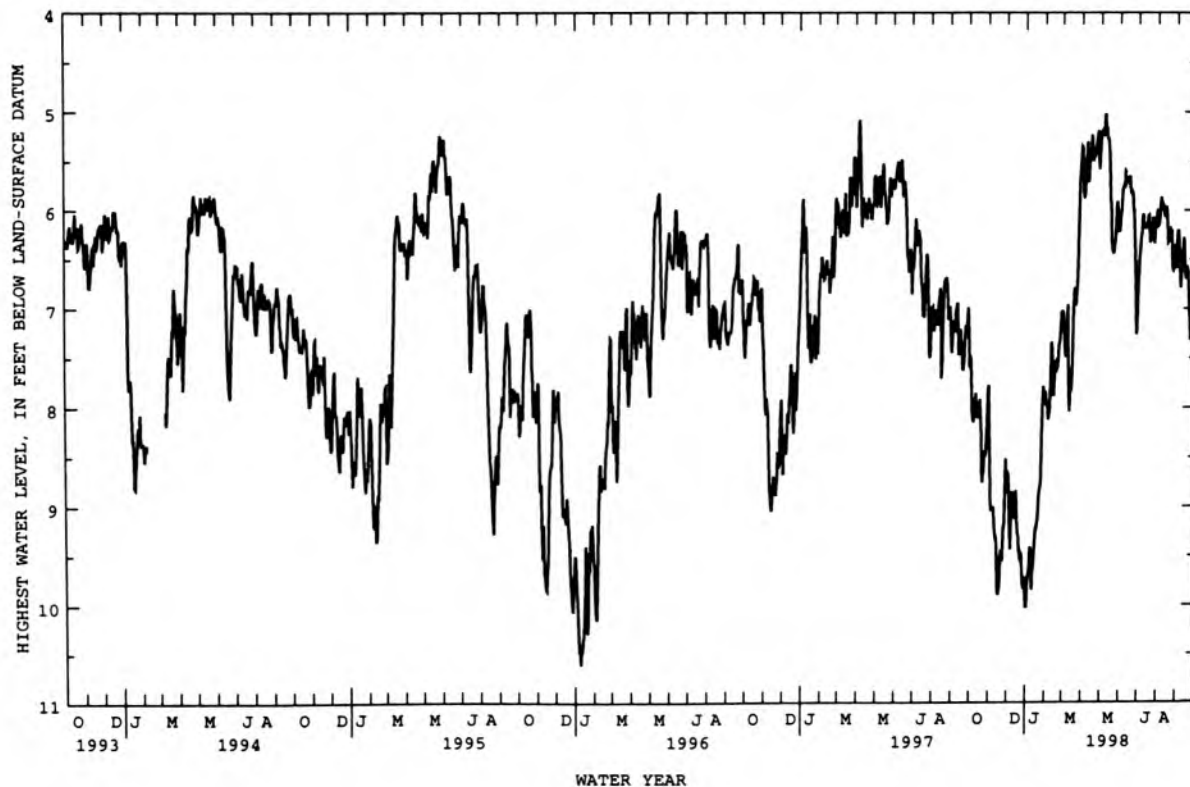
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	7.77	8.95	8.81	9.69	7.98	7.47	5.85	5.23	5.78	6.25	5.91	6.56
10	8.10	9.01	8.85	9.74	7.71	7.50	5.64	5.15	5.61	6.16	5.99	6.43
15	8.11	9.54	9.00	9.41	7.89	7.84	5.37	5.62	---	6.15	6.02	6.68
20	8.10	9.72	9.30	9.14	7.60	6.79	5.43	6.37	5.81	6.28	6.22	6.85
25	8.65	9.39	9.47	8.78	7.31	6.54	5.26	6.14	6.43	6.13	6.60	6.81
BOM	8.01	8.52	9.90	7.84	7.07	5.35	5.36	6.22	6.86	5.99	6.59	6.87

WTR YR 1998 HIGH 5.02 MAY 8

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	8.12	9.06	9.20	9.75	8.16	7.59	6.02	5.33	5.87	6.44	6.01	6.70
10	8.17	9.24	9.03	9.99	7.90	7.97	5.86	5.34	5.76	6.29	6.14	6.52
15	8.22	9.86	9.19	9.54	7.99	8.03	5.55	5.97	---	6.29	6.20	6.85
20	8.26	9.83	9.51	9.19	7.69	6.96	5.75	6.73	5.96	6.43	6.36	7.12
25	8.74	9.59	9.72	8.93	7.46	6.77	5.40	6.37	6.66	6.43	6.76	7.01
BOM	8.25	8.80	10.14	7.98	7.15	5.45	5.49	6.45	7.06	6.10	6.75	7.06

WTR YR 1998 LOW 10.15 JAN 1



392653087120501. Local number, CY 6.

Owner: U.S. Geological Survey.

AQUIFER.--Sandstone of the Mansfield Formation, Pennsylvanian Period.

INSTRUMENTATION.--Water-level recorder.

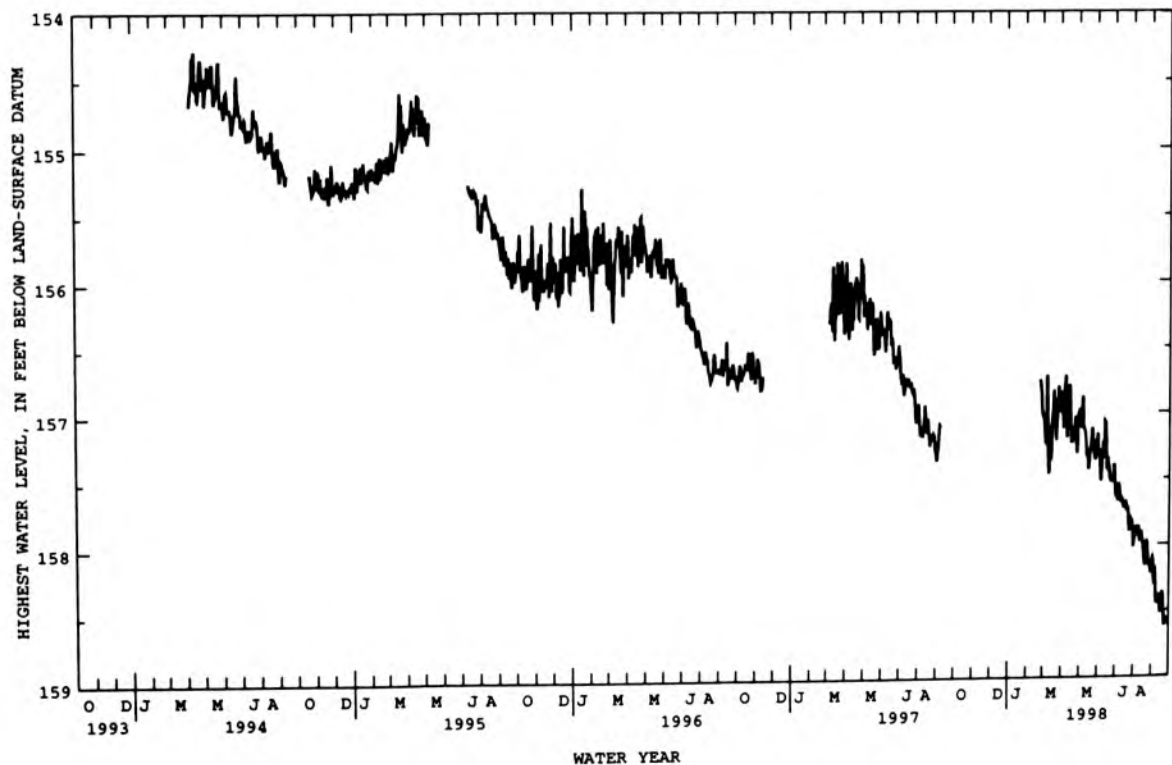
PERIOD OF RECORD.--September 1987 to current year.

REVISED RECORDS.--WDR IN94-1: 1993.

HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

WTR YR 1998 HIGH 156.72 MAR 9

LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

WTR YR 1998 LOW 158.75 SEP 23

## CLAY COUNTY

391124087134701. Local number, CY 7.

LOCATION.--Lat 39°11'24", long 87°13'47", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 30, T.9N., R.7W., Clay County, Hydrologic Unit 05120111, 300 ft east of State Highway 159 just south of Coalmont and about 3.6 mi northwest of Jasonville.

Owner: U.S. Geological Survey.

AQUIFER.--Sandstone of Pennsylvanian age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 121 ft, cased to 80 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 616.80 ft above sea level. Measuring point: Top of casing, 3.50 ft above land-surface datum.

PERIOD OF RECORD.--September 1988 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 25.59 ft below land-surface datum, Sept. 4, 5, 1988; lowest, 33.05 ft below land-surface datum, Dec. 26, 1988.

#### HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

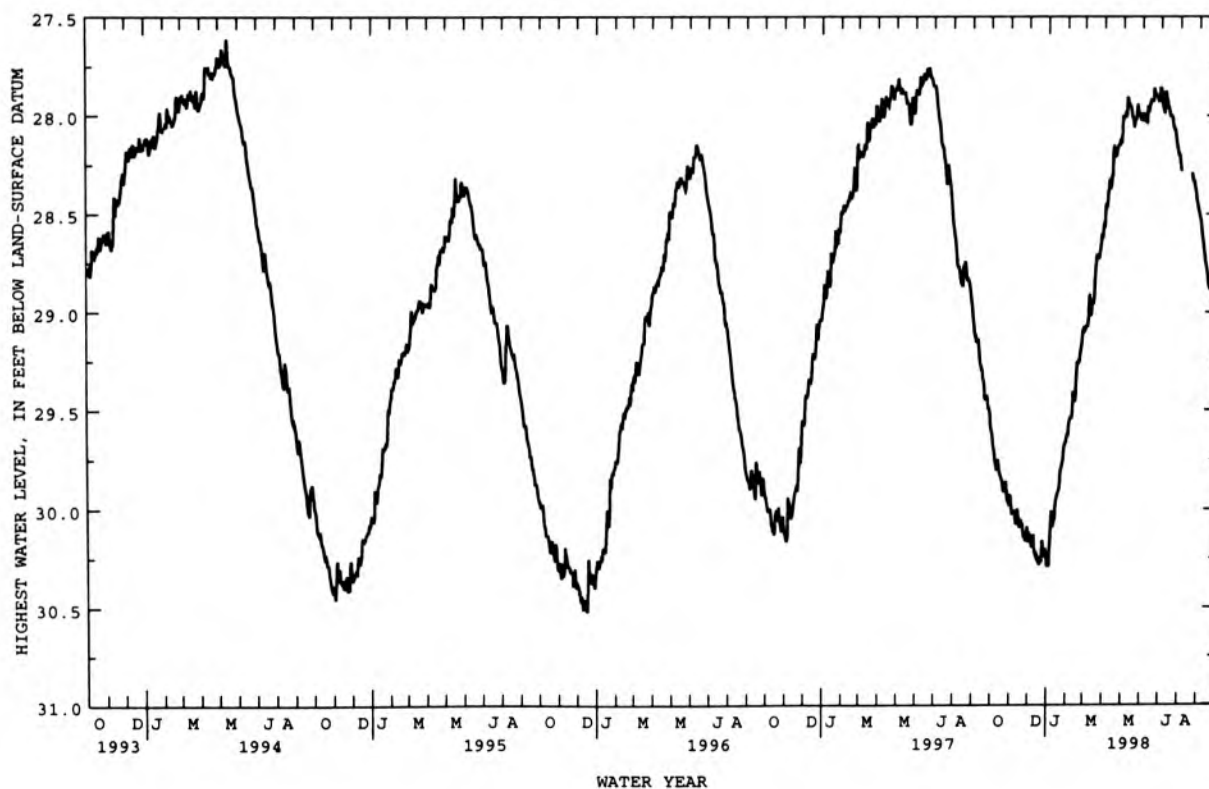
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	29.67	30.03	30.14	30.20	29.56	29.07	28.47	28.00	27.99	27.97	---	28.58
10	29.78	30.03	30.13	30.09	29.51	29.00	28.34	27.94	27.96	27.92	---	28.71
15	29.80	30.03	30.25	29.96	29.43	28.96	28.18	28.01	27.92	28.00	---	28.81
20	29.86	30.09	30.28	29.90	29.25	28.71	28.20	28.01	27.88	28.05	28.29	28.89
25	29.90	30.14	30.17	29.77	29.16	28.69	28.15	27.98	27.91	28.11	28.35	28.97
BOM	29.96	30.09	30.25	29.66	29.10	28.55	28.00	27.99	27.86	28.20	28.48	29.04

WTR YR 1998 HIGH 27.86 JUN 19

#### LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	29.69	30.04	30.17	30.29	29.58	29.09	28.47	28.01	28.03	27.99	---	28.61
10	29.81	30.06	30.19	30.12	29.55	29.04	28.37	27.95	27.99	27.94	---	28.74
15	29.83	30.07	30.27	29.99	29.46	28.97	28.30	28.01	27.92	28.00	---	28.85
20	29.89	30.10	30.31	29.91	29.27	28.75	28.21	28.03	27.90	28.07	28.31	28.89
25	29.93	30.17	30.23	29.81	29.20	28.73	28.15	28.00	27.92	28.14	28.37	28.98
BOM	29.99	30.15	30.32	29.69	29.13	28.61	28.10	28.02	27.87	28.23	28.49	29.06

WTR YR 1998 LOW 30.32 DEC 31





## DECATUR COUNTY

392022085371801. Local number, DC 2.

LOCATION.--Lat 39°20'22", long 85°37'18", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.3, T.10 N., R.8 E., Decatur County, Hydrologic Unit 05120206, at the intersection of County Roads 50 North and 750 West and 7.5 mi west of Greensburg.

Owner: U.S. Geological Survey.

AQUIFER.--Limestone of Devonian age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 49 ft, cased to 12.5 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 840.8 ft above sea level. Measuring point: Top of floor of shelter, 3.02 ft above land-surface datum.

PERIOD OF RECORD.--September 1966 to October 1971, September 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 0.12 ft below land-surface datum, Dec. 30, 1991; lowest, 9.25 ft below land-surface datum, Feb. 9-11, 1977.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

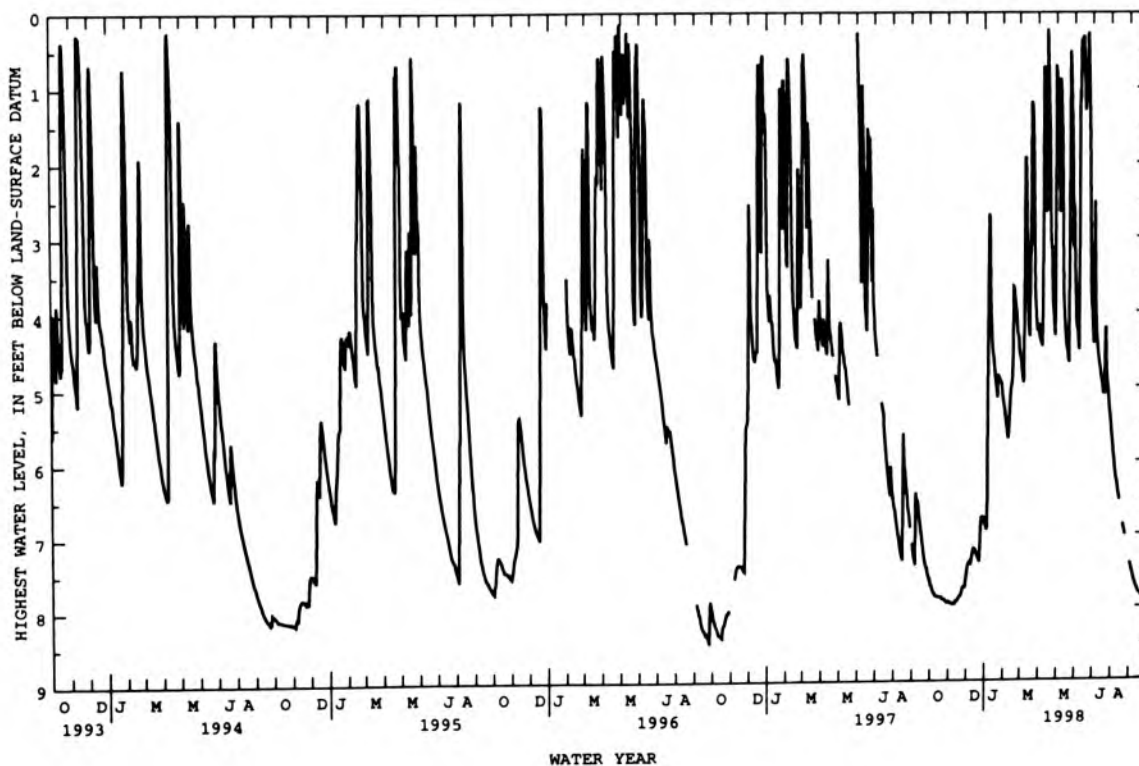
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	7.75	7.93	7.39	6.88	5.43	4.84	4.40	1.85	4.19	3.47	5.94	7.50
10	7.83	7.95	7.32	3.55	5.60	1.94	.74	1.59	1.17	4.54	6.27	7.66
15	7.85	7.91	7.20	4.55	4.96	4.15	1.57	4.13	.31	4.88	6.54	7.76
20	7.85	7.85	7.31	5.00	3.81	1.19	1.96	4.55	1.18	4.96	---	7.82
25	7.89	7.73	6.89	4.87	4.28	3.09	3.88	.71	1.35	4.87	7.02	7.87
EOM	7.93	7.64	6.79	5.13	4.50	4.19	.70	2.70	3.97	5.44	---	7.88

WTR YR 1998 HIGH .22 APR 16

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	7.78	7.96	7.42	6.99	5.51	4.90	4.42	2.67	4.35	3.99	5.98	7.53
10	7.84	7.96	7.38	4.03	5.70	2.38	1.18	2.21	1.64	4.62	6.32	7.68
15	7.85	7.93	7.23	4.65	5.01	4.27	3.77	4.27	.67	4.96	6.59	7.79
20	7.89	7.86	7.34	5.07	3.88	3.09	2.88	4.64	1.62	5.25	---	7.83
25	7.90	7.76	7.14	4.89	4.33	3.67	3.99	1.11	1.88	4.99	7.05	7.88
EOM	7.93	7.72	6.84	5.19	4.56	4.41	4.37	3.38	4.19	5.56	---	7.89

WTR YR 1998 LOW 7.96 NOV 5



## DELAWARE COUNTY

400541085213701. Local number, DW 4.

LOCATION.--Lat 40°05'36", long 85°21'38", in NW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.14, T.19 N., R.10 E., Delaware County, Hydrologic Unit 05120201, on property owned by Monroe Township Conservation Club, and 8.0 mi south of Muncie.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 91 ft, cased to 89 ft, screened to 91 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 1,005 ft above sea level, from topographic map. Measuring point: Top of floor of shelter, 2.88 ft above land-surface datum.

PERIOD OF RECORD.--October 1966 to October 1971, October 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 42.21 ft below land-surface datum, Dec. 30, 1990; lowest, 49.50 ft below land-surface datum, Oct. 13, 14, 1966.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

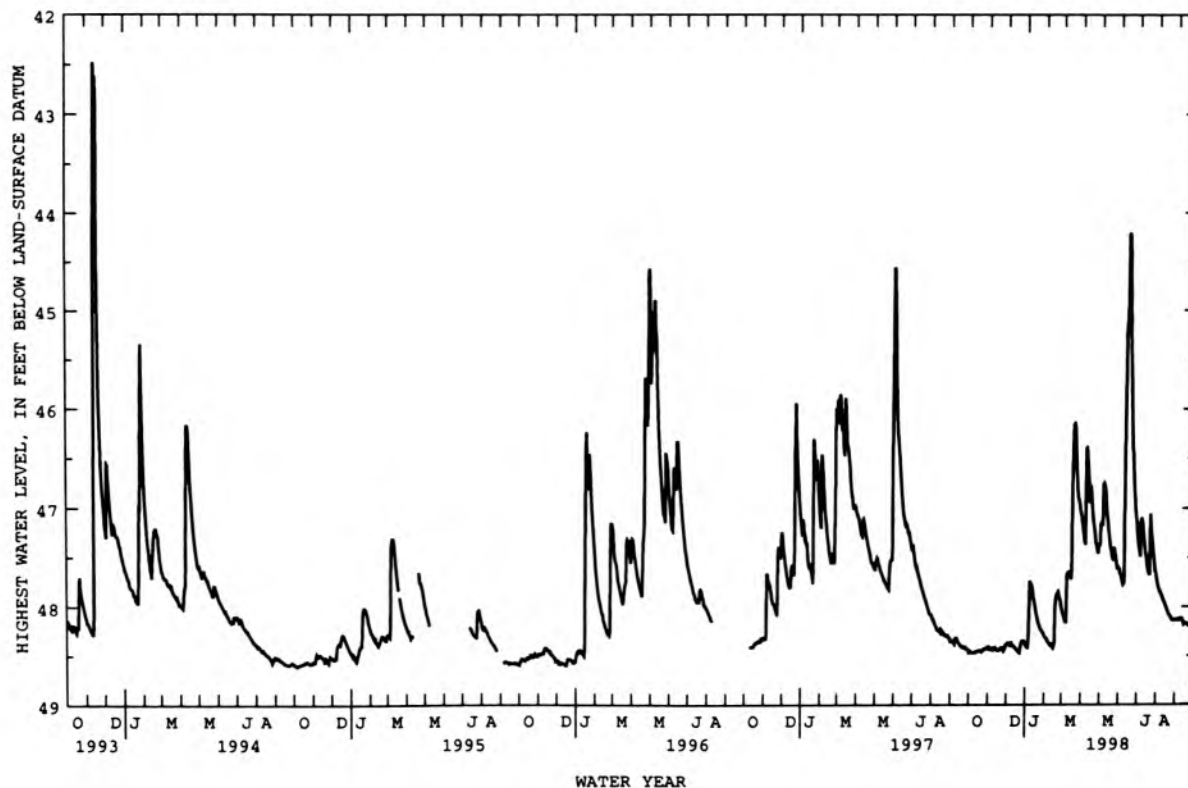
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	48.47	48.44	48.37	48.42	48.33	48.13	47.24	47.16	47.69	47.45	47.82	48.14
10	48.47	48.43	48.38	47.78	48.39	47.66	46.38	46.80	47.76	47.17	47.88	48.12
15	48.46	48.43	48.42	47.93	48.42	47.69	46.95	47.20	44.21	47.48	47.96	48.18
20	48.45	48.44	48.45	48.11	47.88	46.16	47.06	47.44	45.63	47.65	48.05	48.18
25	48.45	48.42	48.38	48.22	47.90	46.65	47.35	47.41	46.66	47.31	48.11	48.18
EOM	48.43	48.39	48.37	48.29	48.00	47.03	47.38	47.60	47.13	47.65	48.14	48.21

WTR YR 1998 HIGH 44.21 JUN 15

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	48.47	48.45	48.37	48.44	48.35	48.15	47.28	47.18	47.72	47.49	47.83	48.16
10	48.47	48.44	48.41	47.78	48.40	47.67	46.46	46.88	47.78	47.26	47.90	48.13
15	48.47	48.44	48.43	47.97	48.43	47.72	47.01	47.26	45.11	47.52	47.99	48.19
20	48.46	48.45	48.46	48.15	47.93	46.39	47.13	47.48	45.92	47.68	48.07	48.18
25	48.46	48.44	48.41	48.24	47.93	46.77	47.38	47.45	46.78	47.40	48.13	48.19
EOM	48.43	48.43	48.40	48.30	48.03	47.07	47.48	47.65	47.23	47.69	48.14	48.21

WTR YR 1998 LOW 48.47 OCT 3



## ELKHART COUNTY

413121085481301. Local number, EH 4.

LOCATION.--Lat 41°31'21", long 85°48'13", in SW<sup>1</sup>/<sub>4</sub> SE<sup>1</sup>/<sub>4</sub> SW<sup>1</sup>/<sub>4</sub> sec.35, T.36 N., R.6 E., Elkhart County, Hydrologic Unit 04050001, at the southwest corner of Goshen Municipal Airport.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 6 in., depth 62 ft, cased to 58 ft, screened to 60 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 818 ft above sea level, from topographic map. Measuring point: Top of floor of shelter, 2.60 ft above land-surface datum.

PERIOD OF RECORD.--November 1966 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 10.60 ft below land-surface datum, Apr. 14, 1985; lowest, 16.18 ft below land-surface datum, Dec. 1-5, 1971.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

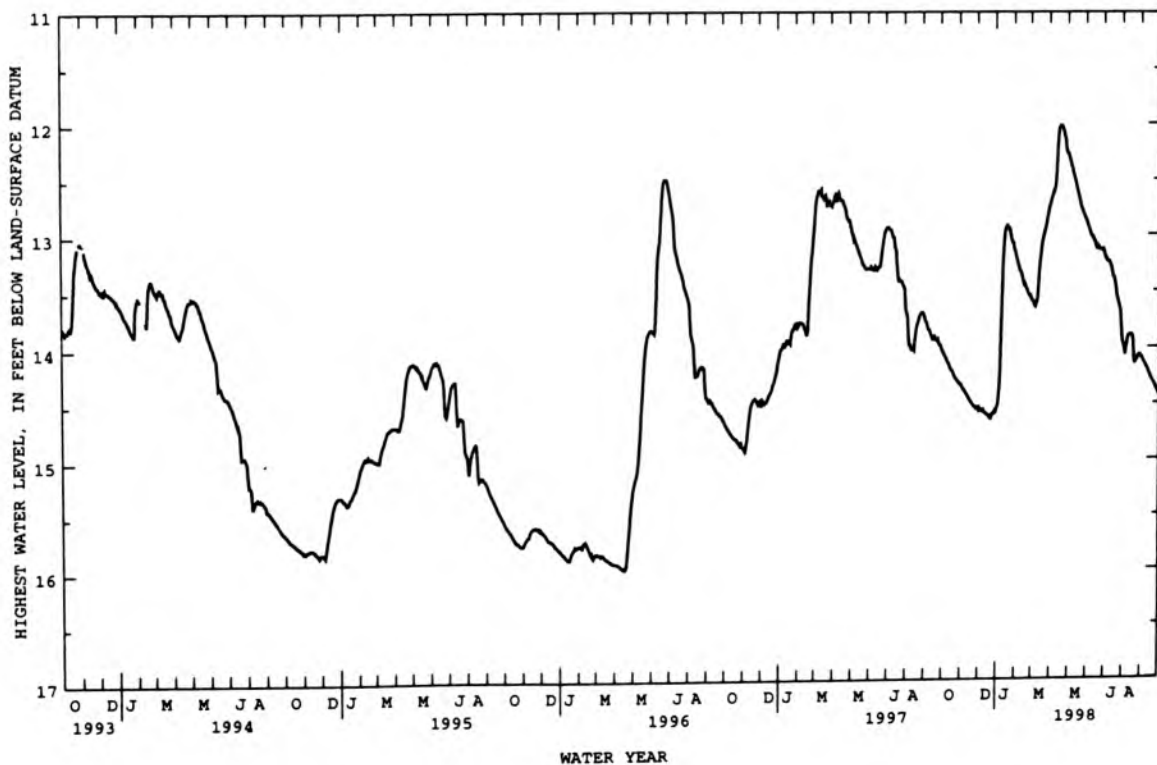
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	14.06	14.36	14.55	14.42	13.23	13.62	12.64	12.35	12.94	13.23	14.07	14.13
10	14.12	14.40	14.56	13.59	13.33	13.59	12.53	12.46	13.02	13.25	13.90	14.18
15	14.18	14.44	14.60	12.98	13.42	13.24	12.06	12.58	13.06	13.36	13.89	14.24
20	14.22	14.49	14.62	12.93	13.48	13.03	12.03	12.69	13.10	13.46	14.12	14.30
25	14.28	14.53	14.60	13.01	13.54	12.91	12.12	12.78	13.13	13.61	14.11	14.35
EOM	14.32	14.54	14.57	13.13	13.57	12.74	12.27	12.86	13.14	13.95	14.08	14.42

WTR YR 1998 HIGH 12.02 APR 18

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	14.07	14.37	14.56	14.48	13.25	13.63	12.66	12.38	12.96	13.24	14.08	14.14
10	14.13	14.41	14.58	13.80	13.35	13.62	12.57	12.48	13.04	13.27	13.92	14.19
15	14.19	14.46	14.60	13.04	13.44	13.29	12.13	12.59	13.09	13.38	13.89	14.25
20	14.24	14.50	14.63	12.94	13.49	13.06	12.04	12.71	13.12	13.51	14.19	14.32
25	14.30	14.53	14.61	13.04	13.55	12.95	12.14	12.80	13.14	13.64	14.13	14.36
EOM	14.33	14.55	14.58	13.15	13.58	12.76	12.28	12.88	13.16	13.96	14.09	14.43

WTR YR 1998 LOW 14.64 DEC 23



## ELKHART COUNTY

414419085544601. Local number, EH 5.

LOCATION.--Lat 41°44'19", long 85°54'46", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.23, T.38 N., R.5 E., Elkhart County, Hydrologic Unit 04050001, on the inlet to Heaton Lake, and 3.5 mi east of Elkhart.

Owner: State of Indiana.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 1.5 in., depth 13 ft, cased to 11 ft, screened to 13 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 770 ft above sea level, from topographic map. Measuring point: Top of floor of shelter, 2.10 ft above land-surface datum.

PERIOD OF RECORD.--May 1976 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 1.37 ft below land-surface datum, June 16, 1981; lowest, 5.65 ft below land-surface datum, Sept. 17-19, 1988.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

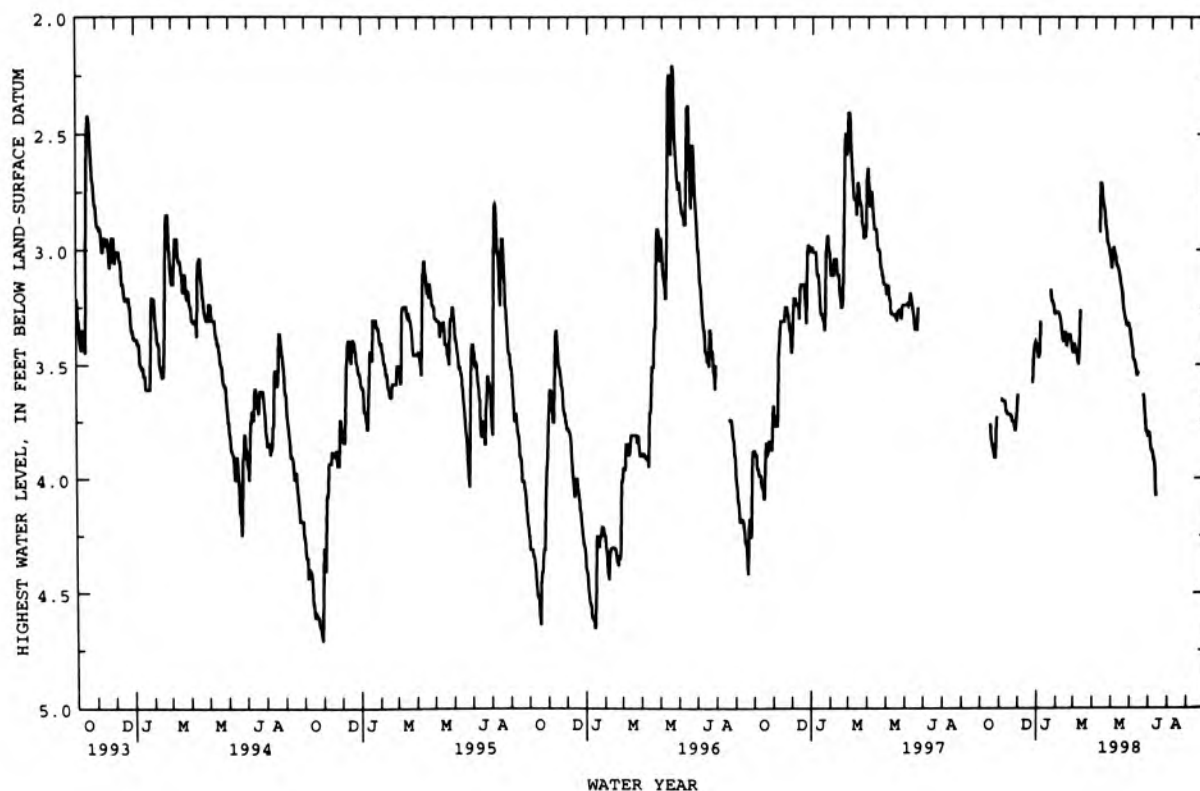
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	3.66	---	---	3.30	3.47	---	3.03	3.48	3.88	---	---
10	---	3.70	---	---	3.40	---	2.71	3.09	3.55	3.99	---	---
15	---	3.72	---	---	3.41	---	2.80	3.18	---	---	---	---
20	3.86	3.75	---	3.17	3.37	---	2.92	3.29	3.63	---	---	---
25	3.91	3.79	3.43	3.24	3.44	---	3.01	3.32	3.80	---	---	3.61
EOM	---	---	3.44	3.27	3.41	---	3.01	3.39	3.80	---	---	3.75

WTR YR 1998 HIGH 2.71 APR 10

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	3.66	---	---	3.32	3.49	---	3.06	3.49	3.89	---	---
10	---	3.71	---	---	3.41	---	2.92	3.11	3.56	4.05	---	---
15	---	3.72	---	---	3.42	---	2.81	3.19	---	---	---	---
20	3.88	3.75	---	3.20	3.37	---	2.96	3.30	3.65	---	---	---
25	3.92	3.79	3.48	3.26	3.45	---	3.03	3.32	3.82	---	---	3.62
EOM	---	---	3.47	3.28	3.42	---	3.07	3.42	3.81	---	---	3.77

WTR YR 1998 LOW 4.13 JUL 12



## ELKHART COUNTY

414351085540401. Local number, EH 6.

LOCATION.--Lat 41°43'51", long 85°54'04", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.24, T.38 N., R.5 E., Elkhart County, Hydrologic Unit 04050001, on the southeast shore of Heaton Lake, and 4.0 mi east of Elkhart.

Owner: State of Indiana.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 1.5 in., depth 22 ft, cased to 20 ft, screened to 22 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 770 ft above sea level, from topographic map. Measuring point: Top of floor of shelter, 2.50 ft above land-surface datum.

PERIOD OF RECORD.--May 1976 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 5.10 ft below land-surface datum, June 16-19, 1981; lowest, 10.68 ft below land-surface datum, Oct. 16, 17, 1988.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

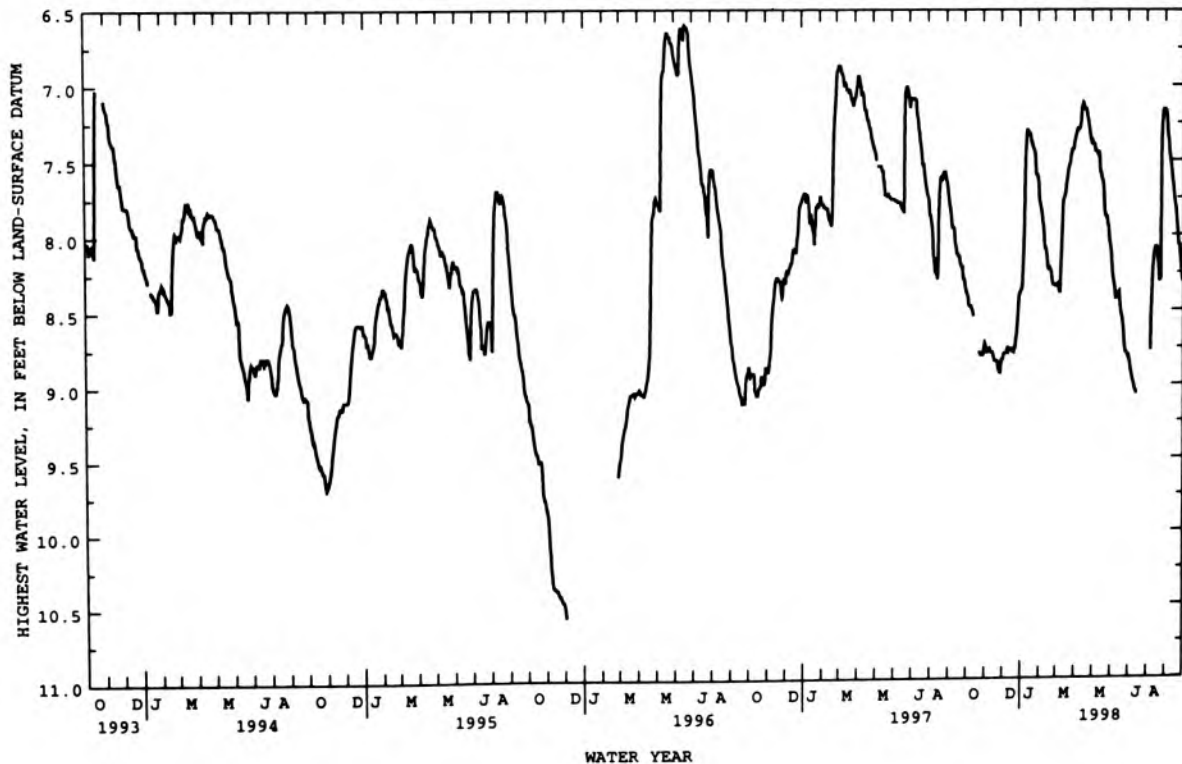
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	8.41	8.78	8.79	8.22	7.84	8.34	7.31	7.40	8.29	8.91	---	7.35
10	8.47	8.76	8.75	7.41	8.06	8.14	7.29	7.46	8.42	9.01	8.26	7.53
15	---	8.78	8.76	7.32	8.21	7.75	7.14	7.59	8.38	9.06	8.08	7.72
20	---	8.84	8.76	7.38	8.23	7.63	7.16	7.69	8.54	---	8.19	7.91
25	8.78	8.90	8.67	7.46	8.33	7.51	7.27	7.88	8.77	---	7.49	8.07
EOM	8.77	8.83	8.39	7.65	8.34	7.42	7.39	8.05	8.81	---	7.16	8.31

WTR YR 1998 HIGH 7.12 APR 16

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	8.46	8.79	8.80	8.32	7.86	8.36	7.33	7.46	8.31	8.94	---	7.40
10	8.52	8.77	8.78	7.50	8.09	8.22	7.30	7.48	8.46	9.03	8.39	7.57
15	---	8.80	8.78	7.33	8.23	7.78	7.15	7.63	8.44	9.07	8.10	7.76
20	---	8.85	8.78	7.42	8.24	7.65	7.20	7.80	8.58	---	8.25	7.97
25	8.84	8.92	8.69	7.53	8.35	7.53	7.32	7.90	8.80	---	8.30	8.14
EOM	8.80	8.87	8.42	7.74	8.36	7.43	7.40	8.09	8.83	---	7.20	8.34

WTR YR 1998 LOW 9.07 JUL 14





## ELKHART COUNTY

414514085505001. Local number, EH 7.

LOCATION.--Lat 41°45'14", long 85°50'50", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.9, T.38 N., R.6 E., Elkhart County, Hydrologic Unit 04050001, on north side of County Road 2, 200 ft east of County Road 21, and 2.7 mi northwest of Bristol.

Owner: U.S. Geological Survey.

AQUIFER.--Fine to medium sand of Pleistocene age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 61 ft, cased to 56 ft, screened to 61 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 781 ft above sea level, from topographic map. Measuring point: Top of floor of shelter, 3.70 ft above land-surface datum.

PERIOD OF RECORD.--June 1981 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 5.50 ft below land-surface datum, Feb. 24, 1985; lowest, 12.73 ft below land-surface datum, Aug. 5, 6, 1988.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

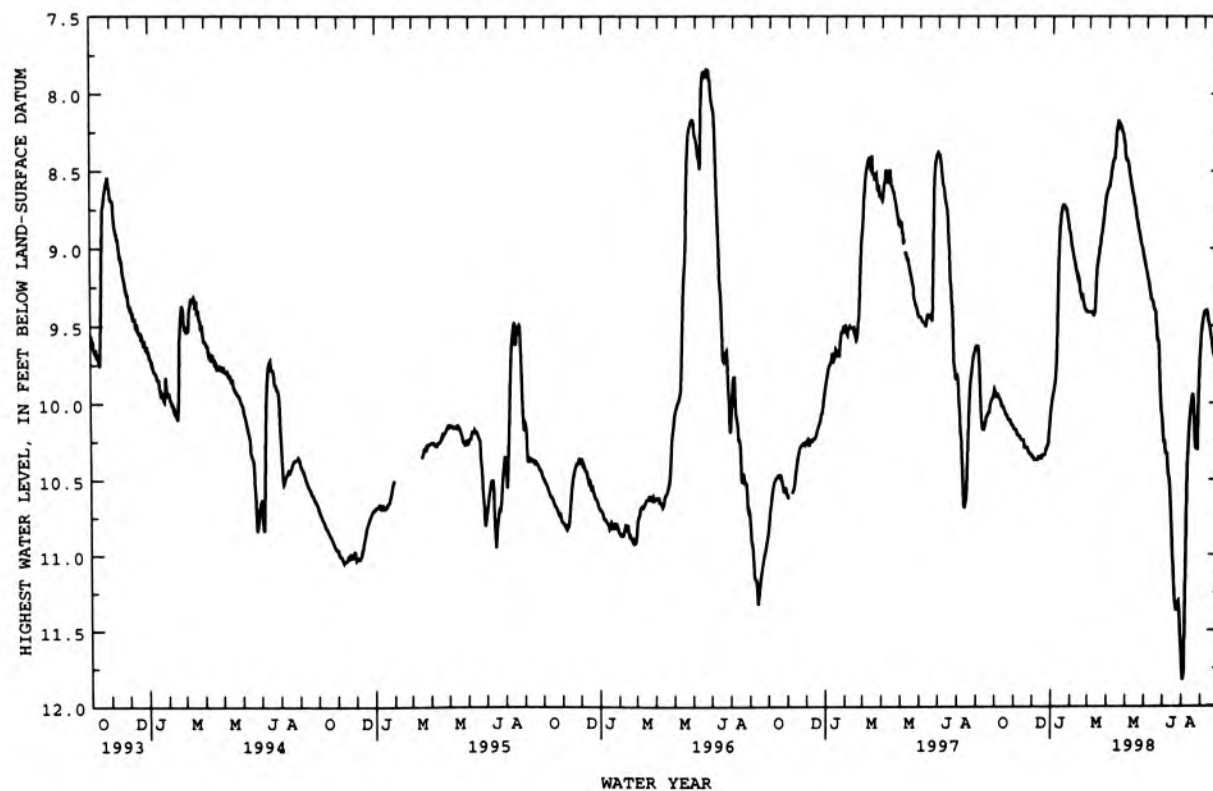
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	9.94	10.20	10.37	9.87	9.08	9.41	8.50	8.54	9.22	10.33	11.74	9.41
10	9.99	10.22	10.35	9.10	9.19	9.41	8.42	8.65	9.33	10.50	10.18	9.48
15	10.04	10.24	10.36	8.76	9.29	9.07	8.19	8.78	9.40	10.93	9.95	9.59
20	10.08	10.29	10.34	8.73	9.35	8.91	8.21	8.89	9.59	11.30	10.26	9.71
25	10.11	10.33	10.28	8.82	9.41	8.75	8.30	8.99	9.98	11.32	10.02	9.82
BOM	10.17	10.35	10.01	8.98	9.41	8.61	8.43	9.12	10.25	11.63	9.48	9.90

WTR YR 1998 HIGH 8.17 APR 16

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	9.96	10.21	10.37	9.90	9.10	9.42	8.54	8.56	9.25	10.33	11.81	9.42
10	10.02	10.23	10.37	9.35	9.20	9.44	8.42	8.67	9.34	10.56	10.27	9.50
15	10.05	10.24	10.36	8.78	9.31	9.10	8.24	8.81	9.41	11.01	9.98	9.63
20	10.10	10.30	10.34	8.74	9.38	8.96	8.23	8.91	9.61	11.33	10.29	9.74
25	10.13	10.33	10.28	8.84	9.41	8.80	8.32	9.01	10.05	11.33	10.30	9.83
BOM	10.17	10.35	10.04	9.00	9.41	8.63	8.43	9.14	10.25	11.71	9.52	9.93

WTR YR 1998 LOW 11.85 AUG 3



## ELKHART COUNTY

414419085595801. Local number, EH 9.

LOCATION.--Lat 41°44'19", long 85°59'58", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.19, T.38 N., R.5 E., Elkhart County, Hydrologic Unit 04050001, on the west side of Iris Avenue, about 6 mi northwest of Elkhart.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 6 in, depth 33.8 ft, cased to 28.8 ft with 5 ft stainless steel screen.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 785.27 ft above sea level. Measuring point: Top of casing, 2.80 ft above land-surface datum.

PERIOD OF RECORD.--July 1990 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 16.09 ft below land-surface datum, Jan. 16, 1991; lowest, 22.03 ft below land-surface datum, Aug. 3, 4, 1998.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

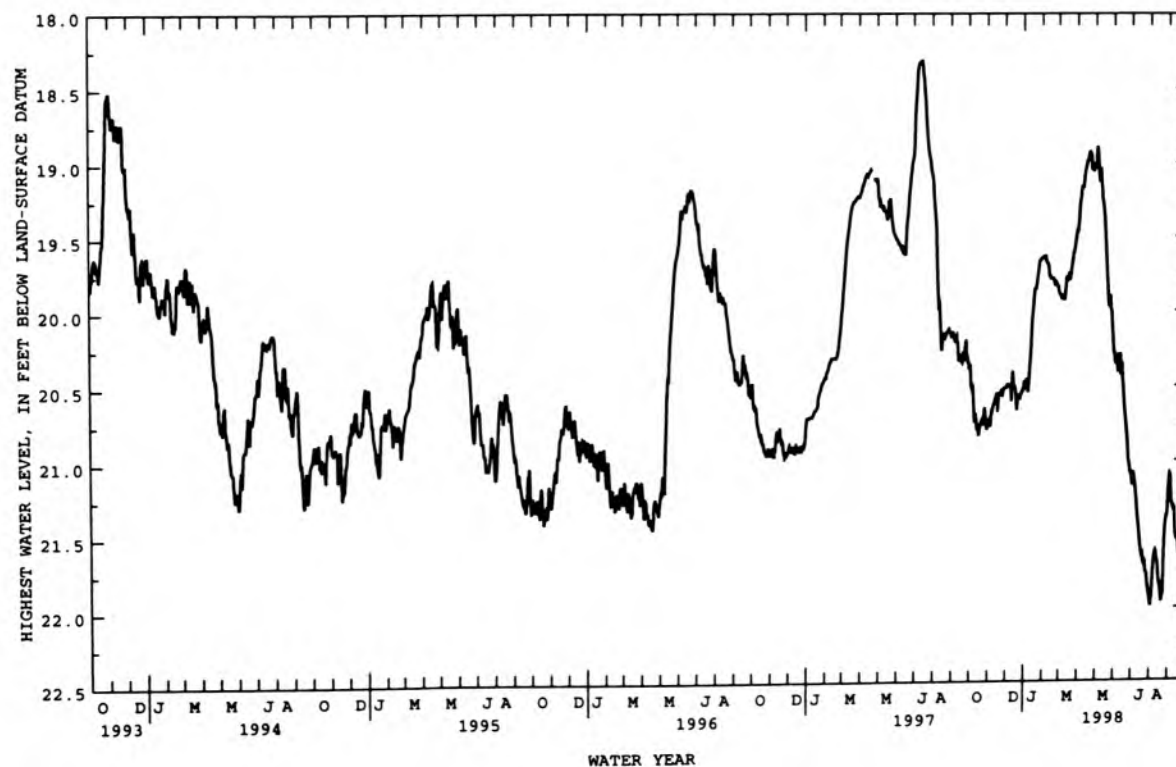
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	20.51	20.76	20.49	20.46	19.63	19.92	19.25	19.02	20.30	21.10	21.92	21.10
10	20.74	20.64	20.52	20.43	19.68	19.92	19.17	19.13	20.33	21.29	21.62	21.34
15	20.78	20.57	20.49	20.05	19.78	19.80	19.01	19.33	20.35	21.52	21.72	21.53
20	20.76	20.55	20.66	19.85	19.79	19.77	18.93	19.73	20.68	21.62	21.92	21.64
25	20.72	20.52	20.56	19.72	19.83	19.60	19.04	19.90	20.93	21.75	21.68	21.71
EOM	20.79	20.51	20.53	19.64	19.86	19.45	19.01	20.21	21.07	21.91	21.36	21.78

WTR YR 1998 HIGH 18.89 MAY 3

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	20.56	20.80	20.49	20.49	19.63	19.92	19.29	19.08	20.39	21.20	21.96	21.23
10	20.77	20.66	20.62	20.49	19.72	19.94	19.17	19.17	20.39	21.34	21.65	21.40
15	20.82	20.59	20.52	20.12	19.79	19.85	19.03	19.39	20.46	21.57	21.79	21.58
20	20.80	20.59	20.70	19.88	19.81	19.84	18.95	19.80	20.73	21.69	21.97	21.67
25	20.80	20.60	20.60	19.76	19.84	19.64	19.13	19.97	21.01	21.78	21.91	21.78
EOM	20.85	20.51	20.55	19.67	19.88	19.48	19.06	20.27	21.10	21.94	21.43	21.82

WTR YR 1998 LOW 22.03 AUG 3



## FOUNTAIN COUNTY

401200087121701. Local number, FO 3.

LOCATION.--Lat 40°12'00", long 87°12'17", in NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.10, T.20 N., R.7 W., Fountain County, Hydrologic Unit 05120108, on the southwest corner of the Union Church property on County Road 520 North, about 6.5 mi southeast of Attica.

Owner: U.S. Geological Survey.

AQUIFER.--Shale and sandstone of the Mississippian Period.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 102 ft, cased to 22 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 670.99 ft above sea level. Measuring point: Top of casing, 3.60 ft above land-surface datum.

PERIOD OF RECORD.--July 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 3.02 ft below land-surface datum, Mar. 11, 1990; lowest, 13.53 ft below land-surface datum, Dec. 21, 22, 25-27, 1988.

HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

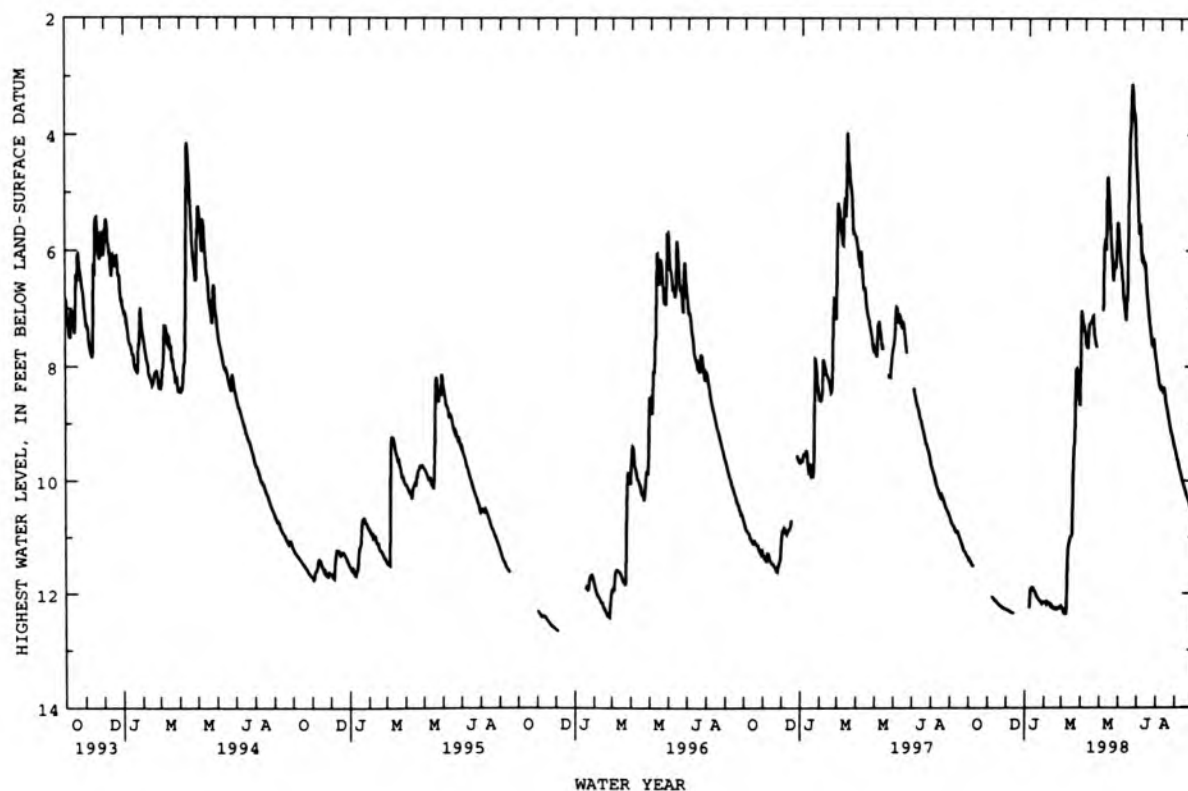
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	11.49	---	12.30	---	12.15	12.35	7.61	5.86	6.91	6.17	8.42	9.82
10	---	12.09	12.34	11.90	12.22	11.18	7.26	5.06	6.84	6.52	8.41	10.02
15	---	12.15	---	11.95	12.27	10.99	7.13	6.06	3.12	7.15	8.75	10.19
20	---	12.21	---	12.08	12.28	8.06	7.56	6.19	3.80	7.58	9.06	10.35
25	---	12.25	---	12.15	12.25	8.56	---	5.53	5.03	7.73	9.28	10.50
BOM	---	12.28	---	12.16	12.25	7.34	---	6.26	5.56	8.19	9.57	10.64

WTR YR 1998 HIGH 3.12 JUN 15

LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	11.50	---	12.32	---	12.16	12.36	7.64	5.99	7.04	6.30	8.45	9.85
10	---	12.11	12.34	11.92	12.22	11.40	7.37	5.27	6.93	6.68	8.47	10.05
15	---	12.17	---	11.97	12.28	11.02	7.21	6.18	3.36	7.24	8.82	10.24
20	---	12.21	---	12.09	12.29	9.34	7.62	6.32	4.11	7.66	9.13	10.38
25	---	12.25	---	12.16	12.26	8.59	---	5.64	5.27	7.83	9.35	10.52
BOM	---	12.29	---	12.17	12.26	7.46	---	6.46	5.79	8.28	9.63	10.68

WTR YR 1998 LOW 12.44 JAN 7



## FRANKLIN COUNTY

392416085004301. Local number, FR 5.

LOCATION.--Lat 39°24'16", long 85°00'43", in SE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.32, T.9 N., R.2 W., Franklin County, Hydrologic Unit 05080003, adjacent to property of Franklin County Conservation Club, 1.0 mi south of Brookville.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 6 in., depth 61 ft, cased to 57 ft, screened to 59 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 621.79 ft above sea level. Measuring point: Top of floor of shelter, 2.70 ft above land-surface datum.

PERIOD OF RECORD.--March 1968 to October 1971, September 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 11.95 ft below land-surface datum, May 24, 1968; lowest, 27.32 ft below land-surface datum, Feb. 1, 1977.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

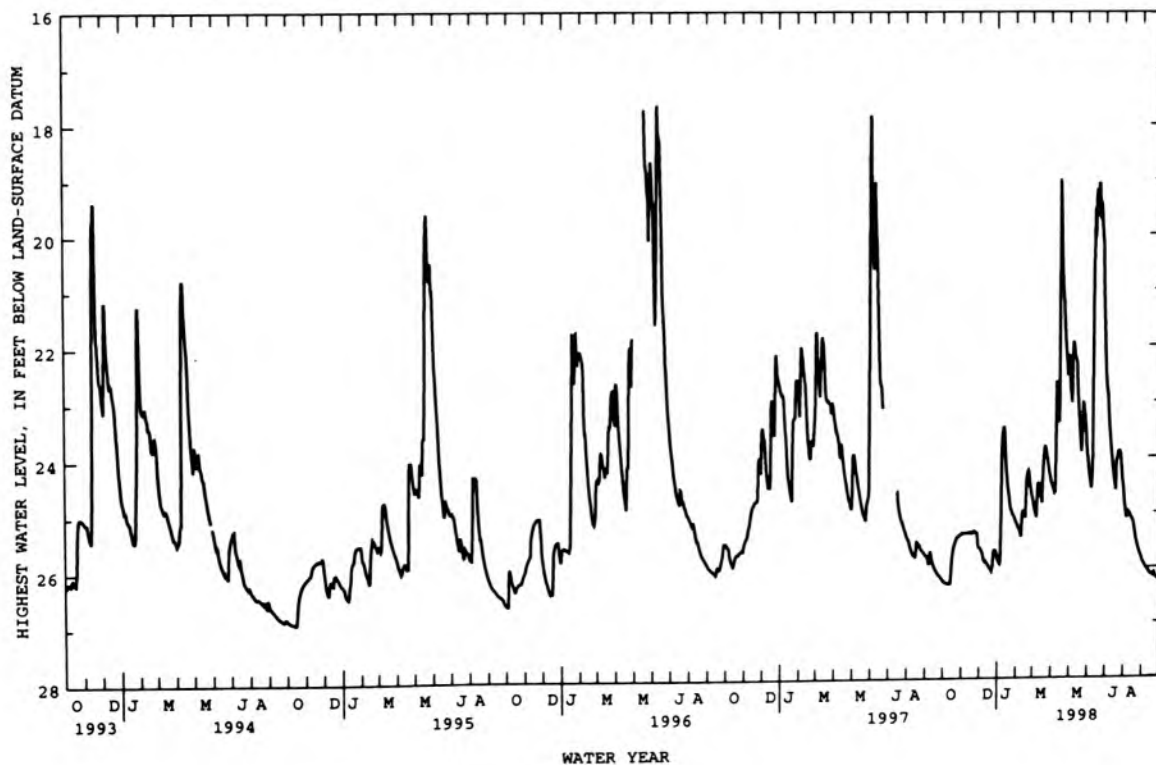
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	26.27	25.37	25.69	25.93	25.27	24.97	24.57	22.91	24.35	22.81	25.02	25.94
10	26.29	25.37	25.88	23.56	25.44	24.48	22.66	22.05	24.20	23.67	25.00	26.03
15	26.16	25.36	25.93	24.05	25.02	24.69	23.38	22.62	19.33	24.29	25.11	26.11
20	25.62	25.37	26.02	24.67	24.33	23.99	20.84	23.63	19.09	24.08	25.34	26.15
25	25.46	25.35	25.75	24.97	24.49	23.97	21.86	23.04	19.87	23.90	25.62	26.19
BOM	25.40	25.62	25.78	25.14	24.70	24.38	22.19	23.78	21.73	24.48	25.81	26.23

WTR YR 1998 HIGH 19.01 APR 16

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	26.28	25.38	25.71	25.94	25.29	25.02	24.61	23.03	24.43	22.95	25.10	25.97
10	26.29	25.37	25.91	23.70	25.45	24.64	23.95	22.22	24.40	23.81	25.02	26.05
15	26.29	25.37	25.94	24.24	25.06	24.76	23.53	22.86	20.78	24.37	25.14	26.13
20	25.67	25.37	26.04	24.75	24.43	24.19	21.05	23.77	19.45	24.69	25.40	26.16
25	25.48	25.35	25.97	25.01	24.57	24.03	22.05	23.21	20.03	23.92	25.65	26.19
BOM	25.41	25.66	25.83	25.17	24.75	24.45	22.75	23.95	22.10	24.57	25.85	26.24

WTR YR 1998 LOW 26.29 OCT 6



## GROUND-WATER DATA

## FULTON COUNTY

405829086175801. Local number, FU 7.

LOCATION.--Lat 40°58'29", long 86°17'58", in NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.10, T.29 N., R.2 E., Fulton County, Hydrologic Unit 05120106, 2.5 mi northwest of Fulton.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 102 ft, cased to 96 ft, screened to 102 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 776.45 ft above sea level. Measuring point: Top of floor of shelter, 2.50 ft above land-surface datum.

PERIOD OF RECORD.--August 1967 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 6.35 ft below land-surface datum, Apr. 23-27, 1973; lowest, 13.21 ft below land-surface datum, Oct. 13, 1988.

#### HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

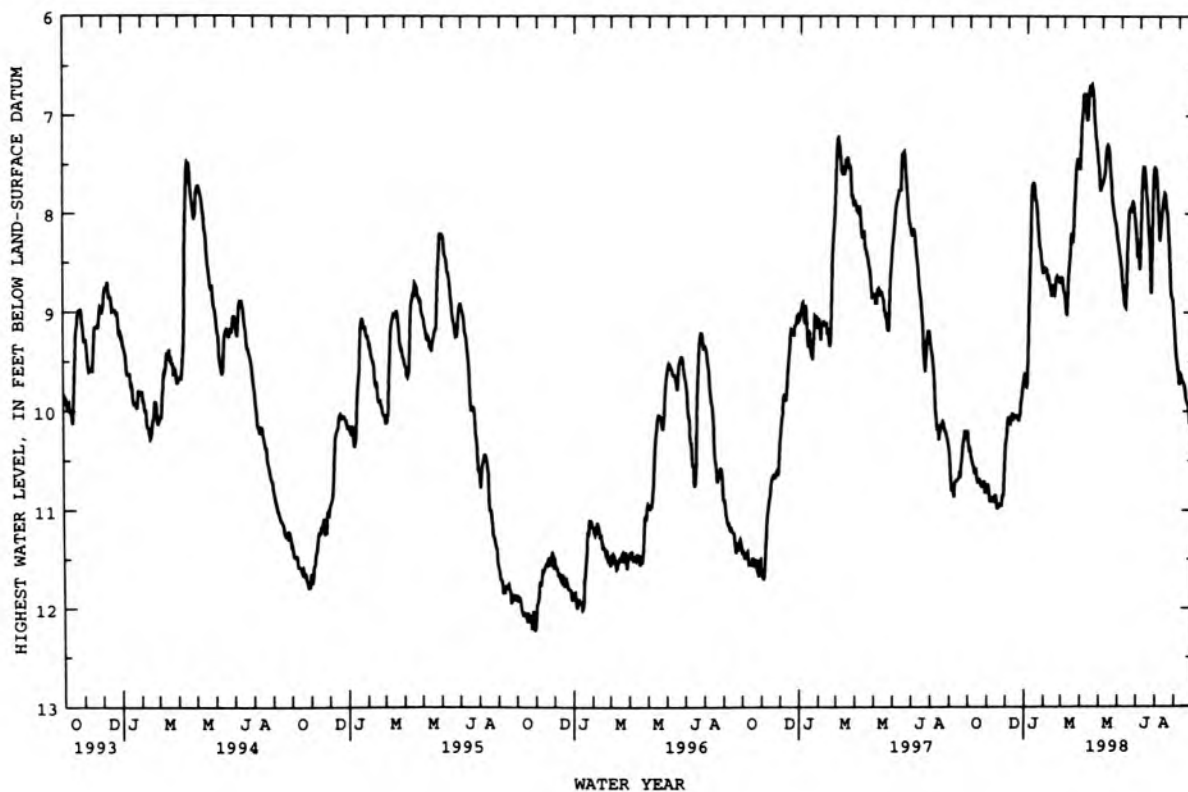
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	10.45	10.91	10.06	8.96	8.63	8.94	6.90	7.61	8.74	7.68	8.09	9.73
10	10.59	10.87	10.01	7.70	8.84	8.55	6.75	7.30	8.95	7.63	7.79	9.69
15	10.69	10.87	10.06	7.86	8.82	8.30	6.76	7.60	7.96	8.11	8.02	9.78
20	10.70	10.96	10.07	8.24	8.66	7.63	7.13	7.96	7.88	8.73	8.59	9.94
25	10.77	10.88	9.88	8.52	8.71	7.53	7.48	8.15	8.15	7.53	8.89	10.09
EOM	10.79	10.32	9.68	8.60	8.72	6.92	7.74	8.43	8.41	7.96	9.43	10.15

WTR YR 1998 HIGH 6.69 APR 14

#### LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	10.47	10.92	10.08	9.35	8.68	9.01	6.97	7.65	8.81	7.92	8.18	9.75
10	10.64	10.91	10.09	7.73	8.85	8.64	6.85	7.32	9.02	7.72	7.82	9.71
15	10.72	10.93	10.08	7.91	8.84	8.32	6.78	7.66	7.99	8.19	8.12	9.85
20	10.75	10.98	10.11	8.33	8.69	7.82	7.22	8.01	7.90	8.82	8.73	9.97
25	10.84	10.97	9.90	8.57	8.73	7.55	7.53	8.21	8.21	7.54	8.98	10.10
EOM	10.82	10.46	9.79	8.61	8.76	7.01	7.78	8.49	8.47	8.09	9.49	10.17

WTR YR 1998 LOW 11.00 NOV 17





## GRANT COUNTY

402322085481901. Local number, GT 8.

LOCATION.--Lat 40°23'22", long 85°48'19", in NW<sup>1</sup>/<sub>4</sub>, SW<sup>1</sup>/<sub>4</sub>, NW<sup>1</sup>/<sub>4</sub> sec.1, T.22 N., R.6 E., Grant County, Hydrologic Unit 05120107, located on County Road 700 West right-of-way, and 1.0 mi northwest of Rigdon.

Owner: U.S. Geological Survey.

AQUIFER.--Limestone of Silurian age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 35 ft, cased to 20 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 880 ft above sea level, from topographic map. Measuring point: Top of floor of shelter, 3.10 ft above land-surface datum.

PERIOD OF RECORD.--October 1966 to October 1971, July 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 1.16 ft below land-surface datum, Mar. 21, 1984; lowest, 10.66 ft below land-surface datum, Oct. 29, 1966.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

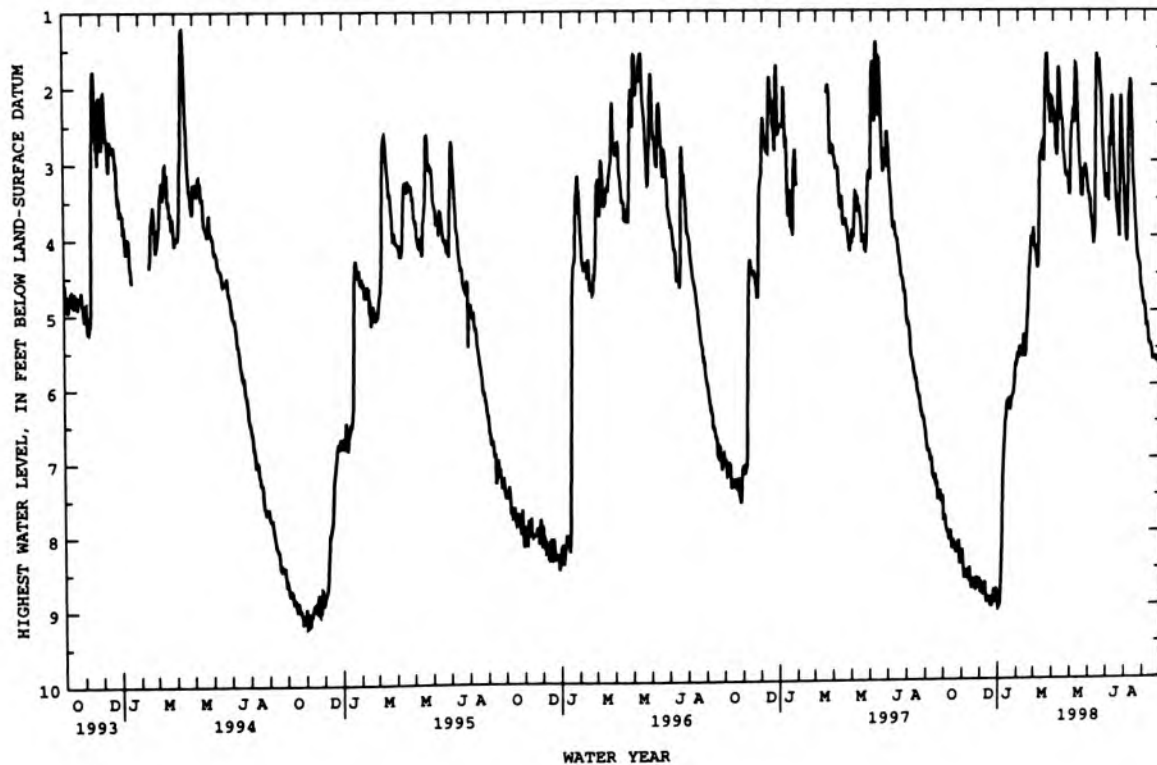
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	7.91	8.63	8.75	8.78	5.47	4.37	2.80	2.33	3.77	2.69	2.19	5.21
10	8.10	8.56	8.68	6.86	5.56	2.91	1.75	1.85	3.96	2.48	2.31	5.45
15	8.22	8.62	8.96	6.22	5.55	2.96	2.46	3.03	1.70	3.46	3.45	5.54
20	8.17	8.65	9.00	6.34	4.44	1.60	3.02	3.46	2.07	3.89	4.20	5.66
25	8.25	8.67	8.79	6.12	4.10	2.31	3.22	3.05	3.12	2.58	4.40	5.65
BOM	8.34	8.63	8.99	5.69	4.10	2.29	2.89	3.42	3.18	3.74	4.90	5.82

WTR YR 1998 HIGH 1.57 MAR 21

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	7.96	8.78	8.82	8.97	5.52	4.45	2.86	2.49	3.91	2.80	3.58	5.27
10	8.20	8.72	8.83	7.06	5.62	3.01	1.83	2.12	4.18	2.88	2.59	5.48
15	8.26	8.70	9.01	6.30	5.65	3.03	2.50	3.10	1.83	3.76	3.74	5.66
20	8.47	8.74	9.13	6.36	4.78	1.86	3.13	3.60	2.31	4.22	4.46	5.73
25	8.50	8.84	8.99	6.18	4.15	2.34	3.31	3.10	3.43	3.02	4.64	5.68
BOM	8.49	8.76	9.26	5.74	4.12	2.45	3.42	3.51	3.41	4.15	5.08	5.95

WTR YR 1998 LOW 9.26 DEC 31



## GRANT COUNTY

403836085374401. Local number, GT 10.

LOCATION.--Lat 40°38'36", long 85°37'44", in NE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.4, T.25 N., R.8 E., Grant County, Hydrologic Unit 05120103, 0.20 mi north of intersection of State Highway 9 and County Road 600 North on west side of road.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 198 ft, cased to 193 ft, screened to 198 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 912.16 ft above sea level. Measuring point: Top of casing, 3.20 ft above land-surface datum.

PERIOD OF RECORD.--August 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 107.39 ft below land-surface datum, Apr. 6, 1988; lowest, 123.31 ft below land-surface datum, Jan. 5, 6, 1996.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

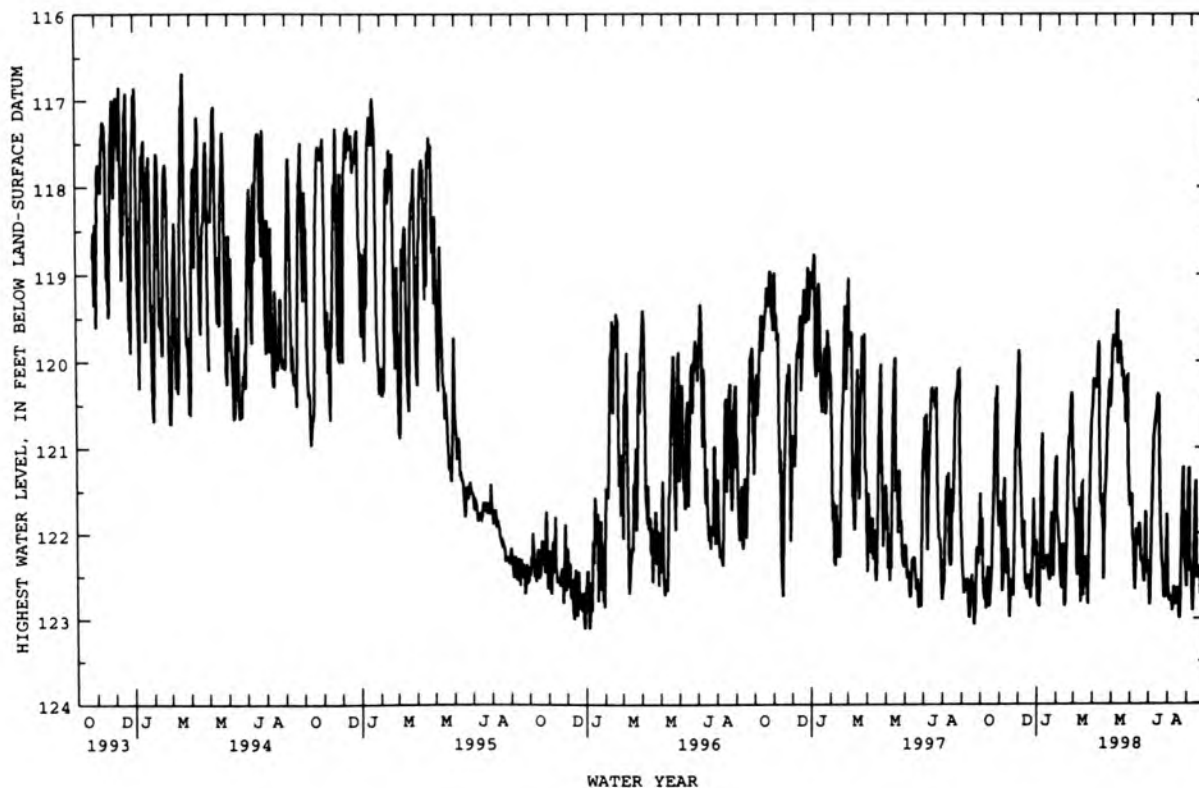
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	122.54	122.68	121.51	122.59	122.09	122.27	120.31	119.84	122.10	121.50	122.77	122.41
10	122.88	122.00	121.85	122.10	122.62	122.11	120.95	119.93	121.94	120.64	122.62	122.91
15	122.86	122.45	122.66	122.31	122.83	122.50	121.82	119.96	121.90	120.40	122.66	121.98
20	121.91	122.61	122.65	122.54	120.88	122.27	121.47	120.34	122.34	122.07	123.00	122.39
25	120.48	121.28	121.59	122.44	120.49	121.88	120.34	120.17	121.78	122.73	121.81	121.91
EOM	121.80	119.87	122.46	121.10	121.55	120.22	119.90	121.55	122.38	122.45	122.63	121.90

WTR YR 1998 HIGH 119.41 MAY 8

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	122.67	122.75	121.82	122.86	122.30	122.49	120.47	119.91	122.36	121.89	122.81	122.58
10	123.08	122.30	122.25	122.43	122.78	122.64	121.70	120.17	122.41	120.73	122.78	123.04
15	122.93	122.67	122.72	122.38	123.07	122.73	122.05	120.63	122.02	121.03	122.80	122.36
20	122.58	122.75	122.90	122.63	121.06	122.42	122.01	120.94	122.44	122.28	123.11	122.50
25	120.56	122.14	122.25	122.52	121.17	123.01	120.58	120.82	122.24	122.84	122.18	122.62
EOM	121.92	120.13	123.12	121.78	121.70	120.50	120.30	121.78	122.61	122.74	122.82	122.06

WTR YR 1998 LOW 123.13 NOV 24



## HAMILTON COUNTY

400000086023001. Local number, HA 5.

LOCATION.--Lat 40°00'00", long 86°02'30", in NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.23, T.18 N., R.4 E., Hamilton County, Hydrologic Unit 05120201, on south side of 146th Street, 1.0 mi west of White River, 1.2 mi west of Allisonville Road, and 3.5 mi southwest of Noblesville.

Owner: Earlham College.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 6 in., depth 86 ft, cased to 82 ft, screened to 86 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 757.69 ft above sea level. Measuring point: Top of floor of shelter, 2.76 ft above land-surface datum.

PERIOD OF RECORD.--July 1965 to September 1971, July 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 7.39 ft below land-surface datum, Dec. 31, 1991; lowest, 13.66 ft below land-surface datum, Jan. 4-6, 1998.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

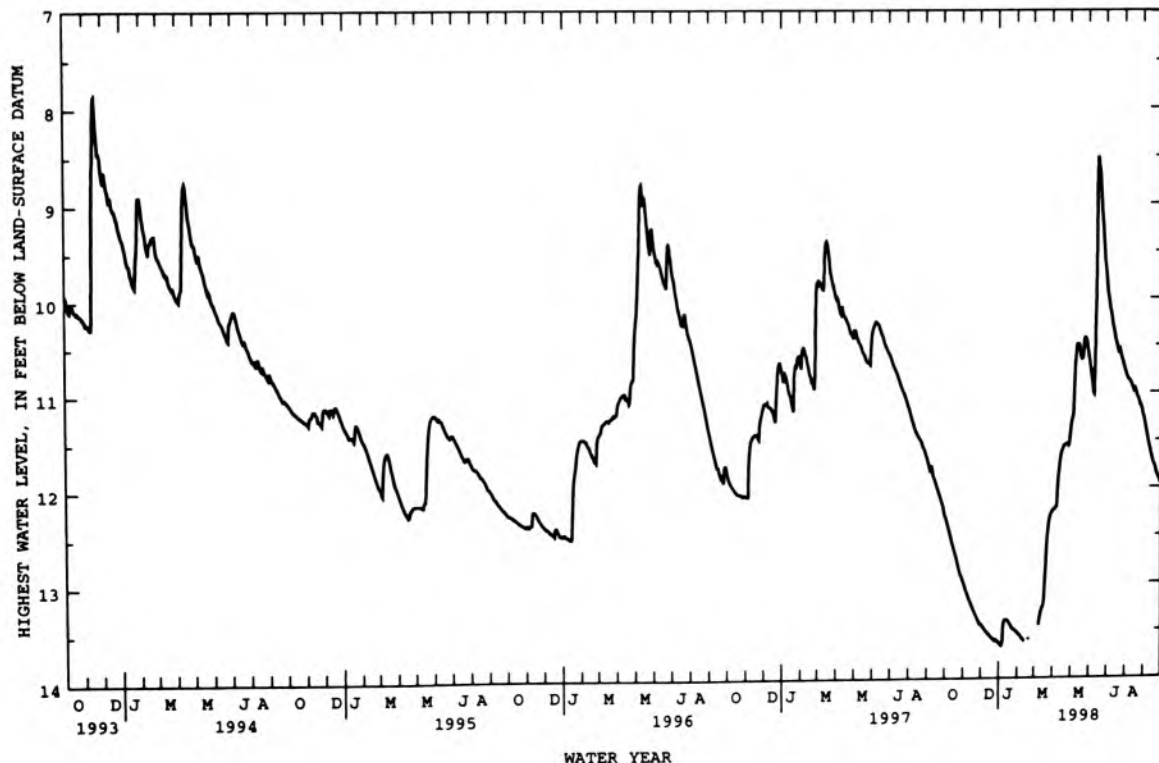
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	12.34	13.05	13.46	13.66	13.55	---	12.22	11.26	10.81	10.03	10.85	11.38
10	12.46	13.14	13.51	13.40	13.59	13.39	11.96	10.60	11.02	10.23	10.89	11.54
15	12.59	13.22	13.54	13.39	---	13.26	11.66	10.49	8.76	10.42	10.97	11.68
20	12.70	13.30	13.58	13.44	13.59	12.93	11.56	10.61	8.71	10.55	11.01	11.78
25	12.83	13.37	13.61	13.49	---	12.41	11.54	10.42	9.27	10.61	11.10	11.88
EOM	12.95	13.43	13.63	13.52	---	12.25	11.49	10.57	9.72	10.75	11.23	11.95

WTR YR 1998 HIGH 8.52 JUN 16

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	12.37	13.07	13.47	13.66	13.56	---	12.23	11.28	10.86	10.08	10.86	11.41
10	12.49	13.16	13.52	13.42	13.60	13.45	12.07	10.71	11.07	10.28	10.90	11.57
15	12.61	13.23	13.55	13.40	---	13.28	11.70	10.51	9.65	10.45	10.98	11.71
20	12.73	13.31	13.59	13.45	13.60	13.05	11.58	10.63	8.84	10.57	11.03	11.80
25	12.86	13.38	13.61	13.49	---	12.48	11.55	10.43	9.38	10.64	11.13	11.90
EOM	12.97	13.44	13.63	13.53	---	12.27	11.55	10.62	9.79	10.77	11.25	11.97

WTR YR 1998 LOW 13.66 JAN 4



## HARRISON COUNTY

382323086044501. Local number, HR 8.

LOCATION.--Lat 38°23'23", long 86°04'45", in NW¼NW¼NE¼, sec.33, T.1 S., R.4 E., Harrison County, Hydrologic Unit 05140104, on Harrison County right-of-way, 2.0 mi southeast of Palmyra.

Owner: U.S. Geological Survey.

AQUIFER.--Limestone of Mississippian age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 93 ft, cased to 54 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 827 ft above sea level, from topographic map. Measuring point: Top of floor of shelter, 3.10 ft above land-surface datum.

PERIOD OF RECORD.--November 1965 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 0.56 ft below land-surface datum, June 7, 1990, and Apr. 29, 1996; lowest, 20.29 ft below land-surface datum, Dec. 17, 1992.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

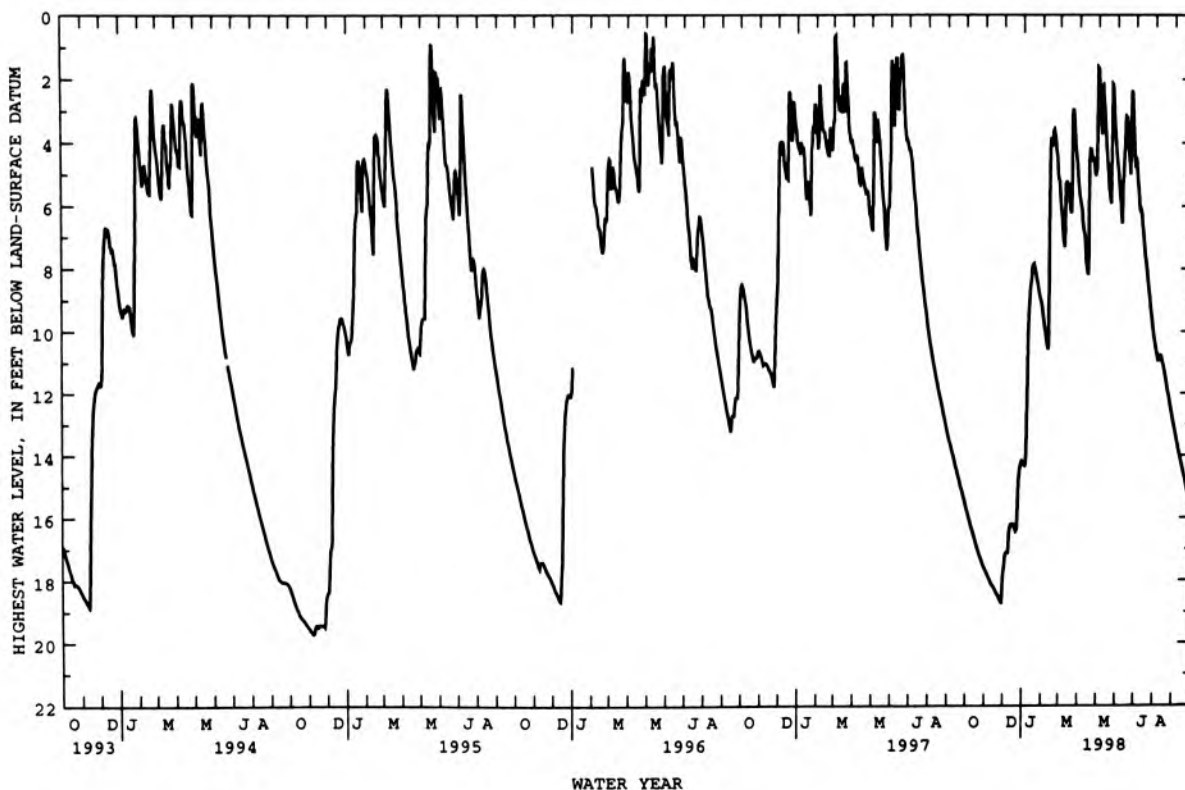
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	15.94	17.81	17.15	14.28	10.04	6.93	6.46	3.39	5.77	5.69	10.87	13.44
10	16.30	18.02	16.52	9.08	10.44	5.23	7.34	2.84	5.09	6.37	10.77	13.92
15	16.64	18.20	16.21	7.89	4.11	5.77	7.81	4.62	3.20	7.52	11.15	14.34
20	16.98	18.40	16.36	8.15	3.76	3.07	4.47	5.79	4.66	8.35	11.72	14.77
25	17.27	18.59	14.83	8.69	5.01	4.18	4.86	2.65	3.00	9.33	12.26	15.23
EOM	17.60	18.31	14.22	9.35	5.62	5.58	1.63	4.54	4.45	10.27	12.92	15.63

WTR YR 1998 HIGH 1.63 APR 30

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	16.01	17.85	17.21	14.36	10.21	7.13	6.63	3.72	6.08	6.00	10.97	13.54
10	16.37	18.08	17.13	9.53	10.65	5.31	7.70	3.25	5.21	6.61	10.81	14.00
15	16.71	18.23	16.22	8.04	4.23	6.01	8.47	4.85	3.50	7.65	11.26	14.44
20	17.05	18.43	16.43	8.25	4.01	5.75	4.63	5.92	4.99	8.55	11.84	14.87
25	17.33	18.62	15.41	8.79	5.18	4.33	5.04	3.10	3.52	9.51	12.38	15.31
EOM	17.64	18.77	14.30	9.49	5.90	5.82	3.17	4.74	4.77	10.41	13.03	15.72

WTR YR 1998 LOW 18.77 NOV 29



## HENDRICKS COUNTY

394025086400801. Local number, HD 4.

LOCATION.--Lat 39°40'25", long 86°40'08", in NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.8, T.14 N., R.2 W., Hendricks County, Hydrologic Unit 05120203, at the intersection of State Highway 75 and County Road 600 South on county right-of-way, and 1.0 mi south of Coatesville.

Owner: U.S. Geological Survey.

AQUIFER.--Sandstone of Mississippian age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 85 ft, cased to 70 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 860 ft above sea level, from topographic map. Measuring point: Top of floor of shelter, 1.92 ft above land-surface datum.

REMARKS.--Water level affected by pumpage.

PERIOD OF RECORD.--October 1966 to September 1971, November 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 18.65 ft below land-surface datum, Jan. 30, 1976; lowest, 29.02 ft below land-surface datum, Nov. 30, 1988.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

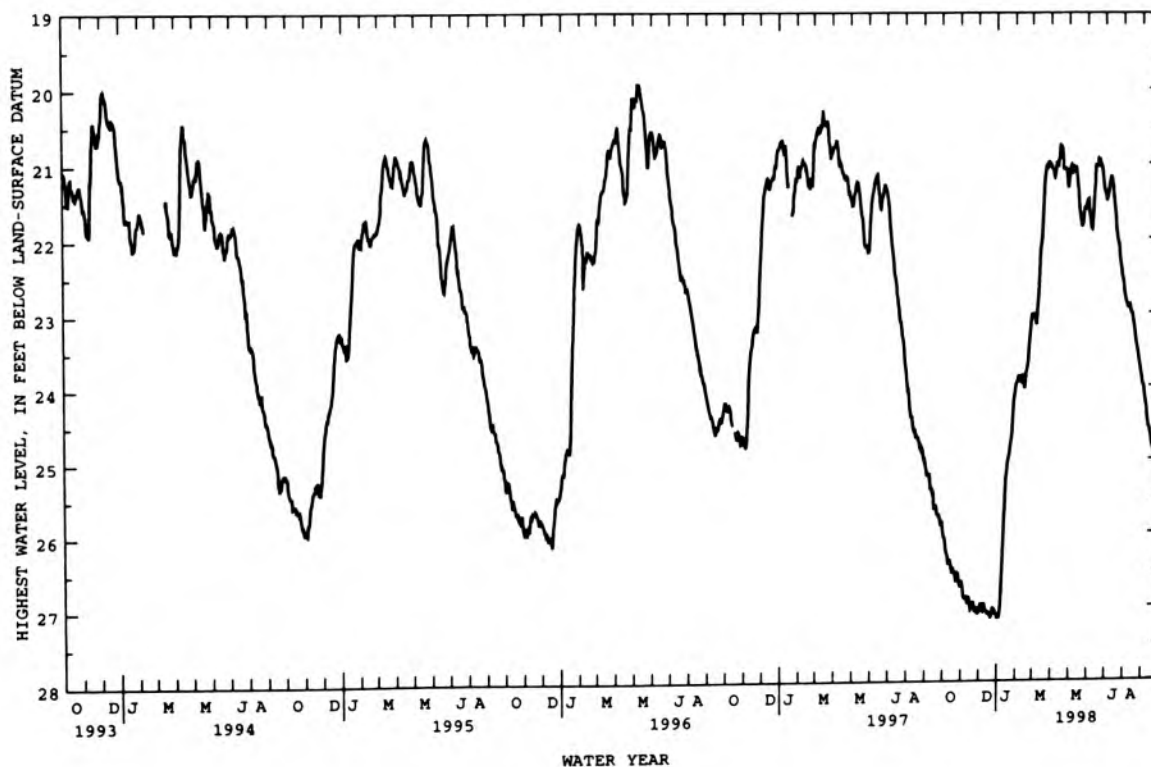
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	26.12	26.86	26.96	27.09	23.85	23.08	21.16	21.07	21.71	21.42	22.86	24.15
10	26.42	26.86	26.95	26.27	23.96	22.80	21.02	21.05	21.69	21.17	22.91	24.48
15	26.44	26.90	27.09	25.27	24.03	22.07	20.80	21.31	21.03	21.47	23.01	24.66
20	26.52	26.99	27.12	24.95	23.71	21.26	20.91	21.75	20.98	21.92	23.31	24.89
25	26.60	27.05	27.02	24.63	23.23	21.05	21.07	21.69	21.08	22.26	23.56	25.06
EOM	26.70	27.02	27.11	24.02	23.05	21.02	21.27	21.50	21.37	22.58	23.88	25.31

WTR YR 1998 HIGH 20.76 APR 16

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	26.22	26.90	27.03	27.18	23.90	23.14	21.25	21.18	21.88	21.49	22.93	24.23
10	26.48	26.95	27.02	26.47	24.02	22.90	21.07	21.10	21.80	21.24	22.96	24.58
15	26.53	26.98	27.13	25.45	24.10	22.15	20.97	21.39	21.17	21.57	23.10	24.75
20	26.56	27.02	27.19	24.99	23.77	21.55	21.26	21.84	21.08	22.03	23.40	24.94
25	26.66	27.11	27.13	24.73	23.32	21.12	21.12	21.80	21.15	22.34	23.64	25.12
EOM	26.75	27.15	27.17	24.09	23.11	21.07	21.38	21.54	21.45	22.69	24.01	25.43

WTR YR 1998 LOW 27.23 DEC 21





## HUNTINGTON COUNTY

404858085284301. Local number, HU 2.

LOCATION.--Lat 40°48'58", long 85°28'43", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.2, T.27 N., R.9 E., Huntington County, Hydrologic Unit 05120101, on the property of Luther Fusselman, 3.0 mi south of Huntington and 0.5 mi west of State Highway 5.

AQUIFER.--Sand and gravel of the Pleistocene Epoch.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 148 ft, cased to 143 ft, screened to 148 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 819.70 ft above sea level. Measuring point: Top of casing, 3.30 ft above land-surface datum.

PERIOD OF RECORD.--August 1988 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 65.46 ft below land-surface datum, Dec. 24, 1988; lowest, 73.78 ft below land-surface datum, Sept. 3, 1994.

# HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

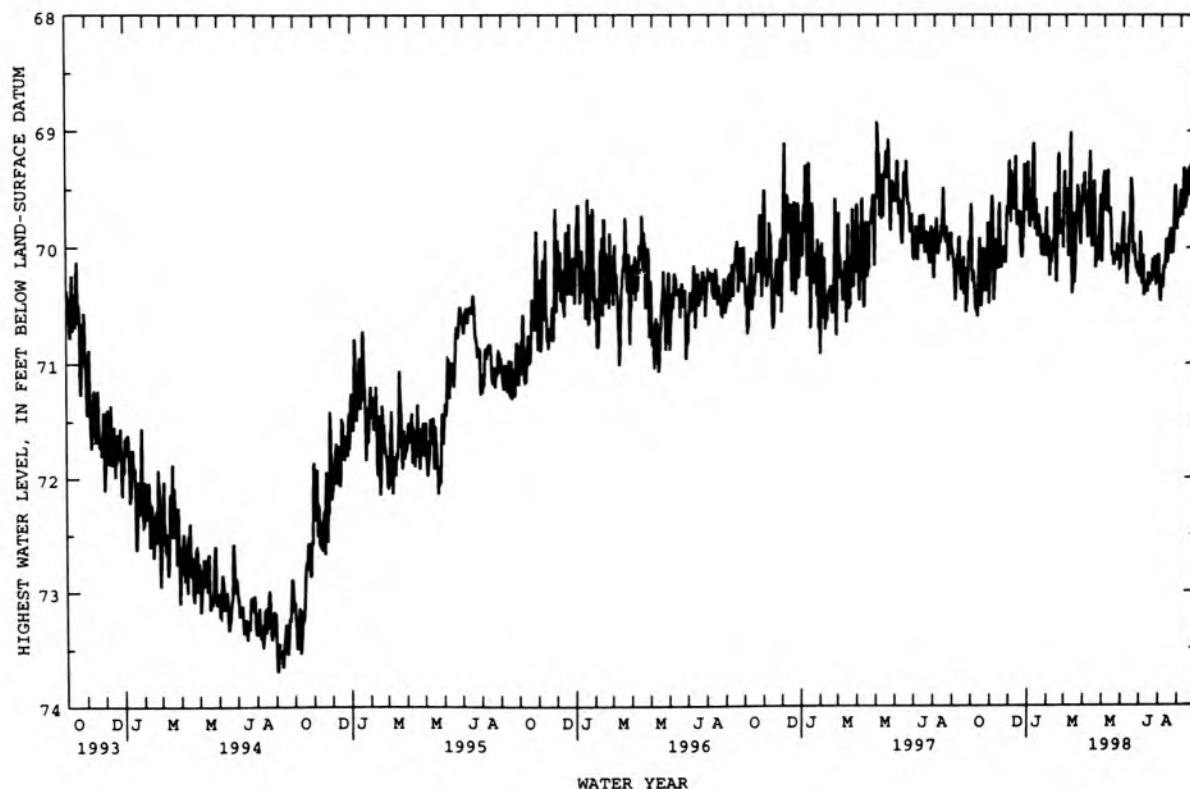
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	70.36	70.45	69.55	69.54	69.96	70.05	69.91	69.68	69.97	70.41	70.34	69.72
10	70.59	69.96	69.21	69.84	69.99	69.77	69.55	69.70	70.12	70.36	69.92	69.61
15	70.47	69.89	69.81	69.77	70.01	70.30	69.62	70.04	69.49	70.28	69.89	69.32
20	70.02	69.99	70.08	70.01	69.83	69.46	70.09	70.06	69.99	70.18	70.01	69.18
25	70.29	69.93	69.29	69.96	70.00	69.97	69.70	70.01	70.22	70.30	69.50	69.29
BOM	69.87	69.25	69.57	70.07	69.64	69.35	69.49	69.84	69.92	70.42	69.74	69.16

WTR YR 1998 HIGH 69.01 MAR 9

# LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	70.50	70.56	69.68	69.82	70.12	70.14	70.06	69.82	70.16	70.50	70.38	69.89
10	70.73	70.10	69.58	70.12	70.12	70.40	69.89	69.85	70.27	70.47	70.05	69.75
15	70.56	70.04	69.87	69.93	70.30	70.52	69.82	70.21	69.58	70.36	70.00	69.61
20	70.30	70.13	70.36	70.20	69.93	69.68	70.18	70.14	70.11	70.32	70.08	69.36
25	70.50	70.37	69.69	70.10	70.12	70.19	69.98	70.19	70.30	70.37	69.74	69.49
BOM	70.11	69.48	70.16	70.25	69.86	69.57	69.99	70.06	70.23	70.57	69.82	69.30

WTR YR 1998 LOW 70.73 OCT 10



## JASPER COUNTY

410249087011201. Local number, JP 4.

LOCATION.--Lat 41°02'49", long 87°01'12", in SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.17, T.30 N., R.5 W., Jasper County, Hydrologic Unit 07120002, on property of William Gehring, Inc., 0.9 mi east of Newland.

Owner: William Gehring, Inc.

AQUIFER.--Limestone of Devonian age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 16 in., depth 300 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 676.93 ft above sea level. Measuring point: Top of floor of shelter, 0.00 ft above land-surface datum.

REMARKS.--Water level may be affected by irrigation pumpage.

PERIOD OF RECORD.--July 1956 to current year.

REVISED RECORDS.--WDR IN-94-1: 1993.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 0.95 ft below land-surface datum, Apr. 9, 1962; lowest, 40.17 ft below land-surface datum, July 25, 1980.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

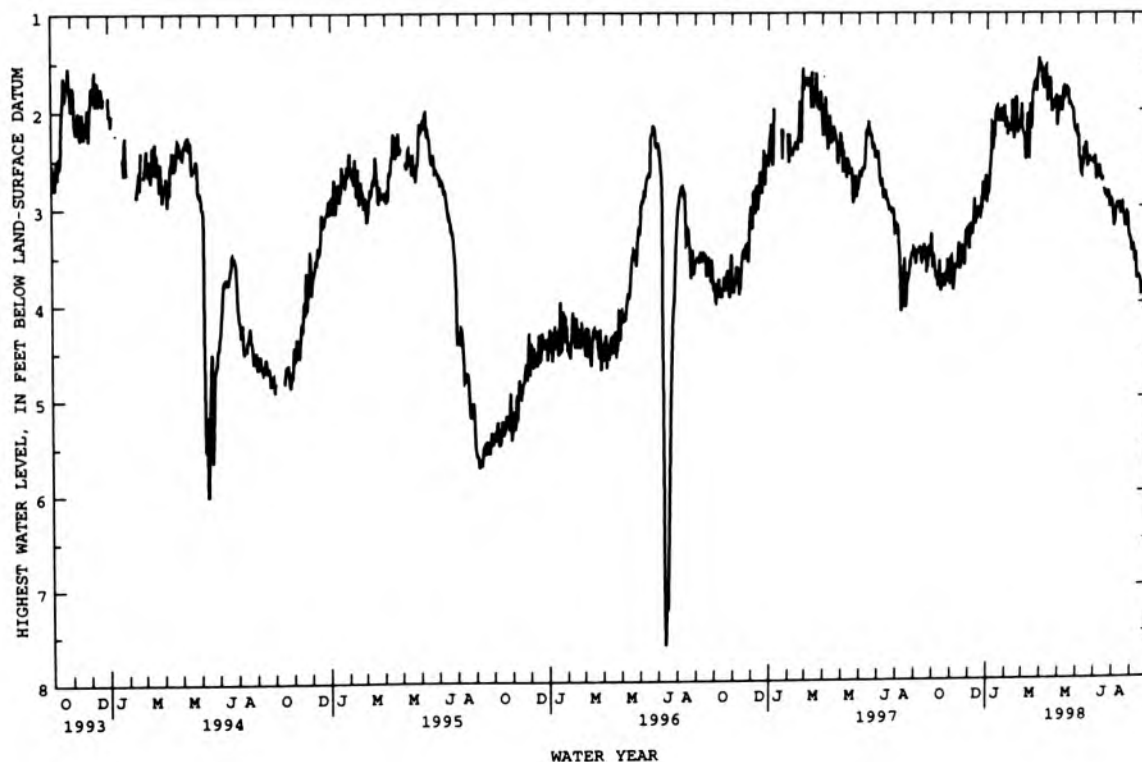
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	3.63	3.87	3.24	2.63	2.14	2.48	1.78	2.01	2.49	2.70	2.99	3.58
10	3.83	3.60	2.91	2.41	2.17	2.47	1.83	1.83	2.57	2.70	2.95	3.75
15	3.88	3.46	3.08	2.01	2.24	2.19	1.67	1.78	2.35	2.81	2.96	3.77
20	3.77	3.42	3.10	2.12	2.14	1.71	2.00	1.94	2.48	2.90	3.20	3.84
25	3.78	3.35	2.78	2.09	2.16	1.66	1.87	2.11	2.51	3.01	3.12	3.99
BOM	3.59	3.20	2.96	2.18	2.19	1.53	1.89	2.18	2.48	3.11	3.47	4.03

WTR YR 1998 HIGH 1.45 MAR 28

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	3.76	4.00	3.31	2.78	2.25	2.58	1.86	2.09	2.65	2.83	3.15	3.77
10	3.97	3.76	3.21	2.55	2.34	2.62	2.02	1.97	2.73	2.87	3.05	3.88
15	4.02	3.71	3.26	2.11	2.36	2.30	1.87	1.92	2.50	2.89	3.06	3.94
20	3.85	3.56	3.22	2.18	2.26	1.80	2.07	2.04	2.62	3.05	3.35	3.95
25	3.91	3.62	3.04	2.24	2.35	1.92	2.08	2.26	2.63	3.13	3.27	4.07
BOM	3.78	3.47	3.17	2.30	2.29	1.62	2.05	2.31	2.60	3.21	3.57	4.18

WTR YR 1998 LOW 4.19 SEP 23



## JASPER COUNTY

410809087580801. Local number, JP 7.

LOCATION.--Lat 41°08'10", long 86°58'08", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.15, T.31 N., R.5 W., Jasper County, Hydrologic Unit 07120002, in northwest corner of intersection of County Roads 850 North and 400 East, 4.0 mi south of Tefft.

Owner: U.S. Geological Survey.

AQUIFER.--Dolomite of Middle Devonian age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 130 ft, cased to 94 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 699.38 ft above sea level. Measuring point: Top of floor of shelter, 2.75 ft above land-surface datum.

REMARKS.--Water level affected by pumpage.

PERIOD OF RECORD.--May 1967 to current year. (Semi-annual tape-down readings only September 1971 to May 1978.)

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 6.04 ft below land-surface datum, Apr. 5, 1985; lowest, 18.15 ft below land-surface datum, Aug. 30, 1988.

HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

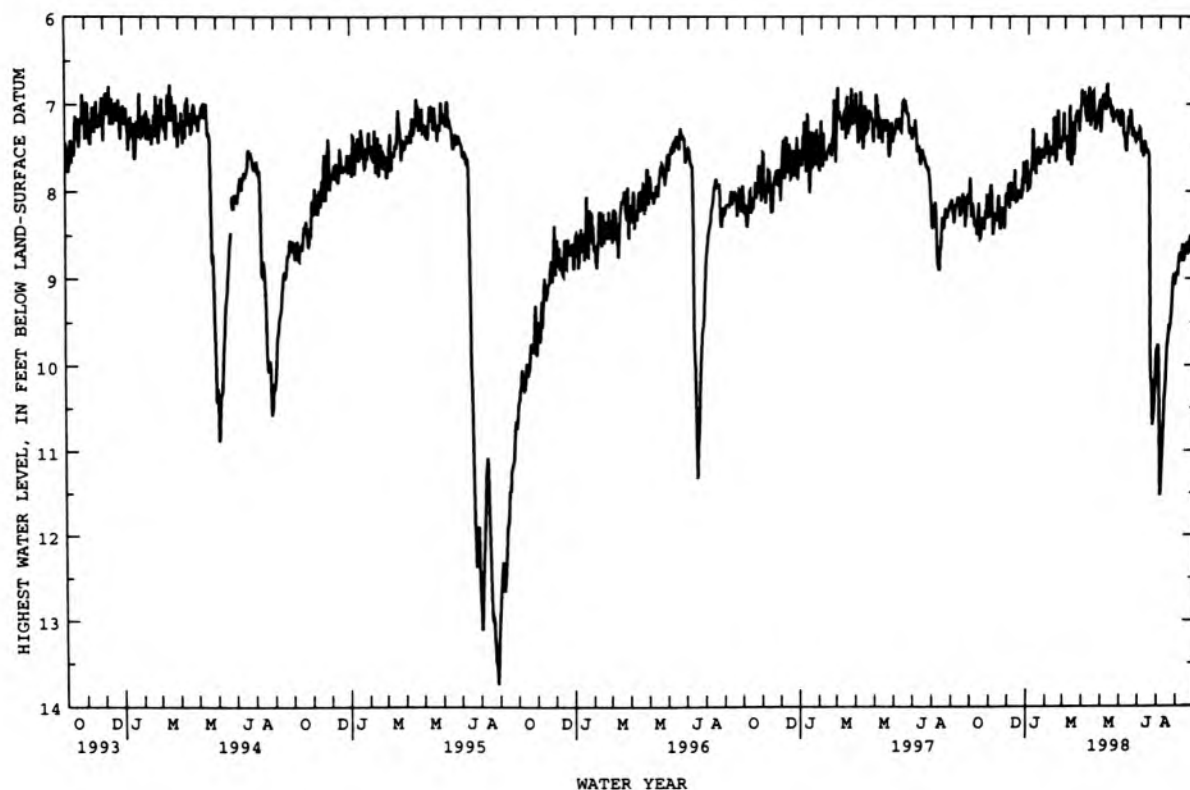
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	8.26	8.49	7.96	7.77	7.52	7.62	7.20	7.05	7.32	7.60	11.46	8.80
10	8.49	8.25	7.75	7.73	7.51	7.57	7.13	7.01	7.35	7.54	10.38	8.77
15	8.54	8.15	8.07	7.54	7.60	7.58	6.86	7.02	7.08	7.80	9.73	8.59
20	8.37	8.19	8.07	7.69	7.41	7.08	7.25	7.12	7.31	10.17	9.45	8.50
25	8.31	8.16	7.70	7.59	7.43	7.17	7.01	7.17	7.39	10.43	8.94	8.58
EOM	8.05	7.91	7.98	7.57	7.37	6.90	6.95	7.06	7.28	9.77	8.93	8.52

WTR YR 1998 HIGH 6.76 MAY 8

LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	8.41	8.58	8.05	7.91	7.63	7.73	7.29	7.15	7.52	7.74	11.69	9.03
10	8.66	8.43	8.12	7.94	7.71	7.82	7.36	7.15	7.54	7.73	10.65	8.95
15	8.70	8.44	8.27	7.63	7.74	7.70	7.11	7.20	7.23	8.45	9.83	8.78
20	8.46	8.34	8.23	7.75	7.54	7.16	7.32	7.22	7.48	10.34	9.65	8.63
25	8.47	8.47	8.01	7.75	7.66	7.47	7.25	7.35	7.55	10.61	9.07	8.70
EOM	8.27	8.19	8.29	7.71	7.47	6.98	7.15	7.22	7.43	9.99	9.06	8.69

WTR YR 1998 LOW 11.78 AUG 4



## JASPER COUNTY

410535087035801. Local number, JP 8.

LOCATION.--Lat 41°05'35", long 87°03'58", in NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.35, T.31 N., R.6 W., Jasper County, Hydrologic Unit 07120002, 1.7 mi north of Gifford.

Owner: William Gehring, Inc.

AQUIFER.--Limestone of Silurian age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 12 in., depth 310 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 686 ft above sea level, from topographic map. Measuring point: Lower lip of 2 in. tapedown pipe, 2.10 ft above land-surface datum.

REMARKS.--Water level may be affected by irrigation pumpage.

PERIOD OF RECORD.--May 1978 to current year. Record prior to October 1, 1978 available in District files.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 8.51 ft below land-surface datum, Oct. 20, 1993; lowest, 25.11 ft below land-surface datum, July 26, 1980.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

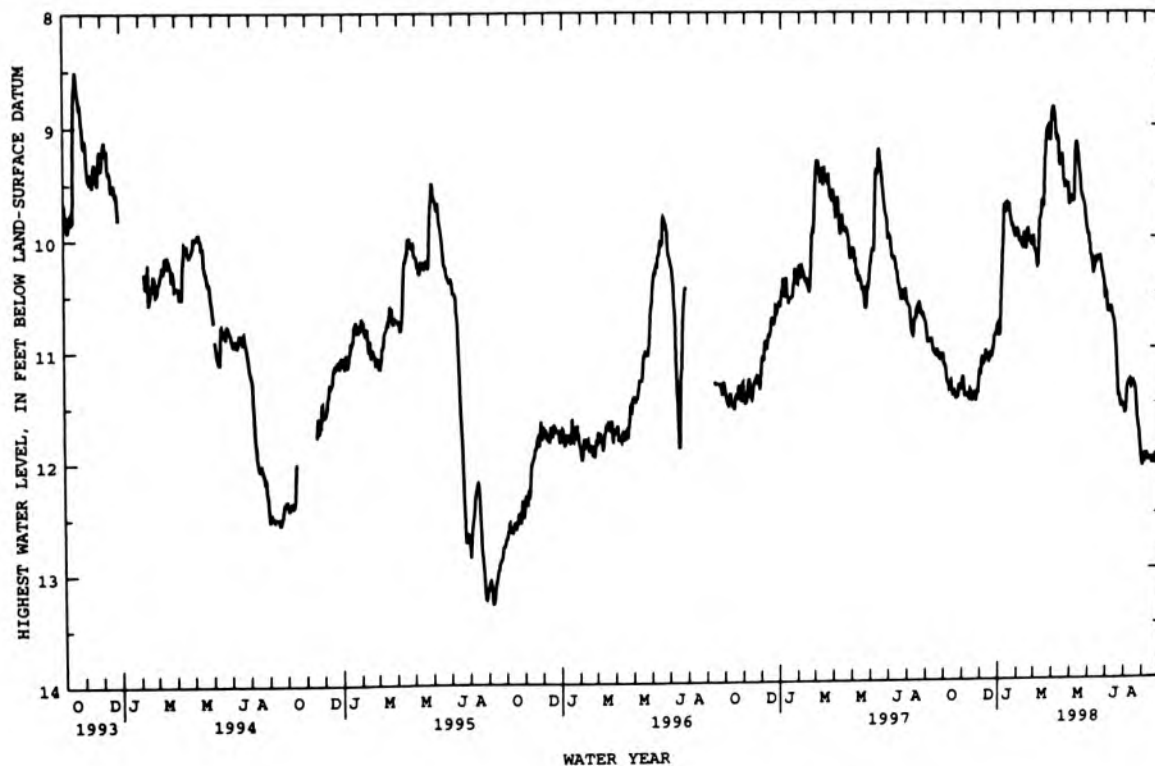
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	11.24	11.43	11.10	10.37	10.01	10.24	9.08	9.67	10.17	10.65	11.34	12.02
10	11.36	11.41	11.01	9.74	10.10	9.83	9.23	9.15	10.26	10.68	11.29	12.02
15	11.39	11.38	11.11	9.69	10.10	9.73	9.26	9.41	10.19	10.84	11.31	12.01
20	11.42	11.41	11.08	9.85	9.99	9.10	9.53	9.63	10.20	11.33	11.46	11.99
25	11.44	11.42	10.88	9.96	10.08	9.13	9.55	9.79	10.37	11.53	11.74	12.03
EOM	11.31	11.19	10.86	9.99	10.08	8.87	9.64	9.97	10.49	11.56	12.08	12.06

WTR YR 1998 HIGH 8.83 APR 1

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	11.29	11.49	11.17	10.58	10.11	10.32	9.12	9.74	10.26	10.69	11.38	12.08
10	11.44	11.48	11.13	9.80	10.17	9.89	9.35	9.20	10.32	10.75	11.34	12.07
15	11.46	11.47	11.19	9.74	10.13	9.77	9.34	9.46	10.27	10.95	11.33	12.09
20	11.50	11.47	11.16	9.95	10.10	9.24	9.62	9.73	10.26	11.47	11.56	12.02
25	11.49	11.50	10.92	10.02	10.13	9.18	9.64	9.87	10.47	11.57	11.81	12.10
EOM	11.38	11.27	11.00	10.06	10.15	8.91	9.71	10.05	10.56	11.62	12.11	12.10

WTR YR 1998 LOW 12.12 SEP 28



## GROUND-WATER DATA

## JASPER COUNTY

410713087063201. Local number, JP 9.

LOCATION.--Lat 41°07'13", long 87°06'32", in NE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.21, T.31 N., R.6 W., Jasper County, Hydrologic Unit 07120002, 4.4 mi northwest of Gifford.

Owner: William Gehring, Inc.

AQUIFER.--Silurian limestone.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 18 in., depth 260 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 685 ft above sea level, from topographic map. Measuring point: Lower lip of 2 in. tapedown pipe, 2.10 ft above land-surface datum.

REMARKS.--Water level may be affected by irrigation pumpage.

PERIOD OF RECORD.--July 1978 to current year. Record prior to October 1, 1978 available in District files.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 3.99 ft below land-surface datum, Apr. 1, 1998; lowest, 32.05 ft below land-surface datum, Aug. 5, 1988.

HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

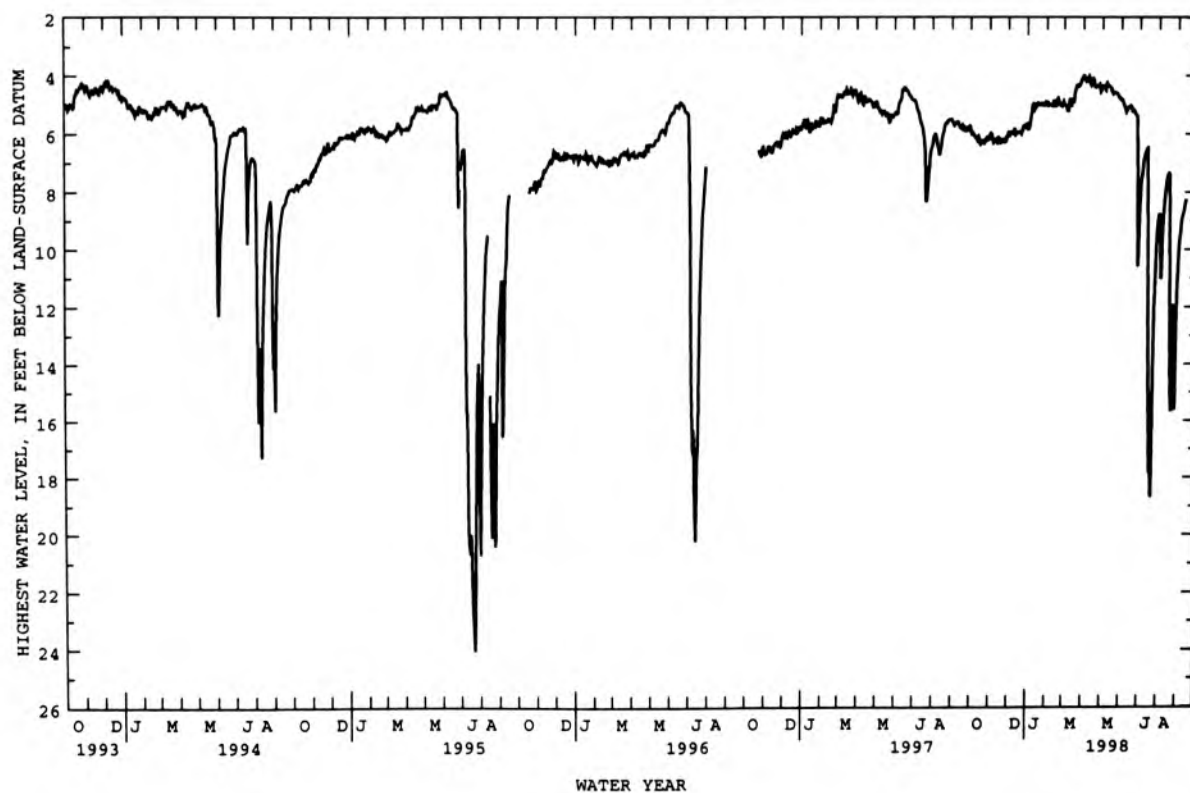
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	6.00	6.22	5.91	5.50	4.97	5.14	4.19	4.43	5.02	7.29	10.98	9.37
10	6.15	6.16	5.79	5.08	5.04	4.88	4.09	4.33	5.16	6.65	8.26	8.67
15	6.27	6.11	5.96	4.97	5.06	4.90	4.11	4.48	5.02	12.28	7.42	---
20	6.22	6.18	5.93	5.00	4.90	4.33	4.39	4.57	5.15	17.65	14.09	---
25	6.21	6.21	5.71	5.00	5.01	4.34	4.33	4.60	5.36	11.96	11.92	---
EOM	6.07	5.96	5.72	4.96	4.95	4.00	4.40	4.78	9.07	8.89	11.29	---

WTR YR 1998 HIGH 3.99 APR 1

LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	6.03	6.30	5.93	5.68	4.99	5.21	4.21	4.48	5.08	7.46	12.35	9.60
10	6.24	6.20	5.90	5.16	5.08	5.02	4.24	4.36	5.19	6.69	8.54	8.78
15	6.35	6.17	6.00	5.04	5.09	4.93	4.17	4.49	5.05	14.58	7.51	---
20	6.30	6.26	6.00	5.04	4.94	4.45	4.42	4.57	5.20	18.70	15.96	---
25	6.32	6.36	5.78	5.02	5.04	4.42	4.39	4.67	5.38	13.08	12.71	---
EOM	6.16	6.03	5.91	4.97	4.99	4.08	4.48	4.82	10.05	9.12	12.14	---

WTR YR 1998 LOW 19.77 JUL 21





## JASPER COUNTY

410322087163101. Local number, JP 11.

LOCATION.--Lat 41°03'22", long 87°16'31", in NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.18, T.30 N., R.7 W., Jasper County, Hydrologic Unit 07120002, on Prudential Life Insurance Company of America property, 3.2 mi north of State Highway 14, and 1.5 mi southwest of Fair Oaks.

Owner: Prudential Insurance Company of America.

AQUIFER.--Limestone of Devonian age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 16 in., depth 630 ft, cased to 63 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 697.50 ft above sea level. Measuring point: Top of floor of shelter, 3.50 ft above land-surface datum.

REMARKS.--Water level may be affected by irrigation pumpage.

PERIOD OF RECORD.--March 1981 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 0.04 ft above land-surface datum, Apr. 3, 1982; lowest, 52.19 ft below land-surface datum, July 9, 1988.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

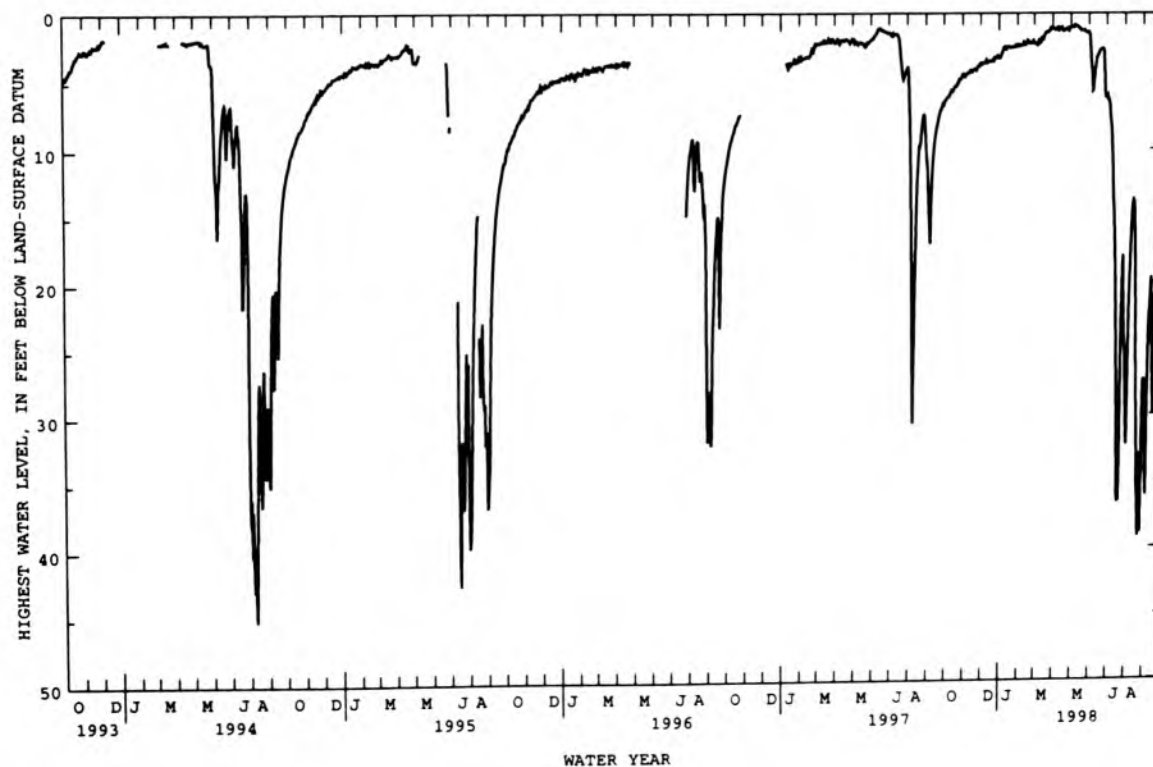
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	6.28	4.63	3.61	2.97	2.29	2.29	1.20	1.00	3.79	6.43	26.37	36.12
10	6.05	4.36	3.42	2.60	2.31	2.08	1.15	.90	4.62	9.76	17.16	22.57
15	5.75	4.18	3.54	2.46	2.28	1.93	.98	1.04	3.11	19.08	13.85	24.11
20	5.38	4.07	3.50	2.53	2.12	1.36	1.26	1.20	2.63	35.06	30.49	21.38
25	5.11	3.99	3.21	2.46	2.16	1.29	1.08	1.28	2.58	22.73	32.94	16.00
BOM	4.57	3.69	3.24	2.36	2.13	1.01	1.04	1.34	5.96	25.28	27.40	13.60

WTR YR 1998 HIGH .82 MAY 8

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	6.38	4.68	3.65	3.13	2.33	2.37	1.24	1.06	4.32	6.65	29.37	39.05
10	6.13	4.42	3.58	2.67	2.39	2.17	1.26	.94	5.03	11.02	18.44	24.16
15	5.81	4.29	3.63	2.50	2.35	1.98	1.13	1.10	3.22	22.27	14.03	27.99
20	5.42	4.16	3.59	2.56	2.18	1.49	1.30	1.24	2.70	38.67	35.77	23.50
25	5.17	4.16	3.33	2.53	2.24	1.43	1.19	1.35	2.75	25.51	35.99	16.72
BOM	4.71	3.77	3.43	2.43	2.17	1.06	1.19	1.42	6.21	28.78	28.83	13.96

WTR YR 1998 LOW 41.35 JUL 19



## JASPER COUNTY

410145087130401. Local number, JP 12.

LOCATION.--Lat 41°01'45", long 87°13'04", in NW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.22, T.30 N., R.7 W., Jasper County, Hydrologic Unit 07120002, in Old Union Township school yard, 200 ft east of County Road 900 West, 750 ft north of State Highway 14, and in Parr.

Owner: Prudential Insurance Company of America.

AQUIFER.--Limestone/dolomite of Silurian/Devonian age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 5 in., depth 150 ft, cased to 103 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 692.9 ft above sea level. Measuring point: Top of well casing, 2.6 ft above land-surface datum.

REMARKS.--Water level may be affected by irrigation pumpage.

PERIOD OF RECORD.--May 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 14.08 ft below land-surface datum, May 22, 1983; lowest, 53.41 ft below land-surface datum, Aug. 18, 1988.

HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

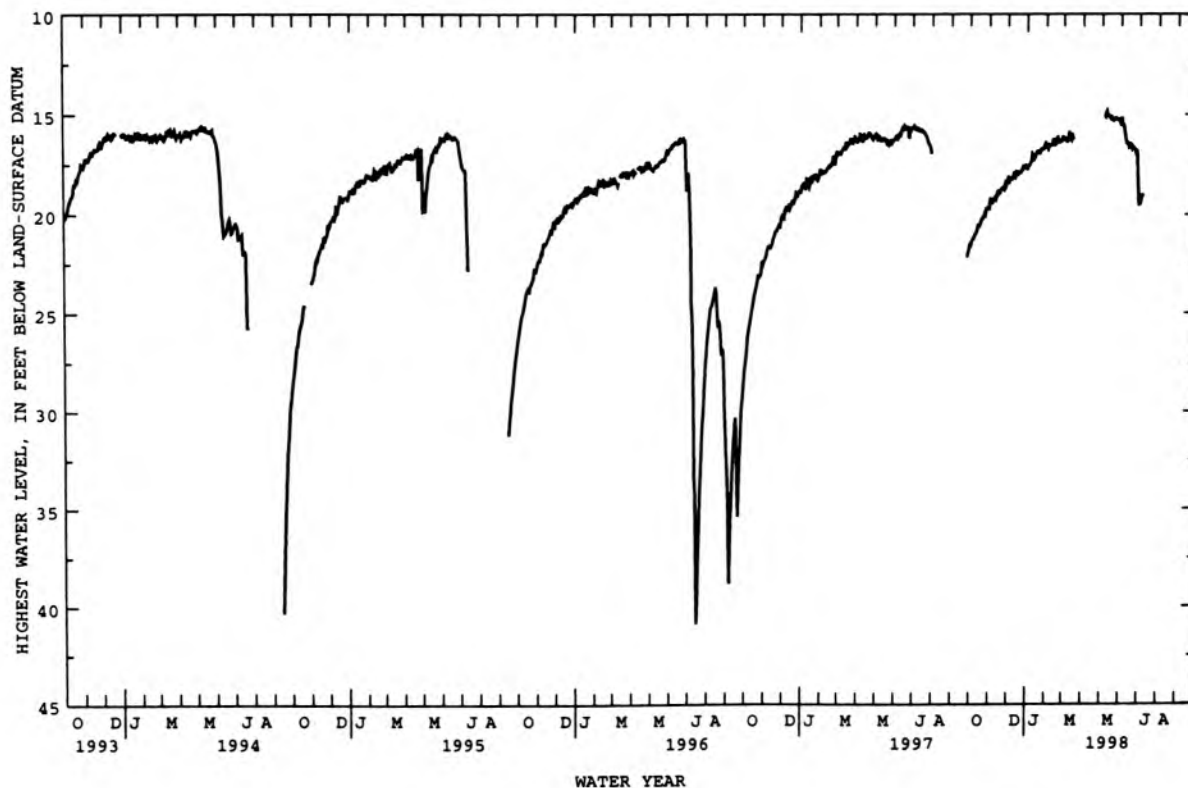
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	21.21	19.42	18.20	17.43	16.53	16.35	---	15.06	15.53	19.06	---	---
10	20.94	19.10	17.87	17.27	16.49	16.14	---	15.04	16.43	---	---	---
15	20.60	18.82	18.01	16.92	16.50	16.18	---	15.15	16.47	---	---	---
20	20.23	18.70	17.91	16.94	16.32	---	---	15.25	16.64	---	---	---
25	19.98	18.54	17.58	16.73	16.30	---	---	15.24	16.81	---	---	---
EOM	19.78	18.27	17.77	16.61	16.24	---	---	15.22	19.51	---	---	---

WTR YR 1998 HIGH 14.85 MAY 8

LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	21.78	19.64	18.50	17.74	16.81	16.57	---	15.42	19.17	19.35	---	---
10	21.16	19.80	18.17	17.59	17.00	16.30	---	15.20	18.27	---	---	---
15	21.09	19.28	18.35	17.16	16.85	16.37	---	15.60	19.77	---	---	---
20	20.51	19.06	18.22	17.26	16.67	---	---	15.61	18.03	---	---	---
25	20.31	19.03	18.01	17.17	16.64	---	---	15.50	17.37	---	---	---
EOM	20.03	18.74	18.39	16.80	16.53	---	---	16.28	20.24	---	---	---

WTR YR 1998 LOW 21.93 OCT 4



## JASPER COUNTY

405902087141501. Local number, JP 13.

LOCATION.--Lat 40°59'02", long 87°14'15", in NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.9, T.29 N., R.7 W., Jasper County, Hydrologic Unit 07120002, at southwest corner of North Newton school, and 4.6 mi northwest of Rensselaer.

Owner: Prudential Insurance Company of America.

AQUIFER.--Dolomite of Silurian/Devonian age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 5 in., depth 150 ft, cased to 106 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 700 ft above sea level, from topographic map. Measuring point: Top of well casing, 3.4 ft above land-surface datum.

REMARKS.--Water level may be affected by irrigation pumpage.

PERIOD OF RECORD.--March 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 20.98 ft below land-surface datum, Apr. 3, 1982; lowest, 55.85 ft below land-surface datum, Aug. 19, 1988.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

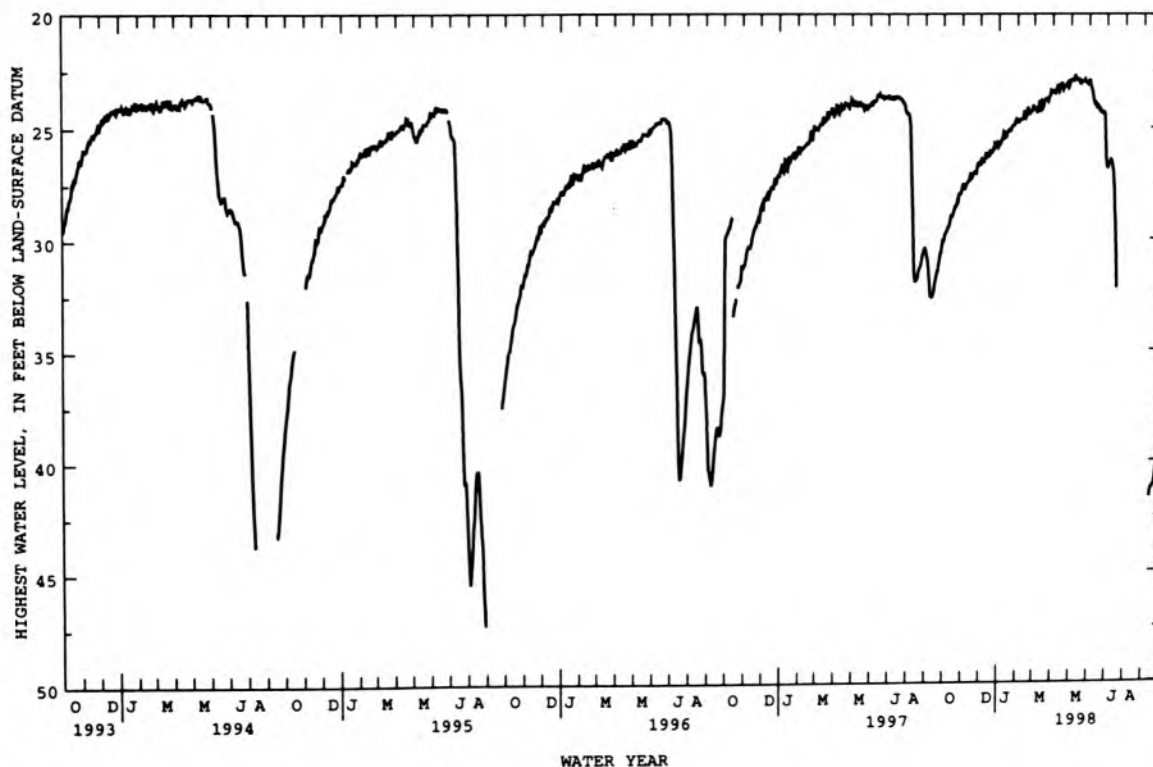
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	29.64	27.73	26.42	25.53	24.63	24.31	23.47	22.94	23.26	26.59	---	---
10	29.37	27.39	26.09	25.46	24.54	24.13	23.31	22.88	23.94	26.68	---	---
15	28.97	27.09	26.19	25.16	24.51	24.11	23.03	22.87	23.99	29.11	---	41.25
20	28.56	26.97	26.11	25.13	24.33	23.72	23.23	22.97	24.22	---	---	41.02
25	28.23	26.77	25.73	24.89	24.25	23.70	23.02	22.98	24.32	---	---	39.80
BOM	27.67	26.47	25.83	24.75	24.18	23.36	22.93	22.95	26.64	---	---	38.43

WTR YR 1998 HIGH 22.71 MAY 8

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	29.78	27.84	26.48	25.65	24.72	24.38	23.56	23.01	23.42	26.69	---	---
10	29.49	27.48	26.36	25.61	24.69	24.30	23.46	22.98	24.08	26.88	---	---
15	29.10	27.28	26.34	25.24	24.62	24.21	23.21	22.97	24.12	29.98	---	41.33
20	28.61	27.07	26.22	25.16	24.42	23.77	23.30	23.02	24.29	---	---	41.13
25	28.32	27.02	25.95	25.03	24.44	23.89	23.19	23.09	24.43	---	---	40.08
BOM	27.87	26.67	26.03	24.85	24.25	23.42	23.07	23.07	26.77	---	---	38.67

WTR YR 1998 LOW 41.92 SEP 13



## JASPER COUNTY

405550087092301. Local number, JP 15.

LOCATION.--Lat 40°55'50", long 87°09'23", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.30, T.29 N., R.6 W., Jasper County, Hydrologic Unit 07120002, at the Peerless Superior Cleaners in the shopping center on the west side of State Highway 231 in Rensselaer.

Owner: Department of Natural Resources

AQUIFER.--Limestone/Dolomite of Silurian/Devonian age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 8 in., depth 210 ft, cased to 25 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 665 ft above sea level (revised), from topographic map. Measuring point: Top of shelf, 2.00 ft above land-surface datum.

PERIOD OF RECORD.--Sept. 1996 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 101.88 ft below land-surface datum, Sept. 9, 1996; lowest, 115.10 ft below land-surface datum, Mar. 11, 1998.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

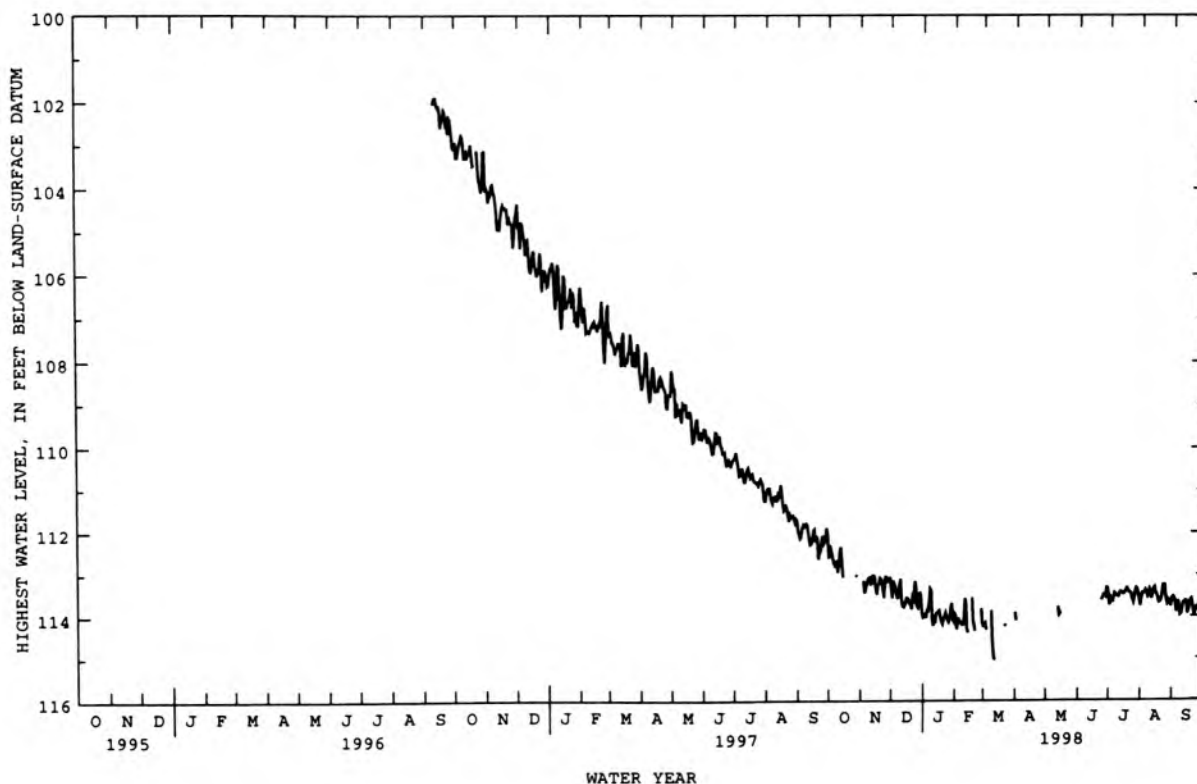
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	112.61	113.43	113.28	113.85	114.06	---	---	---	---	113.67	113.41	113.89
10	112.94	113.06	113.09	114.05	114.06	114.60	114.09	---	---	113.52	113.36	113.94
15	113.05	113.07	113.68	113.89	---	114.68	---	113.90	---	113.46	113.30	113.64
20	---	113.07	113.72	114.17	114.18	---	---	---	---	113.39	113.66	113.58
25	---	113.09	113.20	114.07	---	---	---	---	113.55	113.66	113.25	113.77
EOM	---	113.05	113.87	114.11	114.14	---	---	---	113.32	113.60	113.76	113.79

WTR YR 1998 HIGH 112.34 OCT 13

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	112.73	113.53	113.47	114.02	114.13	---	---	---	---	113.80	113.49	114.06
10	113.09	113.23	113.56	114.36	114.25	114.98	114.46	---	---	113.60	113.47	114.10
15	113.13	113.36	113.83	113.97	---	114.77	---	113.96	---	113.52	113.45	113.94
20	---	113.25	113.98	114.23	114.34	---	---	---	---	113.51	113.77	113.70
25	---	113.55	113.73	114.19	---	---	---	---	113.66	113.71	113.56	113.85
EOM	---	113.35	114.47	114.24	114.23	---	---	---	113.53	113.78	113.85	113.94

WTR YR 1998 LOW 115.10 MAR 11



## WATER-QUALITY RECORDS

405550087092301 - JASPER 15 (JP 15)--Continued.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET) (72019)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM) (90095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)
JUN 23-23	1440	113.00	866	862	7.0	7.2	14.8	.0	420	99
DATE	Time	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	ANC WATER UNFLTRD IT FIELD MG/L AS CACO3 (00419)	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)	ANC BICAR- BONATE IT FIELD MG/L AS HCO3 (00450)	ANC CAR- BONATE IT FIELD MG/L AS CO3 (00447)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)
JUN 23-23	1440	42	25	2.0	350	354	355	432	<1	110
DATE	Time	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	IRON, DIS- SOLVED (UG/L AS FE) (01046)
JUN 23-23	1440	12	.3	11	540	516	<.05	.55	.04	50



## JEFFERSON COUNTY

384949085251901. Local number, JF 5.

LOCATION.--Lat 38°49'49", long 85°25'19", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.33, T.5 N., R.10 E., Jefferson County, Hydrologic Unit 05120207, on Jefferson Proving Ground, 500 ft north of Airfield Road, 1,000 ft southwest of the water tower, and 2.2 mi west of main gate.

Owner: U.S. Army.

AQUIFER.--Limestone, dolomite, and shale of Silurian and Ordovician age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 5 in., depth 200 ft, cased to 33 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 855 ft above sea level, from topographic map. Measuring point: Top of floor of shelter, 3.00 ft above land-surface datum.

REMARKS.--This well was drilled on a mapped fracture trace.

PERIOD OF RECORD.--March 1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 2.97 ft below land-surface datum, Jan. 21, 1991; lowest, 9.22 below land-surface datum, Sept. 7, 16, 1988.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

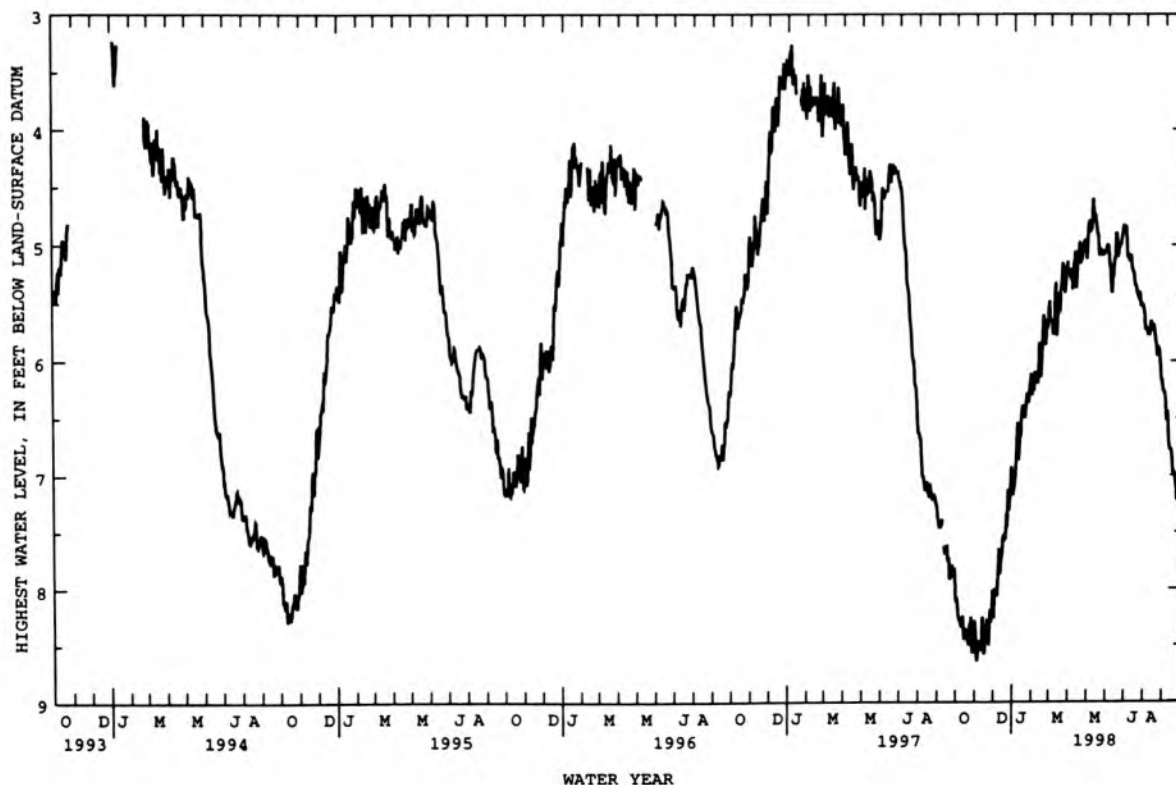
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	8.22	8.64	8.01	6.97	6.10	5.77	5.38	4.86	5.17	5.10	5.75	6.52
10	8.34	8.50	7.65	6.87	6.13	5.74	5.22	4.73	5.28	5.19	5.66	6.75
15	8.45	8.47	7.68	6.43	6.03	5.58	5.04	4.91	4.90	5.34	5.69	6.85
20	8.40	8.37	7.56	6.50	5.83	5.15	5.13	5.05	5.01	5.44	5.92	7.03
25	8.38	8.31	7.21	6.37	5.71	5.31	4.97	5.06	4.88	5.52	5.95	7.19
EOM	8.39	8.01	7.11	6.30	5.62	5.21	4.85	5.00	4.84	5.60	6.26	7.27

WTR YR 1998 HIGH 4.60 MAY 8

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	8.26	8.75	8.08	7.06	6.22	5.82	5.42	4.90	5.29	5.21	5.86	6.65
10	8.45	8.58	7.90	6.94	6.29	5.88	5.42	4.82	5.38	5.29	5.75	6.83
15	8.53	8.62	7.84	6.53	6.18	5.67	5.19	5.00	5.00	5.35	5.75	7.00
20	8.48	8.47	7.61	6.51	5.90	5.28	5.15	5.12	5.11	5.53	6.04	7.11
25	8.51	8.54	7.42	6.47	5.85	5.50	5.14	5.18	5.03	5.59	6.02	7.24
EOM	8.56	8.24	7.33	6.36	5.72	5.26	5.03	5.01	4.91	5.73	6.34	7.35

WTR YR 1998 LOW 8.75 NOV 5



## JENNINGS COUNTY

385601085365701. Local number, JN 3.

LOCATION.--Lat 38°56'01", long 85°36'57", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.27, T.6 N., R.8 E., Jennings County, Hydrologic Unit 05120207, 200 ft west of State Highway 3, 1.6 mi south of Crosley Fish and Game Office and 3.0 mi south of Vernon.

Owner: U.S. Geological Survey.

AQUIFER.--Limestones and dolomites of Devonian age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 180 ft, cased to 45 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 718 ft above sea level, from topographic map. Measuring point: Top of floor of shelter, 3.50 ft above land-surface datum.

PERIOD OF RECORD.--October 1978 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 36.64 ft below land-surface datum, Jan. 21, 1979; lowest, 40.87 ft below land-surface datum, July 6, 1988.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

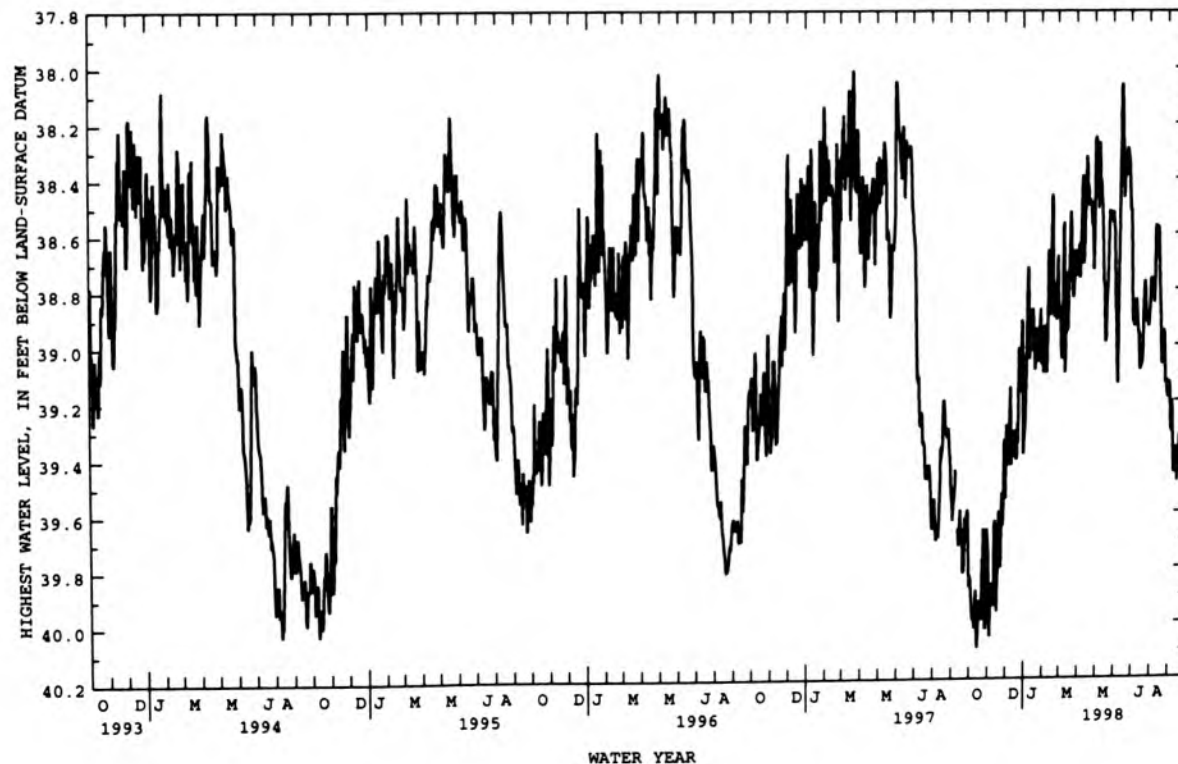
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	39.91	40.05	39.29	39.18	38.93	39.03	38.76	38.42	38.88	38.93	38.78	39.30
10	40.02	39.86	39.15	39.01	38.98	38.89	38.47	38.41	38.71	38.87	38.58	39.46
15	40.09	39.80	39.40	38.88	38.89	38.95	38.45	38.78	38.06	39.09	38.58	39.39
20	39.93	39.71	39.41	39.09	38.82	38.52	38.49	38.87	38.38	39.01	39.01	39.32
25	39.81	39.65	39.05	39.06	38.91	38.83	38.57	38.52	38.30	38.88	38.96	39.41
EOM	39.84	39.34	39.12	39.07	38.82	38.70	38.37	38.52	38.51	38.89	39.19	39.38

WTR YR 1998 HIGH 38.06 JUN 15

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	39.96	40.11	39.37	39.28	39.01	39.11	38.82	38.51	39.00	38.97	38.83	39.39
10	40.10	39.92	39.28	39.11	39.11	39.12	38.71	38.46	38.86	38.92	38.75	39.51
15	40.12	39.88	39.44	38.95	38.99	39.01	38.60	38.81	38.15	39.11	38.67	39.49
20	39.99	39.80	39.51	39.12	38.90	38.65	38.53	38.99	38.42	39.11	39.07	39.42
25	39.93	39.85	39.18	39.10	38.99	38.93	38.64	38.56	38.33	38.93	39.01	39.43
EOM	39.97	39.52	39.48	39.12	38.86	38.75	38.64	38.56	38.59	38.93	39.23	39.42

WTR YR 1998 LOW 40.12 OCT 15



## KNOX COUNTY

383247087361001. Local number, KN 7.

LOCATION.--Lat 38°32'47", long 87°36'10", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.2, T.1 N., R.11 W., Knox County, Hydrologic Unit 05120113, in the right-of-way of Sixth Street Road, 9.8 mi south of Vincennes.

Owner: Michael J. Kelley.

AQUIFER.--Sand and gravel Quaternary age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 43 ft, cased to 16 ft, slotted to 19 ft, open end.

INSTRUMENTATION.--Water-level recorder. Prior to April 1968, hand-taped monthly.

DATUM.--Elevation of land-surface datum is 405 ft above sea level, from topographic map. Measuring point: Top of floor of shelter, 2.42 ft above land-surface datum.

PERIOD OF RECORD.--November 1956 to December 1972, January 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 2.57 ft below land-surface datum, May 3, 1983; lowest, 11.35 ft below land-surface datum, Feb. 1-13, 1977.

# HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

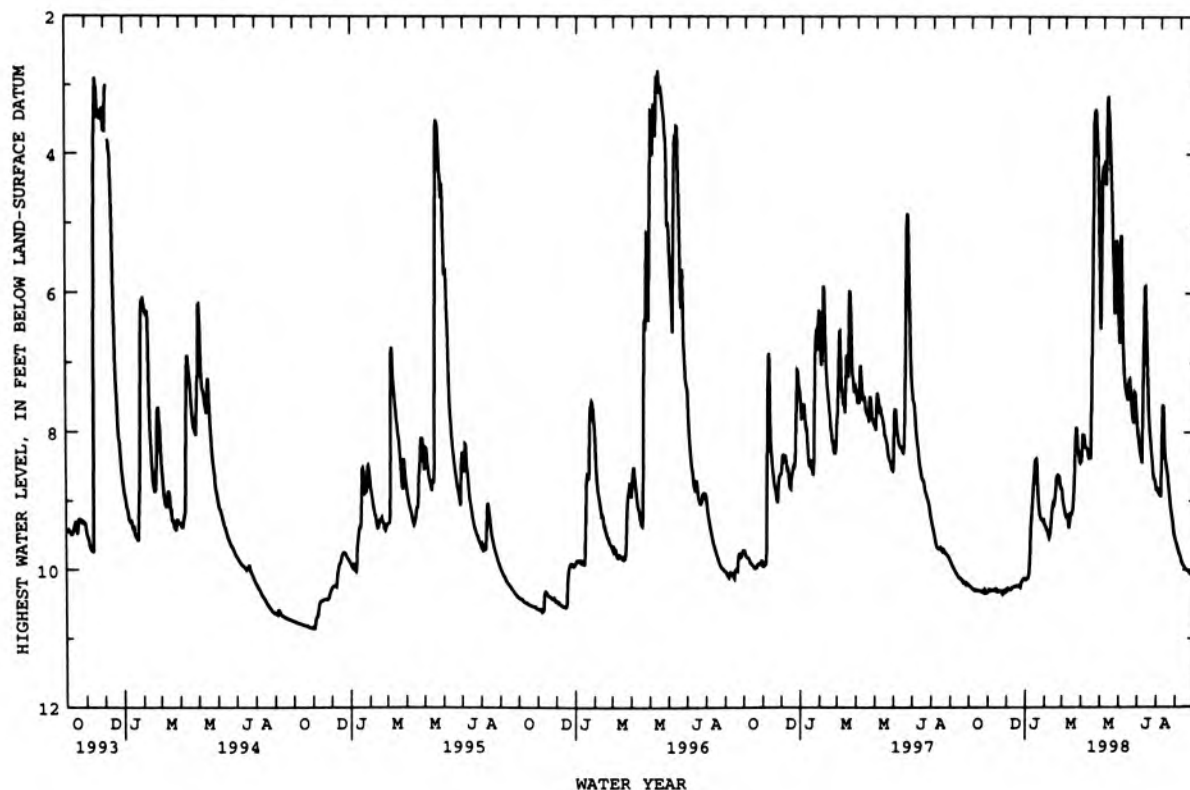
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	10.26	10.31	10.28	10.09	9.46	9.20	8.23	4.19	6.93	8.39	8.93	9.74
10	10.30	10.29	10.25	9.11	9.31	9.35	8.34	3.48	7.44	6.12	7.86	9.89
15	10.31	10.30	10.24	8.40	9.03	9.19	7.07	4.69	7.23	7.42	8.53	9.96
20	10.31	10.30	10.24	8.99	8.62	8.19	3.60	6.08	7.77	8.15	8.91	10.01
25	10.32	10.32	10.17	9.27	8.81	8.29	5.16	5.71	7.54	8.67	9.26	10.06
EOM	10.32	10.29	10.13	9.36	8.95	8.24	4.28	5.21	8.08	8.81	9.57	10.10

WTR YR 1998 HIGH 3.15 MAY 8

# LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	10.27	10.33	10.29	10.12	9.50	9.23	8.26	4.44	7.13	8.45	8.94	9.77
10	10.31	10.30	10.26	9.26	9.41	9.41	8.39	3.73	7.50	6.38	8.09	9.90
15	10.31	10.32	10.25	8.44	9.05	9.22	8.39	4.97	7.33	7.66	8.57	9.99
20	10.32	10.31	10.25	9.09	8.65	8.71	3.74	6.29	7.84	8.26	8.99	10.02
25	10.33	10.35	10.18	9.29	8.85	8.34	5.56	6.00	7.68	8.70	9.32	10.07
EOM	10.33	10.32	10.16	9.38	9.01	8.46	6.51	5.74	8.15	8.85	9.61	10.10

WTR YR 1998 LOW 10.35 OCT 27



## KNOX COUNTY

384951087202501. Local number, KN 8.

LOCATION.--Lat 38°49'51", long 87°20'25", in M.D. 240, T.5 N., R.8 W., Knox County, Hydrologic Unit 05120111, on the northwest side of road at the southwest boundary of Chambers Cemetery about 2.5 mi southwest of Freelandville.

Owner: U.S. Geological Survey

AQUIFER.--Interbedded sandstone, shale, and coal of Pennsylvanian age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 137 ft, cased to 41 ft, open hole.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 460 ft above sea level, from topographic map. Measuring point: Top of casing, 3.50 ft above land-surface datum.

PERIOD OF RECORD.--August 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 11.86 ft below land-surface datum, Jan. 28, 1994; lowest, 15.32 ft below land-surface datum, Oct. 19, 1991.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

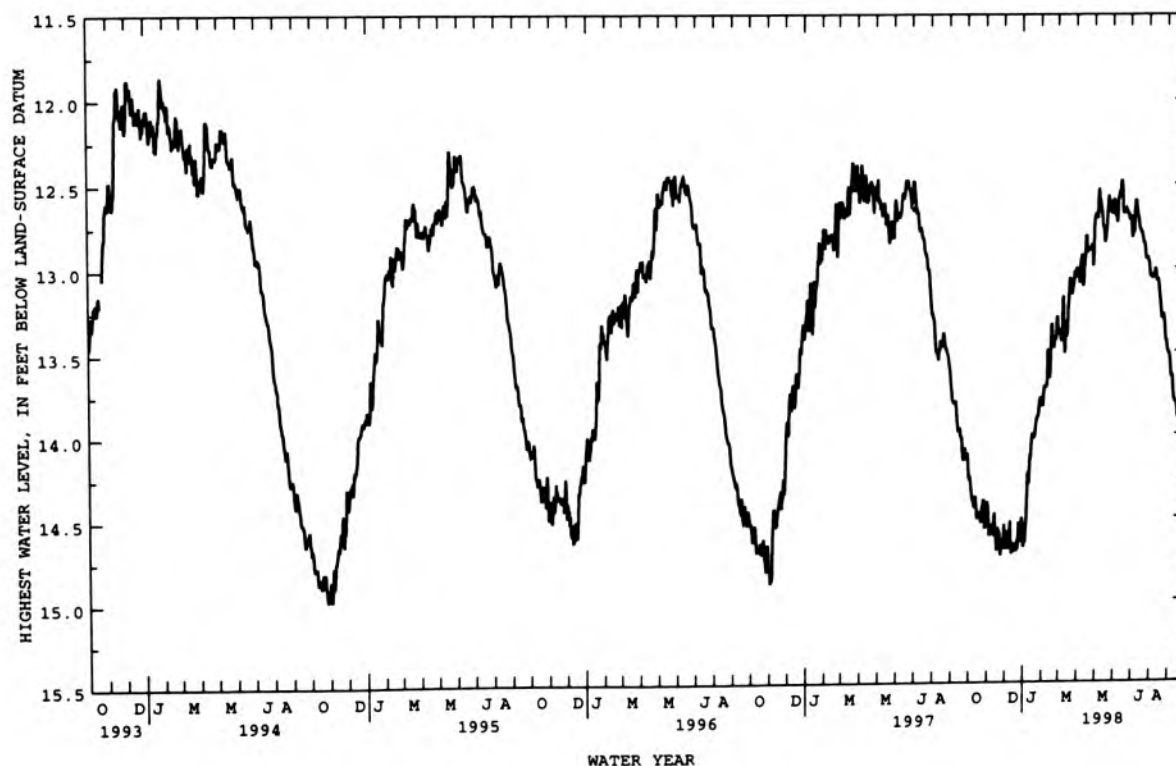
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	14.31	14.61	14.60	14.58	13.71	13.43	13.09	12.70	12.64	12.77	13.06	13.63
10	14.43	14.55	14.52	14.30	13.67	13.37	12.99	12.60	12.59	12.63	13.01	13.78
15	14.50	14.55	14.71	14.03	13.64	13.41	12.90	12.76	12.48	12.76	13.07	13.83
20	14.47	14.61	14.70	14.01	13.45	13.06	12.90	12.78	12.65	12.81	13.26	13.89
25	14.45	14.69	14.55	13.90	13.42	13.12	12.87	12.60	12.67	12.92	13.30	14.00
EOM	14.48	14.54	14.58	13.83	13.35	13.01	12.76	12.61	12.69	12.97	13.50	14.05

WTR YR 1998 HIGH 12.48 JUN 15

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	14.35	14.64	14.67	14.65	13.75	13.46	13.10	12.73	12.69	12.81	13.10	13.69
10	14.49	14.59	14.63	14.32	13.74	13.51	13.11	12.63	12.62	12.68	13.05	13.81
15	14.52	14.62	14.75	14.09	13.69	13.44	13.01	12.79	12.53	12.77	13.10	13.89
20	14.52	14.65	14.76	14.04	13.49	13.13	12.92	12.82	12.69	12.87	13.31	13.92
25	14.51	14.77	14.66	13.94	13.48	13.20	12.93	12.64	12.71	12.97	13.33	14.02
EOM	14.56	14.64	14.75	13.86	13.39	13.05	12.94	12.66	12.71	13.03	13.54	14.08

WTR YR 1998 LOW 14.78 NOV 24



## KOSCIUSKO COUNTY

412556085513401. Local number, KO 9.

LOCATION.--Lat 41°25'56", long 85°51'34", in SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.5, T.34 N., R.6 E., Kosciusko County, Hydrologic Unit 04050001, on the north edge of property owned by the Dome Pipeline Corporation, on County Road 50 West, 1.5 mi northwest of Milford.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 4 in., depth 102 ft, cased to 99 ft, screened to 102 ft.

INSTRUMENTATION.--Water-stage recorder.

DATUM.--Elevation of land-surface datum is 830.90 ft above sea level. Measuring point: Top of floor of shelter, 3.2 ft above land-surface datum.

PERIOD OF RECORD.--October 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 7.24 ft below land-surface datum, Apr. 8, 9, 1985; lowest, 14.33 ft below land-surface datum, Aug. 10, 1988.

#### HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

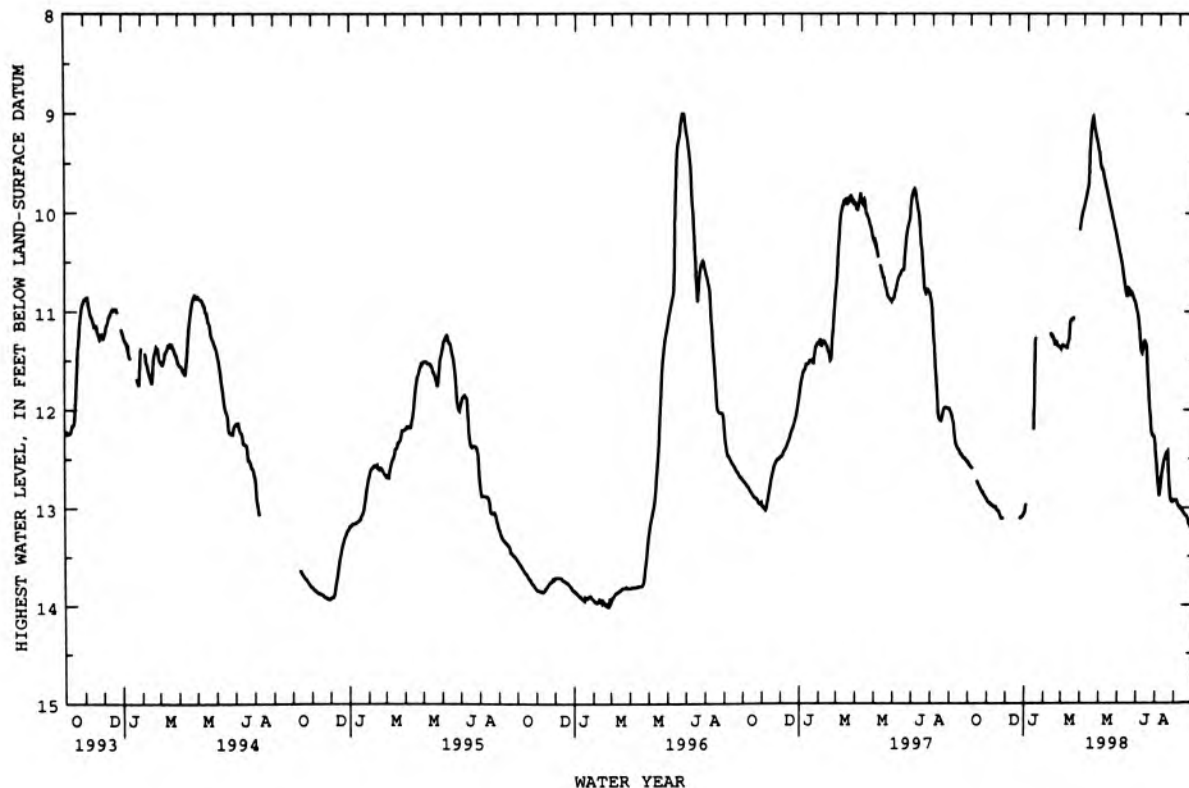
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	12.59	12.96	---	---	---	11.36	9.84	9.67	10.63	11.41	12.88	12.98
10	---	12.99	---	---	11.25	11.28	9.58	9.82	10.82	11.30	12.60	13.01
15	12.74	13.02	---	11.27	11.33	11.08	9.04	9.96	10.78	11.58	12.45	13.06
20	12.81	13.06	---	---	11.34	---	9.19	10.10	10.83	12.03	12.67	13.10
25	12.86	13.11	13.10	---	11.38	---	9.36	10.25	10.92	12.26	12.94	13.19
EOM	12.93	---	13.04	---	11.35	9.97	9.55	10.43	11.09	12.53	12.92	13.25

WTR YR 1998 HIGH 9.03 APR 16

#### LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	12.59	12.97	---	---	---	11.38	9.87	9.70	10.67	11.42	12.88	12.98
10	---	12.99	---	---	11.27	11.30	9.71	9.84	10.86	11.31	12.64	13.02
15	12.76	13.03	---	11.30	11.34	11.08	9.09	9.98	10.81	11.67	12.48	13.07
20	12.82	13.08	---	---	11.35	---	9.22	10.13	10.84	12.10	12.77	13.12
25	12.87	13.12	13.10	---	11.38	---	9.39	10.29	10.96	12.27	12.94	13.21
EOM	12.94	---	13.06	---	11.36	10.00	9.55	10.47	11.14	12.62	12.93	13.26

WTR YR 1998 LOW 13.26 SEP 30





## GROUND-WATER DATA

395

## LAGRANGE COUNTY

414318085200601. Local number, LG 2.

LOCATION.--Lat 41°43'18", long 85°20'06", in SW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.26, T.38 N., R.10 E., Lagrange County, Hydrologic Unit 04050001, on northeast corner of intersection of State Highway 120 and County Road 475 East, and 1.2 mi west of Brighton.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 5 in., depth 86 ft, cased to 80 ft, screened to 86 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 911.02 ft above sea level. Measuring point: Top of floor of shelter, 3.0 ft above land-surface datum.

PERIOD OF RECORD.--May 1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 10.00 ft below land-surface datum, July 1, 2, 1993; lowest, 16.93 ft below land-surface datum, Aug. 14, 15, 1988.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

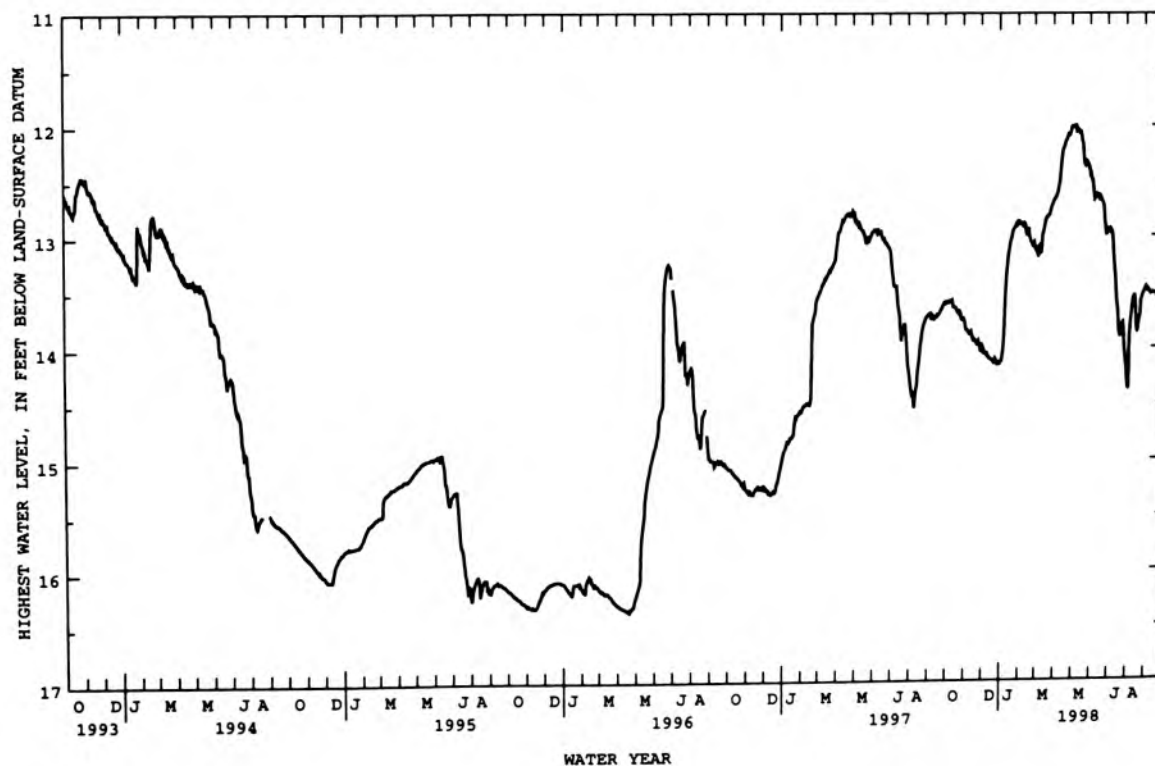
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	13.59	13.84	14.02	14.07	12.88	13.17	12.64	12.02	12.50	12.96	14.36	13.50
10	13.59	13.86	14.04	13.53	12.92	13.15	12.53	12.04	12.65	13.14	13.64	13.52
15	13.64	13.89	14.10	13.17	13.00	12.96	12.24	12.06	12.63	13.56	13.54	13.51
20	13.65	13.93	14.12	13.02	13.02	12.83	12.15	12.21	12.68	13.88	13.85	13.52
25	13.70	13.95	14.11	12.93	13.10	12.80	12.08	12.32	12.86	13.79	13.59	13.57
EOM	13.75	14.00	14.16	12.89	13.11	12.69	12.03	12.39	12.95	14.15	13.50	13.61

WTR YR 1998 HIGH 12.00 MAY 7

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	13.60	13.85	14.04	14.12	12.89	13.18	12.66	12.03	12.57	12.98	14.38	13.51
10	13.61	13.88	14.08	13.68	12.94	13.18	12.55	12.05	12.66	13.22	13.70	13.54
15	13.65	13.91	14.11	13.22	13.01	12.98	12.30	12.09	12.66	13.64	13.60	13.52
20	13.68	13.94	14.14	13.04	13.05	12.86	12.18	12.31	12.70	13.91	13.90	13.53
25	13.74	13.98	14.15	12.94	13.11	12.82	12.10	12.34	12.93	13.81	13.71	13.58
EOM	13.76	14.02	14.17	12.90	13.12	12.71	12.06	12.46	12.98	14.19	13.51	13.62

WTR YR 1998 LOW 14.39 AUG 4



## LAGRANGE COUNTY

414158085253401. Local number, LG 3.

LOCATION.--Lat 41°41'58", long 85°25'34", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.36, T.38 N., R.9 E., Lagrange County, Hydrologic Unit 04050001, at northwest corner of intersection of State Highway 9 and County Road 400 North, at edge of woods, and 1.4 mi south of Howe.

Owner: U.S. Geological Survey.

AQUIFER.--Fine to medium sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 6 in., depth 40 ft, cased to 35 ft, screened to 40 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 870 ft above sea level, from topographic map. Measuring point: Top of floor of shelter, 3.7 ft above land-surface datum.

PERIOD OF RECORD.--June 1981 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 3.48 ft below land-surface datum, Mar. 21, 1982; lowest, 8.82 ft below land-surface datum, Sept. 2, 1988.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

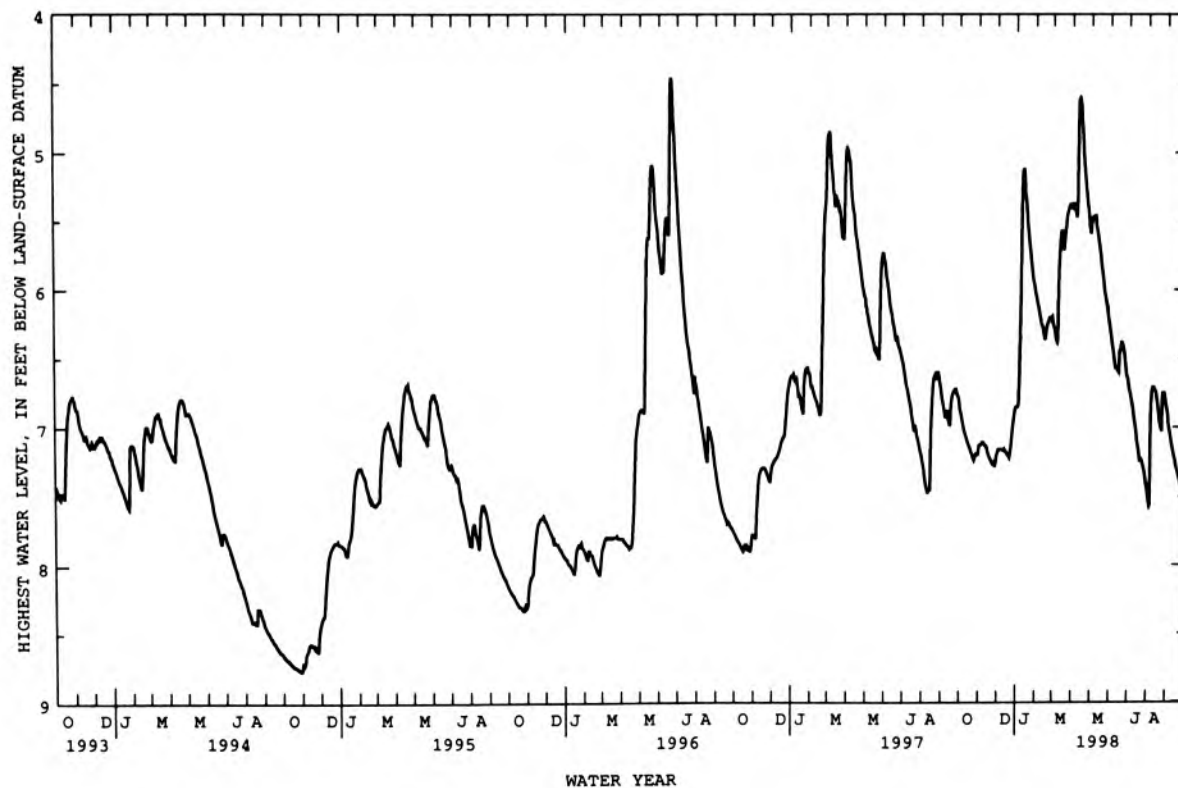
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	6.94	7.13	7.16	6.66	6.12	6.34	5.42	5.46	6.42	6.78	7.56	7.01
10	7.04	7.12	7.16	5.14	6.25	5.81	4.71	5.56	6.57	6.92	6.71	7.14
15	7.11	7.16	7.18	5.31	6.35	5.64	4.76	5.72	6.60	7.09	6.75	7.24
20	7.18	7.23	7.21	5.62	6.24	5.57	5.12	5.91	6.38	7.25	6.94	7.34
25	7.24	7.27	7.06	5.84	6.21	5.40	5.38	6.07	6.50	7.28	6.80	7.42
EOM	7.20	7.21	6.86	6.02	6.23	5.39	5.59	6.25	6.65	7.44	6.83	7.50

WTR YR 1998 HIGH 4.60 APR 12

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	6.96	7.13	7.16	6.82	6.15	6.37	5.44	5.47	6.45	6.80	7.60	7.03
10	7.06	7.13	7.17	5.27	6.27	5.97	5.03	5.59	6.60	6.95	6.71	7.16
15	7.13	7.18	7.18	5.38	6.36	5.69	4.81	5.75	6.63	7.12	6.79	7.27
20	7.19	7.24	7.22	5.67	6.25	5.63	5.18	5.94	6.39	7.27	6.97	7.36
25	7.26	7.28	7.11	5.88	6.23	5.43	5.42	6.10	6.54	7.30	7.05	7.44
EOM	7.21	7.25	6.87	6.04	6.25	5.43	5.60	6.29	6.69	7.47	6.86	7.52

WTR YR 1998 LOW 7.60 AUG 5



## LAKE COUNTY

411038087284701. Local number, LK 12.

LOCATION.--Lat 41°10'38", long 87°28'47", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.32, T.32 N., R.9 W., Lake County, Hydrologic Unit 07120001, on the northern edge of Kankakee River State Park, 2.0 mi southwest of Schneider.

Owner: U.S. Geological Survey.

AQUIFER.--Dolomite of Silurian age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 82 ft, cased to 52 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 630.59 ft above sea level. Measuring point: Top of floor of shelter, 2.55 ft above land-surface datum.

REMARKS.--Water level may be affected by pumping.

PERIOD OF RECORD.--March 1967 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 0.15 ft below land-surface datum, Jan. 12, 1973; lowest, 17.92 ft below land-surface datum, Aug. 27, 1988.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

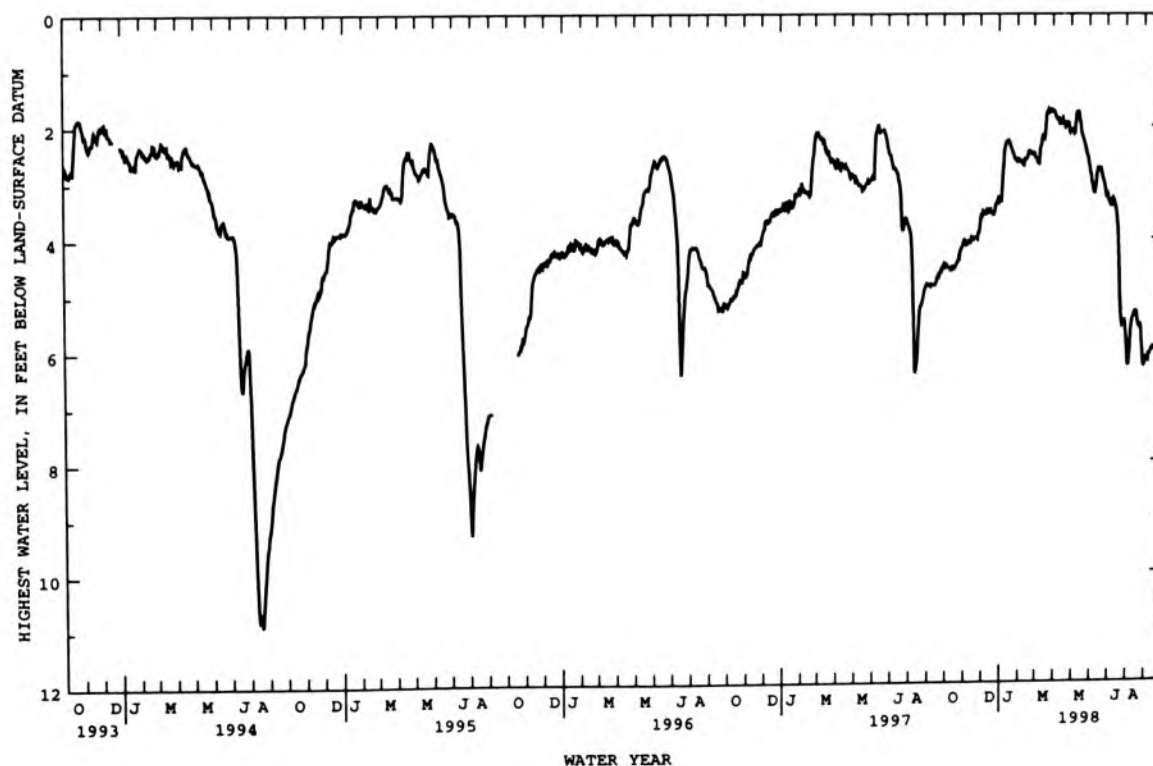
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	4.50	4.11	3.53	2.96	2.62	2.66	1.86	2.14	3.04	3.42	6.12	6.15
10	4.56	4.04	3.46	2.33	2.70	2.37	1.92	1.75	3.11	3.30	5.43	6.03
15	4.54	3.98	3.52	2.25	2.57	2.24	1.88	1.93	2.74	3.55	5.30	5.94
20	4.45	3.98	3.58	2.40	2.45	1.78	2.01	2.21	2.84	4.84	5.54	5.92
25	4.33	3.92	3.39	2.57	2.50	1.71	1.97	2.44	3.04	5.55	5.58	5.90
EOM	4.08	3.60	3.34	2.62	2.53	1.72	2.09	2.72	3.19	5.81	6.26	5.82

WTR YR 1998 HIGH 1.69 MAR 28

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	4.74	4.14	3.57	3.27	2.68	2.70	1.90	2.18	3.28	3.54	6.36	6.22
10	4.64	4.29	3.72	2.41	2.95	2.43	2.09	1.90	3.18	3.46	5.54	6.22
15	4.78	4.06	3.59	2.49	2.64	2.43	2.00	1.96	2.95	3.65	5.46	6.00
20	4.51	4.20	3.80	2.45	2.64	1.92	2.20	2.39	2.93	5.12	5.63	6.10
25	4.56	4.00	3.43	2.80	2.57	1.83	2.04	2.55	3.26	5.61	5.80	5.98
EOM	4.30	3.80	3.40	2.86	2.72	1.85	2.22	2.84	3.35	5.98	6.45	5.99

WTR YR 1998 LOW 6.47 AUG 4



## LAKE COUNTY

413559087270301. Local number, LK 13.

LOCATION.--Lat 41°35'59", long 87°27'03", in SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.3, T.36 N., R.9 W., Lake County, Hydrologic Unit 04040001, at the Gibson Woods Nature Preserve on the north side of Hammond.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 6.0 in., depth 23 ft, cased to 18 ft, screened to 23 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 591.91 ft above sea level. Measuring point: Top of casing, 3.33 ft above land-surface datum.

PERIOD OF RECORD.--July 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 0.00 ft below land-surface datum, June 30, July 2, 1993, Feb. 27, 1997; lowest, 5.15 ft below land-surface datum, Sept. 10, 1986.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

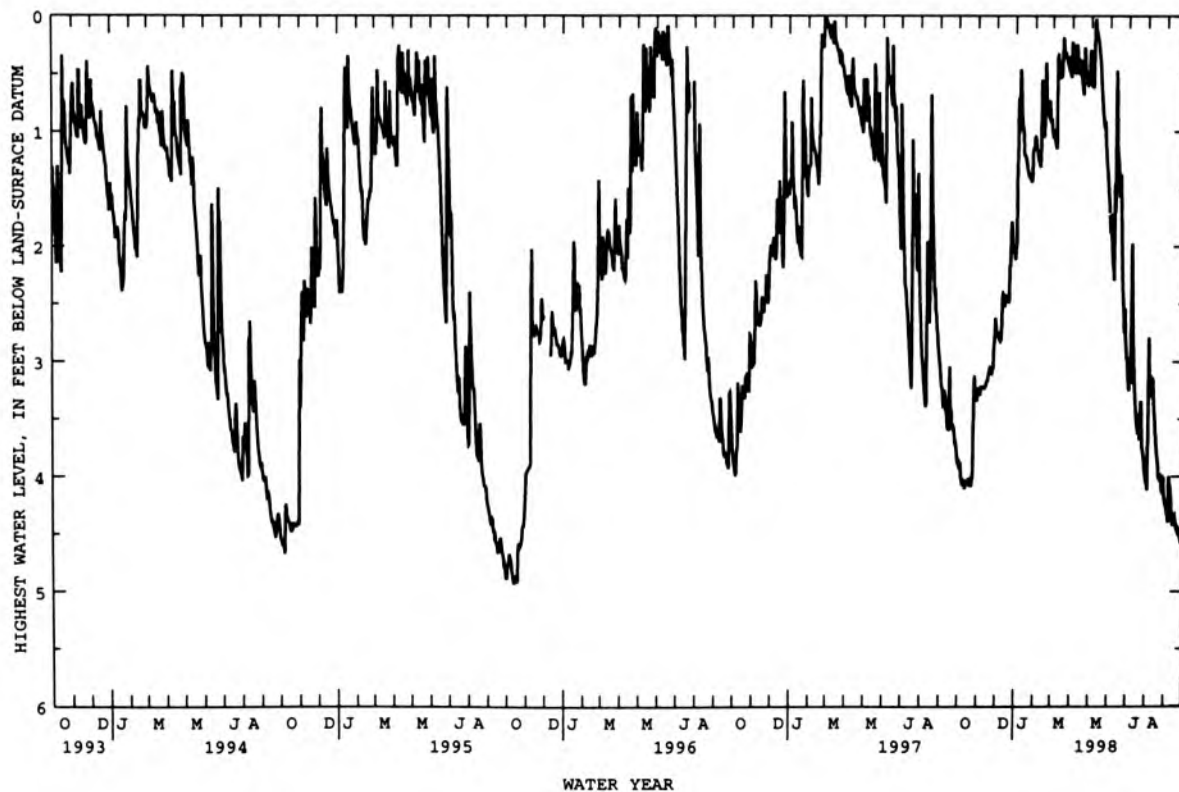
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	3.88	3.29	2.78	.71	1.20	1.09	.47	.61	2.06	3.01	3.12	4.33
10	4.05	3.22	2.44	.84	1.14	.46	.42	.14	1.70	2.88	3.15	4.13
15	4.05	3.18	2.44	1.20	1.05	.53	.52	.36	1.27	3.49	3.61	4.37
20	4.09	3.06	2.48	1.35	.81	.32	.27	.80	1.93	3.58	3.91	4.47
25	4.02	3.06	1.78	1.42	.91	.42	.58	1.09	2.75	3.75	3.98	4.45
EOM	3.34	2.67	2.11	1.06	1.00	.22	.29	1.59	2.98	4.03	4.20	4.45

WTR YR 1998 HIGH .02 MAY 8

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	4.10	3.30	2.81	1.39	1.24	1.13	.50	.72	2.23	3.30	3.32	4.52
10	4.13	3.23	2.77	.95	1.37	.50	.47	.17	1.98	3.13	3.58	4.31
15	4.09	3.21	2.53	1.23	1.08	.59	.54	.44	1.50	3.72	3.74	4.50
20	4.11	3.11	2.52	1.39	.84	.34	.76	.89	2.34	3.85	4.12	4.61
25	4.05	3.09	1.89	1.45	.93	.44	.64	1.21	3.11	3.93	4.23	4.59
EOM	3.34	2.75	2.21	1.21	1.03	.57	.62	1.89	3.30	4.19	4.37	4.62

WTR YR 1998 LOW 4.67 SEP 27



## LAKE COUNTY

411146087204101. Local number, LK 14.

LOCATION.--Lat 41°11'46", long 87°20'41", in SE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.28, T.32 N., R.8 W., Lake County, Hydrologic Unit 07120001, in Shelby on northwest corner of the intersection of Tyler Road and State Highway 55.

Owner: U.S. Geological Survey.

AQUIFER.--Limestone of Silurian age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 96.2 ft, cased to 50 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 641 ft above sea level, from topographic map. Measuring point: Top of casing, 3.50 ft above land-surface datum.

PERIOD OF RECORD.--July 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 4.70 ft below land-surface datum, May 11, 12, 1998; lowest, 22.86 ft below land-surface datum, July 28, 1991.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

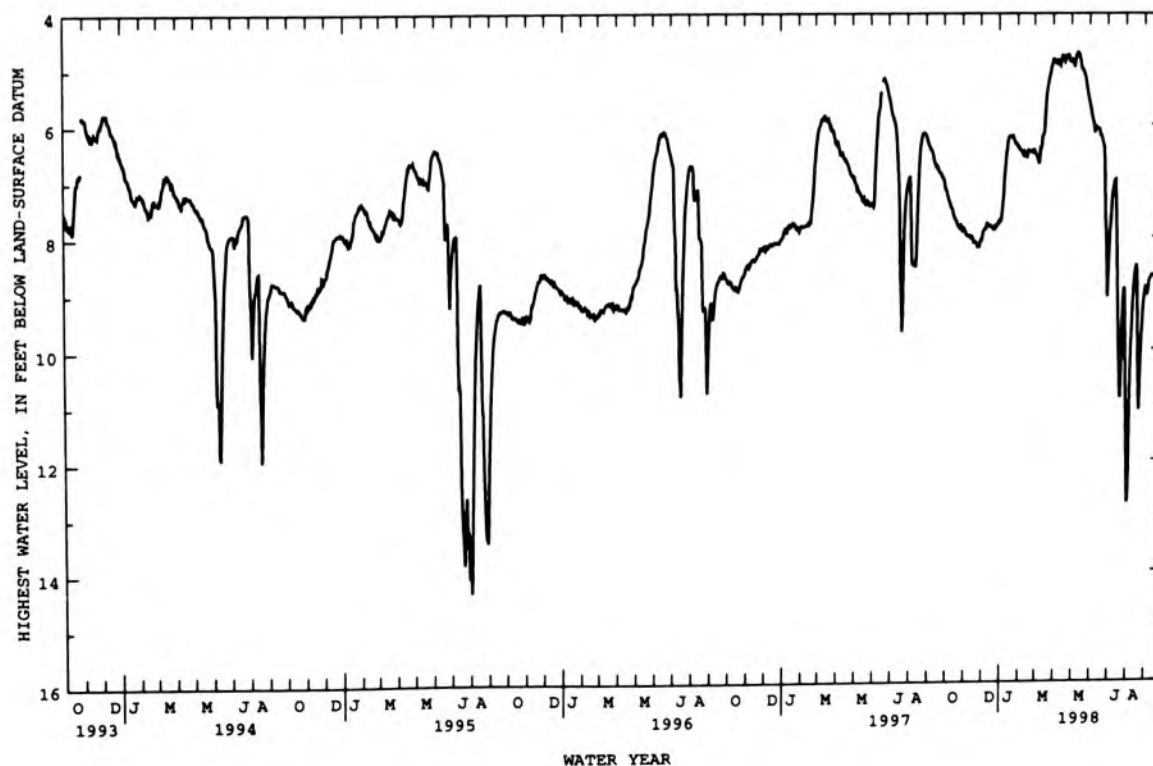
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	7.23	7.96	7.87	7.46	6.46	6.62	4.88	4.92	5.90	7.67	11.40	8.97
10	7.42	7.97	7.74	6.74	6.58	6.45	4.90	4.72	6.10	7.09	9.32	8.72
15	7.59	7.99	7.81	6.27	6.58	6.18	4.76	4.80	6.08	8.02	8.61	8.69
20	7.71	8.09	7.84	6.22	6.48	5.49	4.86	5.01	6.23	10.77	10.41	8.64
25	7.83	8.16	7.79	6.28	6.49	5.14	4.74	5.21	6.95	9.29	9.96	8.68
EOM	7.88	8.04	7.74	6.40	6.50	4.83	4.83	5.59	8.79	11.50	8.96	8.73

WTR YR 1998 HIGH 4.70 MAY 11

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	7.28	7.98	7.89	7.57	6.48	6.67	4.90	4.97	5.95	7.82	12.10	9.03
10	7.47	8.00	7.79	6.86	6.59	6.47	4.93	4.75	6.15	7.14	9.64	8.75
15	7.64	8.03	7.83	6.32	6.59	6.21	4.83	4.84	6.11	8.78	8.68	8.71
20	7.76	8.10	7.88	6.23	6.49	5.67	4.89	5.03	6.28	11.00	10.88	8.70
25	7.88	8.20	7.83	6.31	6.51	5.21	4.78	5.28	7.74	9.63	10.25	8.69
EOM	7.90	8.07	7.77	6.41	6.52	4.90	4.87	5.66	9.07	12.17	9.05	8.74

WTR YR 1998 LOW 13.10 AUG 2





## LA PORTE COUNTY

413700086445401. Local number, LP 8.

LOCATION.--Lat 41°37'00", long 86°44'54", in NE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.34, T.37 N., R.3 W., La Porte County, Hydrologic Unit 07120001, at the west end of Soldiers Memorial Park in La Porte.

Owner: State of Indiana.

AQUIFER.--Sand and gravel of Quaternary age.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 1.5 in., depth 22 ft, cased to 20 ft, screened to 22 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 802.79 ft above sea level. Measuring point: Top of floor of shelter, 3.70 ft above land-surface datum.

PERIOD OF RECORD.--May 1976 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 1.37 ft below land-surface datum, Jan. 28, 1994; lowest, 7.04 ft below land-surface datum, Mar. 8-11, 1978.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

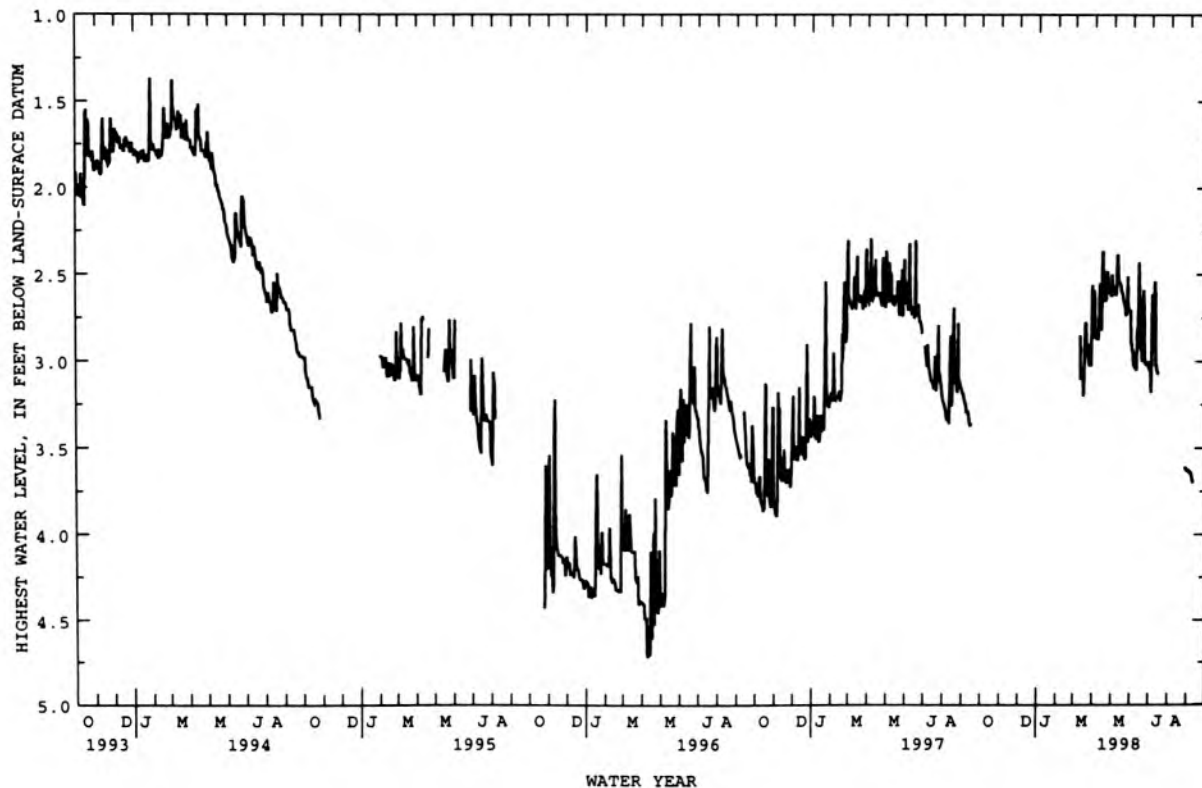
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	---	---	---	2.87	2.61	3.03	2.95	---	3.64
10	---	---	---	---	---	3.10	2.66	2.54	2.93	3.02	---	---
15	---	---	---	---	---	3.20	2.56	2.60	2.91	---	---	---
20	---	---	---	---	---	2.97	2.64	2.68	2.71	---	---	---
25	---	---	---	---	---	3.02	2.60	2.70	3.02	---	---	---
EOM	---	---	---	---	---	2.59	2.58	2.89	3.03	---	3.63	---

WTR YR 1998 HIGH 2.37 APR 13

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	---	---	---	2.87	2.62	3.04	2.96	---	3.65
10	---	---	---	---	---	3.10	2.82	2.55	3.02	3.05	---	---
15	---	---	---	---	---	3.22	2.59	2.61	2.94	---	---	---
20	---	---	---	---	---	3.04	2.65	2.73	2.97	---	---	---
25	---	---	---	---	---	3.02	2.61	2.70	3.03	---	---	---
EOM	---	---	---	---	---	2.90	2.58	2.94	3.07	---	3.63	---

WTR YR 1998 LOW 3.70 SEP 8



## LA PORTE COUNTY

412350086512801. Local number, LP 9.

LOCATION.--Lat 41°23'50", long 86°51'28", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.15, T.34 N., R.4 W., La Porte County, Hydrologic Unit 07120001, at the intersection of County Roads 1450 South and 825 West, 3.0 mi southeast of Wanatah.

Owner: U.S. Geological Survey.

AQUIFER.--Sand of Pleistocene age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 32 ft, cased to 27 ft, screened to 32 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 706.81 ft above sea level. Measuring point: Top of floor of shelter, 1.60 ft above land-surface datum.

PERIOD OF RECORD.--June 1976 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 1.56 ft below land-surface datum, Apr. 5, 1985; lowest, 8.28 ft below land-surface datum, Oct. 16, 17, 1988.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

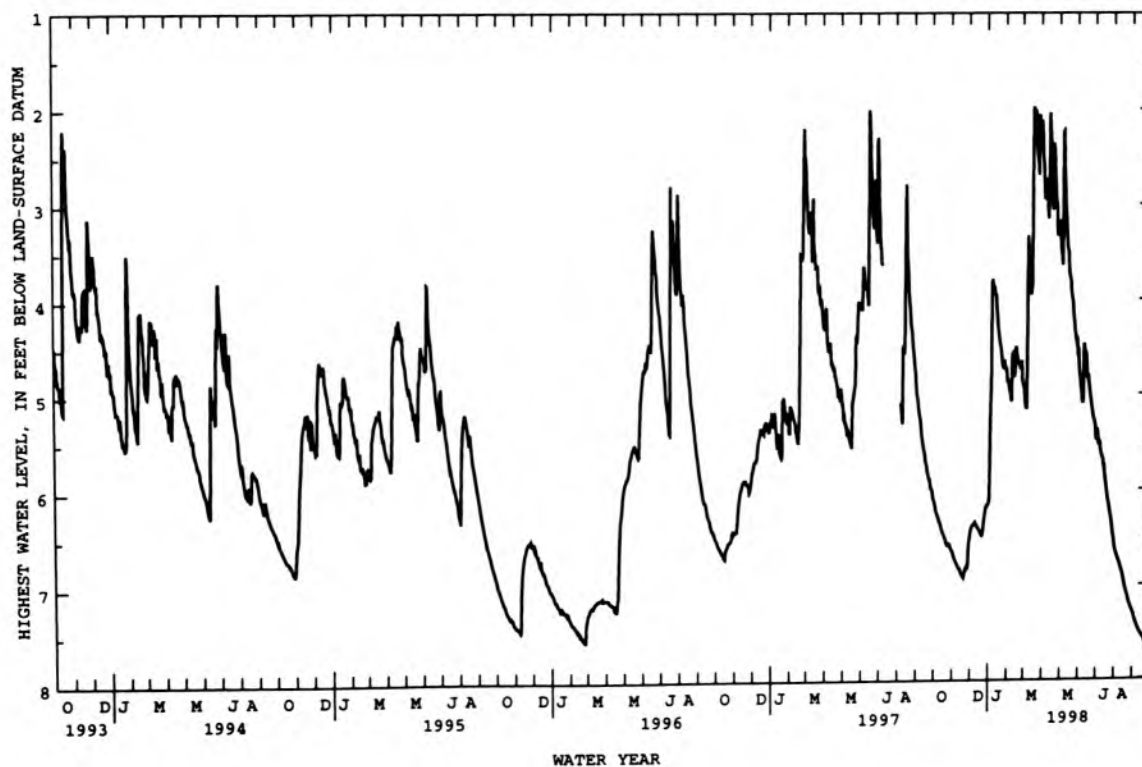
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	6.20	6.71	6.38	5.46	4.88	5.11	2.86	3.54	4.84	5.49	6.68	7.37
10	6.30	6.78	6.34	3.85	5.08	3.64	2.88	2.88	5.10	5.62	6.77	7.45
15	6.41	6.84	6.40	3.95	4.82	3.95	2.20	3.48	4.58	5.73	6.88	7.52
20	6.49	6.91	6.46	4.39	4.62	2.19	3.06	3.80	4.92	6.04	7.04	7.57
25	6.58	6.81	6.33	4.67	4.74	2.53	2.99	4.20	5.16	6.24	7.16	7.64
EOM	6.62	6.56	6.17	4.75	4.86	2.14	3.18	4.40	5.32	6.50	7.27	7.69

WTR YR 1998 HIGH 1.98 MAR 18

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	6.23	6.73	6.40	5.82	4.94	5.15	2.93	3.65	4.94	5.54	6.70	7.39
10	6.33	6.80	6.36	3.92	5.10	3.72	3.07	3.04	5.17	5.66	6.79	7.47
15	6.43	6.86	6.41	4.11	4.86	3.97	2.31	3.50	4.71	5.84	6.91	7.53
20	6.52	6.92	6.47	4.46	4.68	2.26	3.15	3.94	4.97	6.10	7.06	7.58
25	6.62	6.84	6.40	4.70	4.78	2.57	3.12	4.23	5.21	6.28	7.18	7.65
EOM	6.63	6.67	6.19	4.82	4.90	2.64	3.26	4.59	5.44	6.56	7.29	7.70

WTR YR 1998 LOW 7.70 SEP 30



## LA PORTE COUNTY

413139086341401. Local number, LP 10.

LOCATION.--Lat 41°31'40", long 86°34'10", in SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.31, T.36 N., R.1 W., La Porte County, Hydrologic Unit 07120001, 200 ft north of the manager's residence at the Mixsawbah Fish Hatchery and 2.6 mi southeast of Stillwell.

Owner: State of Indiana.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 6 in., depth 104 ft, cased to 102 ft, screened to 104 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 695 ft above sea level, from topographic map. Measuring point: Top of floor of shelter, 3.60 ft above land-surface datum.

PERIOD OF RECORD.--August 1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 2.65 ft below land-surface datum, Dec. 29, 1990; lowest, 9.61 ft below land-surface datum, Sept. 17, 18, 1988.

#### HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

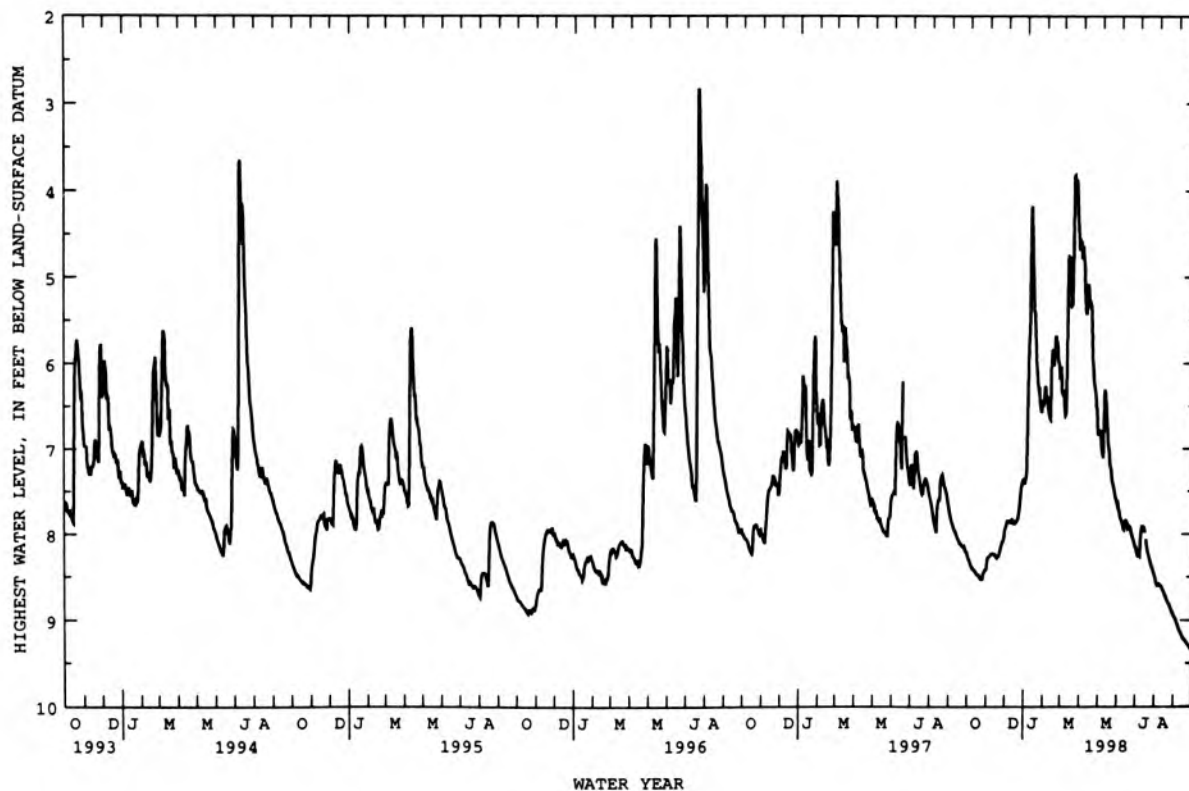
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	8.35	8.26	7.85	6.29	6.40	6.57	5.16	7.07	7.83	8.24	8.60	9.03
10	8.41	8.23	7.84	4.44	6.66	4.76	5.08	6.41	7.95	7.91	8.60	9.11
15	8.46	8.26	7.88	5.41	6.03	5.33	5.33	6.99	7.87	---	8.67	9.19
20	8.50	8.26	7.83	6.20	5.74	3.95	6.11	7.31	7.92	8.23	8.77	9.24
25	8.53	8.10	7.50	6.53	6.19	4.44	6.52	7.51	8.06	8.37	8.84	9.29
EOM	8.41	7.94	7.42	6.40	6.34	4.79	6.79	7.65	8.16	8.49	8.94	9.35

WTR YR 1998 HIGH 3.82 MAR 19

#### LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	8.37	8.27	7.86	6.88	6.50	6.61	5.27	7.11	7.85	8.25	8.61	9.04
10	8.42	8.24	7.87	4.72	6.72	4.81	5.19	6.54	7.98	7.91	8.61	9.13
15	8.47	8.27	7.89	5.65	6.06	5.38	5.37	7.02	7.94	---	8.70	9.21
20	8.52	8.27	7.84	6.28	5.85	4.06	6.24	7.37	7.95	8.26	8.78	9.25
25	8.54	8.14	7.57	6.58	6.27	4.50	6.57	7.55	8.08	8.39	8.86	9.30
EOM	8.42	7.97	7.49	6.50	6.36	4.90	6.82	7.72	8.20	8.53	8.96	9.36

WTR YR 1998 LOW 9.36 SEP 30



## LA PORTE COUNTY

412839086533101. Local number, LP 11.

LOCATION.--Lat 41°28'39", long 86°53'31", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.16, T.35 N., R.4 W., La Porte County, Hydrologic Unit 07120001, in the northeast corner of intersection of U.S. Highway 421 and County Road 900 South.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 100 ft, cased to 95 ft, screened to 100 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 760 ft above sea level, from topographic map. Measuring point: Top of floor of shelter, 4.1 ft above land-surface datum.

REMARKS.--Water level may be affected by pumpage.

PERIOD OF RECORD.--June 1981 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 0.82 ft below land-surface datum, Dec. 30, 1990; lowest, 10.18 ft below land-surface datum, Oct. 17, 1988.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

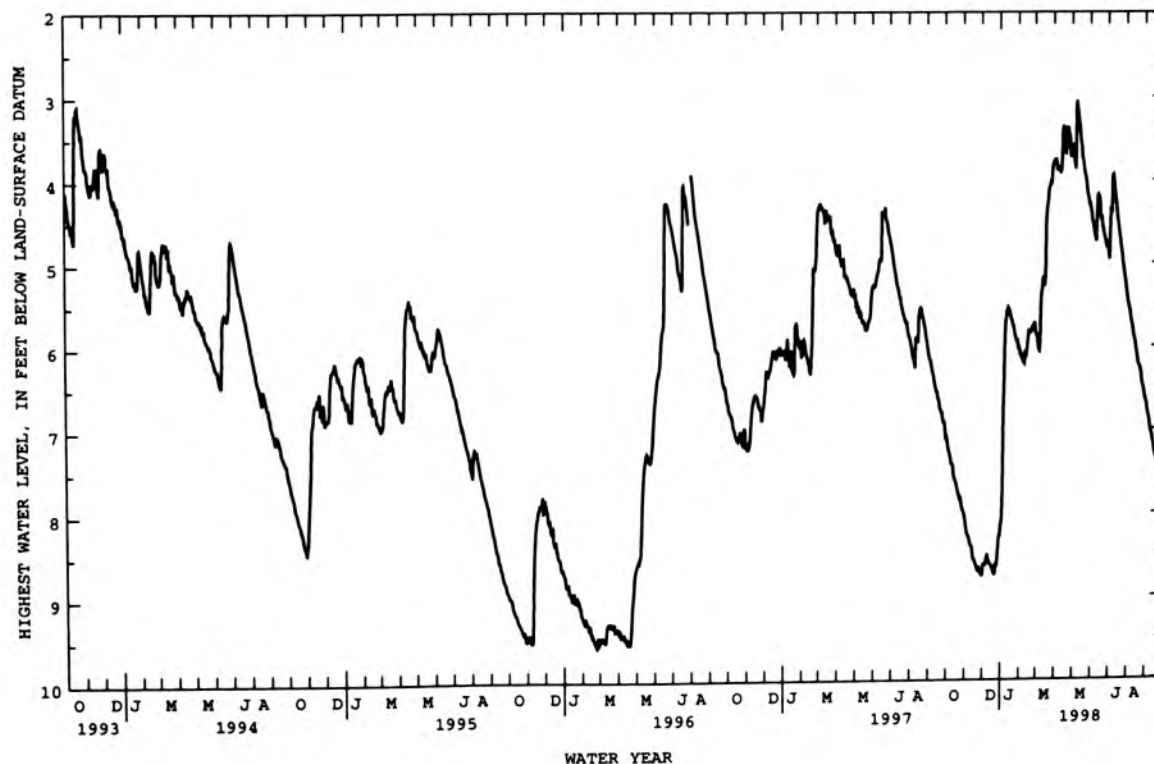
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	7.21	8.23	8.61	7.41	6.11	6.01	3.86	3.82	4.54	4.38	5.55	6.82
10	7.40	8.32	8.49	5.68	6.21	5.38	3.90	3.18	4.74	4.06	5.76	7.02
15	7.57	8.47	8.62	5.55	5.97	5.28	3.36	3.56	4.21	4.42	5.97	7.18
20	7.69	8.60	8.71	5.70	5.83	4.32	3.70	3.85	4.53	4.70	6.22	7.37
25	7.85	8.65	8.63	5.87	5.77	4.03	3.49	4.09	4.72	5.02	6.34	7.53
EOM	7.99	8.69	8.27	6.04	5.81	3.79	3.60	4.28	4.80	5.34	6.62	7.70

WTR YR 1998 HIGH 3.05 MAY 8

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	7.25	8.25	8.63	7.80	6.15	6.05	3.88	3.87	4.60	4.40	5.59	6.85
10	7.43	8.37	8.59	5.77	6.24	5.55	3.93	3.25	4.79	4.14	5.81	7.05
15	7.59	8.52	8.64	5.58	6.05	5.30	3.42	3.60	4.29	4.48	6.03	7.26
20	7.74	8.62	8.75	5.74	5.85	4.38	3.74	3.90	4.58	4.80	6.26	7.40
25	7.90	8.70	8.69	5.89	5.82	4.09	3.52	4.15	4.78	5.08	6.43	7.58
EOM	8.02	8.76	8.30	6.06	5.84	3.84	3.65	4.39	4.90	5.40	6.65	7.77

WTR YR 1998 LOW 8.79 DEC 1



## LA PORTE COUNTY

413434086434701. Local number, LP 12.

LOCATION.--Lat 41°34'34", long 86°43'47", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.14, T.36 N., R.3 W., La Porte County, Hydrologic Unit 07120001, on County Road 150 West, at La Porte Municipal Airport, 1.6 mi south of La Porte.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 6 in., depth 77 ft, cased to 71 ft, screened to 77 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 805 ft above sea level, from topographic map. Measuring point: Top of floor of shelter, 3.70 ft above land-surface datum.

REMARKS.--Water level may be affected by pumpage.

PERIOD OF RECORD.--July 1981 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 14.96 ft below land-surface datum, Jan. 16, 1991; lowest, 22.82 ft below land-surface datum, Jan. 27, 28, 31, 1990.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

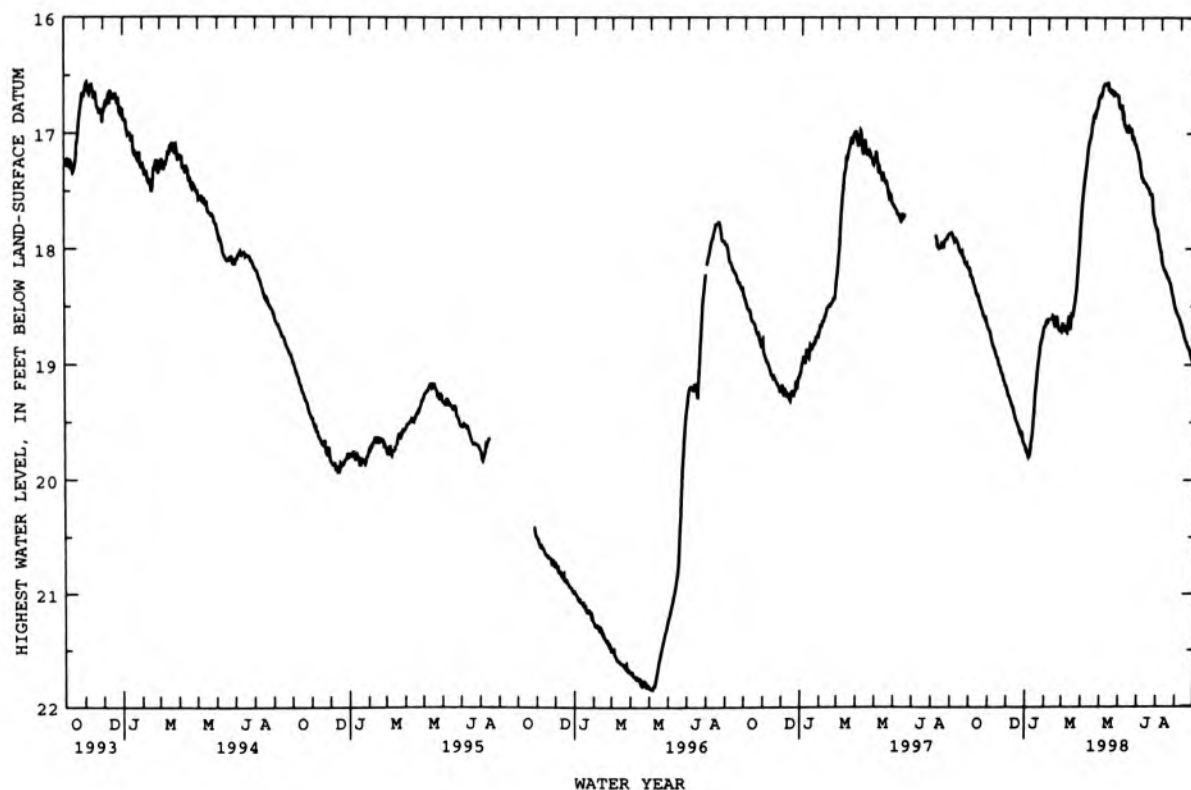
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	18.29	18.80	19.30	19.79	18.61	18.71	17.24	16.58	16.93	17.42	18.12	18.64
10	18.38	18.88	19.37	19.61	18.61	18.67	17.05	16.63	16.97	17.45	18.20	18.74
15	18.45	18.96	19.49	19.23	18.68	18.59	16.85	16.63	16.96	17.50	18.25	18.81
20	18.53	19.06	19.57	18.94	18.68	18.39	16.79	16.66	17.08	17.61	18.33	18.88
25	18.61	19.14	19.60	18.77	18.71	17.99	16.67	16.71	17.15	17.80	18.46	18.97
EOM	18.70	19.21	19.74	18.65	18.69	17.48	16.59	16.78	17.30	17.95	18.57	19.05

WTR YR 1998 HIGH 16.56 MAY 7

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	18.31	18.82	19.32	19.80	18.61	18.73	17.29	16.59	16.96	17.43	18.14	18.66
10	18.40	18.90	19.41	19.65	18.62	18.71	17.06	16.63	17.01	17.46	18.20	18.76
15	18.47	18.99	19.50	19.30	18.69	18.62	16.91	16.67	17.01	17.53	18.27	18.84
20	18.56	19.07	19.59	18.99	18.70	18.44	16.82	16.67	17.10	17.69	18.36	18.91
25	18.64	19.16	19.66	18.79	18.74	18.08	16.70	16.76	17.18	17.82	18.49	18.99
EOM	18.71	19.25	19.77	18.67	18.70	17.54	16.63	16.86	17.34	17.98	18.58	19.07

WTR YR 1998 LOW 19.80 JAN 3





## MARION COUNTY

393855086120701. Local number, MA 34.

LOCATION.--Lat 39°38'55", long 86°12'07", in NE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.21, T.14 N., R.3 E., Marion County, Hydrologic Unit 05120201, about 0.5 mi northwest of Glenns Valley.

Owner: U.S. Geological Survey.

AQUIFER.--Coarse sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 6 in., depth 66 ft, cased to 61 ft, screened to 66 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 670.73 ft above sea level. Measuring point: Top of casing, 3.70 ft above land-surface datum.

PERIOD OF RECORD.--July 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 2.55 ft below land-surface datum, Nov. 17, 1993; lowest, 8.84 ft below land-surface datum, Nov. 23-25, 1987. An artificially created extreme of the lowest water level, 17.32 ft below land-surface datum, June 6-8, 9, 1998 was recorded during underground drainage construction in the vicinity immediately surrounding the well.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

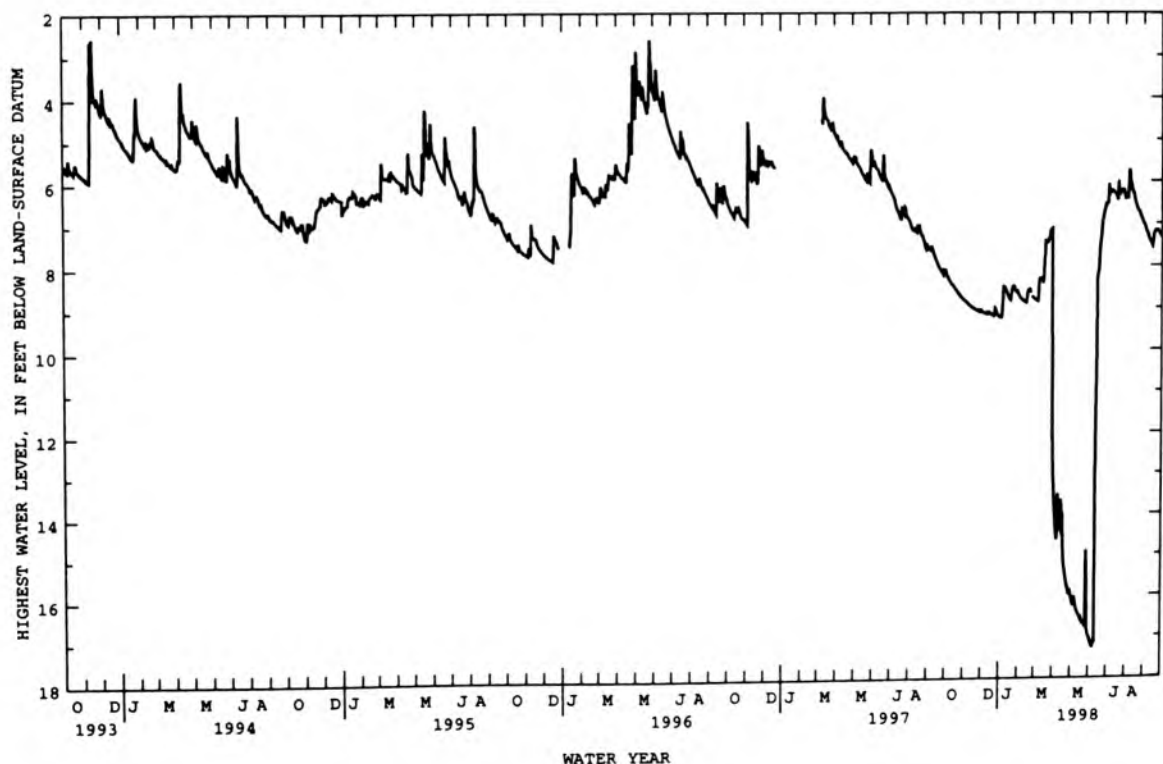
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	8.21	8.83	9.10	9.23	8.74	8.83	14.07	16.20	17.18	6.31	6.35	7.21
10	8.34	8.90	9.14	8.50	8.83	8.30	13.52	16.21	17.13	6.23	6.05	7.39
15	8.45	8.96	9.10	8.69	8.88	8.35	13.82	16.47	8.21	6.29	6.31	7.54
20	8.55	9.02	9.15	8.82	8.56	7.41	15.17	16.58	7.44	5.99	6.63	7.17
25	8.65	9.05	9.00	8.47	8.72	7.37	15.69	16.71	6.81	6.23	6.75	7.18
EOM	8.76	9.04	9.20	8.60	8.77	7.12	15.87	16.94	6.54	6.37	7.01	7.32

WTR YR 1998 HIGH 5.73 AUG 7

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	8.24	8.84	9.11	9.24	8.77	8.84	14.30	16.26	17.21	6.34	6.38	7.23
10	8.37	8.91	9.14	8.53	8.84	8.35	14.62	16.31	17.19	6.26	6.10	7.41
15	8.46	8.98	9.11	8.71	8.88	8.41	13.85	16.50	10.56	6.31	6.42	7.57
20	8.57	9.02	9.17	8.84	8.61	7.81	15.30	16.64	7.59	6.52	6.67	7.22
25	8.66	9.07	9.16	8.49	8.74	7.43	15.78	16.76	6.88	6.27	6.83	7.22
EOM	8.78	9.10	9.21	8.71	8.79	12.21	16.05	17.00	6.57	6.45	7.05	7.35

WTR YR 1998 LOW 17.32 JUN 8



## MARION COUNTY

394632086092701. Local number, MA 35.

LOCATION.--Lat 39°46'32", long 86°09'27", in NW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.1, T.15 N., R.3 E., Marion County, Hydrologic Unit 05120201, in the northeast corner of the intersection of Meridian and North Streets in Indianapolis.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 83 ft, cased to 77.5 ft, screened to 83 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 716.40 ft above sea level. Measuring point: Top of casing, 2.50 ft above land-surface datum.

REMARKS.--Water levels are affected by pumpage.

PERIOD OF RECORD.--September 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 30.30 ft below land-surface datum, Mar. 27, 1991; lowest, unknown, but greater than 37.55 ft below land-surface datum. Recorder unable to record below this water level, which occurred on numerous occasions between Aug. 14 and Sept. 2, 1995.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

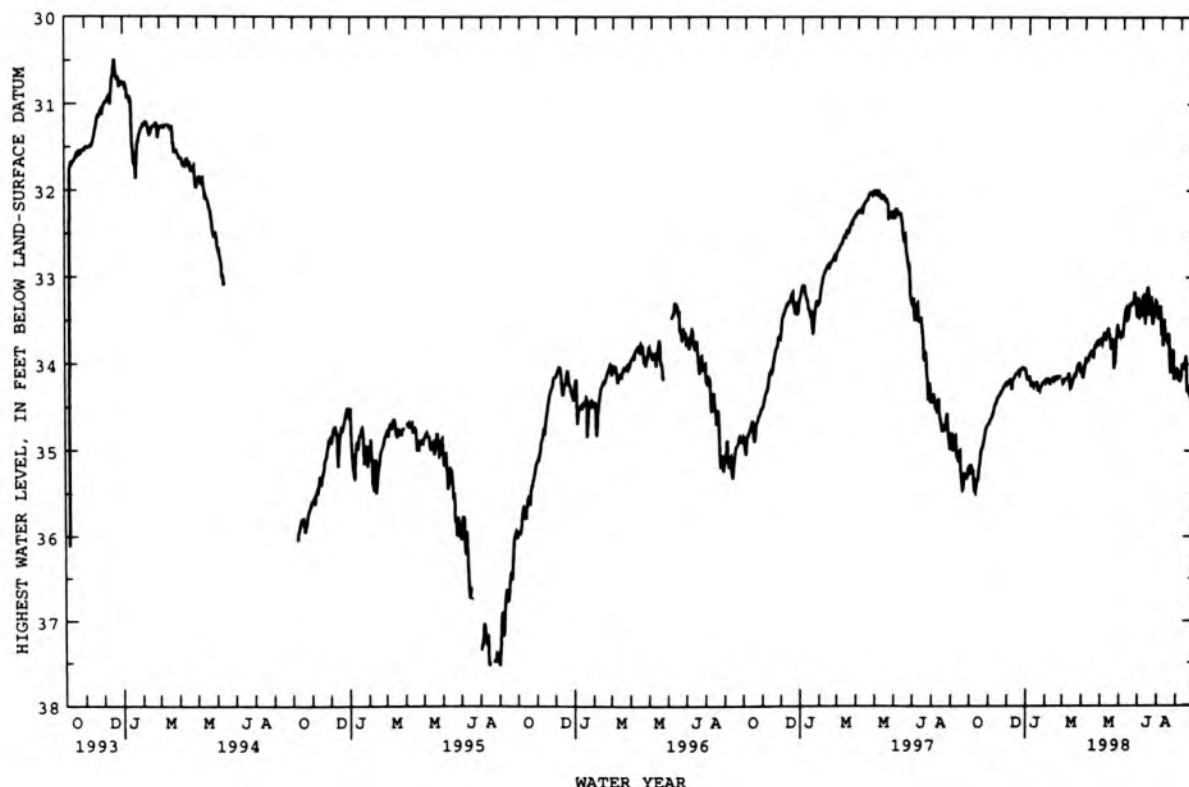
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	35.25	34.62	34.18	34.15	34.21	34.17	33.93	33.64	33.53	33.22	33.54	34.15
10	35.49	34.47	34.17	34.23	34.18	34.23	33.91	33.60	33.41	33.37	33.70	34.00
15	35.26	34.38	34.11	34.22	34.15	34.19	33.87	33.83	33.31	33.44	33.70	34.32
20	34.98	34.33	34.10	34.28	34.15	34.12	33.78	34.05	33.28	33.44	33.91	34.29
25	34.82	34.25	34.04	34.22	34.17	33.99	33.79	33.57	33.40	33.37	34.18	34.30
EOM	34.69	34.23	34.16	34.19	34.21	34.16	33.75	33.63	33.42	33.43	34.07	34.33

WTR YR 1998 HIGH 33.11 JUL 13

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	35.41	34.68	34.24	34.26	34.25	34.20	33.98	33.95	33.59	33.49	33.84	34.45
10	35.79	34.51	34.18	34.28	34.20	34.29	33.95	33.68	33.72	33.64	33.91	34.32
15	35.35	34.40	34.13	34.25	34.18	34.22	34.06	34.12	33.62	33.56	33.99	34.47
20	35.06	34.39	34.13	34.37	34.18	34.15	33.86	34.29	33.50	33.61	34.20	34.64
25	34.87	34.27	34.06	34.25	34.23	34.03	33.95	33.67	33.66	33.65	34.33	34.69
EOM	35.01	34.32	34.21	34.21	34.27	34.45	33.99	33.88	33.67	33.75	34.41	34.63

WTR YR 1998 LOW 35.82 OCT 9



## MARION COUNTY

394626086100201. Local number, MA 36.

LOCATION.--Lat 39°46'26", long 86°10'02", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.2, T.15 N., R.3 E., Marion County, Hydrologic Unit 05120201, in the southwest corner of the intersection of West and Michigan Streets in Indianapolis.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 70.6 ft, cased to 65.1 ft, screened to 70.6 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 710.06 ft above sea level. Measuring point: Top of casing, 3.00 ft above land-surface datum.

PERIOD OF RECORD.--September 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 26.86 ft below land-surface datum, May 14, 1991; lowest, 33.41 ft below land-surface datum, Sept. 3-5, 1995.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

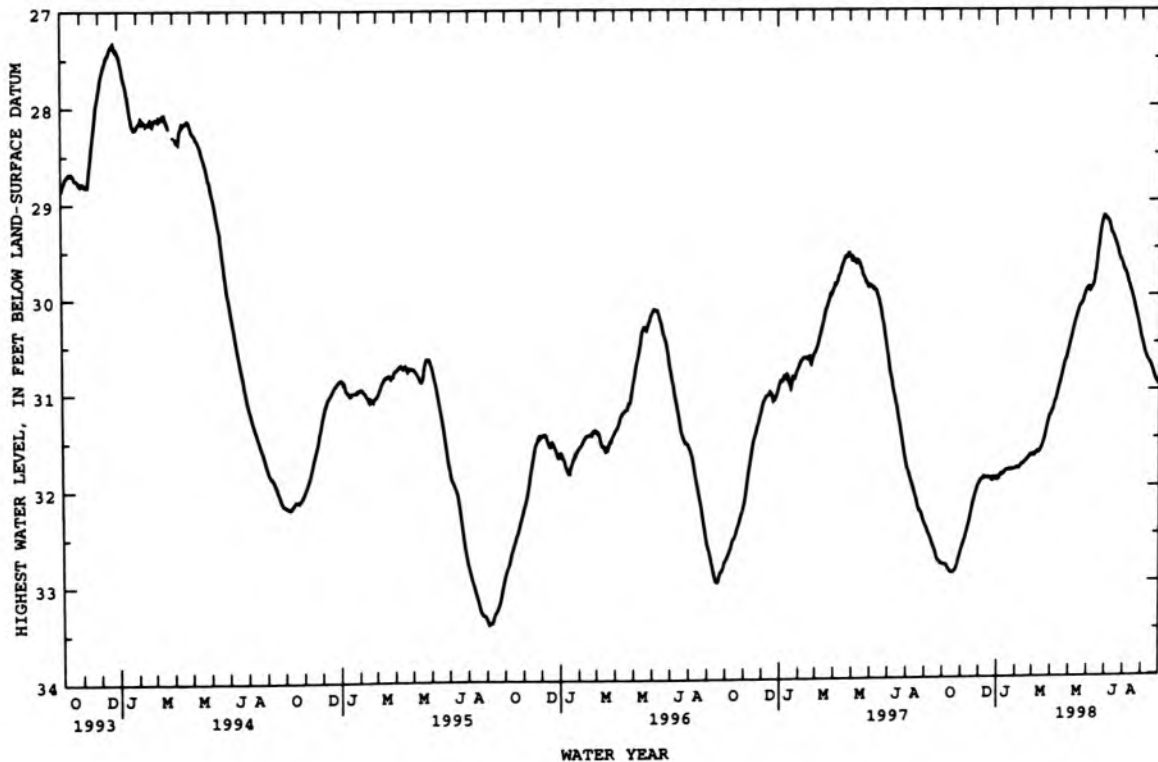
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	32.81	32.60	31.93	31.90	31.80	31.68	31.20	30.46	29.93	29.21	29.76	30.58
10	32.85	32.49	31.90	31.88	31.78	31.65	31.10	30.32	29.91	29.29	29.88	30.67
15	32.90	32.37	31.91	31.84	31.76	31.62	30.96	30.20	29.76	29.37	29.98	30.72
20	32.90	32.22	31.91	31.83	31.72	31.54	30.84	30.11	29.49	29.46	30.11	30.81
25	32.84	32.09	31.92	31.83	31.69	31.41	30.70	30.06	29.26	29.59	30.24	30.90
BOM	32.70	31.99	31.91	31.82	31.68	31.26	30.59	29.94	29.16	29.68	30.44	30.94

WTR YR 1998 HIGH 29.16 JUN 29

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	32.81	32.62	31.94	31.92	31.80	31.68	31.22	30.49	29.95	29.22	29.78	30.60
10	32.86	32.52	31.91	31.88	31.79	31.66	31.11	30.35	29.92	29.32	29.89	30.68
15	32.90	32.40	31.91	31.85	31.77	31.64	30.99	30.23	29.81	29.39	30.01	30.73
20	32.90	32.25	31.92	31.83	31.73	31.56	30.86	30.14	29.54	29.49	30.14	30.83
25	32.86	32.12	31.94	31.83	31.69	31.44	30.72	30.08	29.29	29.61	30.28	30.91
BOM	32.73	32.01	31.94	31.82	31.69	31.28	30.62	29.95	29.17	29.71	30.47	30.94

WTR YR 1998 LOW 32.91 OCT 16



## GROUND-WATER DATA

## MARION COUNTY

394732086115501. Local number, MA 37.

LOCATION.--Lat 39°47'32", long 86°11'55", in SE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec. 33, T.16N., R.3E., Marion County, Hydrologic Unit 05120201, on the South Grove Municipal Golf Course property, west of the 11th fairway and east of White River Parkway in Indianapolis.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene Epoch.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 6 in., depth 74 ft, cased to 69 ft, screened to 74 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 690 ft above sea level, from topographic map. Measuring point: Top of casing, 3.35 ft above land-surface datum.

REMARKS.--Water level may be affected by pumpage.

PERIOD OF RECORD.--July 1988 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 3.22 ft below land-surface datum, Mar. 20, 1991; lowest, 16.70 ft below land-surface datum, Sept. 11, 1996.

#### HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

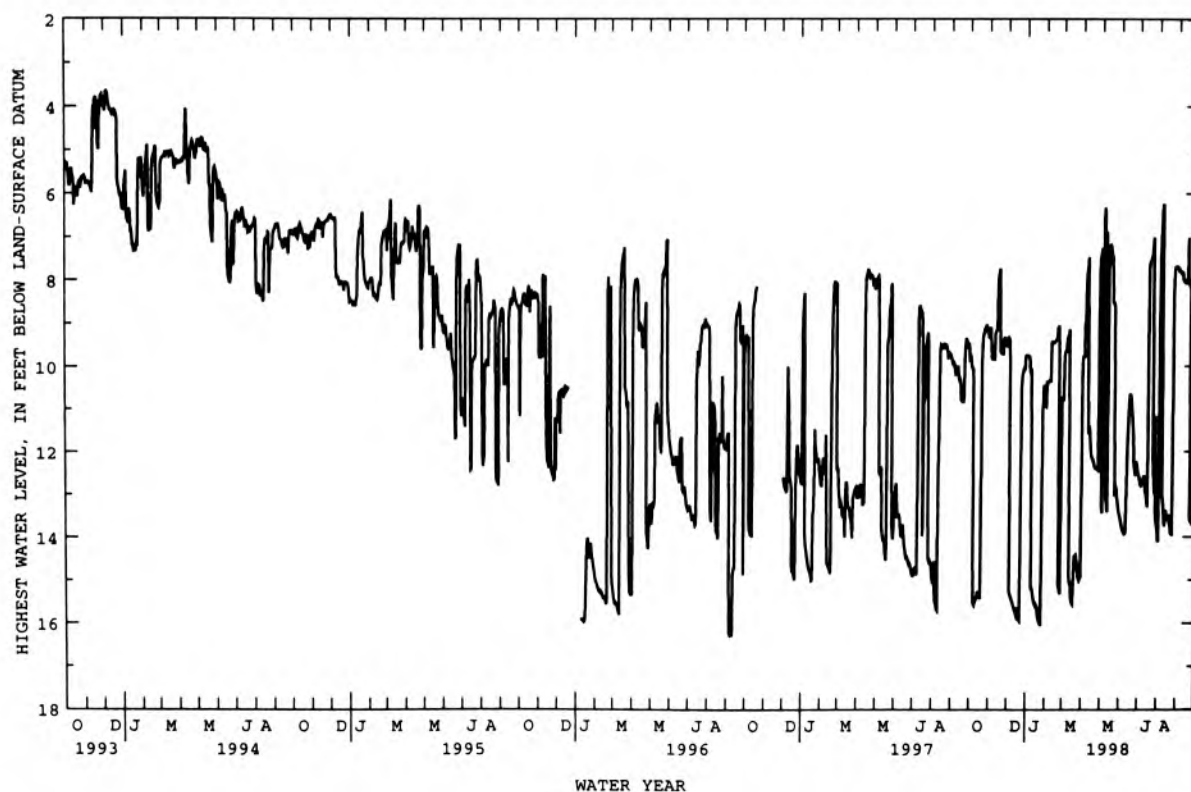
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	10.04	9.84	15.25	9.78	10.34	9.65	8.97	6.32	13.82	12.70	6.62	7.83
10	15.51	9.25	15.51	15.14	9.47	9.14	11.58	13.19	13.89	12.62	13.36	8.03
15	15.27	7.91	15.75	15.55	9.42	15.48	12.12	7.24	10.83	13.30	13.50	8.00
20	9.84	9.69	15.91	15.82	9.08	14.45	12.36	8.51	11.13	7.47	13.68	8.10
25	9.14	9.32	10.16	16.06	15.33	14.78	12.44	12.84	12.58	12.60	8.23	13.67
BOM	9.34	9.37	9.76	10.94	10.73	9.99	7.34	13.49	12.54	13.82	7.70	7.98

WTR YR 1998 HIGH 6.24 AUG 7

#### LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	10.05	9.93	15.41	10.13	10.37	9.67	9.00	11.89	13.87	12.83	6.99	7.87
10	15.59	9.88	15.60	15.24	9.48	14.90	11.97	13.42	13.93	12.86	13.58	8.07
15	15.48	8.19	15.82	15.62	9.44	15.53	12.19	7.35	11.24	13.34	13.57	8.14
20	15.64	9.82	15.93	15.90	9.12	14.84	12.46	8.57	11.36	7.55	13.73	8.13
25	9.19	9.43	10.23	16.07	15.41	14.95	12.47	12.89	12.70	13.00	14.06	13.71
BOM	9.50	9.56	9.80	10.95	10.75	15.08	7.44	13.54	12.63	14.04	7.76	8.01

WTR YR 1998 LOW 16.08 JAN 26



## MARION COUNTY

0393950086124701. Local number, MA 38.

LOCATION.--Lat 39°39'30", long 86°12'47", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 9, T.14N., R.3E., Marion County, Hydrologic Unit 05120201, on the south side of Southport Road, 0.7 mi west of Highway 37.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene Epoch.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 6 in., depth 64 ft, cased to 59 ft, screened to 64 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 675 ft above sea level, from topographic map. Measuring point: Top of casing, 3.50 ft above land-surface datum.

PERIOD OF RECORD.--December 1997 to September 30, 1998.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 3.43 ft below land-surface datum, June 16, 1998; lowest, 10.01 ft below land-surface datum, Dec. 30, 1997.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

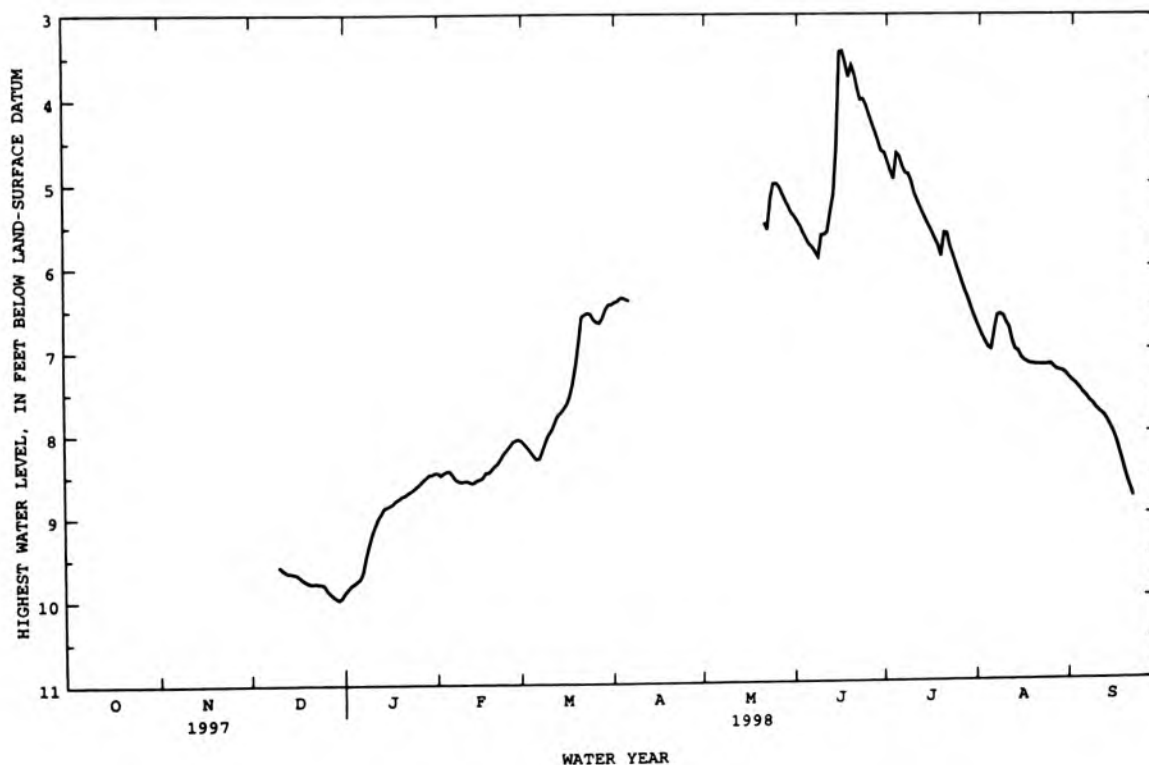
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	9.77	8.45	8.27	6.39	---	5.73	4.68	7.00	7.54
10	---	---	9.59	9.21	8.57	8.01	---	---	5.61	5.12	6.68	7.75
15	---	---	9.68	8.88	8.55	7.70	---	---	3.44	5.52	7.10	8.01
20	---	---	9.79	8.75	8.39	6.92	---	---	3.70	5.59	7.19	8.60
25	---	---	9.81	8.63	8.15	6.63	---	5.00	4.19	6.08	7.18	---
EOM	---	---	9.96	8.47	8.07	6.45	---	5.39	4.63	6.67	7.34	---

WTR YR 1998 HIGH 3.43 JUN 16

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	9.80	8.50	8.31	6.42	---	5.76	4.80	7.05	7.58
10	---	---	9.62	9.34	8.58	8.10	---	---	5.64	5.21	6.74	7.78
15	---	---	9.69	8.89	8.56	7.75	---	---	4.53	5.59	7.14	8.10
20	---	---	9.80	8.78	8.43	7.19	---	---	3.87	6.01	7.20	8.71
25	---	---	9.87	8.66	8.21	6.66	---	5.04	4.30	6.19	7.22	---
EOM	---	---	10.01	8.49	8.09	6.48	---	5.45	4.74	6.76	7.38	---

WTR YR 1998 LOW 10.01 DEC 30





## WATER-QUALITY RECORDS

393950086124701 - MARION 38 (MA 38)--Continued.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET) (72019)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM) (90095)	PH WATER WHOLE FIELD (STAND- ARD) UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD) UNITS) (00403)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)
APR	07... 1030	6.41	846	854	7.2	7.3	12.4	.2	430	110

DATE	Time	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	ANC WATER UNFLTRD IT FIELD MG/L AS CACO3 (00419)	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)	ANC BICAR- BONATE IT FIELD MG/L AS HCO3 (00450)	ANC CAR- BONATE IT FIELD MG/L AS CO3 (00447)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)
APR	07... 1030	37	14	2.0	276	277	294	338	<1	79

DATE	Time	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	IRON, DIS- SOLVED (UG/L AS FE) (01046)
APR	07... 1030	61	.1	11	503	484	.08	.03	<.01	1100

## MARTIN COUNTY

383659086545901. Local number, MT 5.

LOCATION.--Lat 38°36'59", long 86°54'59", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.12, T.2 N., R.5 W., Martin County, Hydrologic Unit 05120208, on private property 0.25 mi southwest of Whitfield.

Owner: Marjorie A. Arvin.

AQUIFER.--Sandstone of Pennsylvanian age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 143 ft, cased to 53 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 565 ft above sea level, from topographic map. Measuring point: Top of casing, 2.80 ft above land-surface datum.

PERIOD OF RECORD.--May 1958 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 22.80 ft below land-surface datum, July 2, 1997; lowest, 34.10 ft below land-surface datum, Jan. 1, 5, 22, 23, 1960, and Dec. 18, 19, 1964.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

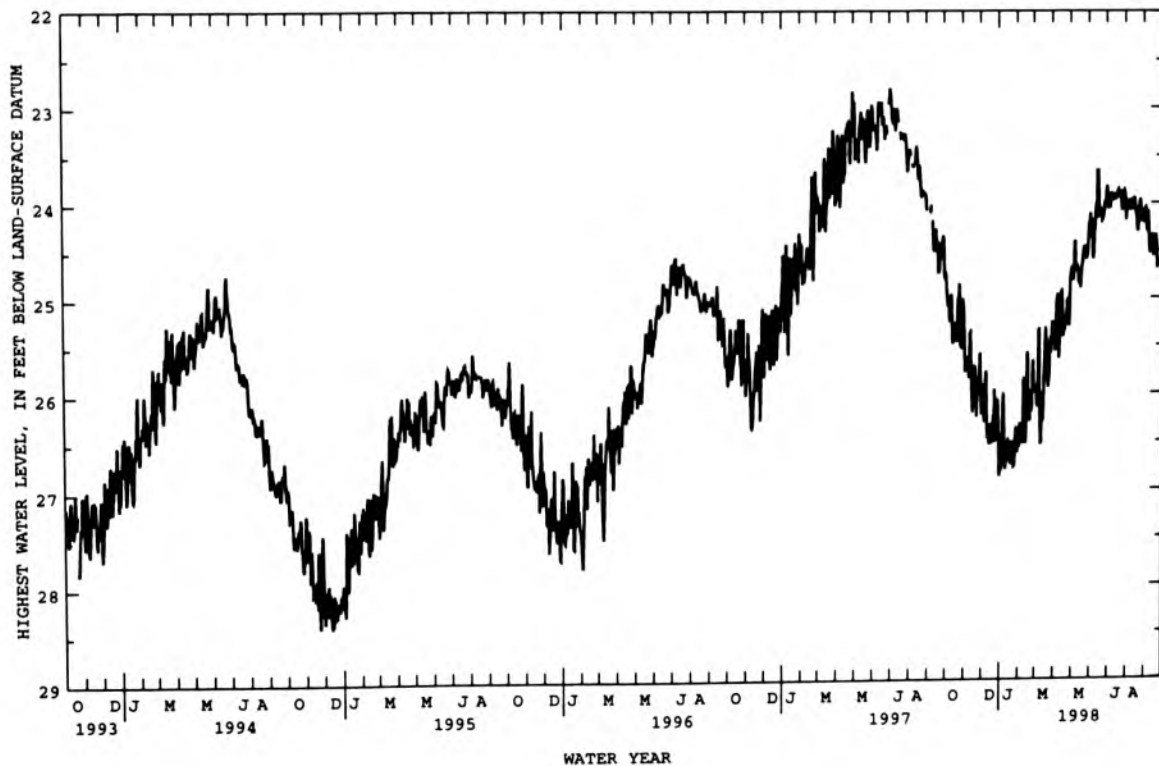
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	24.92	25.78	25.98	26.60	26.31	26.12	25.56	24.82	24.17	24.06	24.00	24.30
10	25.25	25.67	25.77	26.71	26.35	26.13	25.24	24.64	24.28	23.95	23.96	24.53
15	25.48	25.73	26.53	26.55	26.43	26.29	24.96	24.75	23.66	23.96	23.95	24.40
20	25.29	25.84	26.47	26.74	26.14	25.31	25.36	24.64	24.08	23.89	24.28	24.34
25	25.12	26.02	26.08	26.76	26.13	25.85	25.03	24.55	24.09	24.08	23.96	24.63
EOM	25.20	25.58	26.43	26.62	25.92	25.25	24.82	24.21	23.82	23.98	24.21	24.58

WTR YR 1998 HIGH 23.66 JUN 14

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	25.02	25.87	26.23	26.78	26.43	26.24	25.70	24.91	24.45	24.14	24.09	24.43
10	25.41	25.81	26.16	26.93	26.57	26.55	25.64	24.73	24.36	24.04	24.08	24.63
15	25.57	25.99	26.60	26.64	26.66	26.43	25.26	24.88	23.85	23.99	24.00	24.56
20	25.44	26.00	26.68	26.84	26.29	25.50	25.50	24.76	24.16	24.02	24.36	24.44
25	25.34	26.36	26.50	26.84	26.34	26.06	25.24	24.65	24.21	24.13	24.04	24.68
EOM	25.43	25.84	27.08	26.74	25.99	25.38	25.18	24.38	23.89	24.18	24.30	24.66

WTR YR 1998 LOW 27.11 JAN 13



## MONTGOMERY COUNTY

400247086482101. Local number, MY 7.

LOCATION.--Lat 40°02'47", long 86°48'21", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.31, T.19 N., R.3 W., Montgomery County, Hydrologic Unit 05120110, on the county right-of-way at the intersection of State Highway 32 and County Road 525 East, and 4.5 mi east of Crawfordsville.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 111 ft, cased to 107 ft, screened to 109 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 801 ft above sea level, from topographic map. Measuring point: Top of floor of shelter, 2.38 ft above land-surface datum.

PERIOD OF RECORD.--July 1967 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 26.10 ft below land-surface datum, Apr. 13, 1974; lowest, 38.26 ft below land-surface datum, Nov. 17, 1997.

HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

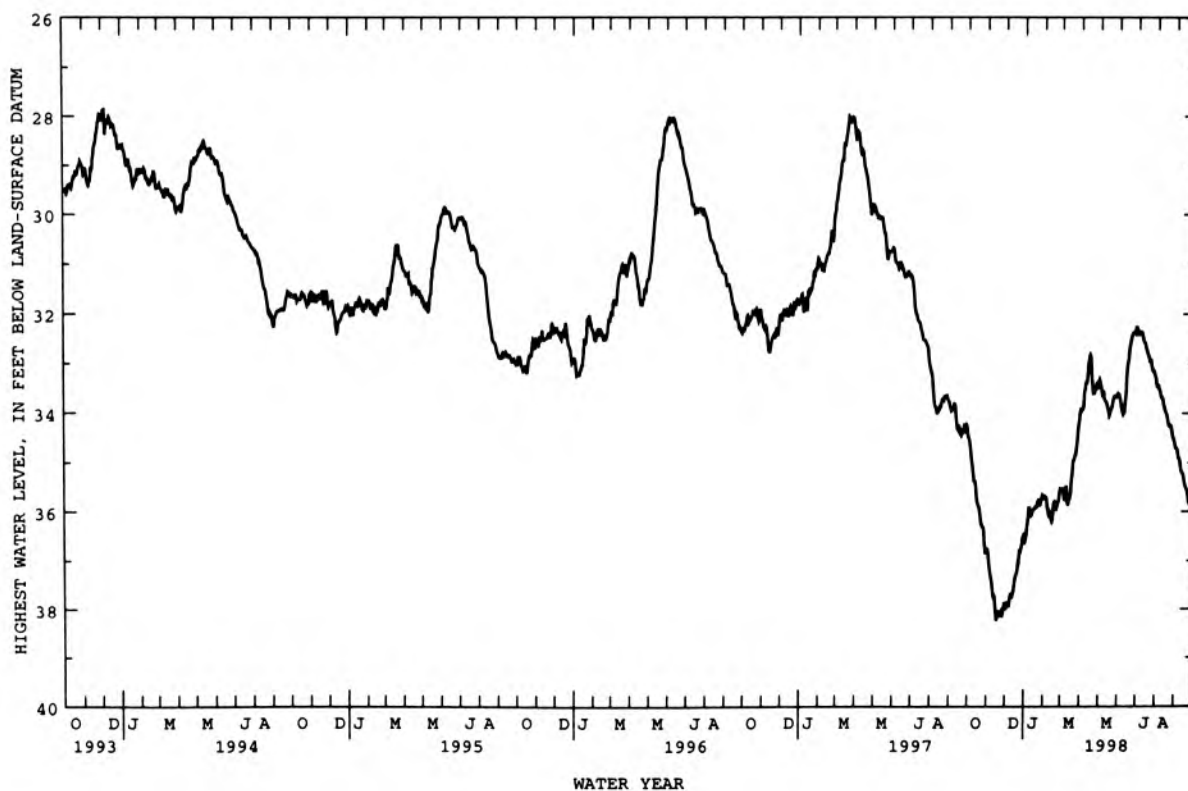
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	34.69	37.10	37.88	36.31	35.71	35.65	33.90	33.57	33.83	32.38	33.50	34.85
10	35.24	37.51	37.67	36.07	36.12	35.63	33.40	33.74	34.01	32.46	33.68	35.14
15	35.67	37.91	37.57	35.96	36.16	35.70	32.86	33.94	33.06	32.68	33.95	35.34
20	35.94	38.11	37.27	35.91	35.91	34.96	33.45	33.91	32.58	32.87	34.18	35.56
25	36.31	38.13	36.78	35.87	35.78	34.72	33.48	33.65	32.37	33.10	34.26	35.85
EOM	36.82	37.86	36.57	35.74	35.58	33.99	33.36	33.60	32.26	33.29	34.61	36.09

WTR YR 1998 HIGH 32.26 JUN 29

LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	34.81	37.18	37.93	36.47	35.81	35.76	33.96	33.67	33.94	32.42	33.56	34.91
10	35.38	37.63	37.75	36.16	36.14	35.82	33.46	33.77	34.08	32.52	33.69	35.19
15	35.79	38.05	37.67	36.65	36.23	35.74	32.97	33.99	33.26	32.72	33.97	35.42
20	36.06	38.15	37.28	35.92	35.95	35.16	33.61	33.94	32.66	32.95	34.26	35.61
25	36.43	38.23	36.83	35.90	35.85	34.86	33.57	33.70	32.40	33.15	34.34	35.87
EOM	36.88	37.98	36.74	35.78	35.62	34.12	33.47	33.62	32.38	33.40	34.70	36.15

WTR YR 1998 LOW 38.26 NOV 17



## MORGAN COUNTY

393423086161001. Local number, MG 4.

LOCATION.--Lat 39°34'23", long 86°16'10", in NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.13, T.13 N., R.2 E., Morgan County, Hydrologic Unit 05120201, on east side of County Road 850 East, 0.4 mi north of County Road 950 North, and 1.1 mi north of Waverly.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 6 in., depth 64 ft, cased to 60 ft, screened to 64 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 645 ft above sea level, from topographic map. Measuring point: Top of floor of shelter, 2.90 ft above land-surface datum.

PERIOD OF RECORD.--May 1978 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 2.93 ft below land-surface datum, Jan. 1, 1991; lowest, 16.09 ft below land-surface datum, Nov. 2-4, 1988.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

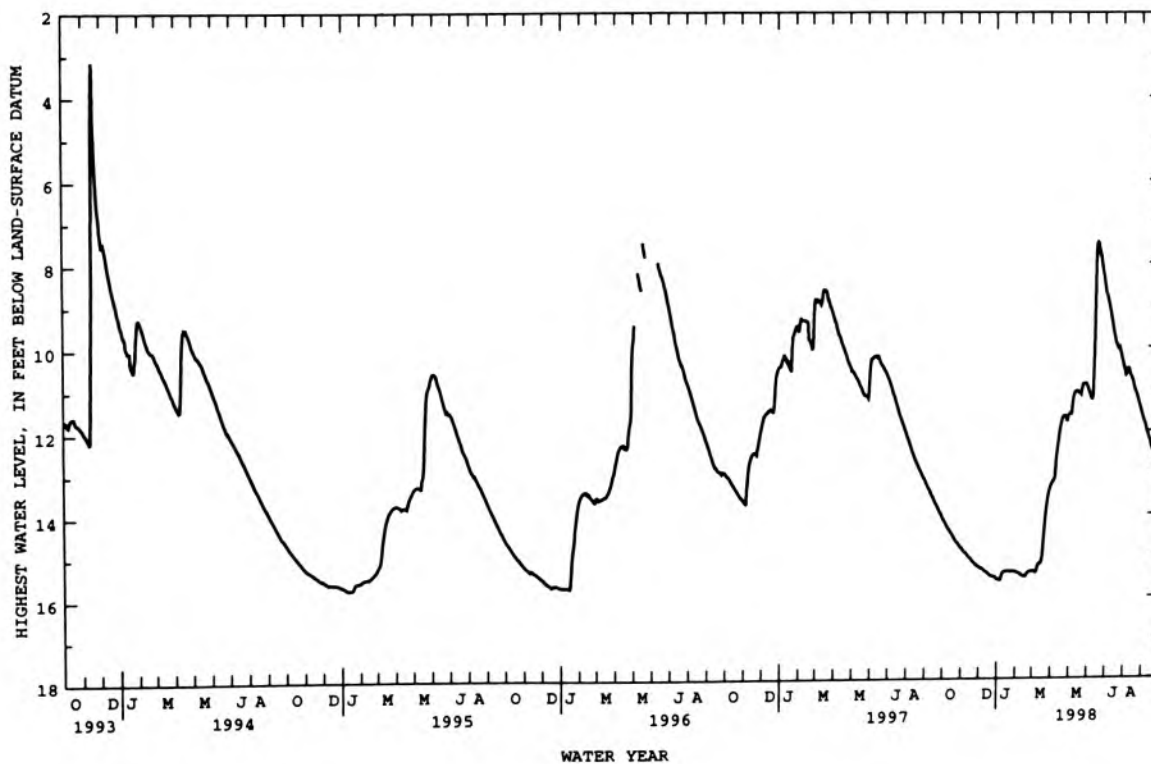
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	14.17	14.87	15.30	15.59	15.42	15.40	13.20	11.60	11.09	8.79	10.67	11.77
10	14.31	14.93	15.35	15.43	15.47	15.26	12.80	11.15	11.24	9.11	10.51	12.01
15	14.43	15.04	15.40	15.38	15.50	15.18	12.18	11.05	8.73	9.56	10.72	12.23
20	14.55	15.12	15.48	15.38	15.45	14.68	11.74	11.10	7.54	9.91	10.99	12.47
25	14.66	15.19	15.50	15.38	15.39	13.86	11.64	10.89	7.93	9.99	11.19	12.69
BOM	14.78	15.26	15.57	15.39	15.38	13.37	11.69	10.88	8.39	10.35	11.50	12.90

WTR YR 1998 HIGH 7.51 JUN 19

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	14.19	14.89	15.35	15.62	15.42	15.43	13.23	11.61	11.12	8.86	10.73	11.80
10	14.35	14.97	15.39	15.47	15.50	15.33	12.98	11.21	11.29	9.22	10.54	12.07
15	14.46	15.06	15.44	15.41	15.50	15.20	12.27	11.07	9.69	9.64	10.77	12.30
20	14.58	15.15	15.51	15.38	15.49	14.89	11.80	11.11	7.63	9.96	11.04	12.50
25	14.67	15.23	15.50	15.39	15.41	14.00	11.67	10.97	8.02	10.05	11.25	12.73
BOM	14.82	15.27	15.57	15.40	15.39	13.42	11.78	10.91	8.51	10.43	11.57	12.94

WTR YR 1998 LOW 15.62 JAN 5



## NEWTON COUNTY

405105087173301. Local number, NE 6.

LOCATION.--Lat 40°51'05", long 87°17'33", in SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.23, T.28 N., R.8 W., Newton County, Hydrologic Unit 07120002, on the right-of-way of County Road 1000 South, 1.0 mi south of Foresman.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 80 ft, cased to 76 ft, screened to 78 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 654.10 ft above sea level. Measuring point: Top of floor of shelter, 2.15 ft above land-surface datum.

PERIOD OF RECORD.--May 1967 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 7.94 ft below land-surface datum, Mar. 20, 21, 1982; lowest, 18.82 ft below land-surface datum, Oct. 29, 1988.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

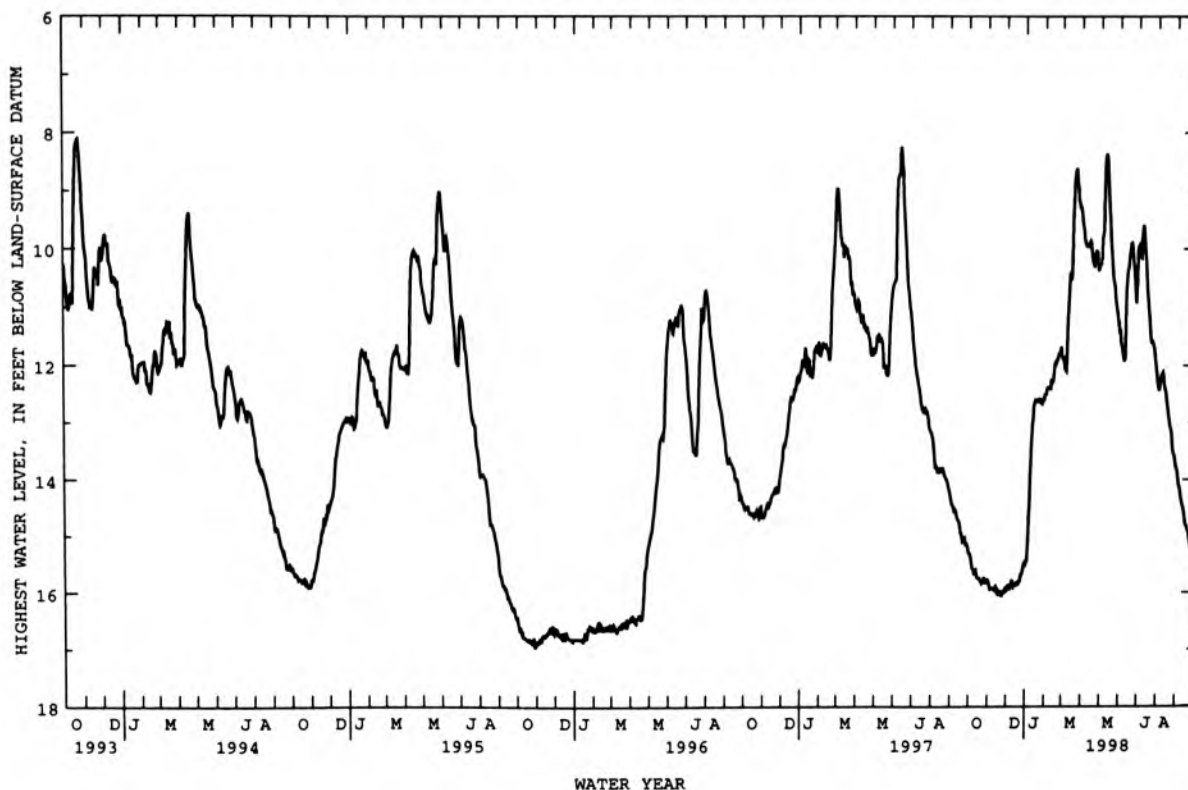
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	15.41	15.94	15.87	15.02	12.39	12.06	9.80	9.75	11.67	10.14	12.34	14.10
10	15.66	15.92	15.77	13.42	12.41	11.14	9.96	8.36	11.88	9.69	12.12	14.38
15	15.74	15.92	15.87	12.66	12.18	10.54	9.95	9.32	10.33	10.59	12.47	14.68
20	15.79	15.98	15.86	12.63	11.91	8.87	10.28	10.27	9.89	11.36	12.93	14.89
25	15.84	16.00	15.70	12.65	11.83	8.89	10.09	10.79	10.47	11.62	13.30	15.17
EOM	15.81	15.90	15.54	12.58	11.82	9.31	10.30	11.24	10.05	12.12	13.76	15.34

WTR YR 1998 HIGH 8.36 MAY 10

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	15.49	15.97	15.92	15.25	12.45	12.12	9.88	9.83	11.81	10.20	12.44	14.17
10	15.70	15.99	15.91	13.71	12.46	11.43	10.01	8.45	11.95	9.87	12.18	14.45
15	15.79	16.02	15.92	12.72	12.28	10.58	10.05	9.46	10.44	10.77	12.61	14.81
20	15.83	16.02	15.91	12.67	11.96	9.18	10.35	10.43	9.96	11.55	13.03	14.94
25	15.90	16.07	15.76	12.70	11.90	8.98	10.15	10.90	10.63	11.70	13.45	15.22
EOM	15.85	15.99	15.61	12.65	11.88	9.42	10.39	11.42	10.61	12.26	13.83	15.38

WTR YR 1998 LOW 16.11 NOV 24





## NEWTON COUNTY

405959087282901. Local number, NE 7.

LOCATION.--Lat 40°59'59", long 87°28'29", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.32, T.30 N., R.9 W., Newton County, Hydrologic Unit 07120002, in the Willow Slough Game Preserve, 2.0 mi southwest of Enos.

Owner: State of Indiana.

AQUIFER.--Limestone of Silurian age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 150 ft, cased to 136 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 680.83 ft above sea level. Measuring point: Top of floor of shelter, 2.03 ft above land-surface datum.

PERIOD OF RECORD.--February 1976 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 34.65 ft below land-surface datum, Apr. 14, 1980; lowest, 97.33 ft below land-surface datum, Aug. 29, 30, 1988.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

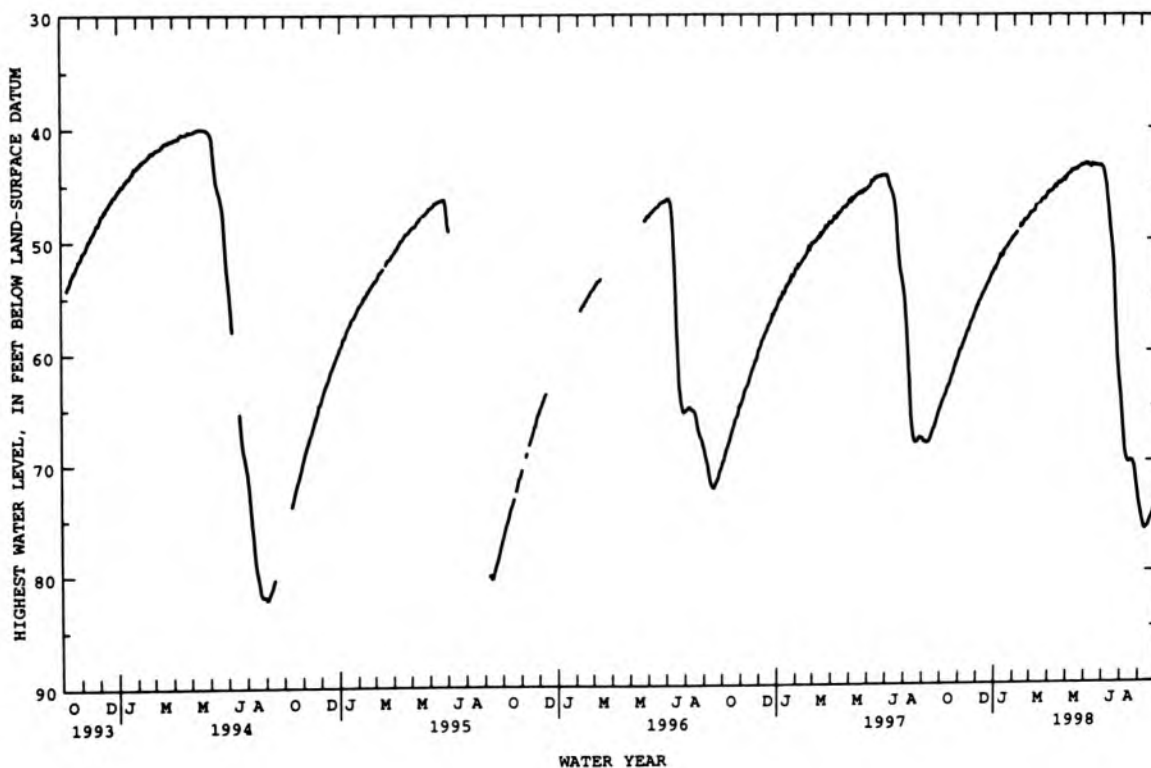
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	64.38	59.67	55.41	51.89	49.34	47.51	45.63	44.09	43.26	45.36	67.78	75.25
10	63.78	58.91	54.73	51.46	48.97	---	45.33	43.82	43.41	48.11	69.85	76.25
15	63.04	58.12	54.28	50.93	48.65	---	44.89	43.66	43.27	50.62	70.07	76.02
20	62.16	57.40	53.79	50.61	48.23	46.35	44.83	43.50	43.37	55.24	70.05	75.28
25	61.37	56.73	53.05	50.18	47.91	46.19	44.51	43.38	43.38	60.81	71.24	74.61
BOM	60.25	55.99	52.59	49.70	47.67	45.68	44.25	43.19	43.72	64.22	73.73	73.83

WTR YR 1998 HIGH 43.17 JUN 2

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	64.55	59.84	55.51	52.04	49.42	47.54	45.70	44.13	43.38	45.90	68.41	75.51
10	63.92	59.00	54.87	51.52	49.14	---	45.41	43.89	43.50	48.68	69.98	76.31
15	63.19	58.28	54.46	51.04	48.77	---	45.06	43.75	43.35	51.19	70.12	76.08
20	62.29	57.60	53.84	50.68	48.27	46.45	44.92	43.55	43.45	56.49	70.16	75.46
25	61.47	57.00	53.13	50.31	48.08	46.37	44.66	43.46	43.45	61.59	71.74	74.78
BOM	60.48	56.13	52.67	49.83	47.76	45.77	44.40	43.26	44.03	64.94	74.05	73.98

WTR YR 1998 LOW 76.32 SEP 11



## NEWTON COUNTY

410428087231501. Local number, NE 8.

LOCATION.--Lat 41°04'28", long 87°25'44", in NW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.2, T.30 N., R.9 W., Newton County, Hydrologic Unit 07120001, in the Beaver Lake Prairie Chicken Refuge, 3.0 mi north of Enos.

Owner: State of Indiana.

AQUIFER.--Limestone of Silurian age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 150 ft, cased to 97 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 663.34 ft above sea level. Measuring point: Top of floor of shelter, 2.83 ft above land-surface datum.

REMARKS.--Water level may be affected by irrigation pumpage.

PERIOD OF RECORD.--February 1976 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 4.04 ft below land-surface datum, May 31, 1976; lowest, 98.40 ft below land-surface datum, July 29, 1988.

# HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

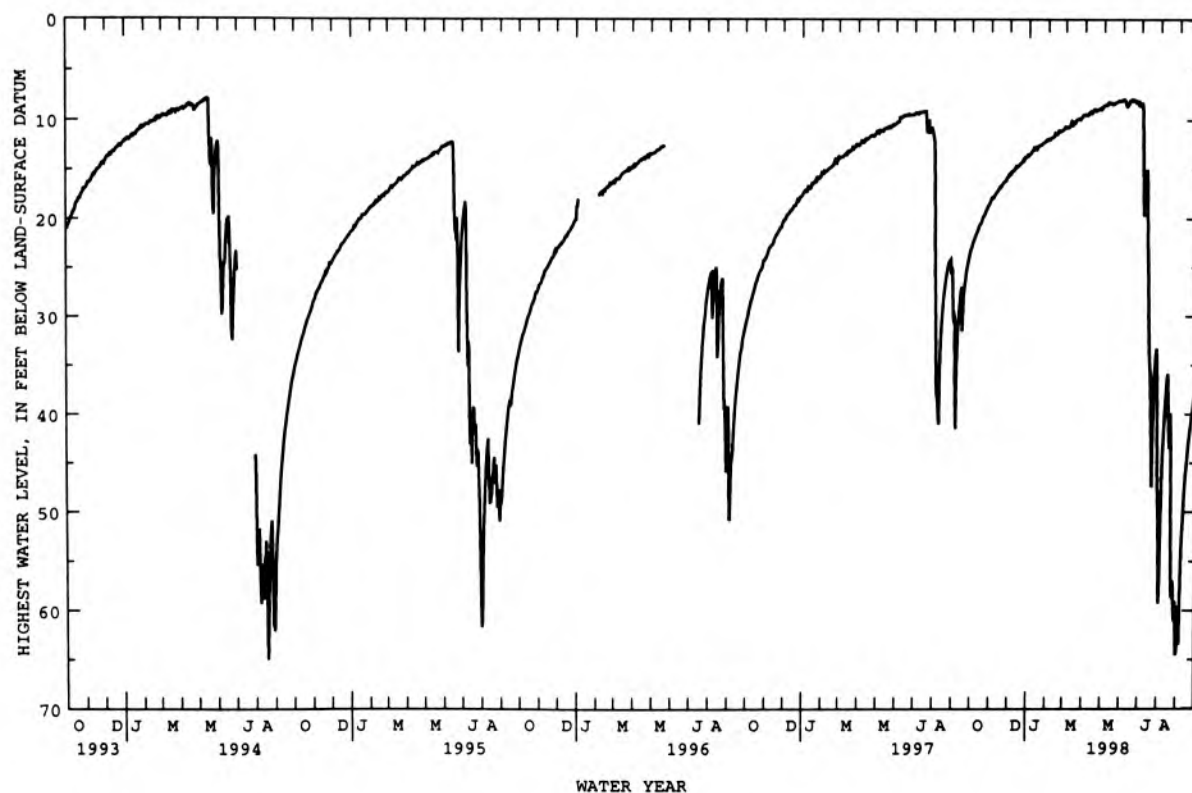
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	21.94	17.77	15.13	13.11	11.77	10.73	9.46	8.46	8.21	19.70	50.90	62.71
10	21.24	17.22	14.67	12.91	11.56	10.43	9.23	8.27	8.32	15.01	40.17	51.06
15	20.45	16.71	14.52	12.61	11.35	10.28	8.89	8.27	7.91	32.44	35.90	45.45
20	19.66	16.29	14.27	12.48	11.08	9.84	8.98	8.18	7.96	44.00	39.94	41.89
25	19.01	15.89	13.73	12.21	10.93	9.78	8.78	8.05	8.08	35.29	57.66	39.37
EOM	18.09	15.41	13.55	11.95	10.76	9.42	8.55	7.91	8.41	49.08	60.98	37.30

WTR YR 1998 HIGH 7.88 JUN 2

# LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	22.15	17.89	15.17	13.21	11.82	10.75	9.53	8.49	8.51	20.90	56.63	64.61
10	21.35	17.28	14.81	12.98	11.66	10.52	9.33	8.34	8.41	16.02	41.53	52.76
15	20.60	16.83	14.64	12.68	11.45	10.34	9.02	8.34	7.95	34.46	38.38	46.24
20	19.74	16.43	14.30	12.51	11.12	9.93	9.05	8.22	8.12	47.94	43.22	42.50
25	19.07	16.12	13.84	12.31	11.03	9.92	8.93	8.13	8.14	36.17	58.65	39.87
EOM	18.29	15.50	13.68	12.03	10.82	9.47	8.70	7.96	8.52	50.51	64.53	37.68

WTR YR 1998 LOW 67.38 SEP 2



## NEWTON COUNTY

405959087282902. Local number, NE 9.

LOCATION.--Lat 40°59'59", long 87°28'29", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.32, T.30 N., R.9 W., Newton County, Hydrologic Unit 07120002, in the Willow Slough Game Preserve, 2.0 mi southwest of Enos.

Owner: U.S. Geological Survey.

AQUIFER.--Sand of Pleistocene age.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 2 in., depth 45 ft, cased to 42 ft, screened to 45 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 681 ft above sea level, from topographic map. Measuring point: Top of "Y" in well casing, 3.10 ft above land-surface datum.

PERIOD OF RECORD.--May 1978 to current year. Fragmentary record prior to March 1981.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 1.07 ft below land-surface datum, May 3, 1978; lowest, 15.44 ft below land-surface datum, Oct. 19-21, 26-31, 1988.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

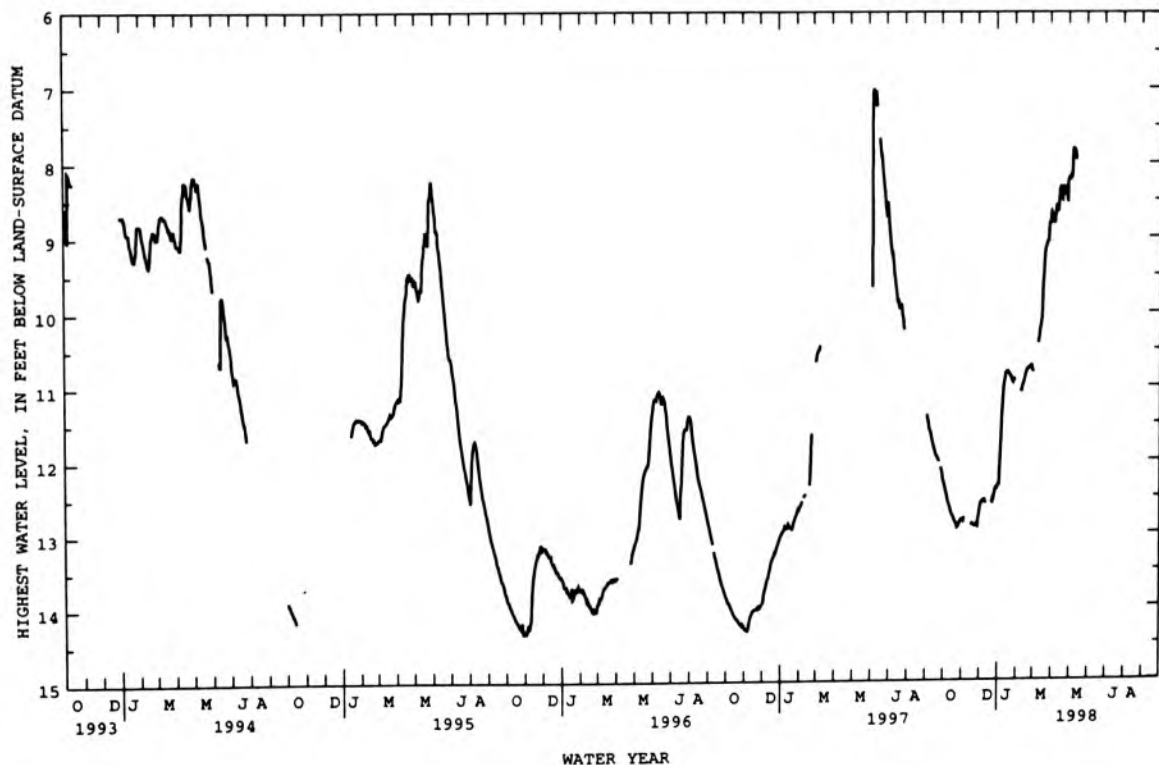
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	12.39	12.81	12.58	12.05	---	---	8.80	8.22	---	---	---	---
10	12.58	---	12.53	11.15	11.08	10.42	8.59	7.82	---	---	---	---
15	12.72	---	---	10.82	10.91	10.15	8.35	---	---	---	---	---
20	12.82	12.87	---	10.83	10.78	9.36	8.36	---	---	---	---	---
25	12.92	12.88	12.53	10.93	10.75	9.06	8.34	---	---	---	---	---
BOM	12.82	12.77	12.38	---	10.77	8.69	8.22	---	---	---	---	---

WTR YR 1998 HIGH 7.81 MAY 8

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	12.43	12.84	12.59	12.23	---	---	8.82	8.30	---	---	---	---
10	12.60	---	12.59	11.28	11.10	10.52	8.63	7.86	---	---	---	---
15	12.74	---	---	10.84	10.94	10.19	8.42	---	---	---	---	---
20	12.84	12.89	---	10.85	10.78	9.54	8.58	---	---	---	---	---
25	12.94	12.90	12.56	10.95	10.78	9.11	8.55	---	---	---	---	---
BOM	12.85	12.82	12.40	---	10.80	8.83	8.27	---	---	---	---	---

WTR YR 1998 LOW 12.95 OCT 26



## NEWTON COUNTY

410428087231502. Local number, NE 10.

LOCATION.--Lat 41°04'28", long 87°25'44", in NW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.2, T.30 N., R.9 W., Newton County, Hydrologic Unit 07120001, in the Beaver Lake Prairie Chicken Refuge, 3.0 mi north of Enos.

Owner: U.S. Geological Survey.

AQUIFER.--Sand of Pleistocene age.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 2 in., depth 45 ft, cased to 41 ft, screened to 44 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 662.60 ft above sea level. Measuring point: Bottom lip of "Y" in well casing, 2.65 ft above land-surface datum.

PERIOD OF RECORD.--May 1978 to current year. Fragmentary record prior to March 1981.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 0.03 ft below land-surface datum, Mar. 16, 1982; lowest, 6.48 ft below land-surface datum, Sept. 30, Oct. 1, 1988.

# HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

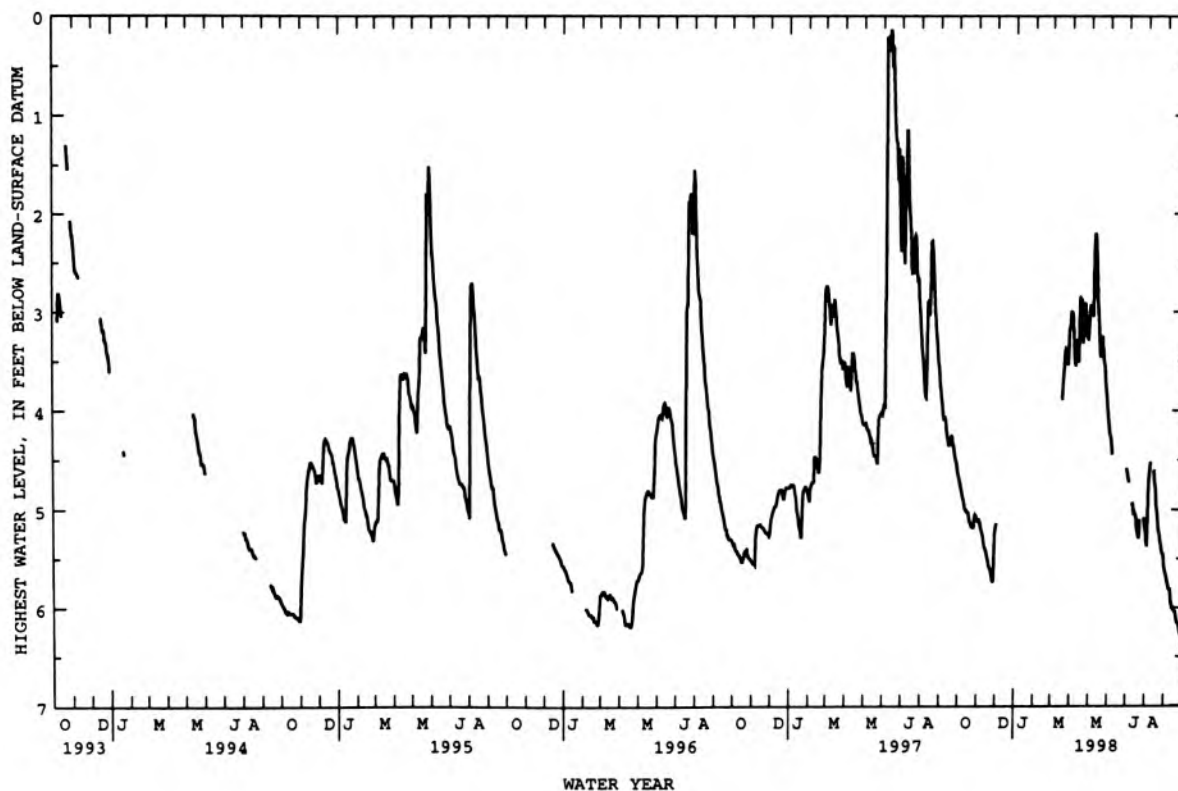
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	4.74	5.11	---	---	---	---	3.24	2.94	4.27	4.72	4.72	5.73
10	4.90	5.25	---	---	---	---	3.29	2.33	---	4.94	---	5.81
15	5.02	5.41	---	---	---	---	2.86	3.12	---	5.05	4.73	6.01
20	5.12	5.57	---	---	---	3.65	3.32	3.26	---	5.28	5.08	6.08
25	5.17	5.68	---	---	---	3.40	3.19	3.53	---	---	5.34	6.17
BOM	5.08	5.23	---	---	---	3.06	3.12	4.02	4.58	5.19	5.57	6.29

WTR YR 1998 HIGH 2.20 MAY 8

# LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	4.80	5.14	---	---	---	---	3.40	3.05	4.35	4.75	5.07	5.75
10	4.96	5.28	---	---	---	---	3.30	2.50	---	4.95	---	5.87
15	5.04	5.42	---	---	---	---	2.87	3.21	---	5.06	4.75	6.02
20	5.16	5.58	---	---	---	3.76	3.46	3.34	---	5.29	5.17	6.14
25	5.19	5.73	---	---	---	3.44	3.26	3.62	---	---	5.36	6.21
BOM	5.10	5.41	---	---	---	3.20	3.28	4.10	4.59	5.24	5.62	6.32

WTR YR 1998 LOW 6.32 SEP 30



## NEWTON COUNTY

410235087305901. Local number, NE 11.

LOCATION.--Lat 41°02'35", long 87°30'59", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.13, T.30 N., R.10 W., Newton County, Hydrologic Unit 07120001, on right-of-way of County Road 300 North, 0.5 mi west of County Road 600 West, and 4.0 mi northwest of Enos.

Owner: U.S. Geological Survey.

AQUIFER.--Limestone of Silurian age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 5 in., depth of 150 ft, cased to 90 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 670 ft above sea level, from topographic map. Measuring point: Top of casing, 3.30 ft above land-surface datum.

REMARKS.--Water level may be affected by pumpage.

PERIOD OF RECORD.--October 1981 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 22.78 ft below land-surface datum, May 6, 1982; lowest recorded, 98.83 ft below land-surface datum, Aug. 5, 6, 1988.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

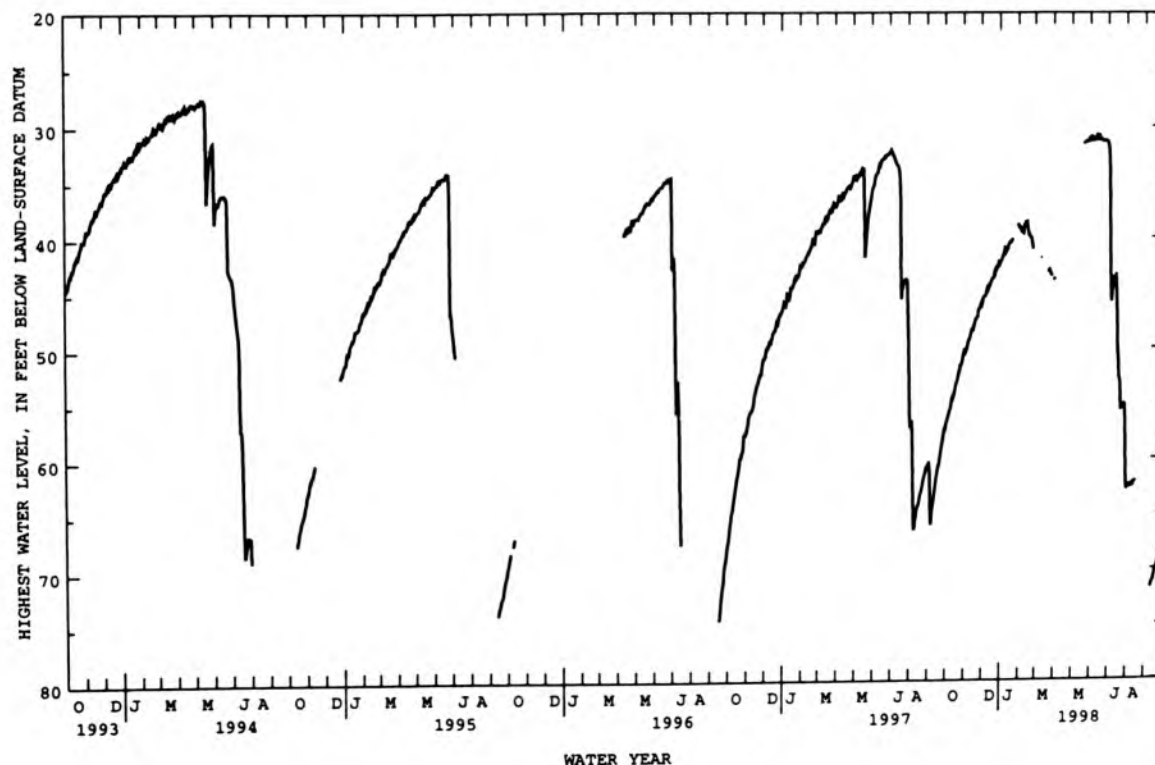
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	56.31	50.25	45.38	41.64	39.47	---	---	---	31.07	44.38	62.44	---
10	55.46	49.24	44.49	41.34	38.85	41.84	---	---	31.08	43.87	62.37	---
15	54.40	48.29	44.17	40.57	38.87	---	---	---	30.82	45.09	62.09	71.25
20	53.17	47.45	43.67	40.25	39.94	---	---	31.55	31.21	52.89	---	70.04
25	52.13	46.67	42.68	---	40.98	43.00	---	31.40	31.27	55.40	---	69.14
BOM	50.61	45.90	42.38	38.85	---	43.86	---	30.98	31.41	61.34	---	68.03

WTR YR 1998 HIGH 30.80 JUN 14

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	56.60	50.48	45.42	41.85	39.56	---	---	---	31.27	47.43	62.55	---
10	55.69	49.31	44.79	41.46	39.18	41.99	---	---	31.22	44.14	62.50	---
15	54.59	48.51	44.41	40.69	39.28	---	---	---	30.97	46.99	62.19	71.34
20	53.32	47.74	43.80	40.36	40.03	---	---	31.66	31.32	53.29	---	70.27
25	52.26	47.15	42.96	---	41.28	43.30	---	31.50	31.36	55.52	---	69.39
BOM	50.96	46.08	42.66	39.07	---	43.96	---	31.17	31.72	63.24	---	68.26

WTR YR 1998 LOW 72.00 SEP 12





## NEWTON COUNTY

410917087285801. Local number, NE 14.

LOCATION.--Lat 41°09'17", long 87°28'58", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.8, T.31 N., R.9 W., Newton County, Hydrologic Unit 07120001, 100 ft south of wildlife area parking lot in La Salle State Fish and Wildlife Area.

Owner: U.S. Geological Survey.

AQUIFER.--Dolomitic limestone of Silurian/Devonian age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 150 ft, cased to 82 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 636.62 ft above sea level. Measuring point: Top of casing, 3.30 ft above land-surface datum.

REMARKS.--Water level may be affected by pumpage.

PERIOD OF RECORD.--August 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 6.18 ft below land-surface datum, Mar. 27, 1991; lowest, 31.19 ft below land-surface datum, Aug. 26, 1988.

HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

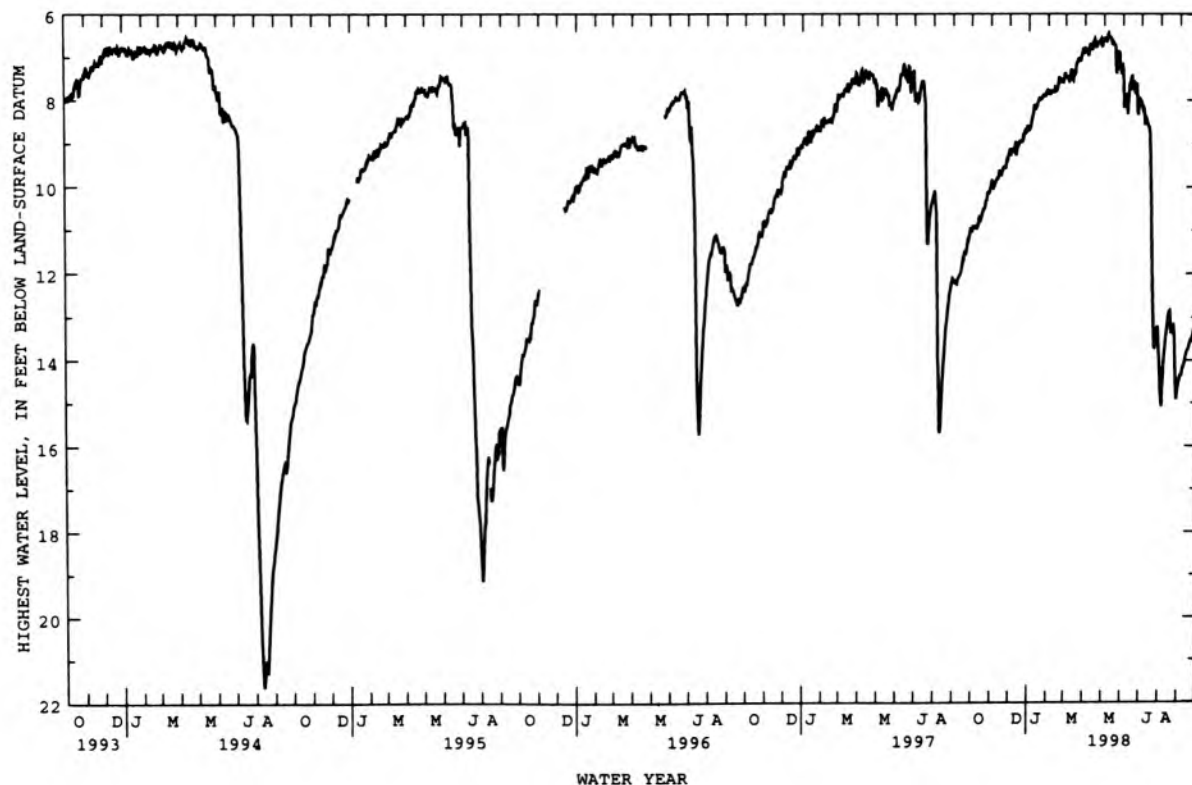
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	10.91	10.00	9.12	8.41	7.79	7.52	6.86	6.62	8.11	8.23	14.71	14.35
10	10.92	9.80	8.94	8.19	7.80	7.40	6.75	6.53	7.91	8.52	13.53	14.06
15	10.75	9.63	9.01	8.01	7.74	7.40	6.61	6.66	7.44	9.07	12.92	13.76
20	10.52	9.55	8.95	7.97	7.54	7.04	6.73	7.19	7.85	12.52	13.34	13.52
25	10.29	9.45	8.69	7.90	7.53	7.01	6.62	6.87	8.33	13.54	13.62	13.27
EOM	9.97	9.18	8.66	7.84	7.45	6.76	6.61	7.19	8.03	13.98	14.61	13.08

WTR YR 1998 HIGH 6.44 MAY 8

LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	10.95	10.12	9.16	8.52	7.85	7.58	7.11	6.70	8.93	8.67	15.08	14.44
10	11.01	9.86	9.29	8.24	8.00	7.55	6.85	6.57	8.11	8.59	13.70	14.22
15	10.81	9.70	9.08	8.08	7.77	7.46	6.69	6.79	7.88	9.69	12.99	13.79
20	10.57	9.62	9.00	7.99	7.59	7.13	6.86	7.51	8.37	12.96	13.42	13.60
25	10.36	9.58	8.78	7.95	7.60	7.14	6.68	6.95	8.93	13.66	14.10	13.36
EOM	10.06	9.24	8.80	7.88	7.48	6.97	6.71	7.33	8.10	14.30	14.70	13.16

WTR YR 1998 LOW 15.69 AUG 4



## GROUND-WATER DATA

421

## NOBLE COUNTY

411922085221801. Local number, NO 8.

LOCATION.--Lat 41°19'22", long 85°22'18", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.9, T.33 N., R.10 E., Noble County, Hydrologic Unit 04050001, near the east edge of Chain O'Lakes State Park, and 5.0 mi south of Albion.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 149 ft, cased to 146 ft, screened to 148 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 928 ft above sea level, from topographic map. Measuring point: Top of floor of shelter, 2.65 ft above land-surface datum.

PERIOD OF RECORD.--December 1966 to September 1971, August 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 27.88 ft below land-surface datum, Feb. 14, 1991; lowest, 32.49 ft below land-surface datum, Jan. 18, 1967.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

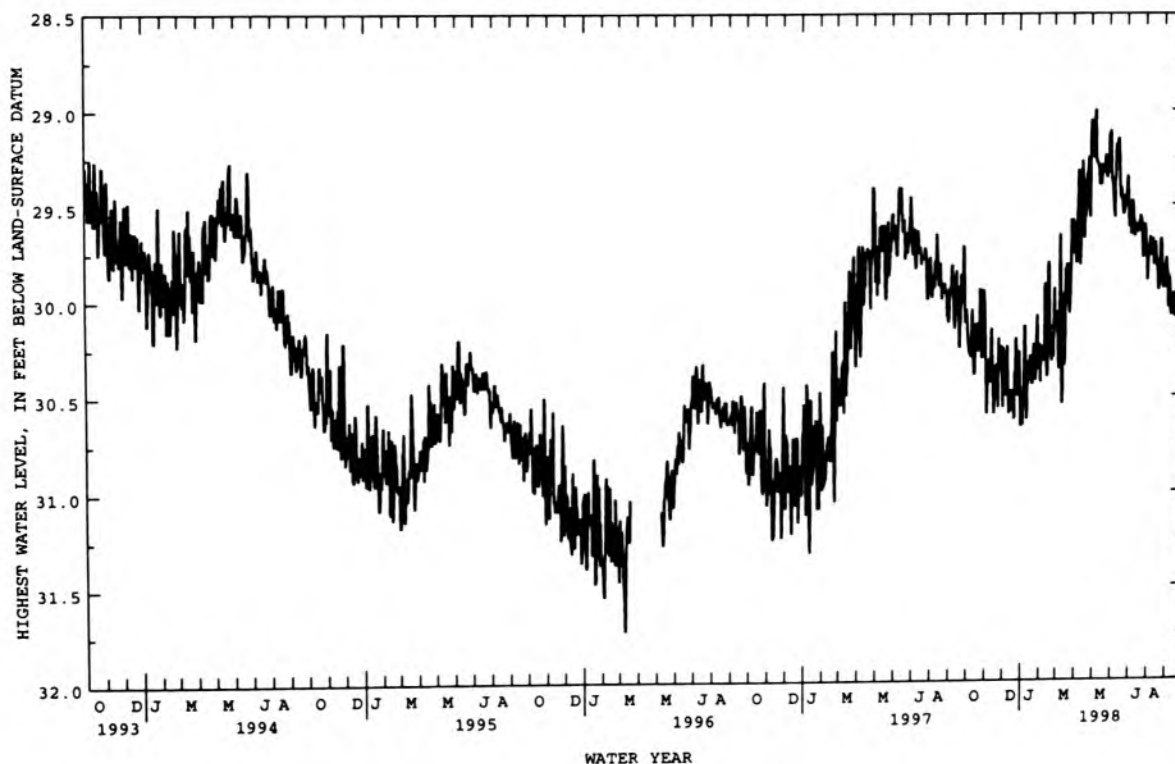
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	30.18	30.59	30.31	30.48	30.24	30.32	29.81	29.24	29.38	29.66	29.72	30.04
10	30.30	30.31	30.24	30.49	30.27	30.19	29.55	29.28	29.36	29.61	29.68	30.08
15	30.39	30.32	30.57	30.33	30.27	30.34	29.37	29.31	29.15	29.65	29.70	29.97
20	30.13	30.36	30.56	30.44	30.20	29.82	29.57	29.30	29.46	29.61	29.94	29.95
25	30.16	30.34	30.20	30.38	30.30	30.00	29.34	29.28	29.51	29.78	29.70	30.07
EOM	30.12	30.24	30.50	30.36	30.11	29.58	29.16	29.13	29.35	29.77	29.94	30.06

WTR YR 1998 HIGH 29.00 MAY 8

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	30.26	30.64	30.41	30.65	30.29	30.41	29.90	29.29	29.47	29.73	29.76	30.13
10	30.41	30.41	30.44	30.65	30.37	30.55	29.82	29.34	29.41	29.70	29.76	30.15
15	30.44	30.44	30.66	30.41	30.49	30.42	29.54	29.43	29.22	29.69	29.78	30.09
20	30.28	30.44	30.71	30.50	30.29	29.92	29.63	29.33	29.52	29.71	29.99	30.00
25	30.34	30.64	30.47	30.45	30.38	30.20	29.44	29.35	29.56	29.82	29.83	30.09
EOM	30.24	30.38	30.91	30.42	30.17	29.70	29.40	29.25	29.47	29.90	29.99	30.12

WTR YR 1998 LOW 30.91 DEC 31



## NOBLE COUNTY

413106085232701. Local number, NO 9.

LOCATION.--Lat 41°31'06", long 85°23'27", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.5, T.35 N., R.10 E., Noble County, Hydrologic Unit 04050001, at the intersection of County Roads 175 East and 1150 North, and 2.0 mi west of Wolcottville.

Owner: U.S. Geological Survey.

AQUIFER.--Sand of Pleistocene age.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 6 in., depth 44 ft, cased to 39 ft, screened to 42 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 930 ft above sea level, from topographic map. Measuring point: Top of floor of shelter, 2.60 ft above land-surface datum.

PERIOD OF RECORD.--June 1976 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 8.37 ft below land-surface datum, Jan. 5, 1993; lowest, 17.67 ft below land-surface datum, Nov. 22, 23, 26, 30, Dec. 1, 1995.

HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

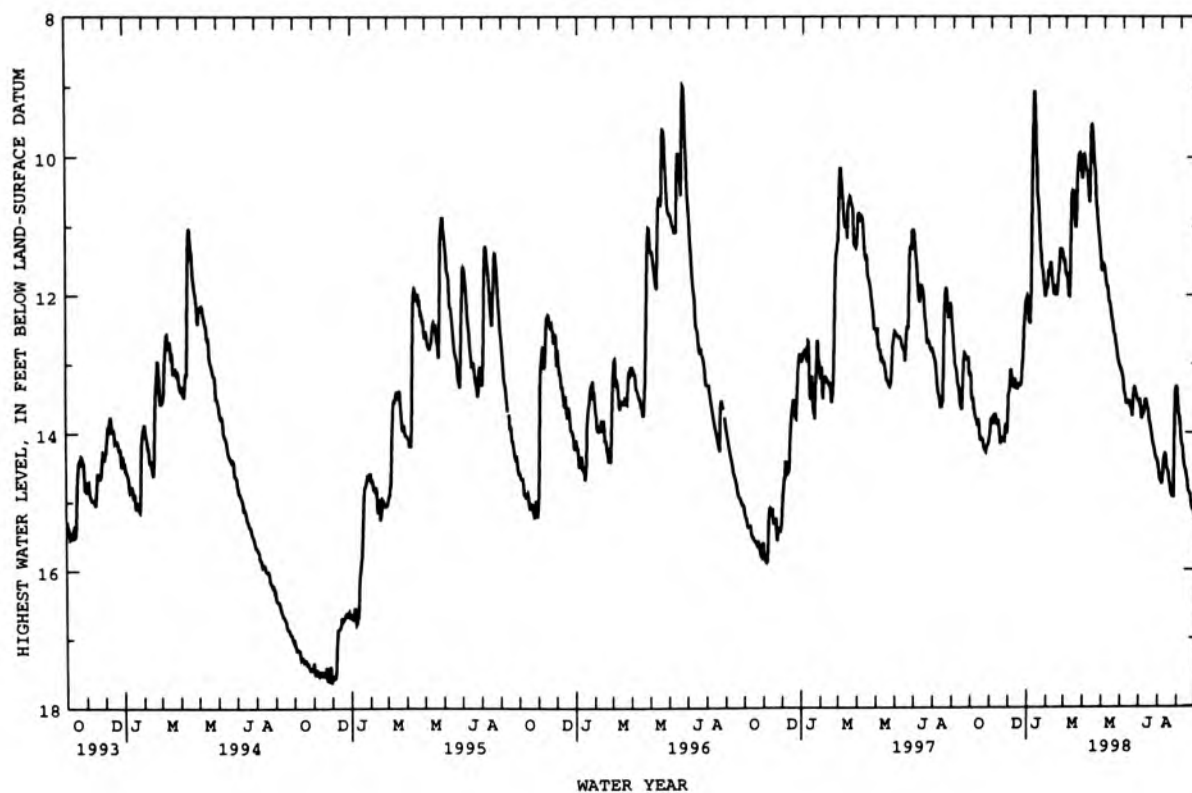
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	13.63	13.88	13.16	10.98	11.52	11.89	10.31	11.79	13.41	13.73	14.75	14.09
10	13.83	13.76	13.21	9.26	11.99	10.53	9.54	12.09	13.57	13.52	14.30	14.46
15	14.04	13.90	13.33	10.59	11.99	10.80	10.03	12.36	13.58	13.79	14.55	14.67
20	14.10	14.11	13.30	11.39	11.32	10.14	10.74	12.59	13.36	14.05	14.88	14.89
25	14.27	13.94	12.31	11.85	11.45	10.14	11.27	12.91	13.48	14.31	14.07	15.11
EOM	14.03	13.44	12.18	11.81	11.56	9.98	11.58	13.07	13.55	14.55	13.62	15.26

WTR YR 1998 HIGH 9.05 JAN 9

LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	13.68	13.91	13.24	12.05	11.60	12.00	10.44	11.86	13.46	13.75	14.78	14.18
10	13.94	13.83	13.30	9.60	12.04	11.01	10.09	12.10	13.60	13.57	14.32	14.51
15	14.12	14.00	13.36	10.74	12.02	10.98	10.13	12.38	13.61	13.85	14.61	14.77
20	14.20	14.13	13.33	11.54	11.46	10.33	10.88	12.65	13.48	14.13	14.91	14.93
25	14.39	14.16	12.46	11.95	11.54	10.21	11.40	12.96	13.51	14.37	14.97	15.14
EOM	14.09	13.82	12.49	11.91	11.67	10.09	11.63	13.13	13.60	14.64	13.74	15.28

WTR YR 1998 LOW 15.28 SEP 30



## NOBLE COUNTY

412405085154501. Local number, NO 11.

LOCATION.--Lat 41°24'05", long 85°15'45", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.16, T.34 N., R.11 E., Noble County, Hydrologic Unit 04100003, on the property of Ron Karst on the south side of County Road 350 North, 0.6 mi west of State Highway 3 and about 22 mi north of Fort Wayne.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 216 ft, cased to 211 ft, screened to 216 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 1,036.94 ft above sea level. Measuring point: Top of casing, 3.45 ft above land-surface datum.

PERIOD OF RECORD.--November 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 113.24 ft below land-surface datum, Nov. 6, 1988; lowest, 115.44 ft below land-surface datum, Nov. 15, 1996.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

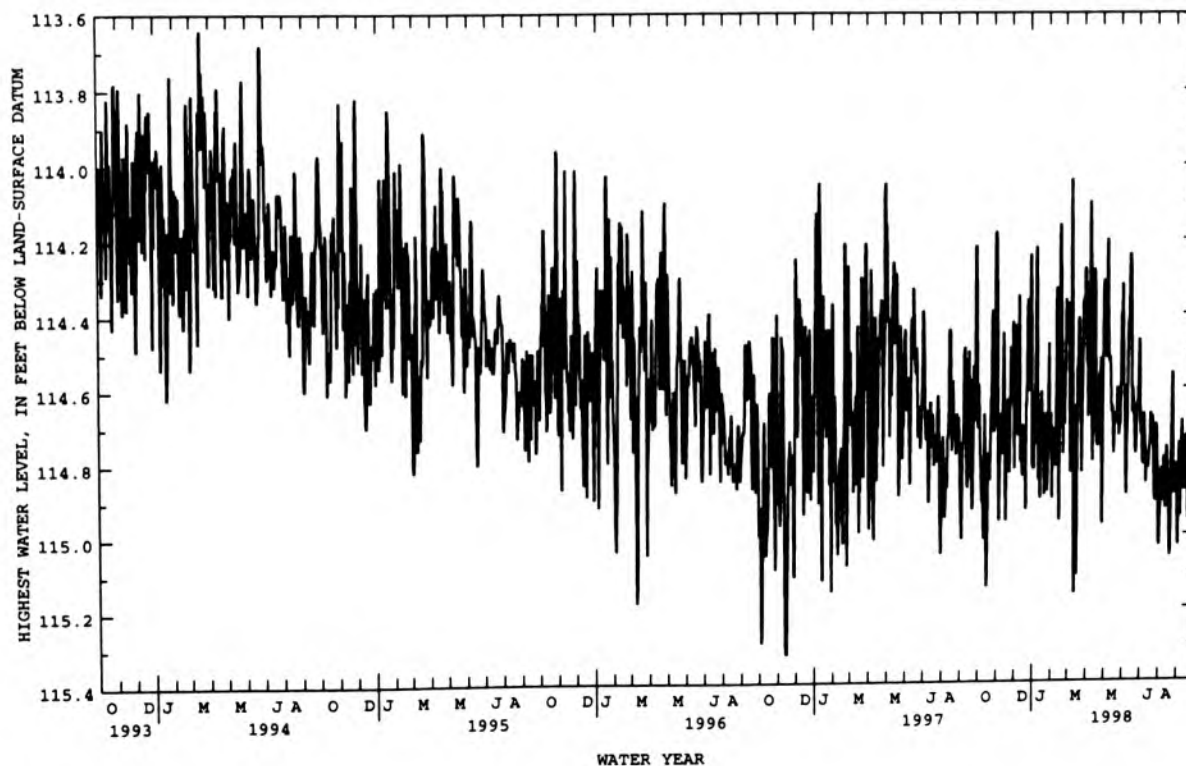
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	114.71	114.83	114.43	114.71	114.71	114.63	114.68	114.43	114.60	114.80	114.88	114.75
10	114.91	114.67	114.35	114.52	114.81	114.40	114.27	114.53	114.70	114.76	114.79	114.69
15	115.01	114.53	114.84	114.70	114.96	114.96	114.41	114.67	114.24	114.82	114.76	114.84
20	114.78	114.69	114.78	114.80	114.51	114.42	114.75	114.68	114.63	114.68	115.06	114.96
25	114.64	114.71	114.36	114.80	114.70	114.83	114.62	114.61	114.73	114.89	114.56	114.82
EOM	114.49	114.42	114.41	114.77	114.45	114.28	114.54	114.40	114.47	114.85	114.84	114.91

WTR YR 1998 HIGH 114.04 MAR 9

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	114.78	114.99	114.49	114.87	114.75	114.83	114.72	114.52	114.69	114.90	114.94	114.87
10	115.09	114.76	114.59	114.85	114.88	114.97	114.67	114.57	114.74	114.86	114.91	114.75
15	115.14	114.65	114.88	114.90	115.01	115.11	114.53	114.77	114.31	114.85	114.79	114.94
20	114.89	114.79	114.94	114.92	114.60	114.55	114.81	114.70	114.68	114.78	115.10	115.03
25	114.83	115.05	114.55	114.89	114.80	114.96	114.68	114.69	114.81	114.97	114.70	114.87
EOM	114.70	114.59	114.95	114.84	114.49	114.43	114.82	114.60	114.55	115.02	114.91	114.99

WTR YR 1998 LOW 115.21 MAR 12



## NOBLE COUNTY

412405085154504. Local number, NO 14.

LOCATION.--Lat 41°24'05", long 85°15'45", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.16, T.34 N., R.11 E., Noble County, Hydrologic Unit 04100003, on the property of Ron Karst on the south side of County Road 350 North, 0.6 mi west of State Highway 3 and about 22 mi north of Fort Wayne.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 145 ft, cased to 140 ft, screened to 145 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 1,037.24 ft above sea level. Measuring point: Top of casing, 3.50 ft above land-surface datum.

PERIOD OF RECORD.--November 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 112.21 ft below land-surface datum, Dec. 15, 1987; lowest, 114.44 ft below land-surface datum, Nov. 15, 1996.

HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

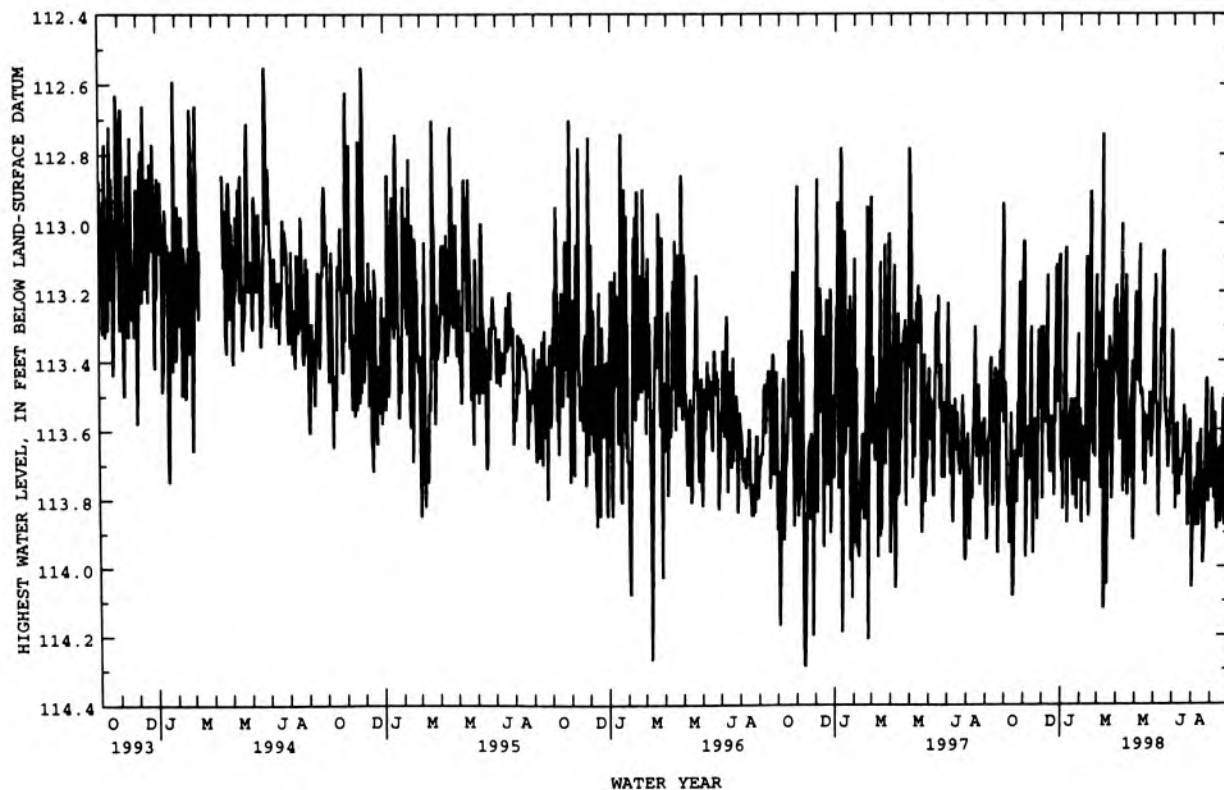
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	113.63	113.97	113.34	113.60	113.59	113.68	113.63	113.44	113.53	113.83	113.79	113.80
10	113.93	113.59	113.15	113.59	113.66	113.62	113.39	113.50	113.58	113.73	113.64	113.89
15	114.08	113.48	113.72	113.57	113.85	114.03	113.29	113.57	113.08	113.73	113.60	113.65
20	113.67	113.58	113.68	113.79	113.45	113.33	113.74	113.59	113.59	113.60	113.95	113.51
25	113.61	113.52	113.12	113.78	113.68	113.71	113.51	113.55	113.61	113.88	113.47	113.71
EOB	113.35	113.30	113.44	113.74	113.39	113.18	113.39	113.22	113.32	113.83	113.77	113.56

WTR YR 1998 HIGH 112.74 MAR 9

LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	113.78	114.08	113.48	113.83	113.68	113.84	113.76	113.53	113.70	113.91	113.86	113.96
10	114.15	113.76	113.51	113.88	113.83	114.13	113.78	113.58	113.67	113.87	113.78	114.03
15	114.17	113.71	113.84	113.66	114.02	114.18	113.55	113.79	113.20	113.82	113.73	113.87
20	113.90	113.74	113.96	113.91	113.60	113.52	113.82	113.68	113.67	113.74	114.07	113.65
25	113.84	113.99	113.52	113.90	113.84	114.01	113.68	113.66	113.73	113.93	113.70	113.78
EOB	113.55	113.53	114.08	113.84	113.49	113.36	113.74	113.47	113.52	114.06	113.87	113.72

WTR YR 1998 LOW 114.27 MAR 12





## PARKE COUNTY

393619087043001. Local number, PA 6.

LOCATION.--Lat 39°36'19", long 87°04'30", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.33, T.14 N., R.6 W., Parke County, Hydrologic Unit 05120111, on county right-of-way on north side of road at the Parke-Clay county line, 1.7 mi east of Carbon, 2.6 mi east of State Highway 59, and 6.2 mi north of Brazil.

Owner: U.S. Geological Survey.

AQUIFER.--Sandstone of Pennsylvanian age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 155 ft, cased to 46 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 703.24 ft above sea level. Measuring point: Top of casing, 2.40 ft above land-surface datum.

PERIOD OF RECORD.--July 1967 to August 1971, October 1981 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 11.53 ft below land-surface datum, Apr. 19, 1970; lowest, 16.87 ft below land-surface datum, Oct. 30, 1988.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

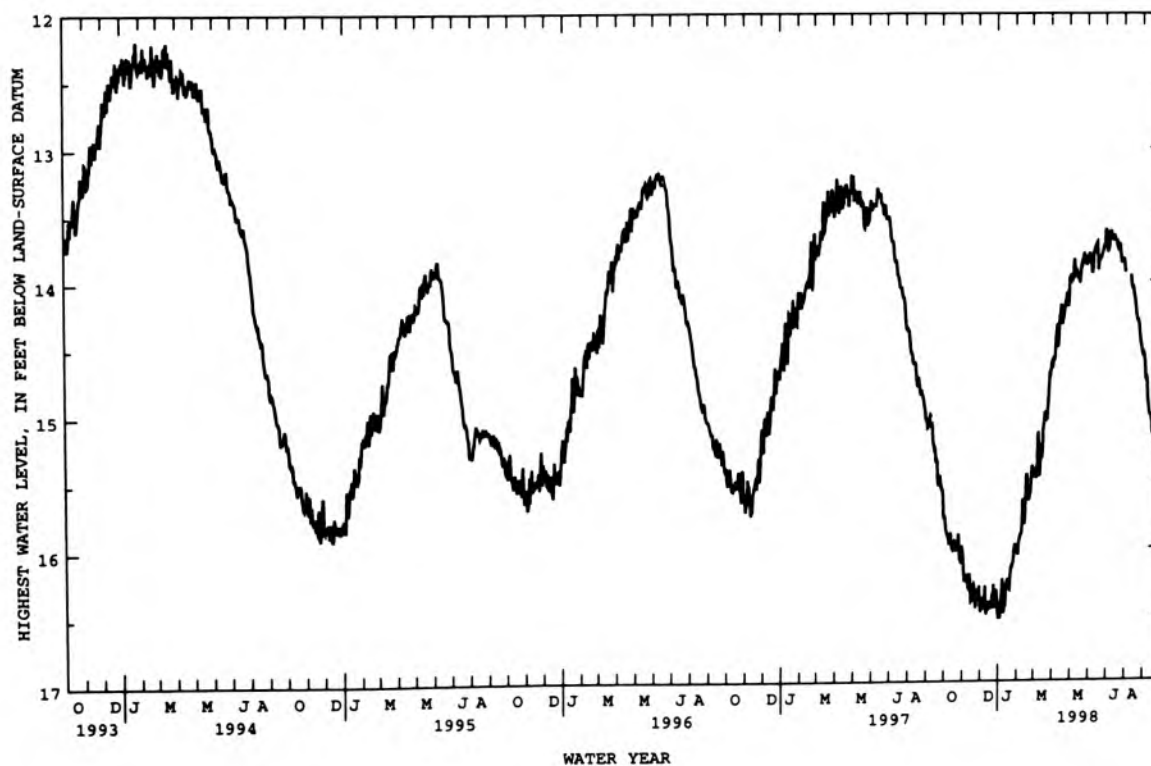
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	15.86	16.25	16.40	16.42	15.94	15.47	14.60	13.99	13.86	13.77	---	14.74
10	15.97	16.22	16.28	16.49	15.83	15.40	14.44	13.95	13.80	13.67	---	14.95
15	16.00	16.30	16.46	16.27	15.75	15.33	14.21	13.96	13.71	13.68	14.05	15.03
20	15.97	16.28	16.45	16.31	15.59	14.98	14.28	13.87	13.84	13.75	14.25	15.13
25	16.00	16.38	16.34	16.12	15.52	14.92	14.10	13.83	13.77	13.83	14.33	15.28
BOM	16.02	16.28	16.47	16.02	15.46	14.62	13.98	13.82	13.62	13.87	14.55	15.36

WTR YR 1998 HIGH 13.62 JUN 29

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	15.88	16.30	16.47	16.53	15.98	15.50	14.66	14.03	13.94	13.83	---	14.80
10	16.05	16.30	16.47	16.55	15.93	15.48	14.54	14.00	13.89	13.73	---	14.99
15	16.05	16.40	16.53	16.32	15.83	15.38	14.34	14.02	13.82	13.72	14.11	15.13
20	16.02	16.34	16.52	16.35	15.66	15.04	14.32	13.91	13.90	13.84	14.32	15.17
25	16.08	16.49	16.49	16.20	15.66	15.07	14.22	13.91	13.84	13.90	14.39	15.31
BOM	16.10	16.42	16.63	16.07	15.51	14.67	14.12	13.84	13.68	13.93	14.60	15.41

WTR YR 1998 LOW 16.63 DEC 31



## GROUND-WATER DATA

## POSEY COUNTY

380758087551001. Local number, PY 3.

LOCATION.--Lat 38°07'58", long 87°55'10", in NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.31, T.4 S., R.13 W., Posey County, Hydrologic Unit 05120113, on property of the New Harmony Park Board, at the east edge of New Harmony.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 58 ft, cased to 54ft, screened to 56 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 380.55 (revised) ft above sea level. Measuring point: Top of floor of shelter, 3.00 ft above land-surface datum.

REMARKS.--Water level affected by Wabash River floods.

PERIOD OF RECORD.--April 1967 to September 1971, September 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 4.95 ft below land-surface datum, May 14, 1983; lowest, 21.40 ft below land-surface datum, Nov. 4, 8-15, 1988.

#### HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

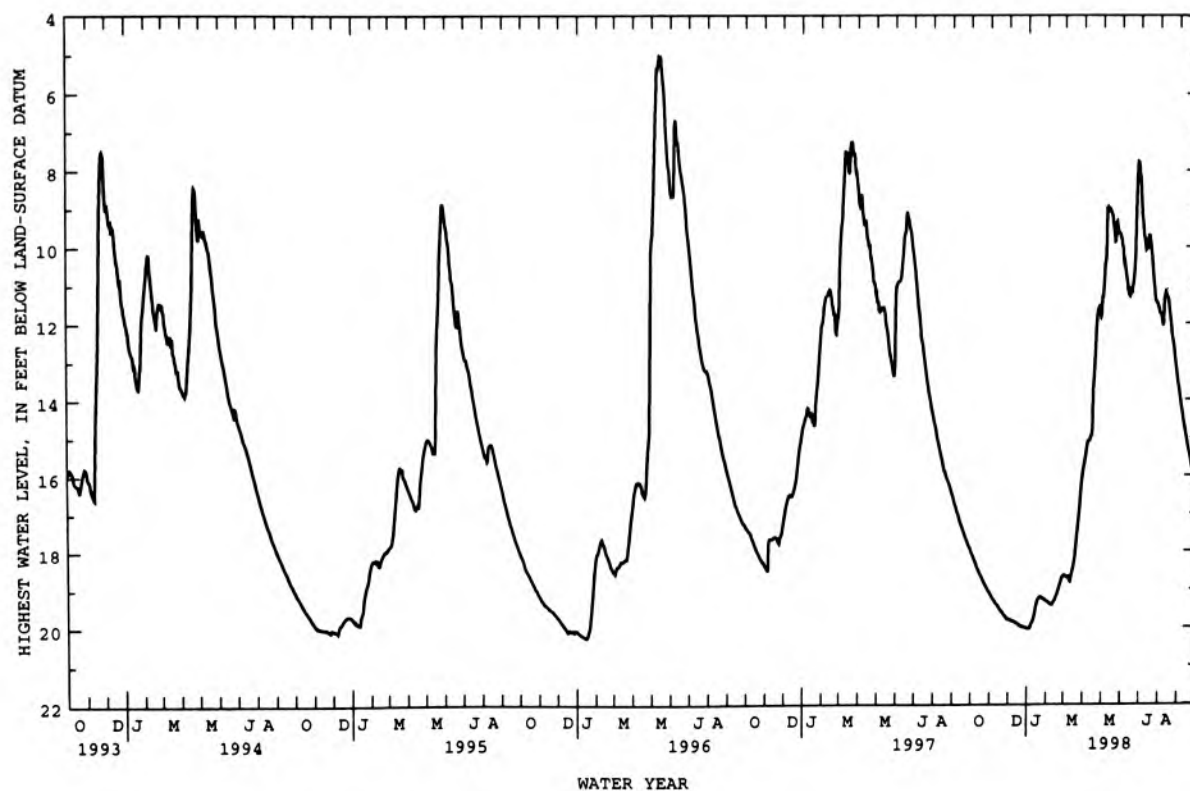
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	18.16	19.23	19.81	20.03	19.36	18.68	15.39	10.37	10.41	9.59	11.96	14.13
10	18.37	19.35	19.84	19.84	19.41	18.78	15.08	9.06	11.09	10.04	11.18	14.63
15	18.58	19.46	19.89	19.46	19.27	18.50	14.69	9.14	11.15	9.70	11.41	15.08
20	18.74	19.58	19.95	19.22	19.02	17.90	12.39	9.87	10.75	10.52	12.16	15.49
25	18.90	19.69	19.98	19.24	18.75	17.01	11.57	9.65	7.96	11.41	12.76	15.89
EOM	19.08	19.79	20.02	19.31	18.65	15.89	11.31	9.79	8.19	11.66	13.56	16.24

WTR YR 1998 HIGH 7.77 JUN 26

#### LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	18.21	19.25	19.82	20.03	19.38	18.69	15.51	10.45	10.61	9.74	12.08	14.23
10	18.43	19.38	19.85	19.87	19.43	18.80	15.09	9.15	11.22	10.14	11.24	14.71
15	18.61	19.48	19.90	19.55	19.31	18.58	14.93	9.21	11.28	9.82	11.56	15.19
20	18.77	19.59	19.96	19.24	19.07	18.15	12.78	10.00	10.94	10.74	12.31	15.58
25	18.94	19.71	19.99	19.24	18.81	17.21	11.64	9.76	8.44	11.49	12.92	15.97
EOM	19.10	19.80	20.03	19.32	18.68	16.01	11.78	9.97	8.57	11.74	13.67	16.31

WTR YR 1998 LOW 20.03 DEC 31



## POSEY COUNTY

380546087474301. Local number, PY 5.

LOCATION.--Lat 38°05'46", long 87°47'43", in NE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec. 18, T.5S., R.12W., Posey County, Hydrologic Unit 05120113, about 0.5 mi southwest of Wadesville along the west edge of Laurel Hill Cemetery.

Owner: U.S. Geological Survey

AQUIFER.--Sandstone of Pennsylvanian age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 221 ft, cased to 160 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 460.60 ft above sea level. Measuring point: Top of casing, 3.60 ft above land-surface datum.

REMARKS.--Well record may be affected by pumpage.

PERIOD OF RECORD.--September 1988 to current year.

REVISED RECORDS.--WDR IN 94-1: 1993.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 132.83 ft below land-surface datum, Mar. 27, 1991; lowest, 147.32 ft below land-surface datum, Oct. 12, 1995.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

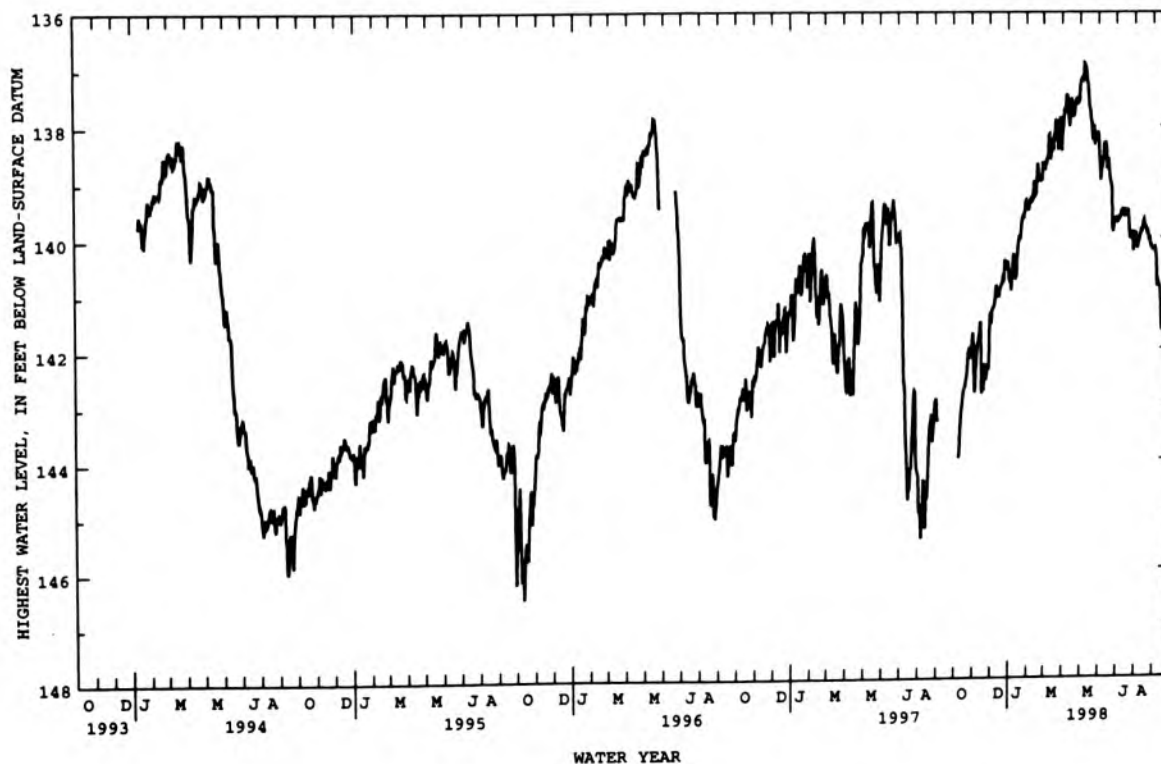
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	142.70	141.26	140.77	139.30	138.64	137.76	137.22	138.67	139.62	140.11	140.42
10	143.83	141.88	140.84	140.71	139.25	138.57	137.63	136.95	138.29	139.50	139.84	140.86
15	142.90	142.00	141.03	140.20	139.20	138.45	137.61	137.64	138.67	139.53	139.67	141.68
20	142.60	142.48	140.82	139.90	138.95	137.89	137.82	138.12	139.01	139.53	139.91	141.18
25	142.12	142.38	140.44	139.66	138.95	138.16	137.54	138.25	139.78	139.97	140.01	141.04
EOM	141.80	141.34	140.62	139.37	138.68	138.18	137.30	138.21	139.62	139.94	140.22	141.03

WTR YR 1998 HIGH 136.89 MAY 7

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	142.94	141.26	141.04	139.43	138.76	137.95	137.47	138.89	139.79	140.39	141.41
10	144.04	141.90	141.04	140.89	139.50	138.76	137.94	137.18	138.53	139.70	140.12	140.97
15	143.07	142.86	141.11	140.40	139.35	138.57	137.89	137.72	138.81	139.63	139.82	141.88
20	142.69	142.74	140.84	140.10	139.04	138.07	137.98	138.63	139.24	139.83	140.02	141.59
25	142.13	142.48	140.58	139.80	139.43	138.57	137.74	138.43	139.93	140.12	140.22	141.40
EOM	141.98	141.52	140.84	139.47	138.84	138.47	137.55	138.53	139.75	140.00	140.41	141.48

WTR YR 1998 LOW 144.06 OCT 9



## PULASKI COUNTY

405916086530701. Local number, PU 6.

LOCATION.--Lat 40°59'16", long 86°53'07", in NW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.4, T.29 N., R.4 W., Pulaski County, Hydrologic Unit 05120106, on private property at the north edge of Francesville.

Owner: Earl Overmeyer.

AQUIFER.--Limestone of Devonian age.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 8 in., depth 663 ft, cased to 11 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 678.60 ft above sea level. Measuring point: Top of casing, 3.00 ft above land-surface datum.

REMARKS.--Water level affected by pumpage and earthquakes.

PERIOD OF RECORD.--July 1956 to February 1971, January 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 4.03 ft below land-surface datum, June 15, 1958; lowest, 27.91 ft below land-surface datum, Apr. 5, 1996.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

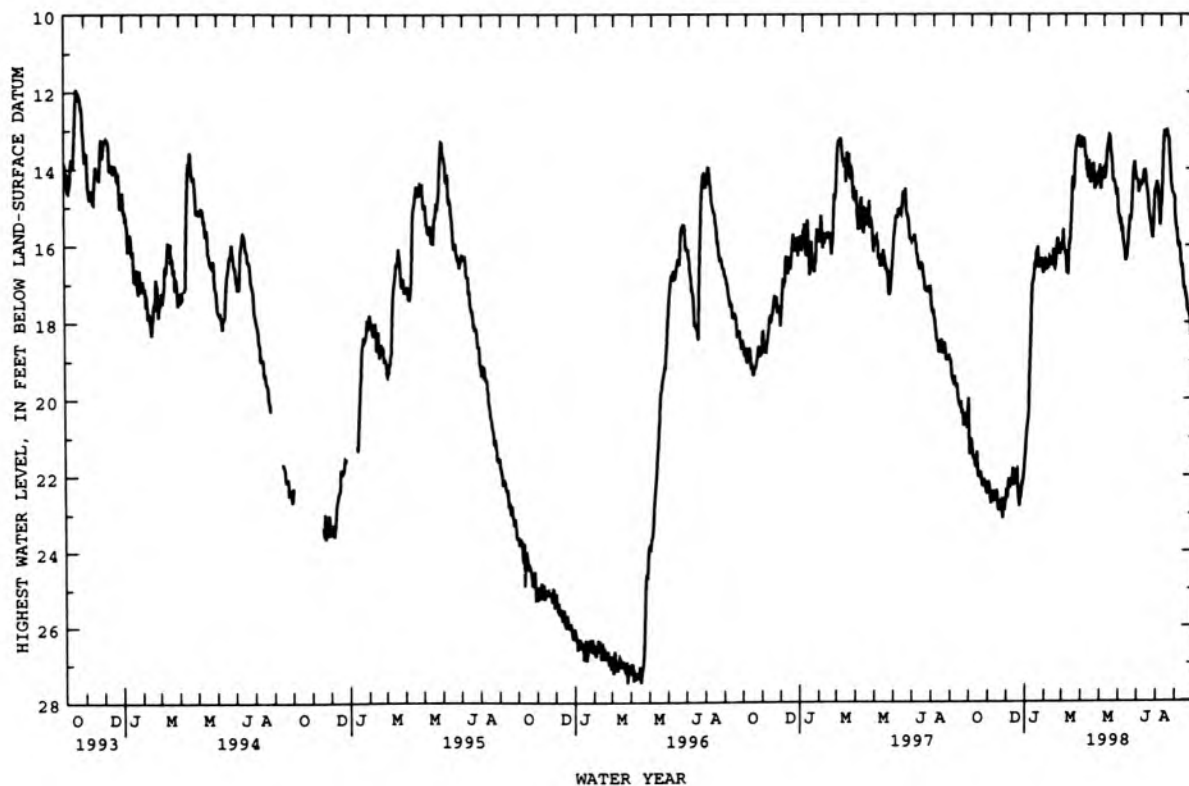
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	21.26	22.73	22.17	19.42	16.30	16.69	14.06	14.21	16.02	14.21	14.22	16.54
10	21.73	22.41	21.79	16.97	16.53	15.95	14.16	13.24	16.22	14.39	13.07	17.12
15	22.01	22.45	22.01	16.17	16.53	14.55	14.02	13.68	15.33	15.12	13.27	17.46
20	22.02	22.68	22.67	16.47	16.10	13.35	14.46	14.34	13.90	15.73	14.46	17.87
25	22.24	22.81	22.18	16.61	16.11	13.42	14.08	14.72	14.28	14.51	14.76	18.22
EOM	22.18	22.33	21.14	16.65	15.99	13.21	14.20	15.30	14.34	15.03	15.98	18.67

WTR YR 1998 HIGH 12.96 AUG 12

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	21.63	23.13	22.49	20.40	16.66	17.01	14.46	14.48	16.36	14.46	16.69	16.87
10	22.01	22.95	22.47	17.34	16.79	16.24	14.68	13.42	16.60	14.74	13.09	17.37
15	22.37	23.09	22.29	16.55	16.87	14.82	14.53	14.10	15.42	15.43	13.64	17.79
20	22.42	22.98	22.97	16.78	16.49	13.50	14.79	14.73	14.15	16.09	14.84	18.08
25	22.64	23.29	22.51	16.96	16.45	13.74	14.60	15.32	14.60	14.78	15.33	18.48
EOM	22.54	22.92	21.59	16.91	16.42	13.47	14.45	15.69	14.67	15.46	16.30	18.96

WTR YR 1998 LOW 23.41 NOV 24



## PULASKI COUNTY

410739086365201. Local number, PU 7.

LOCATION.--Lat 41°07'39", long 86°36'52", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.23, T.31 N., R.2 W., Pulaski County, Hydrologic Unit 05120106, in the Winamac State Fish and Game Area, 0.8 mi southwest of Beardstown.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 105 ft, cased to 98 ft, screened to 100 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 715.26 ft above sea level. Measuring point: Top of floor of shelter, 2.50 ft above land-surface datum.

PERIOD OF RECORD.--August 1967 to September 1971, September 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 4.69 ft below land-surface datum, June 15, 1981; lowest, 11.86 ft below land-surface datum, Nov. 6-9, 1988.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

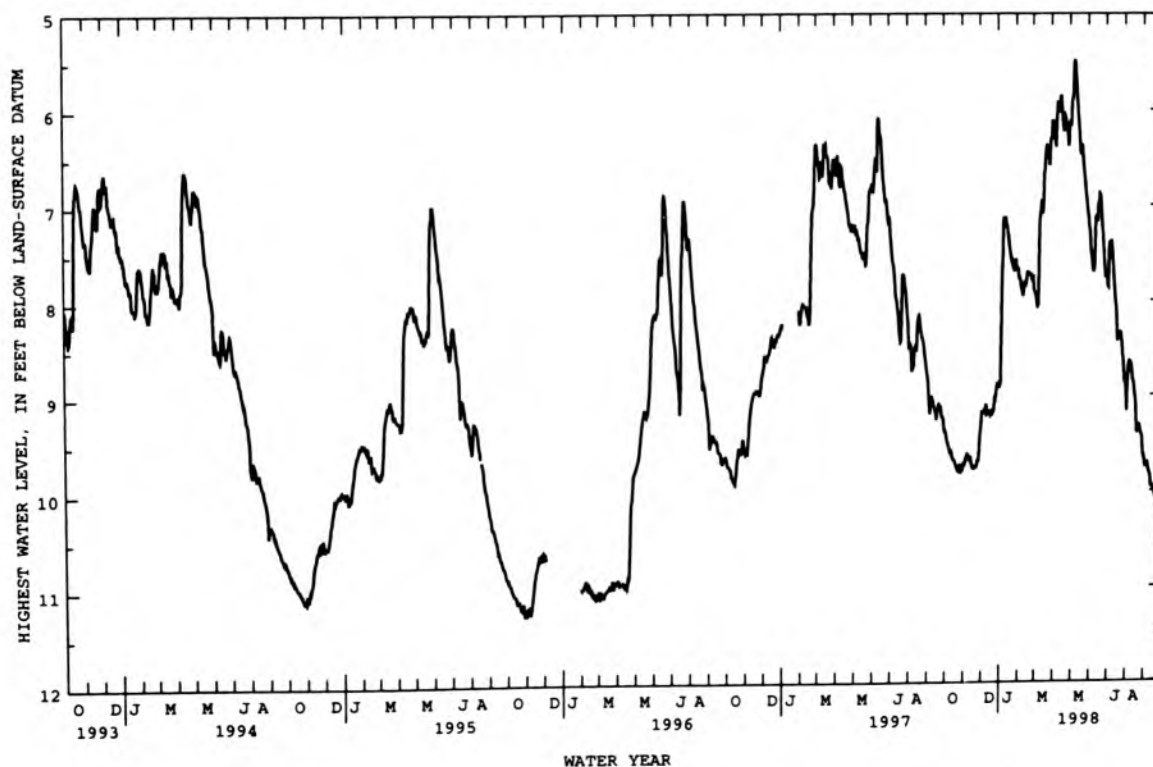
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	9.45	9.68	9.17	8.10	7.77	8.04	6.29	5.87	7.51	7.41	8.74	9.73
10	9.58	9.62	9.09	7.13	7.95	7.17	5.94	5.53	7.64	7.51	8.66	9.81
15	9.66	9.68	9.19	7.22	7.83	7.09	5.86	6.13	7.15	8.02	8.89	9.94
20	9.72	9.74	9.20	7.51	7.71	6.53	6.23	6.36	6.89	8.33	9.40	10.05
25	9.80	9.68	9.05	7.66	7.79	6.50	6.23	6.72	7.45	8.41	9.33	10.15
BOM	9.78	9.40	8.92	7.66	7.88	6.28	6.13	7.10	7.70	8.85	9.64	10.27

WTR YR 1998 HIGH 5.49 MAY 8

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	9.48	9.72	9.18	8.49	7.83	8.06	6.34	5.91	7.62	7.47	8.87	9.74
10	9.60	9.67	9.19	7.14	7.97	7.40	6.02	5.65	7.69	7.62	8.69	9.82
15	9.68	9.74	9.22	7.30	7.85	7.12	5.90	6.21	7.21	8.07	8.96	9.97
20	9.74	9.77	9.23	7.57	7.73	6.64	6.29	6.47	6.99	8.41	9.48	10.06
25	9.84	9.74	9.09	7.69	7.83	6.52	6.30	6.79	7.57	8.45	9.37	10.18
BOM	9.80	9.48	8.97	7.67	7.90	6.34	6.32	7.23	7.75	8.88	9.77	10.30

WTR YR 1998 LOW 10.30 SEP 30





## RANDOLPH COUNTY

401532085085301. Local number, RA 3.

LOCATION.--Lat 40°15'32", long 85°08'53", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.23, T.21 N., R.12 E., Randolph County, Hydrologic Unit 05120103, at the east edge of Purdue University Agriculture Experiment Station, about 5.5 mi north of Farmland.

Owner: U.S. Geological Survey.

AQUIFER.--Limestone of Silurian age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 54 ft, cased to 33 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 969.67 ft above sea level. Measuring point: Top of floor of shelter, 3.85 ft above land-surface datum.

PERIOD OF RECORD.--October 1966 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 7.68 ft below land-surface datum, Dec. 30, 1990; lowest, 15.18 ft below land-surface datum, Oct. 12, 13, 1988.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

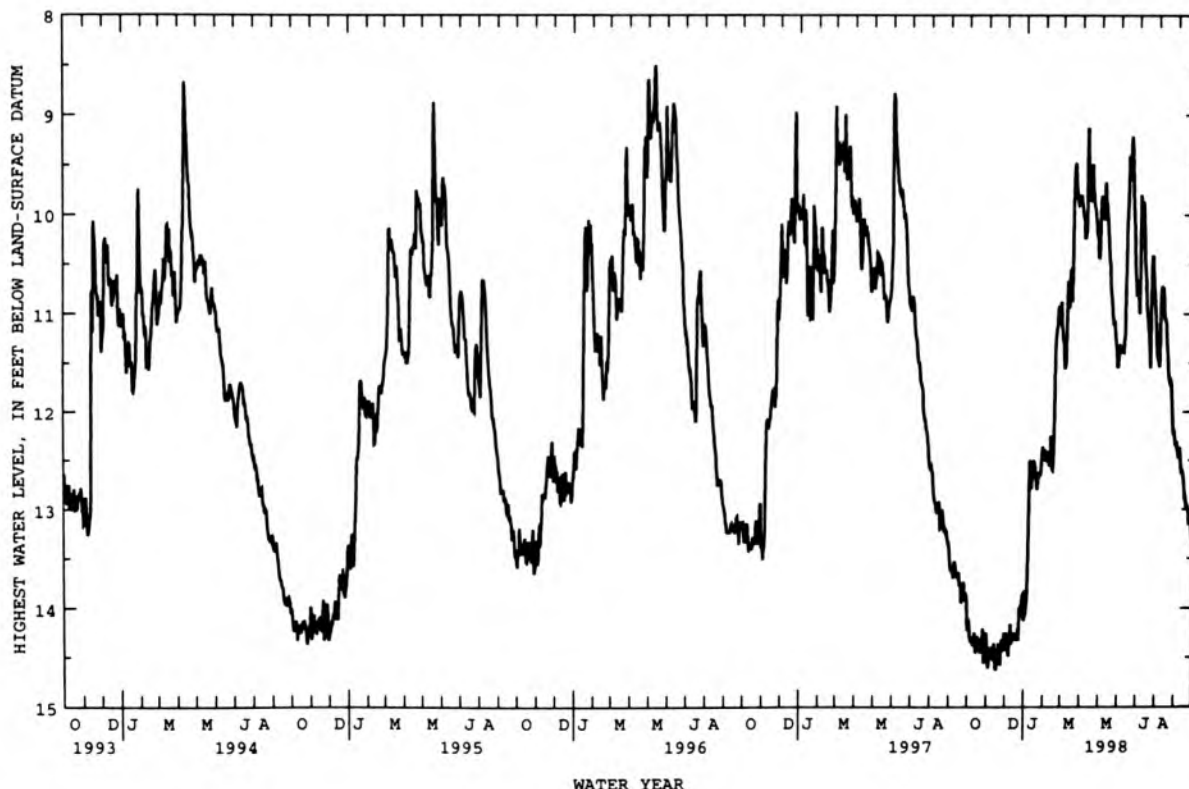
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	14.29	14.55	14.33	13.91	12.42	11.55	10.23	9.97	11.35	9.89	11.47	12.48
10	14.38	14.44	14.16	12.75	12.49	10.91	9.14	9.89	11.25	10.24	10.73	12.63
15	14.46	14.52	14.29	12.50	12.53	10.84	9.87	10.47	9.40	10.97	11.08	12.80
20	14.32	14.47	14.27	12.80	11.16	9.51	9.90	10.93	9.28	11.41	11.65	12.96
25	14.40	14.41	14.00	12.65	11.07	9.87	10.21	11.17	10.45	10.58	11.87	13.07
BOM	14.35	14.25	14.13	12.50	11.13	9.88	10.07	11.44	10.68	11.32	12.35	13.34

WTR YR 1998 HIGH 9.14 APR 9

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	14.34	14.68	14.46	13.98	12.50	11.64	10.29	10.08	11.40	10.03	11.60	12.56
10	14.45	14.53	14.38	12.86	12.60	11.07	9.77	10.00	11.33	10.45	10.83	12.66
15	14.51	14.61	14.39	12.60	12.65	10.95	9.92	10.55	9.83	11.04	11.24	12.95
20	14.43	14.53	14.44	12.87	11.24	9.70	9.97	11.09	9.51	11.60	11.70	13.04
25	14.50	14.62	14.11	12.72	11.20	9.96	10.31	11.27	10.61	10.72	12.06	13.15
BOM	14.46	14.41	14.30	12.57	11.17	9.93	10.38	11.54	10.81	11.45	12.41	13.43

WTR YR 1998 LOW 14.73 NOV 17



## ST. JOSEPH COUNTY

413120086055601. Local number, SJ 31.

LOCATION.--Lat 41°31'20", long 86°05'56", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.31, T.36 N., R.4 E., St. Joseph County, Hydrologic Unit 07120001, 4 mi west of Wakarusa.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 109 ft, cased to 104 ft, screened to 109 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 830.50 ft above sea level. Measuring point: Top of casing, 3.40 ft above land-surface datum.

PERIOD OF RECORD.--August 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 7.71 ft below land-surface datum, Jan. 23, 1991; lowest, 12.64 ft below land-surface datum, Oct. 6, 7, 1988.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

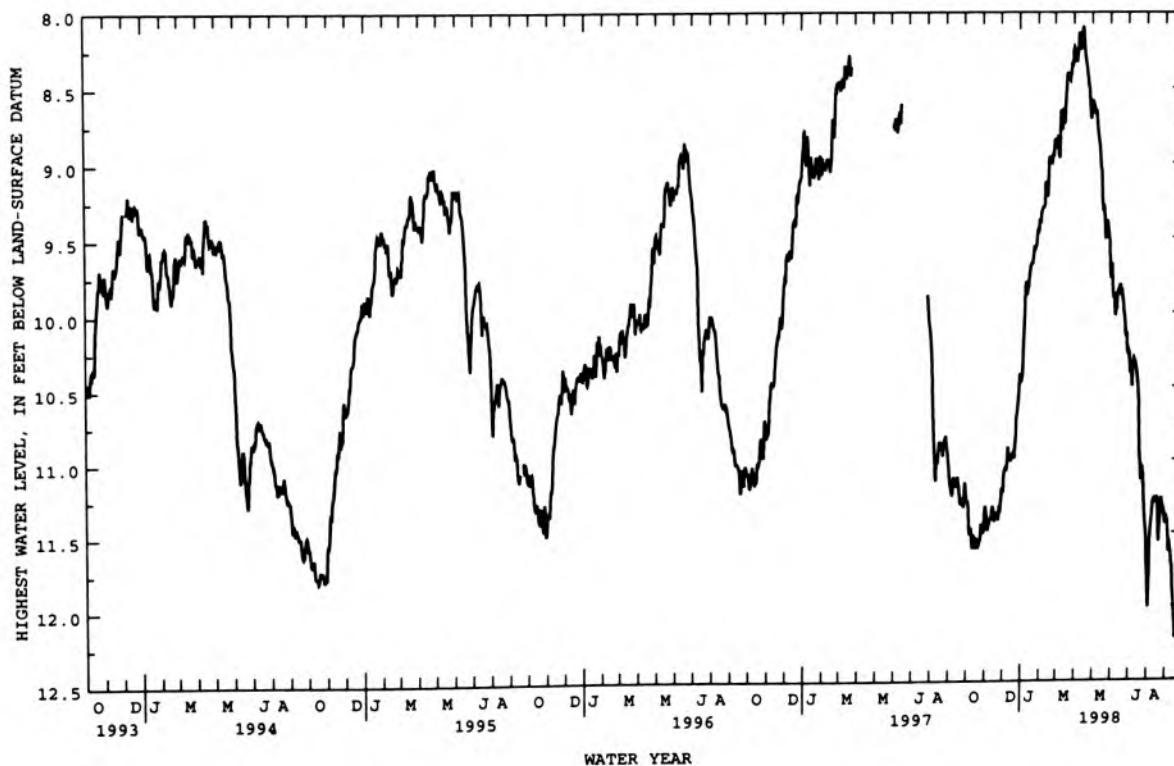
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	11.33	11.46	11.06	10.19	9.32	8.91	8.33	8.63	9.87	10.42	11.61	11.50
10	11.49	11.40	10.91	9.84	9.28	8.72	8.17	8.79	9.98	10.32	11.29	11.64
15	11.56	11.32	11.00	9.75	9.22	8.74	8.12	9.04	9.82	10.44	11.26	11.96
20	11.56	11.36	10.98	9.67	8.98	8.42	8.31	9.29	9.90	11.01	11.55	12.22
25	11.55	11.36	10.69	9.57	8.96	8.45	8.49	9.39	10.16	11.11	11.26	12.01
EOM	11.44	11.19	10.44	9.45	8.87	8.25	8.63	9.77	10.25	11.69	11.44	11.97

WTR YR 1998 HIGH 8.09 APR 16

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	11.47	11.49	11.08	10.33	9.34	8.96	8.36	8.69	9.91	10.52	11.85	11.64
10	11.58	11.43	11.02	9.90	9.32	8.79	8.25	8.83	10.02	10.36	11.36	11.72
15	11.62	11.37	11.03	9.81	9.24	8.76	8.17	9.06	9.85	10.50	11.34	12.05
20	11.59	11.39	11.04	9.68	9.00	8.51	8.36	9.43	9.93	11.17	11.62	12.28
25	11.61	11.44	10.71	9.60	8.99	8.49	8.52	9.43	10.24	11.26	11.30	12.04
EOM	11.49	11.25	10.54	9.48	8.89	8.34	8.71	9.87	10.27	11.79	11.46	12.01

WTR YR 1998 LOW 12.29 SEP 18



## SHELBY COUNTY

393943085490901. Local number, SH 2.

LOCATION.--Lat 39°39'43", long 85°49'09", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.13, T.14 N., R.6 E., Shelby County, Hydrologic Unit 05120204, on the county right-of-way at the intersection of County Roads 950 North and 200 West, 3.0 mi south of Carrollton.

Owner: U.S. Geological Survey.

AQUIFER.--Limestone of Devonian age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 150 ft, cased to 128 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 816.10 ft above sea level. Measuring point: Top of floor of shelter, 3.00 ft above land-surface datum.

PERIOD OF RECORD.--September 1966 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 15.90 ft below land-surface datum, May 27, 1968; lowest, 22.65 ft below land-surface datum, Feb. 7, 1977.

#### HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

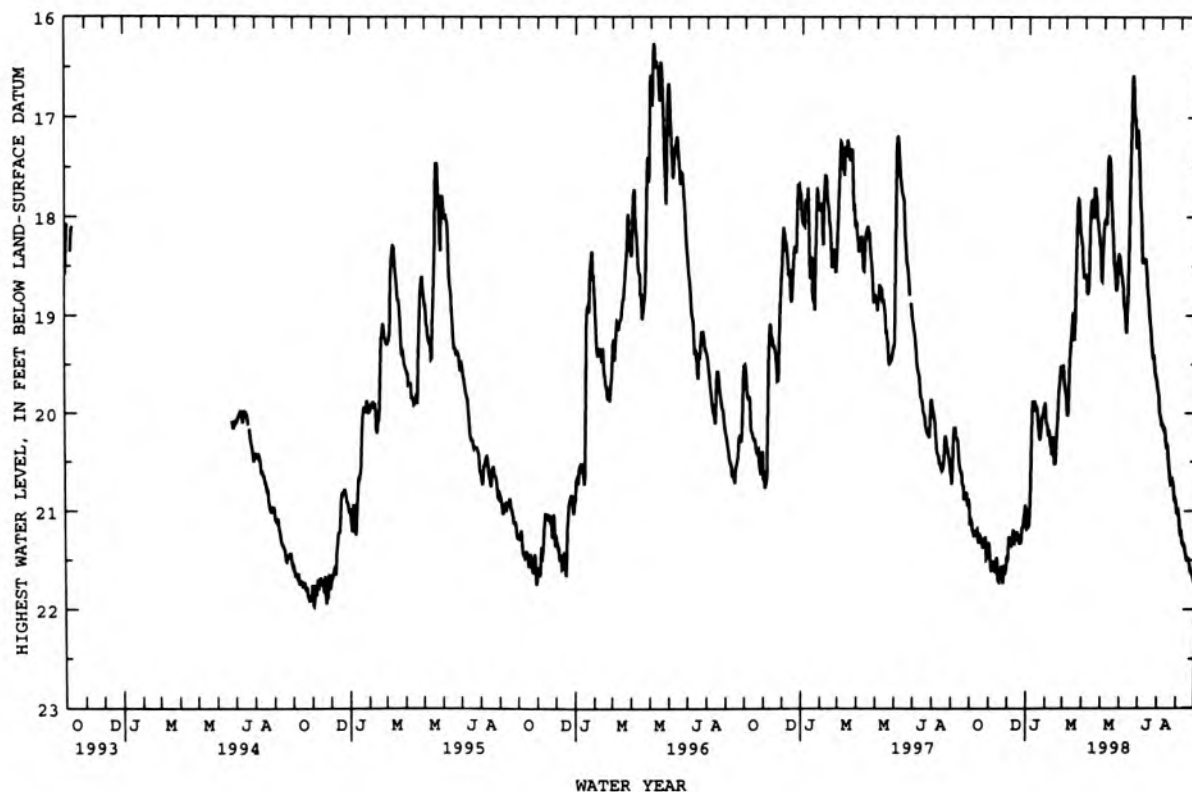
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	21.19	21.62	21.28	21.10	20.18	19.96	18.76	18.02	18.93	18.43	20.13	21.21
10	21.26	21.55	21.19	19.94	20.42	19.37	17.90	17.40	18.81	18.58	20.17	21.34
15	21.32	21.62	21.27	19.92	20.51	19.19	18.01	18.10	16.61	19.00	20.35	21.44
20	21.30	21.61	21.31	20.25	19.76	17.87	17.91	18.59	17.00	19.34	20.72	21.51
25	21.32	21.62	21.18	20.02	19.61	18.18	18.27	18.39	17.19	19.58	20.75	21.61
EOM	21.39	21.46	21.11	20.10	19.64	18.62	18.40	18.59	17.95	19.81	21.03	21.71

WTR YR 1998 HIGH 16.58 JUN 16

#### LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	21.21	21.68	21.34	21.16	20.28	20.05	18.80	18.08	19.03	18.47	20.16	21.31
10	21.32	21.62	21.32	19.98	20.47	19.49	18.12	17.49	18.95	18.68	20.22	21.38
15	21.37	21.71	21.32	19.96	20.58	19.25	18.07	18.19	17.12	19.05	20.45	21.52
20	21.37	21.65	21.40	20.30	19.91	18.15	18.03	18.69	17.14	19.45	20.77	21.55
25	21.44	21.77	21.21	20.09	19.66	18.23	18.35	18.48	17.32	19.65	20.85	21.65
EOM	21.47	21.59	21.29	20.13	19.70	18.67	18.66	18.66	18.12	19.95	21.06	21.76

WTR YR 1998 LOW 21.82 NOV 17



## STARKE COUNTY

411342086365601. Local number, SK 2.

LOCATION.--Lat 41°13'42", long 86°36'56", in NW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.14, T.32 N., R.2 W., Starke County, Hydrologic Unit 07120001, on private property in the southeast angle of intersection of U.S. Highway 35 and County Road 500 South, and 5.0 mi south of Knox.

Owner: Samuel A. Craigmile.

AQUIFER.--Gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 85 ft, cased to 77 ft, screened to 85 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 712.97 ft above sea level. Measuring point: Top of floor of shelter, 3.00 ft above land-surface datum.

PERIOD OF RECORD.--October 1935 to December 1952 (random instantaneous measurements only), August 1963 to October 1966, June 1976 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 0.83 ft below land-surface datum, June 17, 1949; lowest, 6.99 ft below land-surface datum, Aug. 2, 1939, Sept. 17, 18, 1988.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

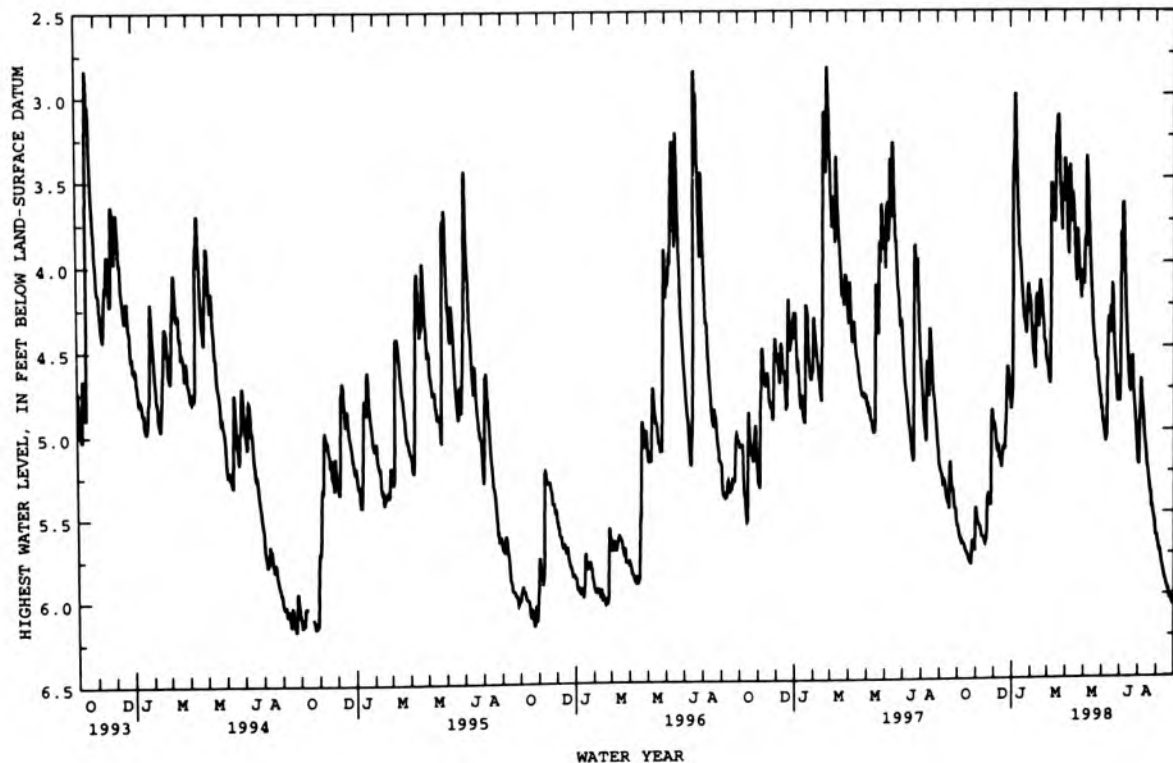
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	5.63	5.55	4.99	3.42	4.43	4.68	3.80	3.85	4.98	3.85	4.90	5.72
10	5.67	5.60	5.08	3.26	4.63	3.53	3.42	3.56	5.04	3.99	4.87	5.81
15	5.72	5.65	5.22	3.92	4.36	3.76	3.62	4.16	4.42	4.53	5.13	5.90
20	5.77	5.62	5.09	4.23	4.16	3.15	4.11	4.47	4.19	4.75	5.31	5.97
25	5.81	5.44	4.62	4.40	4.46	3.64	4.08	4.60	4.66	4.76	5.45	6.00
BOM	5.72	4.87	4.83	4.20	4.56	3.61	4.05	4.80	4.68	5.12	5.64	6.06

WTR YR 1998 HIGH 3.00 JAN 8

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	5.65	5.56	5.04	3.71	4.51	4.70	3.90	3.91	5.02	3.99	4.95	5.74
10	5.69	5.63	5.16	3.53	4.65	3.57	3.56	3.72	5.09	4.15	4.94	5.82
15	5.73	5.67	5.22	3.99	4.40	3.84	3.68	4.21	4.51	4.62	5.19	5.93
20	5.79	5.66	5.12	4.30	4.21	3.43	4.16	4.50	4.32	4.80	5.35	5.98
25	5.83	5.46	4.74	4.42	4.48	3.70	4.15	4.65	4.72	4.83	5.49	6.02
BOM	5.73	4.93	4.90	4.23	4.58	3.80	4.12	4.87	4.75	5.21	5.66	6.08

WTR YR 1998 LOW 6.08 SEP 30



## STEBEN COUNTY

414204085054002. Local number, SB 6.

LOCATION.--Lat 41°42'04", long 85°05'40", in SE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.36, T.38 N., R.12 W., Steuben County, Hydrologic Unit 04050001, 0.5 east of Panama on the north side of the Lake Gage Congregational Church.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 76 ft, cased to 71 ft, screened to 76 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 987.89 ft above sea level. Measuring point: Top of casing, 3.60 ft above land-surface datum.

PERIOD OF RECORD.--August 1986 to current year.

REVISED RECORDS.--WDR IN-91-1: 1989.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 14.68 ft below land-surface datum, July 1, 1993; lowest, 19.30 ft below land-surface datum, Mar. 1, 2, 1995.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

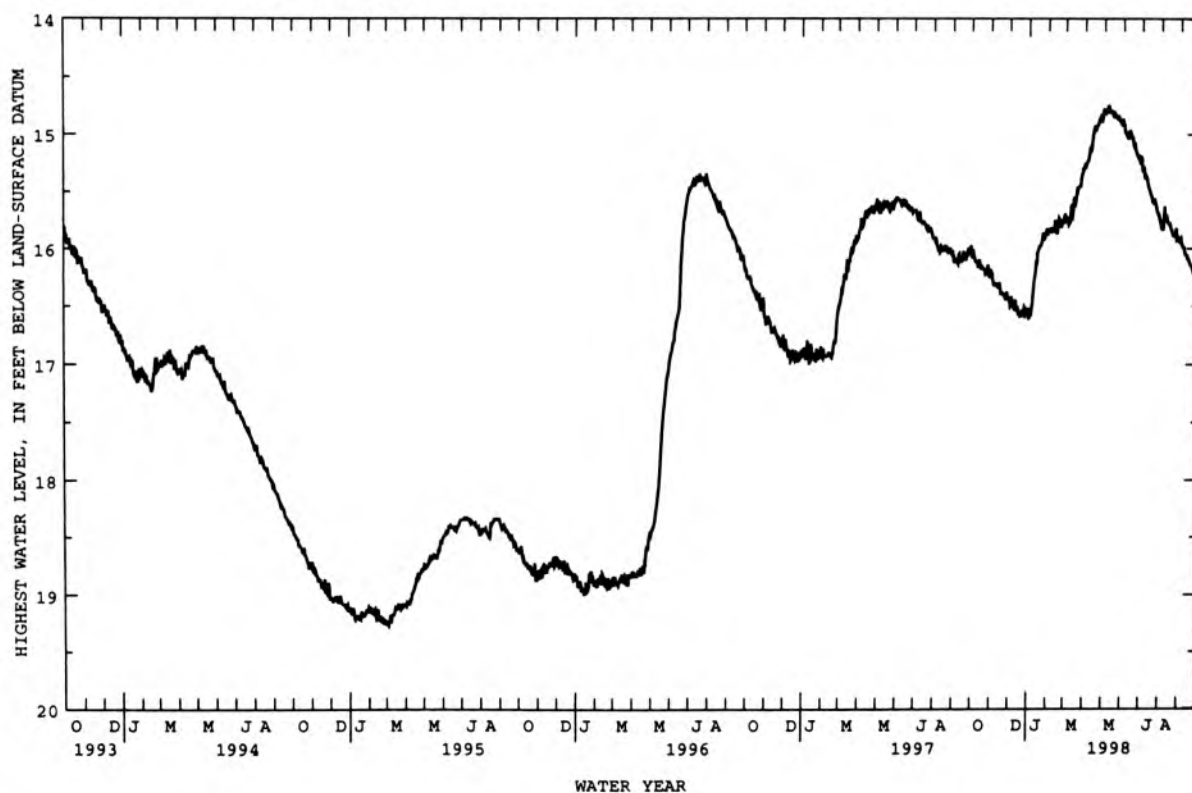
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	16.08	16.32	16.47	16.50	15.82	15.79	15.23	14.80	14.98	15.38	15.74	15.99
10	16.14	16.31	16.44	16.24	15.83	15.75	15.15	14.79	15.01	15.43	15.73	16.05
15	16.17	16.34	16.54	16.02	15.85	15.63	14.94	14.80	15.02	15.53	15.78	16.10
20	16.18	16.39	16.58	15.96	15.79	15.47	14.92	14.84	15.13	15.61	15.87	16.16
25	16.23	16.39	16.51	15.91	15.77	15.38	14.86	14.87	15.21	15.67	15.82	16.24
EOM	16.22	16.42	16.61	15.86	15.75	15.26	14.78	14.86	15.22	15.78	15.95	16.29

WTR YR 1998 HIGH 14.75 MAY 7

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	16.11	16.34	16.50	16.57	15.86	15.82	15.26	14.83	15.02	15.41	15.87	16.03
10	16.17	16.36	16.55	16.30	15.86	15.78	15.19	14.83	15.06	15.48	15.76	16.08
15	16.21	16.40	16.58	16.06	15.87	15.66	15.01	14.84	15.07	15.58	15.83	16.15
20	16.22	16.41	16.62	15.99	15.83	15.51	14.96	14.88	15.18	15.66	15.91	16.20
25	16.28	16.44	16.60	15.94	15.82	15.45	14.91	14.91	15.25	15.70	15.93	16.26
EOM	16.25	16.51	16.64	15.89	15.79	15.30	14.84	14.95	15.30	15.82	15.98	16.34

WTR YR 1998 LOW 16.64 DEC 31





## TIPPECANOE COUNTY

402734087033401. Local number, TC 17.

LOCATION.--Lat 40°27'34", long 87°03'34", NW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.11, T.23 N., R.6 W., Tippecanoe County, Hydrologic Unit 05120108, on the property of Purdue University and at the southeast corner of the intersection of County Roads 300 North and 825 West, about 3.0 mi southeast of Otterbein.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age (Teays Valley aquifer).

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 212.5 ft, cased to 207.5 ft, screened to 212.5 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 681 ft above sea level, from topographic map. Measuring point: Top of casing, 3.60 ft above land-surface datum.

PERIOD OF RECORD.--August 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 110.15 ft below land-surface datum, Sept. 20, 1998; lowest, 121.28 ft below land-surface datum, Aug. 18, 1989.

HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

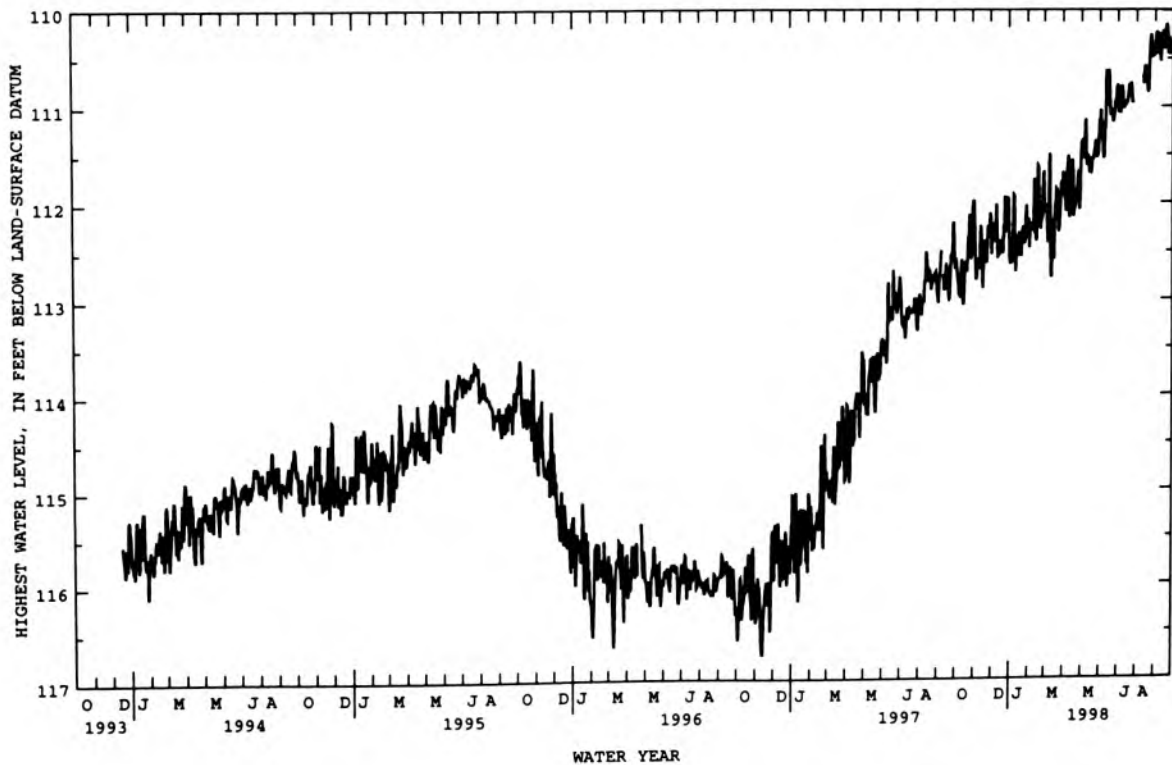
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	112.68	112.65	112.22	112.46	112.22	112.28	112.09	111.54	111.30	111.07	---	110.45
10	112.93	112.57	112.01	112.42	112.22	112.15	111.73	111.61	111.20	111.00	---	110.53
15	113.03	112.35	112.54	112.41	112.39	112.54	111.64	111.58	110.62	110.97	110.57	110.22
20	112.61	112.45	112.49	112.55	112.12	111.85	112.05	111.54	111.04	110.81	110.85	110.15
25	112.36	112.41	111.94	112.41	112.15	112.26	111.74	111.44	111.04	110.96	110.25	110.28
EOM	112.20	112.10	112.20	112.36	111.96	111.68	111.57	111.15	110.77	---	110.47	110.31

WTR YR 1998 HIGH 110.15 SEP 20

LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	112.76	112.80	112.34	112.62	112.25	112.43	112.18	111.59	111.44	111.14	---	110.54
10	113.13	112.60	112.26	112.76	112.34	112.74	112.15	111.63	111.26	111.04	---	110.58
15	113.11	112.54	112.63	112.52	112.52	112.65	111.86	111.71	110.68	111.00	110.63	110.38
20	112.70	112.61	112.68	112.59	112.23	112.01	112.11	111.58	111.08	110.89	110.96	110.21
25	112.53	112.81	112.27	112.47	112.35	112.46	111.88	111.52	111.12	111.02	110.34	110.47
EOM	112.45	112.22	112.79	112.42	112.07	111.82	111.90	111.30	110.89	---	110.54	110.36

WTR YR 1998 LOW 113.13 OCT 10



## TIPPECANOE COUNTY

402734087033402. Local number, TC 18.

LOCATION.--Lat 40°27'34", long 87°03'34", NW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.11, T.23 N., R.6 W., Tippecanoe County, Hydrologic Unit 05120108, on the property of Purdue University and at the southeast corner of the intersection of County Roads 300 North and 825 West, about 3.0 mi southeast of Otterbein.

Owner: U.S. Geological Survey

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 6 in., depth 64 ft, cased to 59 ft, screened to 64 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 681 ft above sea level, from topographic map. Measuring point: Top of casing, 3.50 ft above land-surface datum.

PERIOD OF RECORD.--August 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 16.67 ft below land-surface datum, Mar. 27, 1991; lowest, 22.54 ft below land-surface datum, Jan. 15, 1996.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

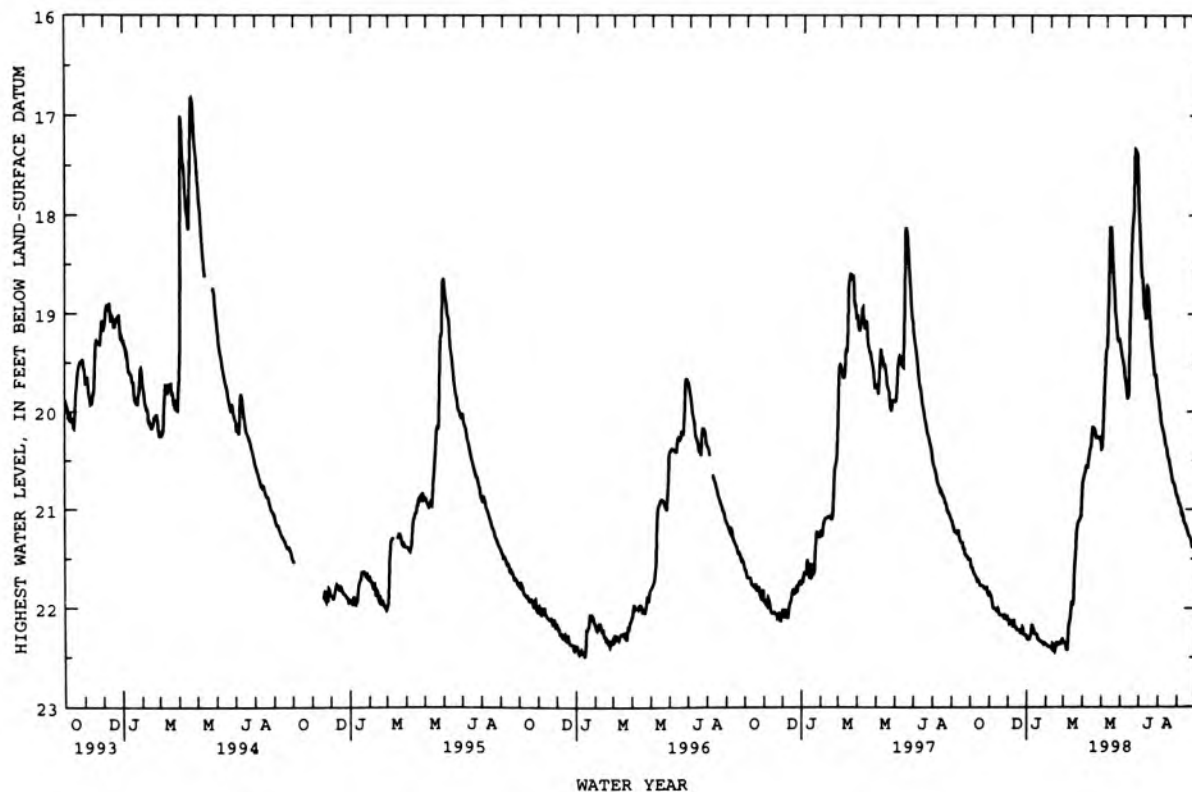
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	21.63	21.94	22.13	22.30	22.39	22.40	20.57	19.35	19.69	18.98	20.21	21.05
10	21.70	22.00	22.11	22.21	22.41	22.15	20.37	18.12	19.84	18.79	20.36	21.14
15	21.75	22.02	22.22	22.26	22.43	21.97	20.17	18.69	17.97	19.24	20.50	21.21
20	21.77	22.07	22.22	22.33	22.37	21.24	20.27	19.10	17.38	19.56	20.69	21.29
25	21.80	22.10	22.20	22.35	22.35	21.10	20.28	19.25	18.18	19.75	20.77	21.38
EOM	21.87	22.09	22.29	22.37	22.35	20.66	20.23	19.46	18.64	20.02	20.93	21.45

WTR YR 1998 HIGH 17.34 JUN 17

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	21.65	21.99	22.15	22.33	22.39	22.42	20.58	19.38	19.76	19.05	20.24	21.06
10	21.72	22.02	22.17	22.24	22.41	22.17	20.39	18.23	19.88	18.90	20.38	21.15
15	21.77	22.05	22.22	22.26	22.44	21.99	20.18	18.75	18.07	19.31	20.55	21.25
20	21.78	22.07	22.26	22.33	22.37	21.46	20.27	19.17	17.52	19.62	20.71	21.31
25	21.83	22.12	22.26	22.35	22.36	21.13	20.29	19.28	18.30	19.80	20.82	21.39
EOM	21.87	22.12	22.33	22.37	22.35	20.69	20.37	19.51	18.72	20.09	20.95	21.47

WTR YR 1998 LOW 22.44 FEB 14



## VANDERBURGH COUNTY

380608087395901. Local number, VA 6.

LOCATION.--Lat 38°06'08", long 87°39'59", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.8, T.5 S., R.11 W., Vanderburgh County, Hydrologic Unit 05120113, on county right-of-way at the intersection of Buente and New Harmony Roads, 1.0 mi southwest of Armstrong.

Owner: U.S. Geological Survey.

AQUIFER.--Sandstone of Pennsylvanian age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 125 ft, cased to 80 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 446.57 ft above sea level. Measuring point: Top of floor of shelter, 3.40 ft above land-surface datum.

PERIOD OF RECORD.--May 1965 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 24.88 ft below land-surface datum, Apr. 3, 4, 1968; lowest, 35.87 ft below land-surface datum, Nov. 14, 1994.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

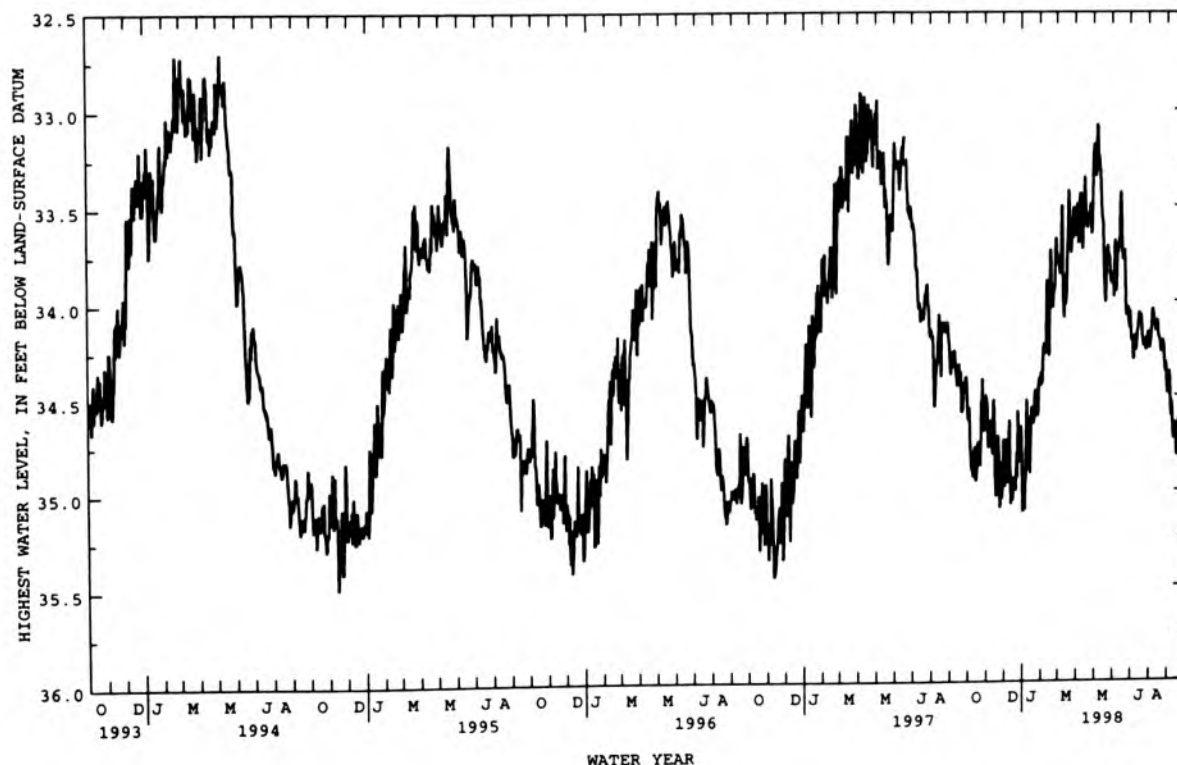
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	34.76	34.77	34.81	34.97	34.25	33.86	33.70	33.35	33.68	34.31	34.13	34.54
10	34.93	34.65	34.63	34.89	34.25	33.95	33.55	33.24	33.75	34.26	34.10	34.73
15	34.95	34.67	35.05	34.64	34.29	34.02	33.47	33.57	33.43	34.06	34.11	34.80
20	34.81	34.82	35.00	34.62	33.98	33.42	33.62	34.01	33.78	34.18	34.26	34.65
25	34.62	34.98	34.77	34.58	33.90	33.65	33.50	33.76	34.07	34.23	34.23	34.63
EOM	34.52	34.73	34.93	34.45	33.75	33.54	33.32	33.88	34.05	34.18	34.49	34.67

WTR YR 1998 HIGH 33.08 MAY 7

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	34.83	34.89	34.94	35.14	34.35	33.96	33.74	33.46	33.98	34.39	34.22	34.71
10	34.99	34.84	34.89	35.01	34.41	34.13	33.76	33.39	33.82	34.35	34.18	34.78
15	35.06	34.98	35.17	34.80	34.41	34.08	33.67	33.66	33.56	34.13	34.19	34.87
20	34.92	34.98	35.12	34.73	34.11	33.58	33.67	34.13	33.85	34.27	34.34	34.74
25	34.72	35.13	34.95	34.68	34.09	33.84	33.68	33.87	34.13	34.33	34.32	34.73
EOM	34.64	34.98	35.34	34.56	33.91	33.69	33.53	33.99	34.15	34.29	34.53	34.72

WTR YR 1998 LOW 35.35 JAN 1



## VANDERBURGH COUNTY

380626087344401. Local number, VA 7.

LOCATION.--Lat 38°06'26", long 87°34'44", in NE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.7, T.5 S., R.10 W., Vanderburgh County, Hydrologic Unit 05120113, on north side of Salem United Church of Christ 0.5 mi north of Darmstadt.

Owner: U.S. Geological Survey.

AQUIFER.--Inglefield Sandstone Member, Patoka Formation of Pennsylvanian Period.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 6 in., depth 70 ft, cased to 39.3 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 475.35 ft above sea level. Measuring point: Top of floor of shelter, 4.04 ft above land-surface datum.

PERIOD OF RECORD.--June 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 19.27 ft below land-surface datum, June 19, 1997; lowest, 25.06 ft below land-surface datum, Oct. 29, 1988.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

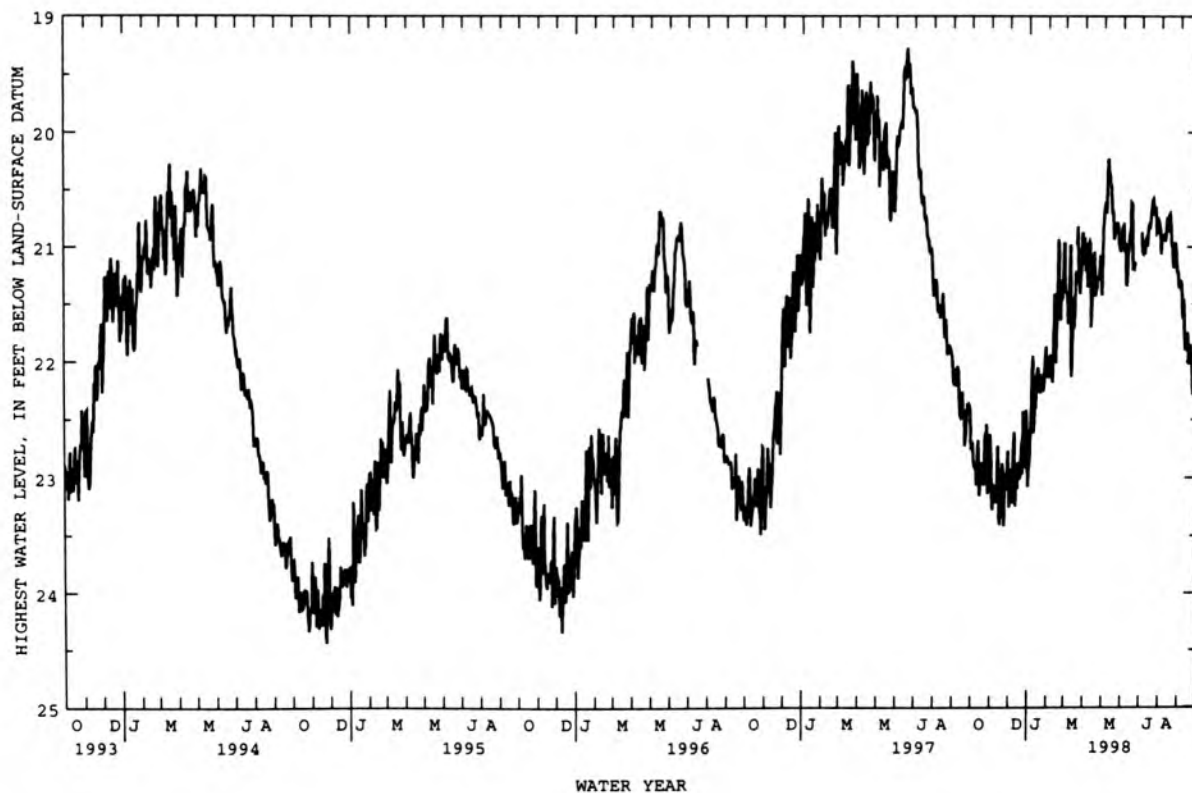
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	22.85	23.28	22.97	22.61	21.94	21.67	21.35	20.70	20.97	21.05	20.91	21.59
10	23.07	23.10	22.61	22.62	21.91	21.88	21.32	20.35	21.05	20.99	20.75	21.90
15	23.16	23.13	23.10	22.12	21.75	21.71	21.13	20.68	20.62	20.78	20.71	21.88
20	22.93	23.00	22.99	22.27	21.51	20.82	21.37	20.87	21.14	20.64	21.11	21.90
25	22.77	23.09	22.60	22.26	21.35	21.25	21.07	20.97	---	20.88	20.99	22.18
EOM	22.77	22.77	22.83	22.14	21.28	20.92	20.86	20.82	---	20.87	21.35	22.21

WTR YR 1998 HIGH 20.23 MAY 8

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	22.92	23.46	23.25	22.82	22.10	21.77	21.49	20.76	21.29	21.12	21.01	21.76
10	23.15	23.22	23.04	22.83	22.21	22.18	21.70	20.50	21.12	21.05	20.86	22.05
15	23.27	23.37	23.20	22.20	22.08	21.83	21.39	20.81	20.90	20.84	20.76	22.07
20	23.08	23.18	23.20	22.42	21.64	21.08	21.49	20.94	21.24	20.73	21.22	22.03
25	22.98	23.45	22.98	22.40	21.57	21.51	21.33	21.07	---	20.98	21.07	22.32
EOM	23.01	23.04	23.38	22.32	21.40	21.04	21.28	20.95	---	21.06	21.42	22.32

WTR YR 1998 LOW 23.65 NOV 17



## VIGO COUNTY

392820087242601. Local number, VI 7.

LOCATION.--Lat 39°28'20", long 87°24'26", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.21, T.12 N., R.9 W., Vigo County, Hydrologic Unit 05120111, on the campus of Indiana State University, in Terre Haute.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 6 in., depth 70 ft, cased to 67 ft, screened to 70 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 502 ft above sea level, from topographic map. Measuring point: Top of floor of shelter, 3.00 ft above land-surface datum.

PERIOD OF RECORD.--January 1970 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 38.35 ft below land-surface datum, Dec. 13, 1993; lowest, 51.90 ft below land-surface datum, Sept. 29 to Oct. 1, 1972.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

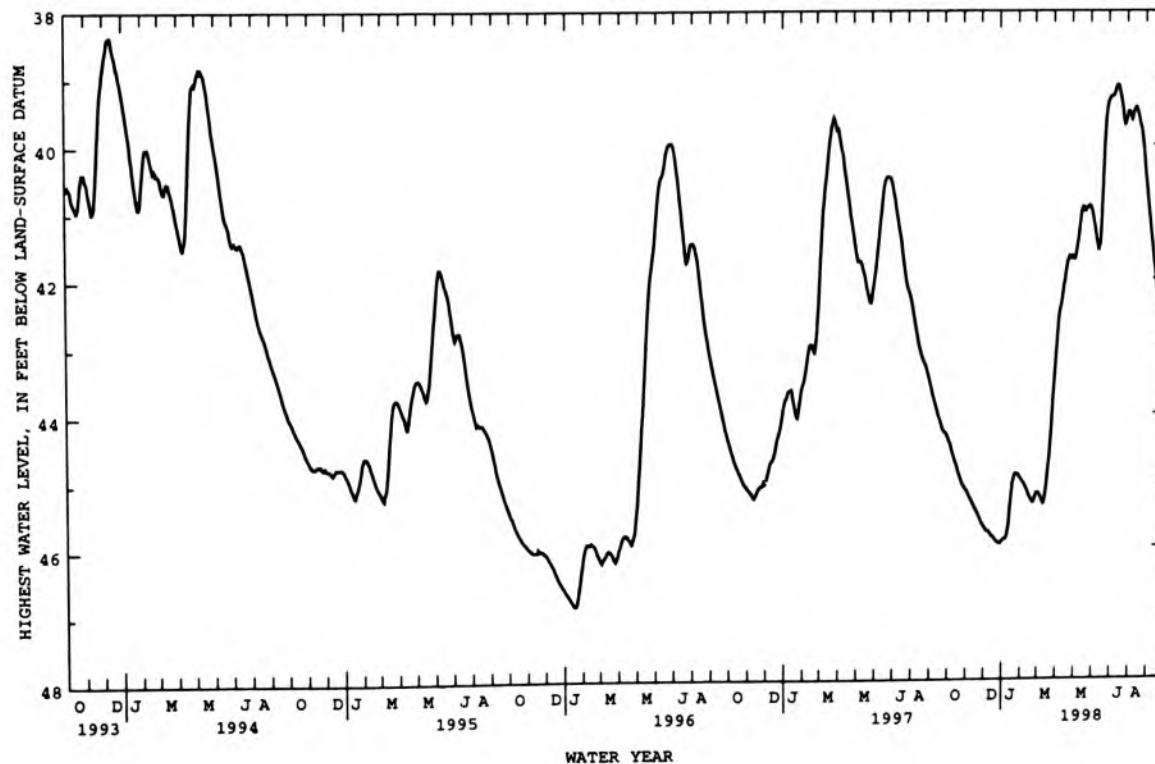
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	44.41	45.18	45.74	45.87	45.01	45.21	42.78	41.68	41.15	39.28	39.55	40.96
10	44.56	45.27	45.76	45.79	45.10	45.32	42.42	41.39	41.44	39.23	39.52	41.42
15	44.71	45.37	45.83	45.39	45.21	45.18	42.12	41.01	41.48	39.11	39.44	41.84
20	44.86	45.46	45.87	44.99	45.30	44.78	41.84	40.95	40.62	39.25	39.60	42.25
25	44.99	45.56	45.92	44.89	45.26	44.22	41.67	40.95	39.70	39.59	39.84	---
BOM	45.11	45.66	45.92	44.95	45.18	43.39	41.67	40.93	39.35	39.57	40.45	---

WTR YR 1998 HIGH 39.11 JUL 14

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	44.43	45.20	45.75	45.88	45.03	45.23	42.89	41.71	41.20	39.29	39.59	41.06
10	44.59	45.29	45.78	45.83	45.12	45.34	42.44	41.46	41.50	39.26	39.58	41.50
15	44.73	45.39	45.83	45.49	45.23	45.25	42.19	41.09	41.54	39.12	39.46	41.93
20	44.89	45.47	45.89	45.05	45.32	44.87	41.90	40.98	40.84	39.30	39.66	42.32
25	45.02	45.58	45.93	44.89	45.29	44.36	41.69	40.97	39.84	39.66	39.92	---
BOM	45.12	45.67	45.93	44.96	45.20	43.51	41.70	40.97	39.38	39.61	40.55	---

WTR YR 1998 LOW 45.94 DEC 26





## WABASH COUNTY

404424085422801. Local number, WB 3.

LOCATION.--Lat 40°44'24", long 85°42'28", in SE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.35, T.27 N., R.7 E., Wabash County, Hydrologic Unit 05120101, on State Highway 124, 3.5 mi west of the county line and in the southwest corner of United Telephone Company property.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 105 ft, cased to 100 ft, screened to 105 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 850.45 ft above sea level. Measuring point: Top of casing, 3.50 ft above land-surface datum.

PERIOD OF RECORD.--August 1986 to current year.

REVISED RECORDS.--WDR IN-94-1: 1993.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 43.85 ft below land-surface datum, Mar. 27, 1991 and Apr. 1, 1993; lowest, 49.66 ft below land-surface datum, Mar. 10, 1996.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

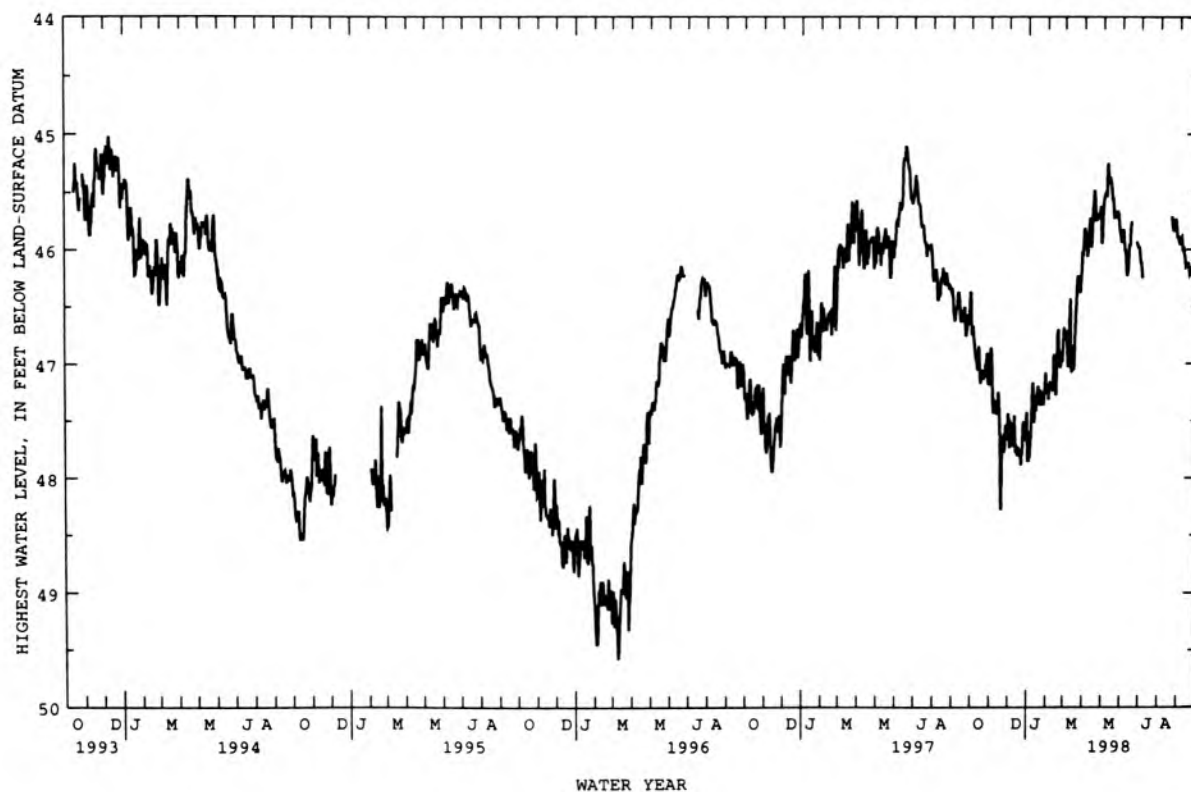
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	46.78	47.37	47.53	47.68	47.16	46.91	46.06	45.53	46.01	---	---	45.96
10	46.97	47.33	47.46	47.37	47.22	46.78	45.83	45.41	46.18	---	---	46.11
15	47.10	47.34	47.81	47.30	47.28	47.06	45.58	45.57	45.76	---	---	46.12
20	47.09	47.86	47.79	47.36	46.92	46.27	45.74	45.68	---	---	45.79	46.17
25	47.04	47.69	47.51	47.36	46.99	46.38	45.70	45.69	45.97	---	45.74	---
EOM	47.04	47.44	47.59	47.26	46.76	45.82	45.71	45.87	46.11	---	45.93	---

WTR YR 1998 HIGH 45.25 MAY 8

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	46.83	47.46	47.60	47.82	47.21	47.06	46.08	45.55	46.06	---	---	46.02
10	47.08	47.43	47.63	47.56	47.28	47.07	45.99	45.43	46.20	---	---	46.15
15	47.18	47.46	47.87	47.42	47.32	47.11	45.69	45.58	45.81	---	---	46.15
20	47.12	48.34	47.89	47.41	46.97	46.45	45.78	45.69	---	---	45.82	46.17
25	47.16	47.89	47.66	47.40	47.04	46.46	45.73	45.76	45.98	---	45.76	---
EOM	47.18	47.57	47.93	47.29	46.78	45.95	45.90	45.97	46.11	---	45.96	---

WTR YR 1998 LOW 48.34 NOV 20



## WABASH COUNTY

403948085414601. Local number, WB 4.

LOCATION.--Lat 40°39'48", long 85°41'46", in NE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 35, T.26N., R.7E., Wabash County, Hydrologic Unit 05120103, on America Road, 1.3 mi southeast of La Fountaine.

Owner: U.S. Geological Survey

AQUIFER.--Sand and gravel of the Pleistocene age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 118 ft, cased to 113 ft, screened to 118 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 837.40 ft above sea level. Measuring point: Top of casing, 3.30 ft above land-surface datum.

PERIOD OF RECORD.--August 1988 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 38.19 ft below land-surface datum, Nov. 5, 1988; lowest, 46.90 ft below land-surface datum, Feb. 4, 1996.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

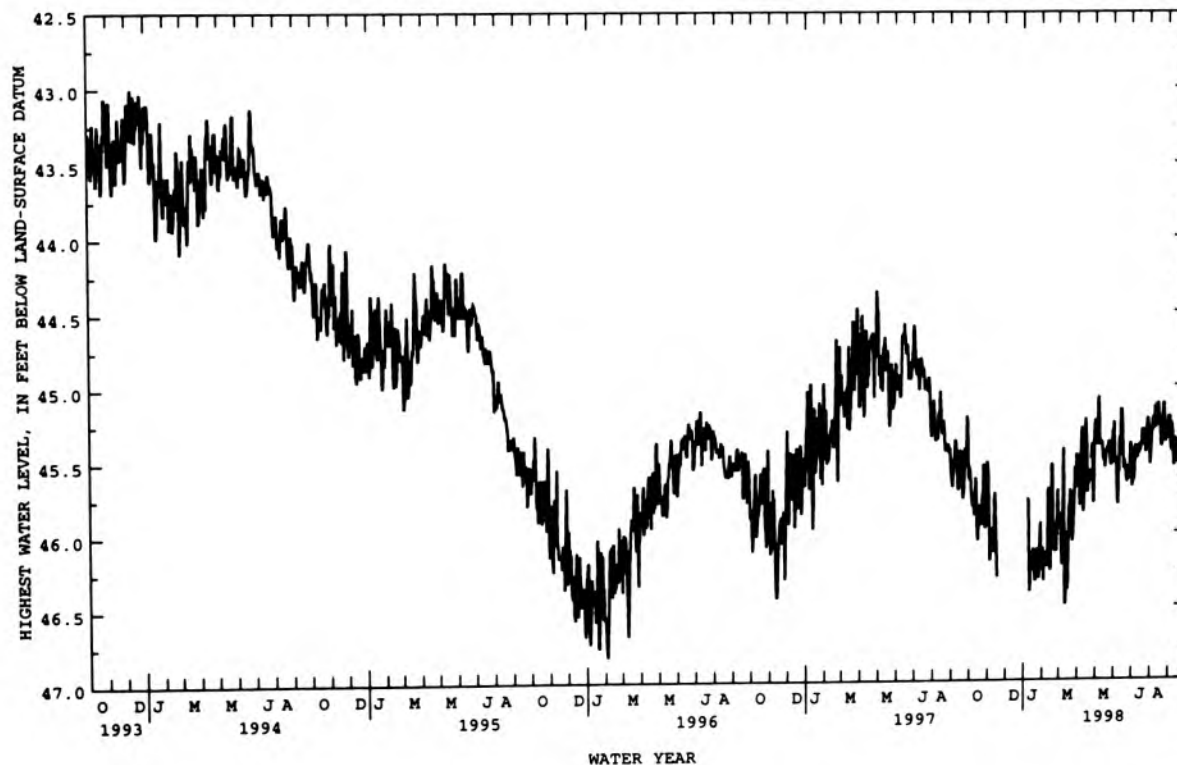
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	45.72	46.19	---	---	46.13	46.13	45.82	45.40	45.51	45.65	45.30	45.45
10	45.87	45.97	---	46.21	46.13	46.05	45.52	45.41	45.59	45.47	45.14	45.55
15	46.00	45.92	---	46.16	46.25	46.39	45.32	45.46	45.17	45.45	45.12	45.39
20	45.82	---	---	46.33	46.00	45.71	45.67	45.45	45.56	45.35	45.42	45.36
25	45.78	---	---	46.30	46.13	45.98	45.47	45.44	45.64	45.46	45.12	45.51
BOM	45.70	---	---	46.25	45.92	45.47	45.38	45.31	45.40	45.38	45.37	45.48

WTR YR 1998 HIGH 45.08 MAY 8

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	45.77	46.24	---	---	46.18	46.26	45.93	45.47	45.65	45.71	45.38	45.53
10	45.99	46.09	---	46.43	46.26	46.49	45.86	45.46	45.65	45.53	45.24	45.61
15	46.08	46.06	---	46.23	46.38	46.47	45.53	45.58	45.25	45.48	45.19	45.53
20	45.96	---	---	46.40	46.11	45.84	45.74	45.51	45.60	45.45	45.46	45.42
25	45.97	---	---	46.36	46.25	46.20	45.60	45.52	45.70	45.51	45.24	45.55
BOM	45.88	---	---	46.32	45.96	45.60	45.65	45.44	45.52	45.54	45.43	45.57

WTR YR 1998 LOW 46.62 MAR 12



## GROUND-WATER DATA

## WARRICK COUNTY

380624087164801. Local number, WK 4.

LOCATION.--Lat 38°06'24", long 87°16'48", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.2, T.5 S., R.8 W., Warrick County, Hydrologic Unit 05140201, on State Highway 61, 4.2 mi north of Boonville.

Owner: U.S. Geological Survey.

AQUIFER.--Sandstone from lower Dugger Formation of Pennsylvanian age.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 6 in., depth 105 ft, cased to 30 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 446.18 ft above sea level. Measuring point: Top of floor of shelter, 4.09 ft above land-surface datum.

PERIOD OF RECORD.--June 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 6.85 ft below land-surface datum, June 17, 1997; lowest, 18.20 ft below land-surface datum, Oct. 30, 1988.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

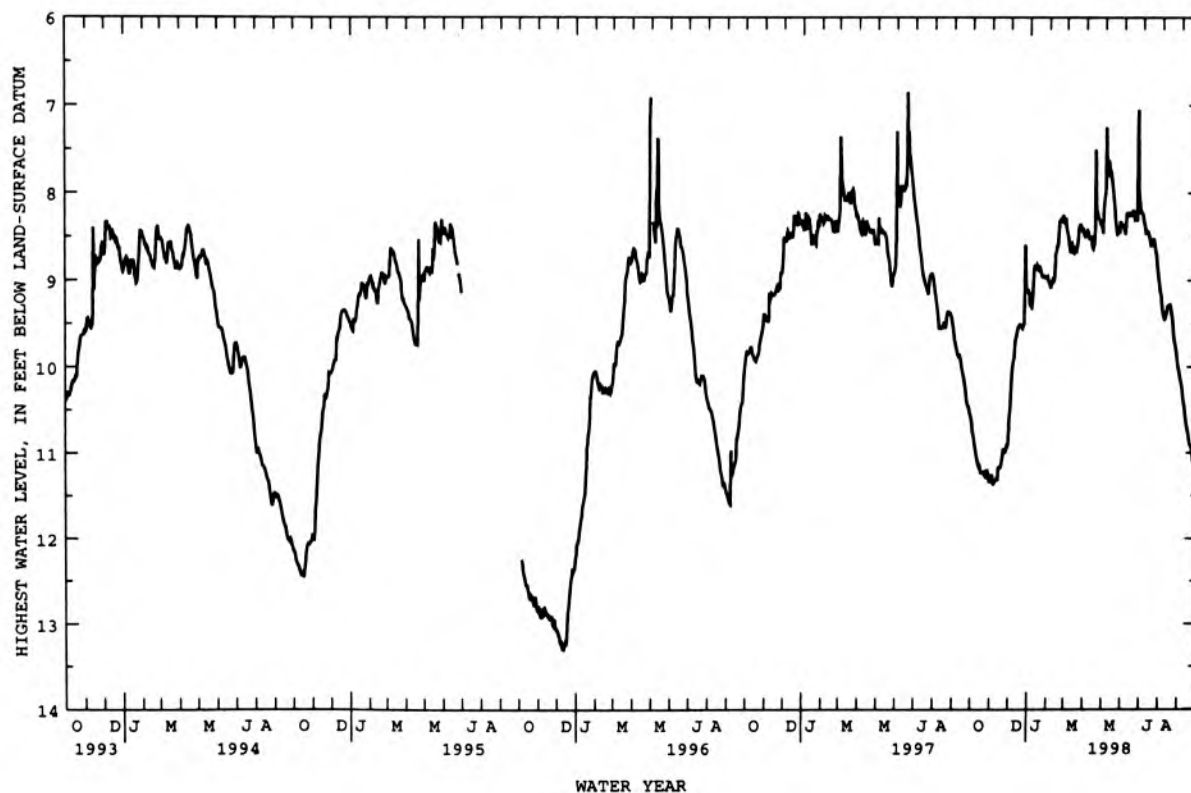
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	10.88	11.38	9.98	9.25	9.02	8.60	8.50	7.77	8.22	8.41	9.44	10.33
10	11.09	11.31	9.65	8.86	8.86	8.64	8.55	7.75	8.25	8.45	9.33	10.60
15	11.21	11.17	9.53	8.84	8.58	8.67	8.50	8.07	8.20	8.55	9.28	10.80
20	11.23	11.04	9.55	8.95	8.30	8.41	8.26	8.45	8.28	8.56	9.55	10.95
25	11.23	10.97	8.87	8.96	8.32	8.41	8.36	8.42	8.04	8.85	9.81	11.17
EOM	11.32	10.62	9.17	9.02	8.37	8.47	8.11	8.39	8.23	9.16	10.10	11.29

WTR YR 1998 HIGH 7.05 JUN 23

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	10.93	11.38	10.04	9.31	9.04	8.65	8.52	7.81	8.36	8.48	9.49	10.40
10	11.14	11.32	9.69	8.87	8.98	8.67	8.61	7.80	8.26	8.48	9.37	10.65
15	11.24	11.19	9.55	8.86	8.61	8.69	8.62	8.13	8.22	8.65	9.31	10.86
20	11.25	11.08	9.59	8.96	8.31	8.54	8.30	8.48	8.30	8.61	9.63	11.00
25	11.26	11.03	9.08	8.98	8.34	8.43	8.39	8.43	8.10	8.93	9.86	11.19
EOM	11.35	10.85	9.28	9.04	8.42	8.54	8.26	8.41	8.24	9.24	10.15	11.32

WTR YR 1998 LOW 11.38 NOV 4



## WASHINGTON COUNTY

383012086124501. Local number, WA 2.

LOCATION.--Lat 38°30'12", long 86°12'45", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.20, T.1 N., R.3 E., Washington County, Hydrologic Unit 05140104, on West Washington School Road, 5.1 mi north of Fredericksburg.

Owner: U.S. Geological Survey.

AQUIFER.--Limestone of Mississippian age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 142.5 ft, cased to 101 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 780 ft above sea level, from topographic map. Measuring point: Top of casing, 3.50 ft above land-surface datum.

PERIOD OF RECORD.--August 1989 to current year.

REVISED RECORDS.--WDR IN-94-1: 1993.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 61.14 ft below land-surface datum, Apr. 30, 1996; lowest, 75.76 ft below land-surface datum, Sept. 14, 1998.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

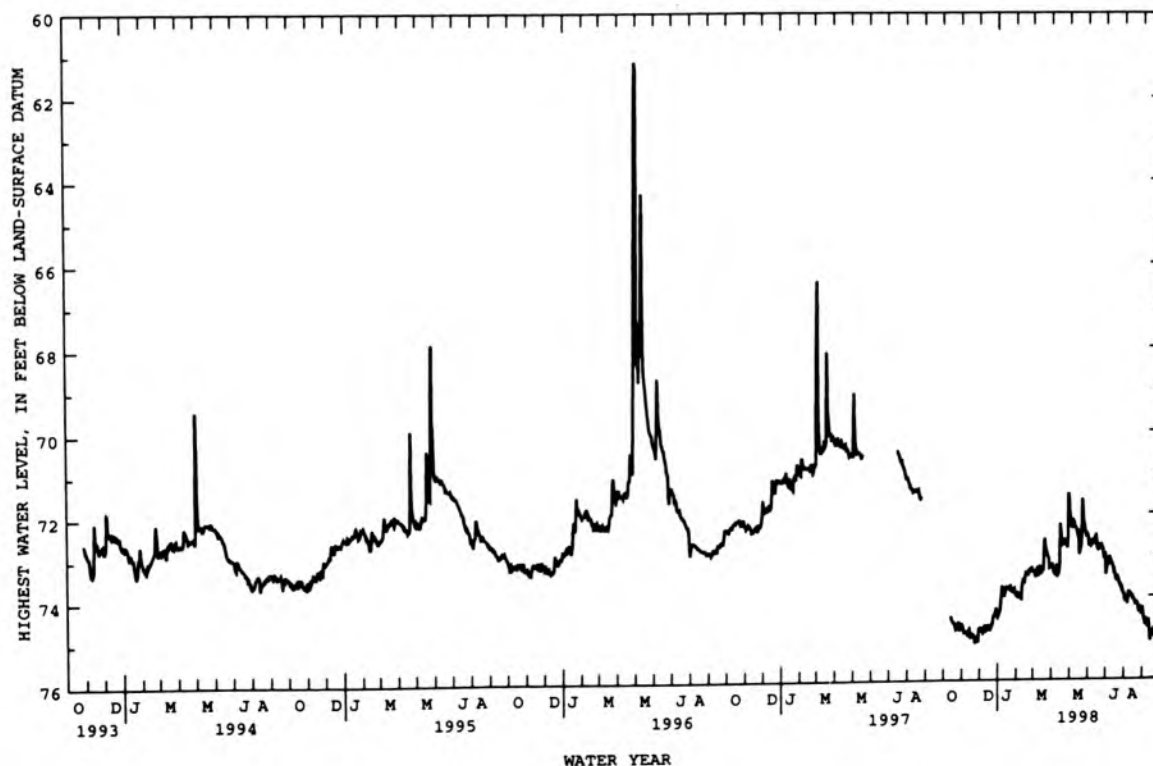
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	74.87	74.77	74.35	73.95	73.52	73.43	72.32	72.73	73.15	74.03	74.63
10	---	74.89	74.68	73.92	74.03	73.52	73.39	72.22	72.68	73.13	73.90	74.76
15	74.55	74.87	74.77	73.79	73.68	73.47	73.28	72.51	72.53	73.39	73.99	75.09
20	74.66	74.91	74.78	73.81	73.47	72.68	72.77	72.84	72.79	73.54	74.18	74.83
25	74.72	75.02	74.46	73.89	73.39	72.97	72.68	72.10	72.79	73.73	74.24	74.89
EOM	74.71	74.78	74.45	73.96	73.36	73.31	71.51	72.50	73.01	73.93	74.39	74.82

WTR YR 1998 HIGH 71.51 APR 30

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	74.87	74.96	74.41	74.02	73.58	73.51	72.39	72.89	73.49	74.27	74.75
10	---	74.90	74.83	74.08	74.24	73.60	73.59	72.38	72.78	73.24	74.08	74.83
15	74.59	74.98	74.90	73.89	73.74	73.51	73.49	72.66	72.75	73.44	74.14	75.66
20	74.73	74.97	74.99	73.97	73.55	73.40	72.85	73.02	72.92	73.64	74.34	74.90
25	74.72	75.13	74.57	73.98	73.50	73.13	72.81	72.30	73.00	73.90	74.44	75.08
EOM	74.76	75.10	74.65	74.02	73.46	73.39	72.69	72.59	73.37	73.98	74.52	75.04

WTR YR 1998 LOW 75.76 SEP 14



## GROUND-WATER DATA

## WAYNE COUNTY

394426085080601. Local number, WE 6.

LOCATION.--Lat 39°44'26", long 85°08'06", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.24, T.15 N., R.12 E., Wayne County, Hydrologic Unit 05080003, on county right-of-way, 750 ft east of State Highway 1, and 4.0 mi south of East Germantown.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 6 in., depth 49 ft, cased to 47 ft, screened to 49 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 888 ft above sea level, from topographic map. Measuring point: Top of collar in shelter, 3.60 ft above land-surface datum.

PERIOD OF RECORD.--September 1966 to current year.

REVISED RECORDS.--WDR IN-81-1: 1980.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 7.09 ft below land-surface datum, May 8 and 9, 1996; lowest, 21.68 ft below land-surface datum, Feb. 1, 1977.

#### HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

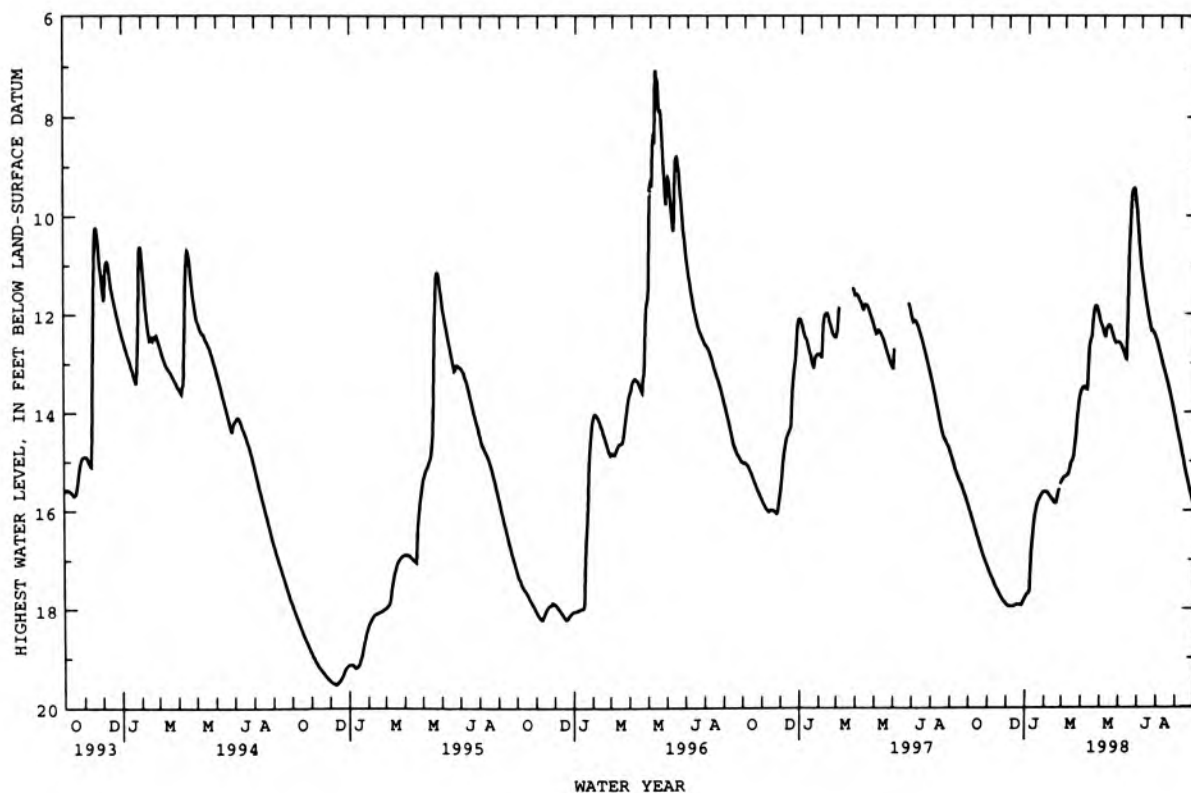
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	16.12	17.29	17.94	17.68	15.64	15.30	13.51	12.42	12.76	11.28	12.92	14.60
10	16.33	17.43	17.94	16.77	15.74	15.24	12.91	12.27	12.93	11.69	13.14	14.90
15	16.54	17.57	17.92	16.09	15.83	15.00	12.47	12.28	9.84	12.06	13.38	15.21
20	16.74	17.70	17.90	15.80	15.72	14.64	11.84	12.49	9.44	12.32	13.64	15.48
25	16.93	17.81	17.92	15.68	15.46	13.90	11.98	12.58	9.96	12.43	13.93	15.73
EOM	17.13	17.89	17.76	15.61	15.37	13.51	12.22	12.61	10.73	12.66	14.31	15.98

WTR YR 1998 HIGH 9.44 JUN 20

#### LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	16.16	17.32	17.94	17.68	15.66	15.31	13.53	12.46	12.80	11.37	12.96	14.66
10	16.37	17.46	17.94	16.99	15.76	15.26	13.30	12.30	12.96	11.77	13.19	14.96
15	16.58	17.60	17.93	16.19	15.84	15.02	12.48	12.31	10.29	12.13	13.43	15.27
20	16.78	17.72	17.90	15.85	15.78	14.76	11.87	12.52	9.46	12.39	13.70	15.52
25	16.97	17.83	17.93	15.70	15.50	14.04	12.02	12.58	10.12	12.46	13.99	15.78
EOM	17.17	17.90	17.78	15.62	15.39	13.54	12.24	12.64	10.86	12.72	14.37	16.02

WTR YR 1998 LOW 17.94 DEC 4





## WELLS COUNTY

404331085064701. Local number, WL 4.

LOCATION.--Lat 40°43'31", long 85°06'47", in SE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.12, T.26 N., R.12 E., Wells County, Hydrologic Unit 05120101, 3.5 mi southeast of Bluffton on Hwy 316 to entrance of Quabache State Park.

Owner: U.S. Geological Survey.

AQUIFER.--Silty dolomite of Silurian age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 79 ft, cased to 46 ft, open end.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 826.04 ft above sea level. Measuring point: Top of floor of shelter, 2.35 ft above land-surface datum.

PERIOD OF RECORD.--January 1967 to current year. (Semi-annual tape-down readings only September 1971 to December 1981.)

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 17.70 ft below land-surface datum, Apr. 4, 1973; lowest, 25.21 ft below land-surface datum, Sept. 24, 1988.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

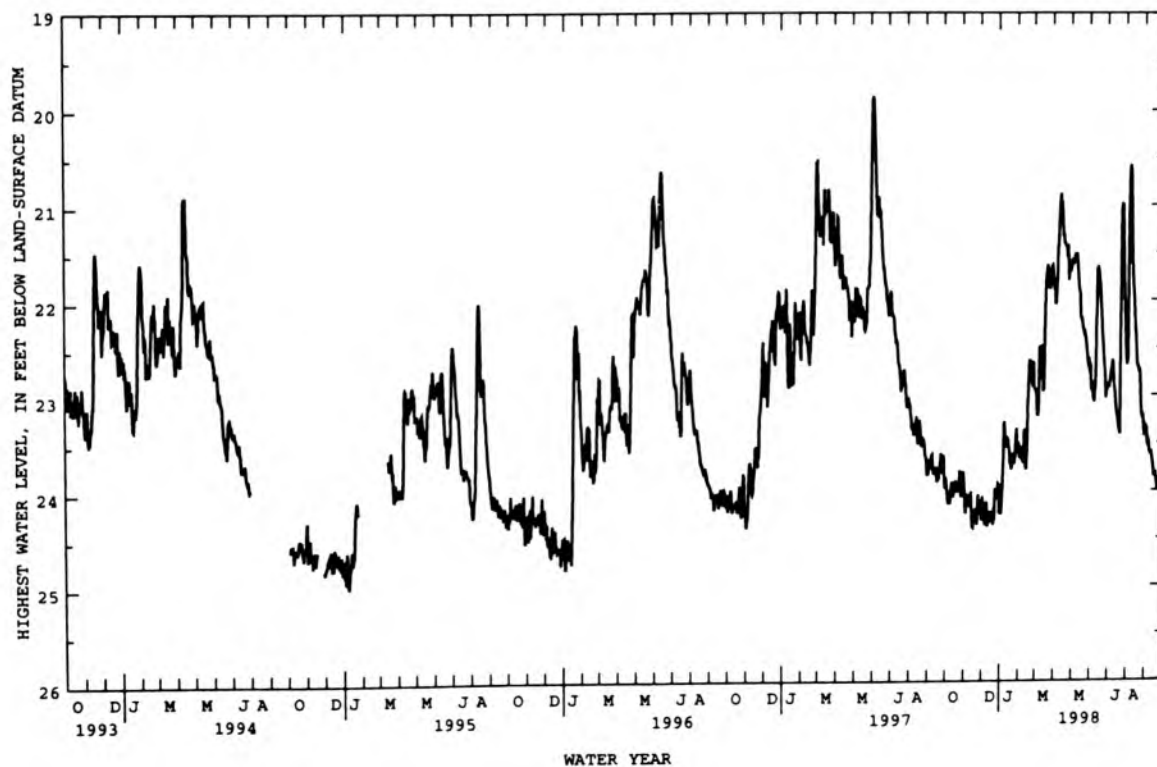
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	24.03	24.24	24.20	24.03	23.55	23.21	22.04	21.58	22.86	22.82	21.78	23.53
10	24.14	24.07	24.12	23.51	23.66	22.83	21.44	21.52	22.92	22.69	20.73	23.61
15	24.07	24.26	24.32	23.45	23.66	22.96	21.12	21.90	21.65	23.15	22.03	23.73
20	23.93	24.24	24.29	23.78	22.63	21.81	21.40	22.24	22.02	23.36	22.68	23.88
25	23.99	24.14	23.99	23.72	22.91	21.85	21.55	22.39	22.67	21.06	22.96	23.86
BOM	23.91	24.10	24.24	23.60	22.92	21.64	21.62	22.61	22.90	22.28	23.43	23.96

WTR YR 1998 HIGH 20.58 AUG 9

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	24.12	24.33	24.34	24.17	23.67	23.30	22.17	21.64	23.02	22.98	22.59	23.63
10	24.22	24.21	24.41	23.61	23.78	22.92	21.55	21.63	23.08	22.92	21.09	23.67
15	24.15	24.38	24.44	23.57	23.80	23.06	21.28	21.99	21.73	23.25	22.27	23.89
20	24.03	24.34	24.46	23.84	22.80	22.08	21.49	22.36	22.20	23.52	22.77	24.04
25	24.13	24.36	24.14	23.82	23.04	21.96	21.65	22.49	22.84	21.34	23.18	23.99
BOM	24.01	24.31	24.50	23.70	22.98	21.70	21.89	22.88	23.00	22.60	23.49	24.05

WTR YR 1998 LOW 24.51 NOV 24



## WHITE COUNTY

404914086403001. Local number, WT 4.

LOCATION.--Lat 40°49'14", long 86°40'30", in NW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.5, T.27 N., R.2 E., White County, Hydrologic Unit 05120106, in the southwest corner of the Pious Chapel property, 4.25 mi north of Idaville.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 6 in., depth 134 ft, cased to 129 ft, screened to 134 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 683.06 ft above sea level. Measuring point: Top of casing, 3.20 ft above land-surface datum.

PERIOD OF RECORD.--July 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 1.65 ft below land-surface datum, Jan. 7, 1993; lowest, 13.66 ft below land-surface datum, Aug. 3, 1991.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

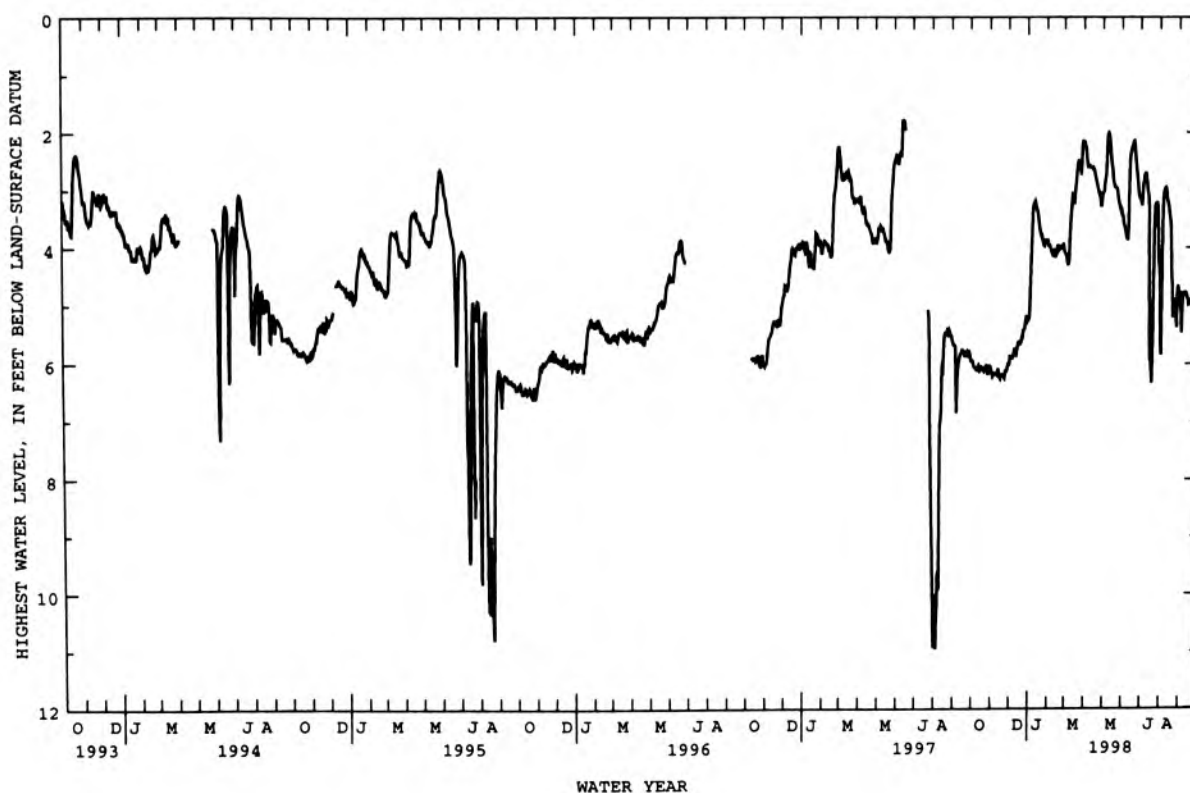
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	6.02	6.22	5.88	4.52	3.96	4.25	2.43	2.79	3.63	2.87	3.63	5.47
10	6.10	6.16	5.73	3.23	4.15	3.51	2.61	2.01	3.87	2.78	2.96	4.77
15	6.13	6.15	5.71	3.32	4.13	3.23	2.66	2.54	2.35	4.69	3.29	4.89
20	6.08	6.18	5.65	3.71	4.02	2.72	2.83	2.95	2.15	5.92	4.51	4.93
25	6.10	6.16	5.42	3.93	4.02	2.62	3.08	3.10	2.77	3.24	5.11	5.03
EOM	6.10	5.98	5.27	3.90	4.05	2.15	3.13	3.35	3.12	4.33	4.70	5.13

WTR YR 1998 HIGH 2.01 MAY 10

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	6.04	6.25	5.91	4.90	4.02	4.30	2.54	2.88	3.71	2.99	4.78	5.64
10	6.14	6.20	5.84	3.29	4.17	3.78	2.63	2.04	3.95	2.89	3.00	4.79
15	6.15	6.22	5.78	3.38	4.17	3.25	2.72	2.61	2.39	5.92	3.39	4.98
20	6.12	6.20	5.70	3.77	4.04	2.87	2.90	2.97	2.23	6.34	4.63	4.97
25	6.16	6.26	5.48	3.98	4.05	2.65	3.14	3.17	2.87	3.29	5.32	5.05
EOM	6.15	6.04	5.36	3.92	4.08	2.19	3.25	3.44	3.15	4.52	4.89	5.16

WTR YR 1998 LOW 6.69 JUL 16



## WHITLEY COUNTY

410337085264201. Local number, WY 3.

LOCATION.--Lat 41°03'37", long 85°26'42", in NW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.18, T.30 N., R.10 E., Whitley County, Hydrologic Unit 05120104, on the county right-of-way of Evergreen Road, and 0.75 mi north of Laud.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 191 ft, cased to 187 ft, screened to 191 ft.

INSTRUMENTATION.--Water-level recorder.

DATUM.--Elevation of land-surface datum is 870 ft above sea level, from topographic map. Measuring point: Top of floor of shelter, 2.68 ft above land-surface datum.

PERIOD OF RECORD.--December 1966 to September 1971, August 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 49.30 ft below land-surface datum, Mar. 27, 1976; lowest, 53.71 ft below land-surface datum, Mar. 10, 1996.

## HIGHEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

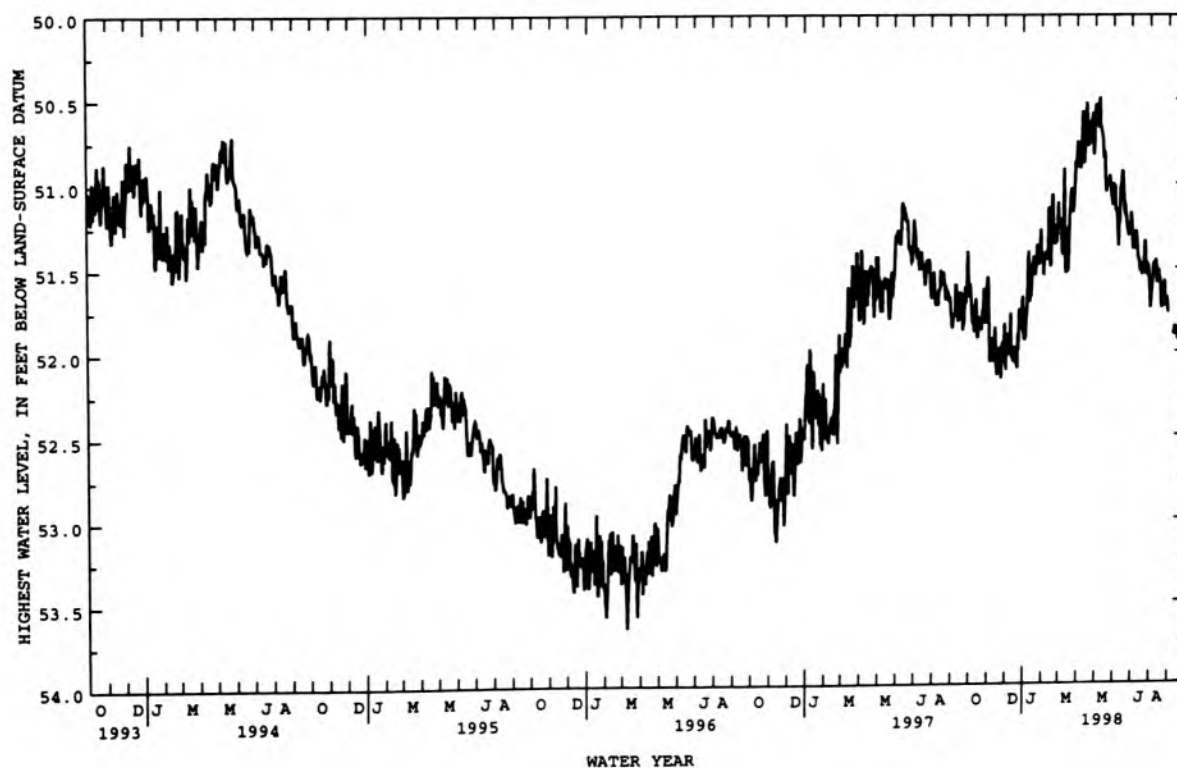
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	51.69	52.06	51.93	51.80	51.41	51.38	50.91	50.63	51.16	51.39	51.55	---
10	51.88	51.94	51.77	51.62	51.43	51.32	50.72	50.67	51.23	51.38	51.45	51.90
15	51.91	51.95	52.05	51.51	51.49	51.52	50.59	50.81	50.93	51.52	51.51	51.87
20	51.82	52.01	52.08	51.54	51.24	51.06	50.77	51.00	51.19	51.49	51.74	51.84
25	51.81	52.05	51.75	51.47	51.35	51.13	50.66	50.98	51.31	51.54	51.58	51.94
BOM	51.70	51.83	51.87	51.47	51.22	50.78	50.59	51.00	51.21	51.64	51.77	51.90

WTR YR 1998 HIGH 50.49 MAY 8

## LOWEST WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	51.77	52.11	51.99	51.91	51.49	51.49	50.98	50.72	51.26	51.47	51.64	---
10	51.99	52.10	52.01	51.79	51.54	51.56	50.92	50.75	51.32	51.52	51.53	51.98
15	52.03	52.12	52.17	51.59	51.56	51.59	50.75	50.91	51.02	51.59	51.59	52.00
20	51.89	52.11	52.18	51.60	51.36	51.16	50.83	51.10	51.27	51.63	51.84	51.93
25	51.93	52.22	51.94	51.58	51.47	51.30	50.77	51.12	51.39	51.62	51.70	51.99
BOM	51.83	52.04	52.10	51.52	51.31	50.88	50.76	51.13	51.28	51.74	51.83	52.03

WTR YR 1998 LOW 52.27 NOV 24





	Page		Page
Access to USGS water data .....	30	Data collection and computation .....	13,25,27
Accuracy of the records .....	20	Data presentation .....	15,23,25,27,29
Acre-foot, definition of .....	31	Data table of daily mean values .....	17
Adams Lake near Wolcottville .....	306	Datum, definition of .....	28
Allen 5 .....	352	Datum of gage, definition of .....	25
Allen 6 .....	353	Decatur 2 .....	365
Allen 8 .....	354	Deep River at Lake George Outlet at Hobart .....	181
Anderson River Basin, gaging-station records in .....	63	Deer Creek near Delphi .....	82
Annual mean, definition of .....	18	Definition of terms .....	31-39
Annual runoff (AC-FT), definition of .....	19	Delaware 4 .....	366
Annual runoff (CFSM), definition of .....	19	Derbyshire Creek at Southport .....	132
Annual runoff (INCHES), definition of .....	19	Des Plaines River Basin, gaging-station records in .....	231-234
Annual 7-day minimum, definition of .....	19,32	Dewart Lake near Leesburg .....	314
Annual total, definition of .....	18	Diamond Lake near Silver Lake .....	314
Aquifer, definition of .....	28,31	near Wawaka .....	315
Arrangement of records .....	22	Discharge, definition of .....	32
Artesian, definition of .....	31	Discharge at miscellaneous sites .....	235
Back Creek at Leesville .....	164	Discontinued surface-water stations .....	xvi-xviii
Bacteria, definition of .....	31	Discontinued surface-water-quality stations .....	xix-xx
Ball Lake near Hamilton .....	306	Dissolved, definition of .....	32
Bartholomew 4 .....	355	Dissolved-solids concentration, definition of .....	33
Bartholomew 8 .....	356	Dissolved trace-element concentrations .....	24
Bartholomew 9 .....	357	Downstream order system .....	12
Bartholomew 10 .....	358	Drainage area, definition of .....	15,23,25,33
Bartholomew 13 .....	359	Drainage basin, definition of .....	33
Bass Lake at Bass Lake .....	307	Eagle Creek at Indianapolis .....	124
Bear Lake near Wolf Lake .....	307	at Zionsville .....	121
Bed load, definition of .....	35	Eagle Creek Reservoir near Indianapolis .....	122
Bed load discharge, definition of .....	36	below Reservoir at Indianapolis .....	123
Bed material, definition of .....	31	East Fork White River at Columbus .....	154
Benton 4 .....	360	at Seymour .....	156
Big Blue River (head of East Fork White River) at Carthage .....	146	at Shoals .....	166
at Shelbyville .....	147	near Bedford .....	163
Big Chapman Lake near Warsaw .....	308	East Fork Whitewater River at Abington .....	52
Big Creek near Wadesville .....	178	at Brookville .....	53
Big Lake near Wolf Lake .....	308	Eel River at Bowling Green .....	143
Big Lick Creek near Hartford City .....	73	at North Manchester .....	78
Big Long Lake near Stroh .....	309	near Logansport .....	80
Big Raccoon Creek at Coxville .....	102	Elkhart River at Goshen .....	195
at Ferndale .....	101	Elkhart 4 .....	367
near Fincastle .....	100	Elkhart 5 .....	368
Big Walnut Creek (head of Eel River) near Reelsville .....	140	Elkhart 6 .....	369
Bixler Lake at Kendallville .....	309	Elkhart 7 .....	370
Blue Lake near Churubusco .....	310	Elkhart 9 .....	371
Blue River Basin, gaging-station records in .....	59-62	Engle Lake near Ligonier .....	315
Blue River at Fredericksburg .....	60	Established legal level, definition of .....	26
at Salem .....	59	Explanation of the records .....	11-29
near White Cloud .....	62	Extremes for period of record, definition of .....	26,28
Boone 17 .....	361	Extremes outside period of record, definition of .....	16
Bower Lake near Pleasant Lake .....	310	Factors for conversion of chemical constituents .....	39
Brush Creek near Nebraska .....	160	Factors for conversion of sediment concentrations .....	40
Buck Creek Basin, gaging-station records in .....	57	Falcon Creek at 30th St. at Indianapolis .....	127
Buck Creek at Acton .....	149	Fall Creek at Millersville .....	118
near Muncie .....	109	near Fortville .....	116
near New Middletown .....	57	Fecal coliform bacteria, definition of .....	31
Burns Ditch at Portage .....	184	Fecal streptococcal bacteria, definition of .....	31
Burns Waterway, gaging station records in .....	181-184	Fish Creek near Artic .....	199
Busseron Creek near Carlisle .....	106	Fish Creek near Artic water-quality data .....	200-203
near Hymers .....	105	Fish Creek at Hamilton .....	198
Cass Lake near Shipshewana .....	311	Fish Lake near Plato .....	316
Cass 3 .....	362	Fish Lake near Scott .....	316
Cedar Creek near Cedarville .....	210	Flatrock River at Columbus .....	153
Cedar Lake at Cedar Lake .....	311	at St. Paul .....	152
Center Lake at Warsaw .....	312	Flint Lake near Valparaiso .....	317
Climate divisions in Indiana .....	4	Forker Creek near Burr Oak .....	192
Classification of Records .....	21	Fountain 3 .....	372
Clay 6 .....	363	Franklin 5 .....	373
Clay 7 .....	364	Fulton 7 .....	374
Clear Lake at Clear Lake .....	312	Gage, definition of .....	16,26
at LaPorte .....	313	Gage height, definition of .....	33
Clifty Creek at Hartsville .....	155	Gaging station, definition of .....	33
Cobb Ditch near Kouts .....	225	Galena River near LaPorte .....	186
Collection and computation of data, surface water .....	13-21	Galien River Basin, gaging-stations records in .....	186
Collection and examination of data, surface-water quality .....	21-24	Geist Reservoir at Indianapolis .....	117
Collection and examination of data, lake levels .....	25-26	Gilbert Lake near Washington Center .....	317
Collection and examination of data, ground-water levels .....	26-28	Glass fiber filter, definition of .....	33
Collection and examination of data, ground-water quality .....	29	Grand Calumet River Basin, gaging-station records in .....	179-180
Color unit, definition of .....	32	Grand Calumet River at Industrial Hwy at Gary .....	179
Contents, definition of .....	32	Grand Calumet River at Hohman Ave. at Hammond .....	234
Control, definition of .....	32	Grant 8 .....	375
Control structure, definition of .....	32	Grant 10 .....	376
Conversion of chemical constituents, factors for .....	39	Graph showing precipitation .....	5
Conversion of sediment concentrations, factors for .....	40	Graph showing mean discharge at index stations .....	7
Cooperation .....	2	Graph showing monthly and yearly mean of ground-water levels at three Indiana wells .....	9
Cooperation, definition of .....	16	Great Miami River Basin, gaging-station records in .....	49-54
Crooked Creek Basin, gaging-station records in .....	64	Ground water, summary of .....	8
Crooked Creek at Indianapolis .....	115	Ground-water, explanation of records .....	26-28
near Santa Claus .....	64	Ground-water levels, monthly and yearly mean at three observation wells .....	9
Crooked Lake at Crooked Lake .....	313	Ground-water levels, station records .....	352-447
Cubic foot per second, definition of .....	32		
Cubic foot per second-day, definition of .....	32		
Cubic feet per second per square mile, definition of .....	32		



	Page		Page
Ground-water quality, explanation of records.....	29	LaPorte 8.....	400
Ground-water wells, number by county.....	351	LaPorte 9.....	401
Guion Creek above 52nd St. at Indianapolis.....	126	LaPorte 10.....	402
		LaPorte 11.....	403
Hackenburg Lake near Wolcottville.....	318	LaPorte 12.....	404
Hall Creek near St. Anthony.....	173	Latitude-longitude system.....	12
Hamilton 5.....	377	Lick Creek at Indianapolis.....	130
Hamilton Lake at Hamilton.....	318	List of discontinued surface-water discharge or stage-only stations.....	xvi-xviii
Harberts Creek near Madison.....	158	List of discontinued surface-water-quality stations.....	xix-xx
Hardness, definition of.....	33	List of ground-water wells.....	xiii-xv
Harrison 8.....	378	List of lake gaging stations.....	xii-xiii
Hart Ditch at Dyer.....	231	List of stream and reservoir gaging stations.....	vii-xi
at Munster.....	232	Little Buck Creek at Southport.....	133
Heaton Lake near Elkhart.....	319	near Indianapolis.....	134
Hendricks 4.....	379	near Southport.....	131
High Lake near Wolf Lake.....	319	Little Calumet River at Gary.....	182
Highest annual mean, definition of.....	18	at Munster.....	233
Highest daily mean, definition of.....	19	at Porter.....	183
Hill Lake near Silver Lake.....	320	Little Eagle Creek at Speedway.....	128
Hogback Lake near Angola.....	320	at 52nd St. at Indianapolis.....	125
Hudson Lake at Hudson Lake.....	321	Little Elkhart River at Middlebury.....	189
Huntington 2.....	380	Little Indian Creek near Galena.....	58
Hydrologic Benchmark Network, definition of.....	10	Little Long Lake at Kendallville.....	328
Hydrologic conditions, summary of.....	3	Little River near Huntington.....	68
Hydrologic unit, definition of.....	33	Location, definition of.....	15,23,25,27
		Locations of streamflow- and water-quality gaging stations in Indiana.....	46,47
Identifying estimated daily discharge.....	20	Locations of streamflow-gaging stations in Marion County.....	48
Illinois River Basin, gaging-station records in.....	219-230	Long Lake at Laketon.....	328
Indiana Harbor Canal at East Chicago.....	180	at Moonlight.....	329
Indian Creek Basin, gaging-station records in.....	58	Lost Lake at Culver.....	329
Indian-Kentuck Creek Basin, gaging-station records in.....	55	Lost River near Leipsic.....	167
Indian-Kentuck Creek near Canaan.....	55	Lowest annual mean, definition of.....	19
Inlet and outlet, definition of.....	26	Lowest daily mean, definition of.....	19
Instantaneous discharge, definition of.....	32	Lukens Lake near Disko.....	330
Instantaneous low flow, definition of.....	19		
Instantaneous peak flow, definition of.....	19	Map showing climate divisions.....	4
Instantaneous peak stage, definition of.....	19	Map showing number of ground-water wells by county.....	351
Internet access.....	30	Map showing locations of streamflow and water-quality gaging stations in Indiana.....	46,47
Instrumentation, definition of.....	28	Map showing locations of streamflow-gaging stations in Marion County.....	48
Introduction.....	1	Map showing water-quality sampling sites in Montgomery County.....	300
Iroquois River at Rensselaer.....	229	Map showing number of lake gages by county.....	305
at Rosebud.....	228	Marion 34.....	405
near Foresman.....	230	Marion 35.....	406
		Marion 36.....	407
Jasper 4.....	381	Marion 37.....	408
Jasper 7.....	382	Marion 38.....	409
Jasper 8.....	383	Marion 38 water-quality data.....	410
Jasper 9.....	384	Martin 5.....	411
Jasper 11.....	385	Maumee River at Fort Wayne.....	215
Jasper 12.....	386	at New Haven.....	216
Jasper 13.....	387	Maumee River at New Haven water-quality data.....	217-218
Jasper 15.....	388	Maumee River Basin, gaging-station records in.....	198-218
Jasper 15 water-quality data.....	389	Mean concentration, definition of.....	36
Jefferson 5.....	390	Mean discharge, definition of.....	32
Jennings 3.....	391	Mean discharge at Indiana index stations.....	7
Jimmerson Lake at Nevada Mills.....	321	Mean ground-water levels at three Indiana wells.....	9
Juday Creek near South Bend.....	197	Measuring point, definition of.....	33
		Membrane filter, definition of.....	33
Kankakee River at Davis.....	220	Micrograms per gram, definition of.....	34
at Dunns Bridge.....	223	Micrograms per liter, definition of.....	34
at Shelby.....	226	Micrometer, definition of.....	34
near Kouts.....	224	Middle Fork Anderson River at Bristow.....	63
near North Liberty.....	219	Mill Creek near Cataract.....	141
Kessinger Ditch near Monroe City.....	145	near Manhattan.....	142
King Lake near Delong.....	322	Milligrams per liter, definition of.....	34
Knapp Lake near Washington Center.....	322	Miscellaneous sites, discharge measurements.....	235
Knox 7.....	392	Mississinewa River at Marion.....	74
Knox 8.....	393	at Peoria.....	75
Kokomo Creek near Kokomo.....	89	near Ridgeville.....	72
Koontz Lake at Koontz Lake.....	323	Montgomery 7.....	412
Kosciusko 9.....	394	Montgomery County, miscellaneous water-quality analysis.....	301
		Montgomery County, sampling sites.....	300
Laboratory measurements.....	23	Morgan 4.....	413
Lagrange 2.....	395	Mud Pine Creek near Oxford.....	95
Lagrange 3.....	396	Muncie Lake near Burr Oak.....	330
Lake Eliza near Beatrice.....	323	Muscatatuck River near Deputy.....	159
Lake Gage at Panama.....	324		
Lake George at Hobart.....	324	National Atmospheric Deposition Program, definition of.....	10
at Jamestown.....	325	National Geodetic Vertical Datum of 1929, definition of.....	34
Lake-level control, definition of.....	26	National Stream-Quality Accounting Network, definition of.....	10
Lake levels, explanation of records.....	25-26	National Trends Network procedures, change in.....	24
Lake levels, station records.....	306-345	National Water-Quality Assessment Program, definition of.....	10
Lake Manitou at Rochester.....	325	Newton 6.....	414
Lake Maxinkuckee at Culver.....	326	Newton 7.....	415
Lake of the Woods near Bremen.....	326	Newton 8.....	416
near Helmer.....	327	Newton 9.....	417
Lake Pleasant near Nevada Mills.....	327	Newton 10.....	418
Lake 12.....	397	Newton 11.....	419
Lake 13.....	398	Newton 14.....	420
Lake 14.....	399	Noble 8.....	421
Lakes by county, number of.....	305		
Lake stations, other maps available.....	350		
Lake stations, records available.....	346		
Land-surface datum, definition of.....	33		

	Page		Page
Noble 9	422	South Fork Wildcat Creek near Lafayette	92
Noble 11	423	Special networks and programs	10
Noble 14	424	Specific conductance, definition of	36
North Branch Elkhart River at Cosperville	191	Spy Run Creek at Fort Wayne	214
North Twin Lake near Howe	331	Stage-discharge relation, definition of	37
Nyona Lake nr Greenoak	331	Starke 2	433
Ogle Lake near Nashville	332	Station identification numbers	12
Ohio River Basin, gaging-station records in	49	Station manuscript	15
On-site measurements and sample collection	22	Station records, ground-water	352-447
Oliver Lake near Valentine	332	Station records, lakes	306-345
Organism count/volume, definition of	34	Station records, surface-water	49-234
Other records available	21	Statistics of monthly mean data	17
Other lake maps available	350	Steuben 6	434
Outlet, definition of	26	Stone Lake near Scott	340
Palatine Lake at Palestine	333	Stony Creek near Noblesville	112
Parameter code, definition of	34	Streamflow, definition of	37
Parke 6	425	Streams tributary to Lake Erie, gaging-station records in	198-216
Partial-record station, definition of	34	Streams tributary to Lake Michigan, gaging-station records in	179-197
Particle size, definition of	34	Sugar Creek at Crawfordsville	98
Particle-size classification, definition of	35	at New Palestine	148
Patoka River at Jasper	172	near Edinburg	151
at Winslow	174	Summary of hydrologic conditions	3
near Cuzco	171	Summary statistics	18
near Hardinsburg	170	Surface area, definition of	25-37
near Princeton	175	Surface-water records, others available	21
Percent exceeds, definition of	20	Surface-water, explanation of records	13-21
Period of record, definition of	16,23,25,28	Surface-water, station records	49-234
Picocurie, definition of	35	Surface-water, summary of	6
Pigeon Creek Basin, gaging-station records in	65	Surface-water-quality, explanation of records	21-24
Pigeon Creek near Angola	187	Surficial bed material, definition of	37
near Fort Branch	65	Suspended, definition of	37
Pigeon River near Scott	188	Suspended, recoverable, definition of	37
Pike Lake at Warsaw	333	Suspended sediment, definition of	36
Pine Creek near Elkhart	190	Suspended-sediment concentration, definition of	36
Pine Lake at LaPorte	334	Suspended-sediment discharge, definition of	36
Pipe Creek at Frankton	110	Suspended-sediment load, definition of	36
near Bunker Hill	77	Suspended, total, definition of	37
Pleasant Run at Arlington Avenue at Indianapolis	120	Sylvan Lake at Rome City	341
Plum Creek near Bainbridge	139	Syracuse Lake at Syracuse	341
Posey 3	426	Techniques of Water-Resources Investigations, Publications	41-44
Posey 5	427	Time-weighted average, definition of	38
Prairie Creek near Lebanon	97	Tippecanoe Lake at Oswego	342
Precipitation, summary of	3	Tippecanoe River at North Webster	83
Pretty Lake near Plymouth	334	at Oswego	84
Publications on Techniques of Water-Resources Investigations	41	near Delphi	87
Pulaski 6	428	near Ora	86
Pulaski 7	429	Tippecanoe 17	435
Randolph 3	430	Tippecanoe 18	436
Records available on lakes	346	Tons per acre-foot, definition of	38
Recoverable, definition of	35	Tons per day, definition of	38
References, selected	45	Total, definition of	38
Remark codes	24	Total discharge, definition of	38
Remarks, definition of	16,23,28	Total organism count, definition of	34
Return period, definition of	35	Total, recoverable, definition of	38
Revised records, definition of	16	Total-sediment discharge, definition of	36
Revisions, definition of	16,23,26	Total-sediment load, definition of	36
Riddles Lake near Lakeville	335	Trail Creek Basin, gaging-station records in	185
Ridinger Lake near Piercetown	335	Trail Creek at Michigan City Harbor	185
Rimmell Branch near Albion	193	Upper Long Lake near Wolf Lake	342
Runoff in inches, definition of	35	Upper Mississippi River Basin, gaging-station records in	219-234
St. Joseph 31	431	USGS water data, access to	30
St. Joseph River at Elkhart	196	Vanderburgh 6	437
near Fort Wayne	211	Vanderburgh 7	438
near Newville	204	Vernon Fork Muscatatuck River at Vernon	162
St. Joseph River near Newville water-quality data	205-209	near Butlerville	161
St. Joseph River Basin, gaging-station records in	187	Versailles Lake near Versailles	343
St. Marys River at Decatur	212	Vigo 7	439
near Fort Wayne	213	Von Fange Ditch at Seymour	157
Salamonie River at Dora	70	Wabash River Basin, gaging-station records in	66-178
near Warren	69	Wabash River at Covington	96
Salt Creek near Harrodsburg	165	at Huntington	67
Sample collection and analysis	29	at Lafayette	94
Sawmill Lake near North Webster	336	at Linn Grove	66
Sea level, definition of	35	at Logansport	81
Sediment, definition of	35	at Montezuma	99
Shelby 2	432	at Mount Carmel, IL	176
Sherburn Lake near Piercetown	336	at New Harmony	177
Shipshehewana Lake near Shipshehewana	337	at Peru	76
Shoe Lake near Oswego	337	at Riverton	104
Shriner Lake at Tri-Lakes	338	at Terre Haute	103
Silver Creek Basin, gaging-station records in	56	at Vincennes	107
Silver Creek near Sellersburg	56	at Wabash	71
Silver Lake at Silver Lake	338	Wabash 3	440
Simonton Lake near Elkhart	339	Wabash 4	441
Singleton Ditch at Schneider	227	Waldron Lake near Cosperville	343
Skinner Lake near Albion	339	Walnut Creek near Warsaw	85
Smalley Lake near Washington Center	340	Warrick 4	442
Sodium-adsorption-ratio, definition of	36	Washington 2	443
Solomon Creek near Syracuse	194	Water-discharge and stage records, collection and computation of	13
Solute, definition of	36	Water-quality analyses at partial-record stations	236-299

	Page		Page
Water-quality data, Jasper 15.....	389	White River at Newberry.....	144
Water-quality data, Marion 38.....	410	at Noblesville.....	111
Water-quality records, collection and examination of.....	21-24	at Petersburg.....	169
Water-resources data, records of.....	49	at Spencer.....	138
Water-Resources Investigations Publications, Techniques of.....	41-44	at Stout Gen. Stn. at Indianapolis.....	129
Water year, definition of.....	38	near Centerton.....	137
Wauhob Lake near Valparaiso.....	344	near Nora.....	113
Wayne 6.....	444	Whitewater River at Brookville.....	54
WDR, definition of.....	38	near Alpine.....	51
Webster Lake at North Webster.....	344	Whitewater River near Economy.....	49
Weesau Creek near Deedsville.....	79	near Hagerstown.....	50
Well characteristics, definition of.....	28	Whitley 3.....	447
Weighted average, definition of.....	39	Wildcat Creek at Kokomo.....	90
Wells 4.....	445	at Owasco.....	91
West Fork Blue River at Salem.....	59	near Jerome.....	88
West Fork White Lick Creek at Danville.....	135	near Lafayette.....	93
Wharton Lake near South Bend.....	345	Winona Lake at Warsaw.....	345
Whiskey Run at Marengo.....	61	WSP, definition of.....	39
White 4.....	446		
White Lick Creek at Mooresville.....	136	Yellow River at Knox.....	222
White River above Petersburg.....	168	at Plymouth.....	221
at Broad Ripple.....	114	Youngs Creek near Edinburgh.....	150
at Indianapolis.....	119		
at Muncie.....	108	7-day 10-year low flow, definition of.....	36

## CONVERSION FACTORS AND VERTICAL DATUM

Multiply	By	To obtain
<i>Length</i>		
inch (in.)	$2.54 \times 10^1$	millimeter
	$2.54 \times 10^{-2}$	meter
foot (ft)	$3.048 \times 10^{-1}$	meter
mile (mi)	$1.609 \times 10^0$	kilometer
<i>Area</i>		
acre	$4.047 \times 10^3$	square meter
	$4.047 \times 10^{-1}$	square hectometer
	$4.047 \times 10^{-3}$	square kilometer
square mile (mi <sup>2</sup> )	$2.590 \times 10^0$	square kilometer
<i>Volume</i>		
gallon (gal)	$3.785 \times 10^0$	liter
	$3.785 \times 10^0$	cubic decimeter
	$3.785 \times 10^{-3}$	cubic meter
million gallons (Mgal)	$3.785 \times 10^3$	cubic meter
	$3.785 \times 10^{-3}$	cubic hectometer
cubic foot (ft <sup>3</sup> )	$2.832 \times 10^1$	cubic decimeter
	$2.832 \times 10^{-2}$	cubic meter
cubic-foot-per-second day [(ft <sup>3</sup> /s) d]	$2.447 \times 10^3$	cubic meter
	$2.447 \times 10^{-3}$	cubic hectometer
acre-foot (acre-ft)	$1.233 \times 10^3$	cubic meter
	$1.233 \times 10^{-3}$	cubic hectometer
	$1.233 \times 10^{-6}$	cubic kilometer
<i>Flow</i>		
cubic foot per second (ft <sup>3</sup> /s)	$2.832 \times 10^1$	liter per second
	$2.832 \times 10^1$	cubic decimeter per second
	$2.832 \times 10^{-2}$	cubic meter per second
gallon per minute (gal/min)	$6.309 \times 10^{-2}$	liter per second
	$6.309 \times 10^{-2}$	cubic decimeter per second
	$6.309 \times 10^{-5}$	cubic meter per second
million gallons per day (Mgal/d)	$4.381 \times 10^1$	cubic decimeter per second
	$4.381 \times 10^{-2}$	cubic meter per second
<i>Mass</i>		
ton (short)	$9.072 \times 10^{-1}$	megagram or metric ton

*Sea level:* In this report "sea level" refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)— a geodetic datum derived from a general adjustment for the first-order level nets of both the United States and Canada, formerly called Sea Level Datum of 1929.

